

# DESIGNING WITH THE PLANET AS STAKEHOLDER

PEARSON LLOYD IS ON A MISSION TO CREATE CLOSED-LOOP FURNITURE AND OBJECTS THAT ENHANCE BOTH HUMAN LIFE AND THE NATURAL WORLD

STORY by Giovanna Dunmall PORTRAIT by Yuki Sumner

“Classic chairs like the Egg, the Swan and the Womb should no longer be held up as symbols of great design,” says Tom Lloyd. It’s a provocative statement, and intentionally so. It’s not the products’ formal expression that the designer is knocking, however, but rather the way they are constructed. “These chairs are basically made of four materials — textiles glued onto foam that surrounds a mould with a steel structure inside — that can never be unbound.” That might not have been an issue in the 1940s and ‘50s when they were first produced, but it is now.

Tom Lloyd and Luke Pearson founded Pearson Lloyd in 1997. Over the past 26 years, the London industrial design, branding and sustainability strategy firm has garnered a reputation for its robust portfolio of elegant products — healthcare, transportation and public realm projects for manufacturers including Walter Knoll, Joseph Joseph, Teknion and Arconas. Making the planet a co-beneficiary in the design process, as both Lloyd and Pearson put it, has been a concern of the practice for a long time. “Eight years ago, we designed a fairly simple stacking chair for a Danish company called Howe where we didn’t put any glass in the polypropylene moulding,” says Pearson. Why? Because if you put glass fibre and other additives into plastic to strengthen it, you can’t chip and remould it.

Around that same time, the duo completed another sustainability-minded project at a much larger scale: wayfinding and outdoor furniture for Bath. “We persuaded



Tom Lloyd, left, and Luke Pearson, right, perched on their intertwining Love Seat for Teknion in their London studio.



“Rather than waiting for our clients to be ready, or for major system changes to happen, we’re trying to develop tools and best practice now so that it’s embedded in the thinking from the start of the process.”

OPPOSITE: For Danish brand Takt, Pearson Lloyd designed the Cross Collection chair, which is sold online and flat-packed to customers, reducing costs and carbon.

ABOVE: CO-LAB, the London firm’s soon-to-launch education series for Senator, comprises beam seating, tables, easels and more — all of which can be disassembled for repair and re-use — that reflect today’s increasingly hybrid modes of learning.

the city to make the street benches out of cast bronze,” recalls Lloyd. “It requires no finishing or recoating with paint every couple of years. The timber slats are just a standard section with a standard radius on the edge so that any carpenter can repair them; you don’t need specialist machinery or knowledge to update or restore the product.” The project has been so successful that the practice is currently expanding the collection of benches for the city and creating pieces at different scales.

If these earlier projects shaped the firm’s commitment to a do-no-harm ethos, the past few years galvanized it to make their intentions as clear as possible — both to themselves and to their collaborators. “Macro changes are having big impacts on the way we design and procure manufacturing. Alongside the climate emergency, and since COVID and Ukraine, globalization as a system and idea has proved to be very fragile. The dream of global supply chains is now

shown to be flawed, so a lot of production is returning to Europe. This has an impact on how we design, as labour costs are higher here. Energy prices are also impacting the choices we make,” explains Lloyd. “We’ve stepped back a little bit and really challenged ourselves on our position in a sustainability future as designers of mass-produced pieces. Now, the responsibilities and the opportunities have gone hand in hand.”

In 2021, Lloyd became the master of the faculty of Royal Designers for Industry and used the opportunity to present a redefinition of the designer’s role in society. “We now understand the impact of unfettered consumption and need to re-evaluate

**BELOW AND OPPOSITE:**  
The Revo series for Profim uses recycled expanded polypropylene as its main structure in lieu of plywood (which cannot be recycled). The collection also eschews glue and staples, meaning all of its components can be separated and returned to the manufacturing cycle.

our contribution to the physical world we inhabit," he wrote at the time. "The building blocks of our relationship with the built environment and the vocabulary of design are being redefined: / From novelty to longevity / From linear to circular / From extractive to regenerative / From exclusive to inclusive / From owned to shared / From designed to co-designed / From human-centred to nature-centred."

Just a year earlier, the studio had moved into a new workspace in East London. And even that project became a purpose-driven endeavour: After ideating for a year on a dazzling new build for a site with several dilapidated workshops and factory buildings that were due to be demolished, the practice had a change of heart and decided to keep as many of the existing buildings and materials and original features as possible. "The retrofit has 60 per cent less embodied carbon than if we had made a new building," says Lloyd. "It was also about 20 per cent less expensive."

Today, one of the first messages you encounter on the firm's website is a manifesto of sorts, entitled "circular thinking." The questions the mission statement raises exemplify the firm's aspirations. "How can we make changes in our process, in our conversations with clients, and in the execution of our products that will serve the needs of the planet alongside those of the user, so that we may become allies to the planet?" Pearson expands on this idea: "Rather than waiting for our clients to be ready, or for major system changes to happen, we're trying to develop tools and best practice now so that it's embedded in the thinking from the start of the process." It's not straightforward, he admits; sustainability is a complex area and though there are established real estate-based standards such as LEED and BREEAM, "at the industrial design and manufacturing level, the metrics and understanding of carbon, offsetting and circularity do not seem well-established," Lloyd says. "We need to focus our attention on consumption and disposal." The firm is currently working on its "circularity design brief," which it will attach to proposals at the outset of a collaboration. They will do this knowing that any approach to circularity is laden with contradictions and surprises.



One such surprise might be a product the firm designed for Polish company Profim: a modular workplace seating family called Revo. Instead of using plywood for the internal structure, Pearson Lloyd proposed using recycled expanded polypropylene (REPP), having worked with the material 10 years earlier on a conceptual project during which they realized that it offered advantages in terms of both reductions in carbon produced and labour required. Fortunately, the company is very forward-thinking — it recently made the decision, for example, to eliminate glue and staples in all of its products to enhance disassembly and circularity. Not only did the use of REPP reduce the weight of each element by around 40 per cent, explains Lloyd, but the material can also be endlessly remoulded, whereas plywood is single-use only. "It has so much glue and resin inside," says Pearson, "that it can't be separated down into its constituent raw materials." Wood may be an important element in a lot of sustainable design, but if you're talking about circularity, plywood doesn't make the grade.

Later this spring, with U.K. furniture manufacturer Senator, Pearson Lloyd will launch its first collection aimed at the higher education sector. It's an area that is curiously underserved in terms of customized furniture, says Lloyd. "All the universities seem to specify contract furniture that is just not fit for purpose. It's not strong enough, not sustainable and can't be repaired, but it also isn't offering value for money." Another reason why this type of furniture isn't fit for purpose, the duo explains, is down to changing curricula and learning styles.

The practice spent a year researching the sector and speaking to university estates departments, faculty, students, architects who specify furniture for universities, maintenance teams and so on. During their deep dive into the sector, they learned about a phenomenon called flipped learning, which started in educational institutions in North America and is slowly becoming more prevalent in the U.K. "In

the past, you would come into school to receive knowledge and then go away to do your homework and assignments," says Pearson. "Now, knowledge is accrued off site during online lectures and you come in to university to collaborate with people and work together to solve a particular problem." The trend was accelerated, of course, by COVID and the rise of hybrid learning. Gone (or going) are the more conventionally designed lecture halls, classrooms and libraries. In their place are more agile and informal spaces: classrooms that are also cafés and co-working spaces, libraries that function as hubs, and so-called "third spaces," usually circulation and atria where vital post-teaching debriefs, brainstorming and spontaneous group activities can happen.

The new furniture range, called CO-LAB, is inspired by islands and bridges. It includes beam seating, benching, easels, tables and chairs that allow for different postures. In terms of "planetary needs," the collection has been designed so that its various elements and materials are both durable and easy to disassemble for repair and re-use. It's a deceptively clear and simple solution to a range of complex needs. And it's also relevant to the workplace; post-COVID, the office is morphing into a place of learning and continuous professional development in order to attract and retain staff. This means it requires a similar level of versatility.

Pearson Lloyd still works in other, less sustainable areas, such as the aviation sector (its new business class seating for Lufthansa launches this spring). Even here, they hope to make change. "We either just walk away from it as an industry or we try and engage," says Pearson. "And there's an awful lot of innovation going on within the supply chain, whether that's fuel, weight, materiality or customization," adds Lloyd. Some 26 years on, the practice is still questioning, learning, innovating and risk-taking across the board. [AZ.pearsonlloyd.com](http://AZ.pearsonlloyd.com)

# ALL THE

A whole host of designers, manufacturers and entrepreneurs are making meaningful shifts toward circularity, from sourcing sustainable materials and minimizing waste in manufacturing to designing with a product's end-of-life in mind. Thinking holistically, they are also challenging entrenched systems and long-held notions of what possesses real value: foregrounding the health and livelihoods of artisans, stakeholders and end users throughout the process of creating greener products and more inclusive and resilient places and communities.

By Elizabeth Pagliacolo, Andrew Braithwaite, Stefan Novakovic and Sydney Shilling

# RIGHT MOVES

## CRAFT AND COMMERCE

How Obakki has created a not-for-profit model to connect artisan communities to bigger markets.

It might be based in Vancouver, but Obakki has been sending its founder, Treana Peake, on adventures around the world, physically and virtually, for more than 15 years now. In Uganda, she's met with a group of women who make paper with elephant dung; in Mexico, there are potters creating one-of-a-kind bowls; in Italy, the glass-blowers of Milan brand R+D Lab have Zoomed her in to discuss the gorgeous borosilicate vessels they're crafting for the brand.

What makes Obakki's business model work is a two-pronged approach. Half of the business is focused on design wholesale. For instance, the brand recently partnered with Mexican designer Andrés Gutiérrez to bring his new white oak furniture series, the Thirteen Heavens collection, to the world. Based on Aztec folklore, the pieces include cabinets and tables with spirited details. Sales of Gutiérrez's and other designers' collections help support the other half of Obakki, which comprises purpose-driven collaborations with artisans who reap 100 per cent of the profit from sales of their wares.

It all started as an offshoot of the luxury fashion brand that predates the homewares line: Peake had been making runway collections and feeling the relentless pressure to meet ever-shrinking deadlines due to ever-proliferating fashion seasons. Yet, at the same time, she had been doing work in the international development area — digging wells across Africa, contributing to agricultural projects and bolstering livelihood initiatives — and encountering on her journeys craftspeople who she felt could use her connections to the West. That's when, in 2007, she launched the Obakki Foundation.

"Now that you have a well, how do we get the economy going?" is how Peake characterizes the convergence of her two not-for-profit paths. "If I think I can reach an international market, Obakki buys the product from artisans and reinvests into community." She purchases small-batch homewares and textiles at the local price, she explains, so that they remain locally affordable. "Otherwise, they'd rely only on the international market and the local market will suffer." It's a new way of collaborating with artisans where they reap the full benefit of their painstaking work — and get proper billing as creative talents. \_EP



ABOVE RIGHT: Weavers in Kasese, Uganda, create graphic bowls from palm and banana leaves; Obakki sells them and helps artisans pay for their kids' education.

RIGHT: Mexican designer Andrés Gutiérrez's furniture series for Obakki abounds with Aztec symbolism.

# THE INFLUENCER

Perennially one of the world's most sought-after designers, Patricia Urquiola continuously challenges the brands she works with to adopt more sustainable practices.

**You could be forgiven**, in this era of collective time dilation, for missing the fact that Studio Urquiola turned 20 years old in 2021. Or that Cassina, where Patricia Urquiola has been the creative director since 2015, is approaching its centenary in 2027. The stalwart Spanish industrial designer knows better than anyone that change is inevitable: "The time of resiliency is here, of adaptation, of more capacity for listening and dialoguing." We spoke during Urquiola's recent visit to San Francisco about sustainability and her approach to adaptive re-use:

**On the Sengu Bold floor sofa (2022) for Cassina, which features replaceable upholstery and cushioning padded by blown recycled PET fibre:**

"The interior is made from a regenerative material, much of it diverted from the oceans. Normally, inside of these pieces, we believe the quality must come from polyurethane foam or feathers. This fresh attitude and the research into these materials is asserting a new beauty. We're enlarging the possibilities for many things to be done in a new way, with a new sensibility."

**On the Hilo collection (2022) for Japanese eyewear brand Jins, with frames made from a castor oil-based biomaterial:**

"Jins is doing very interesting work with very interesting designers. But they were not on the page of using any new material. I told them, 'If I'm going to do something like this, I'm going to push things.' I have to show them a passion. I said, 'I have time, perhaps you have time too, but you're going to have to find this material you can produce in Japan.' And they found their own way to the right material."

**On the Soriana armchair, originally designed by Afra and Tobia Scarpa in 1969 and relaunched by Cassina in 2021:**

"When we put this back in production, I decided we needed to replace the mould inside with little bags of biofoam microspheres and padding made of regenerative PET filling. We kept the form the same, but the way it's produced has changed. And it's more comfortable now. It doesn't mean we can't be very proud to use a piece of marble, properly signed and documented, in a table that's going to be a jewel in your house. That's the time to use that kind of material."

**On the Lounge BIO (2021) for Andreu World, an expansion of Urquiola's Nuez collection that employs a biodegradable thermopolymer produced by micro-organisms:**

"We started the collection moving to recycled plastic, and when they wanted to add a lounge chair in the same family, I said, Let's go to a bioplastic. To transition to bioplastic in those dimensions was complex. But they called me back and said they found a way. It requires a kind of passion and persistence. We have to... 'fight' is a strong word, but they knew I really wanted it. And now it's working. Now it's good." \_AB ●



RIGHT: Patricia Urquiola stands next to her Sengu Bold sofa for Cassina, which is internally constructed with recycled PET fibre.

## INDUSTRY BENCHMARKS

Ripples across the designer furniture industry suggest a sea change. A number of furniture manufacturers, including Andreu World, Fritz Hansen and Vestre, have introduced repair and re-use programs, while such designer-makers as Part & Whole of Victoria, BC, are creating collections with refurbishment in mind from the start. Human health is also part of the circularity equation: To eliminate harmful chemicals in its textiles, Maharam announced that, as of January 2023, all of its products are PFAS-free. Across the board, however, carbon-neutral status has been the ultimate goal, and brands including Interface and Keilhauer have made major strides in this realm. The global platforms for international design are also rethinking their scope: New at the Stockholm fair, The Nude Edition is a section with stands made of recycled materials; more significantly, the Salone del Mobile has embarked on the process toward ISO 20121 certification, seeking to reduce its footprint and counsel its exhibitors on how to do the same. \_EP ●

**RIGHT:** Dutch architecture firm MVRDV designed a series of fixtures for Delta Light that re-uses the brand's discarded metal profiles to striking effect.



**FAR RIGHT:** Keilhauer has made major strides in carbon-neutral manufacturing. Its new Spinni bar stool, designed by Thom Fougere for Division Twelve, serves as a prime example.



# THE MATERIALIST

Bonnie Hvillum mines natural waste streams to create paradigm-shifting materials.



ABOVE: The Danish designer sees her work as part of a larger trend toward systems-based thinking in design.

**When most people think of interaction design**, they might conjure in their mind's eye an augmented reality app, a retail touchscreen, even an entire metaverse. When Bonnie Hvillum studied interaction design at Aarhus University, she was instead drawn to the most analog of experiences: the way in which we respond to tactile materials and how their textures and smells evoke powerful feelings and memories within us. This is especially true of biomaterials, new varieties of which she has been inventing in her Natural Material Studio since she founded it in 2019.

If Hvillum sees her work as part of a larger paradigm shift — "a move towards co-living and co-creating within systems and systemic wholes" — it's because, alongside her keen interest in how people relate to them, she's just as interested in the afterlife of her products. "It's not just about replacing materials, but rethinking the linear mind-shift of growth and consumerism."

One of her creations is the leather-like Pinel, which salvages the pine needles of misshapen — and thus chopped-down and tossed — Christmas trees, one of Denmark's largest exports. Here, her twin interests in sensorial experience and ecological benefits converge. "The smells of the essential oils in pine needles are very calm sensors of being in the woods. It has a good effect on people," she explains. "And that very unconscious first encounter is crucial — it's what's going to make the material succeed or not."

Since it takes years for the third-party Danish Technological Institute to complete standardized testing on her materials for practical uses like upholstery or panelling, Hvillum's three-person enterprise uses that in-between time to create installations and embark on collaborations with designers on small-scale projects. Last year, Calvin Klein approached Natural Material Studio to envision a reusable, recyclable and natural holiday gift pouch for its Copenhagen store. A couple years back, the studio partnered with Toronto fashion house Moskal on a gritty leather alternative for a runway collection inspired by coal mines.

Even more impressive is the studio's consultancy work, where it teams up with a brand to better exploit a waste stream in its production process. For Dinesen, which makes wood floor planks, that meant capturing the sawdust that is usually incinerated and turning it into an integral part of the product. The studio's mission statement says it best: "By approaching waste as a resource, new value chains are created." \_EP ●



LEFT: One of Hvillum's projects, Shellware, involved the creation of a new type of clay based on leftover Nordic seashells.

# WE NEED TO CHANGE HOW WE PERCEIVE VALUE

For Shorefast — the foundation behind the Fogo Island Inn, which turns 10 this year — and its Economic Nutrition label, community resilience always comes first.

Back in 2005, well before she would bring the Fogo Island Inn to her hometown in Newfoundland, Zita Cobb was staying in nearby Sag Harbor. There was no Internet, but her *New York Times* subscription went a long way, as it was passed along to neighbour after neighbour. Soon, the Sunday edition reached Amos, who was captivated by the inside front page advertisement for designer purses. “Can you explain to me why I can’t get 49 cents for a pound of wild codfish and people are paying \$5,000 for a handbag? Do we have to turn fish into a positional good?” Cobb recalls Amos asking. “That’s exactly what we have to do,” Cobb answered.

What Amos the fisherman was essentially asking was, Why is a fish just something you eat while a purse is a status symbol worth so much more? And while it’s a reaction to a condition that shouldn’t exist — an upside-down global economy where the price of goods is disconnected from the people and places whence they come — Amos’s question was translated into the ethos of the Shorefast foundation and every endeavour under its umbrella, from the establishment of the Fogo Island Inn and the revival of the local fishery to the rebirth of its quilting heritage. Redefining value as intrinsic to relationships — among people in a community and between the community and the place that sustains it — is the basis of yet another Shorefast invention: the Economic Nutrition label. It serves as both a practical device (letting people who stay at the inn or purchase any of its goods know what they’re paying for) and as a microcosm of how the foundation operates. When she and Cobb came up with the idea, Shorefast’s CFO, Diane Hodgins, began with a similarly incisive question: “How do we make it obvious at the moment of purchase where the money goes?”

“Most people are seduced by the idea that economic development is something that the government or big business does,” says Cobb. “But how do we build an economy that’s ours? A functioning community economy makes life in a place possible.” The inn, she says, has done that. “The fishery is the most important thing. Together, the fishing co-op and the inn are the island’s two main employers. The co-op drives our understanding of our relationship with the sea; the inn drives our understanding of how we belong to the world.”

When it opened in 2013, its stilt-supported form by Todd Saunders elevating the salt-box vernacular of the tiny Newfoundland community, the story that

Economic Nutrition <sup>CM</sup>	
Fogo Island Inn Community Enterprise	
Nightly Stay	
What does the money pay for?	
Labour	49%
Food, Room Supplies	12%
Commissions, Fees	5%
Operations, Admin	18%
Sales, Marketing	4%
Surplus	12%
Where does the money go?	
Local 65%	National 19%
Provincial 13%	Global 3%
* Values are calculated retrospectively and updated when changes are material. Figures shown are for illustrative purposes, reflecting pre-COVID operations.	
Economic Nutrition <sup>CM</sup> is a certification trademark of Shorefast, used under license by Fogo Island Inn.	

emerged around the Fogo Island Inn felt primarily like one about heroic architecture: a Bilbao-effect narrative about a community putting its face on the map of culture-based tourism. But as it celebrates its 10th anniversary, its overarching meaning is about circular design: the intentional consideration of a whole ecosystem when it comes to the regeneration of a place. As is now legend, Cobb returned to the island after making a tidy fortune in fibre optics. She wanted to invest in the place her family was forced to leave after industrialized fishing had virtually depleted the oceans, leaving community-based fishers like her father unable to feed their families or make a living. Then there was the moratorium on fishing altogether. “How would you feel if you woke up one morning and everything that you know is no longer relevant? Suddenly all that knowledge that’s lived and felt and embodied is no good for anything.”

That embodied knowledge is where Cobb began,

and it’s where, a decade later, the inn is a resounding success for locals. “People from around the world come to us. They stay at the inn, but they are hosted by the island. It’s cast us into a bunch of relationships. For Fogo Islanders, our understanding of ourselves has shifted. Our belief in the future...I don’t want to say it was restored — that would imply it was lost, which it wasn’t — but it was certainly injured.”

The rebuilding of a prosperous future happens on many levels. Take the area’s quilting heritage. Along with local-made furniture, the inn employed islanders to produce hundreds of quilts for its 29 rooms. While these heirloom pieces were still being passed from generation to generation, Mickey Mouse patterns and polyester blends had made their way into the fabric swatches. “They had fallen out of relationship with the quilts from the past. That relationship was broken by the arrival of consumer culture. So we said, ‘Let’s talk to the older women.’” Vintage quilts were hauled out of cupboards, their patterns vivid and random. “And we thought, ‘Holy Jesus, what have we lost?’” says Cobb. So began this renewed relationship with the quilters of the past: The inn revived six to eight heritage patterns and created a new market for them in the wider world. Cobb says that there are now at least a dozen quilt-makers with access to retail outlets on the island, and dozens more producing them.

If quilting and fishing are assets specific to Fogo Island (the fishery now ships, cross-country, 10-pound orders of wild snow crab and 14-pound “punt boxes” of cod, shrimp and crab for \$450 and \$300, respectively — real-value prices that Amos might approve of), Shorefast’s ongoing community economies project helps other places recognize their own assets and resources. The foundation has partnered with four places to strengthen their economies: South Vancouver Island in BC and the Ontario locales of Hamilton, London and Prince Edward County. It’s an initiative that Cobb envisions growing into a broader program for the country. “We’re creating a network that contains good and best practices around building strong community economies. Because until we address the hollowing out of the community pillar, nothing can be achieved.” If Fogo Island’s circular approach becomes the benchmark, other small communities around the world will learn big lessons about the small details that make them unique, continuing a legacy a decade in the making. \_EP ●

# INDIGENOUS APPROACHES TO PLACE

“Our job as architects is really about placekeeping,” Wanda Dalla Costa explains. “You really need to sit in and align yourself with that place to do this work.” Two projects, one by her firm and the other by Brook McIlroy, are bright beacons.



**LEGACY ROOM, TORONTO** In a gleaming office tower high above the streets of downtown Toronto, there is a space whose memory spans thousands of years. Opening out to the city with a carved ceiling and a spirit of welcome, CIBC Square’s Legacy Room channels Indigenous heritage into Canada’s economic core.

Led by the Indigenous Design Studio — a speciality practice within Brook McIlroy — the design was developed in partnership with CIBC and the Gord Downie & Charnie Wenjack Fund, as well as Indigenous stakeholders. Anchored by its sculptural cladding in oak and wood veneer and bookended by stately limestone walls, the interior evokes the heritage of Anishinaabek teaching lodges and the longhouses of Haudenosaunee and Huron-Wendat communities.

To foster a more communal, participatory counterpoint to corporate boardrooms, the long oval table at the heart of the space draws inspiration from the practice of Indigenous sharing circles. That sense of communality and comfort translates seamlessly across cultures. For visitors and employees, the aim was to create “a safe place, and a place where people feel embraced,” says Brook McIlroy principal and Indigenous Design Studio leader Ryan Gorrie.

For Gorrie, who is a member of Bingwi Neyaashi Anishinaabek (Sand Point First Nation on Lake Nipigon), the project was also an opportunity to encourage Indigenous artisans, fabricators, suppliers and distributors to participate in every step of the process. The eye-catching drum stools, for instance, feature fabric by Indigo Arrows, a Winnipeg studio led by Anishinaabe interior designer Destiny Seymour; the rich limestone that bookends the room was sourced from Manitoulin Island’s Odawa Stone quarry, which is managed by Sheshegwaning First Nation.

High above downtown Toronto, these stone walls forge a connection to the cultural and geological histories of Turtle Island. “Stone has the longest memory,” Gorrie explains, “and many cultures refer to stones as grandmothers and grandfathers, because they are the oldest beings we know.” \_SN ●

Even the HVAC system of the Legacy Room at CIBC Square in Toronto (above) was engineered with intention: It allows for smudging ceremonies to take place indoors without activating alarms.

Tawaw and ATRR’s Wampum Learning Lodge (below, right) represents Indigenous values, where respect for the land and its people are paramount.

**WAMPUM LEARNING LODGE, LONDON, ONTARIO** As the saying goes, the greenest building is the one that is already built. The newly inaugurated Wampum Learning Lodge at Western University in London, Ontario, is a prime example. Toronto and London firm Architects Tillmann Ruth Robinson (ATTR) and Phoenix-based Tawaw Architecture Collective have transformed the Faculty of Education’s former library into an Indigenous learning centre. The retrofitted building now houses classrooms, gathering spaces, offices and a media centre that support and celebrate Indigenous ways of knowing. Selected by a council of elders, its name, Wampum, means “white string of shell beads,” the kind that have long been used to record history, create treaties and tell stories.

Following engagement with administrators, students, parents and faculty (which explored everything from student needs to aesthetic preferences and ceremonial protocols), the architects set out to reimagine the space. The existing structure’s circular form resonated with Tawaw for its symbolism in Indigenous culture. “It represents the circle of life, continuity, lack of hierarchy, egalitarianism,” explains Wanda Dalla Costa, Tawaw’s principal and Canada’s first female Indigenous architect. Connection to nature was also a driver; the architects punched windows into the previously dark 1970s building to honour the solstice and equinox. A newly terraced landscape boasts a medicine garden on the lower level (species were selected in consultation with local knowledge-keepers), complete with a thoughtfully designed arbour and sacred firepit.

Inside, Tawaw sought to create a home away from home for Indigenous students — a place that felt like “auntie’s cabin.” The students wanted a hub to socialize, cook and eat together on campus. A storytelling circle and kitchen now serve as key gathering spaces. In the basement, a cavernous meditation room with a water feature and soft furnishings offers respite from student life (given historic under-representation in universities, campus buildings can be uncomfortable for first-generation Indigenous students).

In each design element, Tawaw sought to uplift ancestral worldviews. “In the Indigenous way of looking at the world, we look back in order to look forward. That multi-generational perspective is critical,” explains Dalla Costa. Though circular design is often regarded as a singularly environmental concern, is there anything more circular than that? \_SS ●



PHOTOS BY RILEY SHELLENG (TOP LEFT); STEVEN ANDERSON (BOTTOM RIGHT)

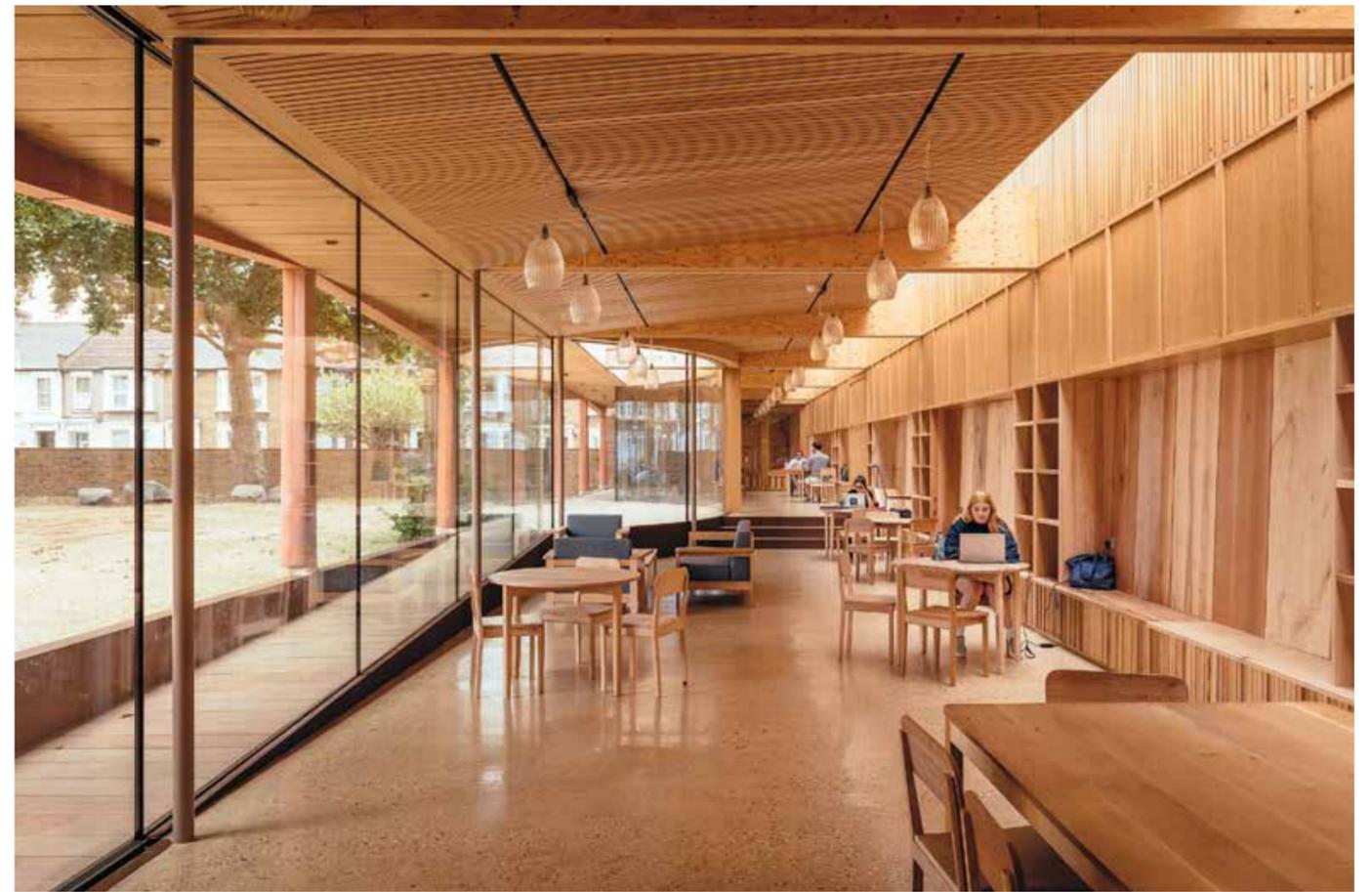
The past two decades have seen phenomenal advances in building science: heat pumps that stabilize interior temperatures, photovoltaic panels that draw energy from the sky, automatic blinds set to computer algorithms that either maximize or minimize solar gain, depending on the season and time of day. If you kit out a building with enough state-of-the-art technology, you can — in theory — run it without consuming any gas or drawing any electricity from the grid.

# The New Era of Circular Architecture

STORY BY SIMON LEWSEN

Yet construction is still a dirty business. Most of the environmental costs of a given building come not from the energy it consumes but rather the materials it comprises. Glass, steel, concrete, wood — all are carbon-intensive. A new building has already done at least half the environmental damage it will ever do before anybody inside it flicks on a light switch or adjusts a heating dial. Its mere existence imposes an ecological cost.

To address this reality, we must build with the cleanest possible products — the ones that already clutter our landscape. This is the fundamental principle of circular design: a re-used material is always better than a recently manufactured one, and a retrofit or renovation — itself a form of recycling — is always preferable to a new build. What follows are four profiles of architectural projects from around the world, each with an original take on circularity and sustainability.



## CASE STUDY 1

# Lea Bridge Library

ABOVE: Studio Weave's addition to a London reading room is crafted from the wood of discarded municipal trees.

On an average day in London, England, municipal authorities fell 27 trees for reasons of safety or street maintenance, to make room for civic infrastructure or because the trees are diseased. Roughly five years ago, Je Ahn, founding director of local firm Studio Weave, found himself wondering where all the timber goes. So, over dinner, he asked a friend — an independent furniture-maker — who then asked a tree surgeon who works for the municipality. “The trees,” he learned, “end up in a yard, where they’re chipped and turned into mulch.” Could the wood be repurposed for architecture instead? The Parks and Open Spaces Department in the London borough of Waltham Forest told Ahn that, if he wanted to use its timber in his publicly funded library project, he could have it for free as long as he could organize the logistics. This discovery became a key idea in exploring how to make his Lea Bridge Library, an addition to an Edwardian-era reading room in the neighbourhood, as sustainable as possible.

PHOTO BY JIM STEPHENSON

The addition itself is a rectangular, colonnaded extrusion — 250 square metres in size — that runs lengthwise along the back end of the original brick, stone and cast stone library. It has a café on one side and an event space on the other, all of it illuminated by floor-to-ceiling windows. Critically, Ahn’s design uses more than a dozen tree species, most salvaged from the city’s arboreal scrapyards. The beams and joists are pine or spruce glulam. The slats and panels are oak. The millwork is a many-hued amalgam of London plane, cherry, sycamore and lime.

The addition is similarly gracious toward individual trees that adorn the property. The foundations have lintel-capped holes, allowing large roots to pass through. Ahn left the final segment of the colonnade unbuilt to give space to a centuries-old London plane tree. At the centre of the structure — the line where the café becomes the meeting area — the exterior wall dips inward, forming a semicircular cut-out, so that the foundation might skirt the roots of two historic lime trees. The floors also jog upward at this point, so that an underground bunker, built during the Blitz and now encased in roots, can be left undisturbed.

This deference to trees — their location, their foundations, the colour and texture of their woody flesh — may seem eccentric, but Ahn insists that, among architects, it should be common sense. “The trees have been at this site, and in this city, for longer than I have, and they give people immense joy,” he says. “I could never design a building that’s better than a tree.” [studioweave.com](http://studioweave.com)

## CASE STUDY 2

# Meaford Library

In 2016, the municipality of Meaford, Ontario, near Georgian Bay, brought on Brock James, a partner at the Toronto firm LGA Architectural Partners, to design a new public library. James studied several possible sites — the existing library, a local strip mall — but was most excited about one in particular: a boxy, stand-alone grocery store that had gone out of business. Why did he care so much about an unimaginative building that he describes as “plain” and “old”?

The answer has something to do with its floor size, 930 square metres, and also its location: at a prominent intersection, near the gateway to downtown. Another selling point was the building’s schematics. There’s nothing special about a concrete box, but it makes up in versatility what it lacks in novelty. “You can turn a box into nearly anything,” says James.

He outfitted the building with punched windows small enough that they don’t undermine lateral stability. To delineate interior space, he relied on millwork and ceiling details. You approach the new library at the north or south entrance, both of which are adorned with cedar slats, offsetting them from the concrete-plank facade. Inside, there’s a checkout desk beneath a dropped ceiling. To the west, the ceiling rakes upward, inviting you into a well-furnished room where community activities happen in view of Sykes Street, the town’s main drag. The stacks are in a 4.8-metre-high space to the east, which gets lower at the north and south ends, demarcating gathering areas for children and teens. The old grocery-store parking lot is now a green space that steps down to the Bighead River, where visitors fish for steelhead trout with rods on loan at the library desk. James concedes that the renovated building has “no overly precious details or architectural gymnastics,” yet, as a community hub, it does exactly what it’s meant to do.

You could make the same point about the structure it’s adapted from. Perhaps the best thing about the original grocery store is that, as George Mallory once said of Mount Everest, “it’s there.” If you want to build in high-density town centres, James argues — and you want to do so responsibly — you have to make use of pre-existing structures, and you can’t be too choosy. “Much of the carbon was already spent when the grocery store was first constructed,” he says. The most sustainable building is the one you don’t demolish. [lga-ap.com](http://lga-ap.com)

PHOTO BY BOB GOUNDU (NEW LIBRARY)



RIGHT AND ABOVE: A new library takes up residence in an old grocery store in Meaford, Ontario, thanks to LGA Architectural Partners’ deft refurbishment and interior reconstruction of the boxy building.



## CASE STUDY 3

# Building K.118

When one hears the phrase “salvaged materials,” one often thinks of superficial accents: vintage floorboards, wood panels and fluted sconces, which can give a steak house or cocktail bar a pleasingly weathered look. But Building K.118 — a suite of think tanks and artists’ studios in the Swiss city of Winterthur, designed by the Zurich firm Baubüro In Situ — does something else entirely. Reclaimed elements constitute not just the finishes but also the structural core of the project. Architects Marc Angst, Pascal Hentschel and Benjamin Poignon gathered an extensive collection of used materials and thought deeply about each one: What does it ask of them? What opportunities does it afford?

K.118 is a four-storey block sitting atop a century-old brick warehouse, which is currently occupied by the Zurich University of Applied Sciences. Virtually everything in the addition came from elsewhere. The structural steel once supported an old distribution depot in Basel. The exterior cladding — sheet metal, tinted red to match the brick walls of the warehouse below — once adorned a print factory in Winterthur. And the exterior staircase, which serves as the main access point to the addition, was sourced from a Zurich office complex. The locations of the staircase landings dictated the heights of all three K.118 floors.

The addition’s interiors are similarly striking. Wardrobes and filing cabinets double as protective railings. Walls are lined with roof tiles from the surrounding cityscape. And the window casements — sourced from the same print factory that provided the exterior cladding — are insulated with the cheapest, most sustainable products going: straw bales and locally excavated clay.

Ultimately, Building K.118 is what people in the art world call a mixed-media work. Its conceptual forbears are not architectural projects so much as the sculptural assemblages by the likes of Marcel Duchamp, Joseph Cornell and Robert Rauschenberg — artists who breathed new life into ordinary materials, and who understood that the masterpieces of the future can be fashioned from the detritus of the past. [insitu.ch](http://insitu.ch)

ABOVE: To house an assortment of think tanks and artists’ studios in Zurich, Baubüro In Situ crafted an addition atop a brick warehouse using materials sourced locally.

LEFT: The upcycled sheet metal cladding was inherited from a nearby print factory, which also supplied the building’s window casements.



## CASE STUDY 4

# Quay Quarter Tower



ABOVE: By grafting a new building onto an existing one, 3XN/GXN ensured that Quay Quarter Tower would minimize embodied carbon in its construction.

documents can only tell you so much. “You don’t know what’s behind the cladding,” says Fred Holt, a partner at 3XN/GXN, “and when you have a building that’s occupied, you can’t wait until the tenants are gone to find out if the project has re-use potential.”

So the team hedged its bets. As the partial demolition got underway, workers continuously took concrete samples to test the strength of the floor plates, and they outfitted the old structure with sensors to figure out how much the building was moving and whether the core was liable to collapse as the facade receded. When necessary, they modified their plans in real time, strengthening core walls and core link beams, as well as adjusting beam sizes and depths in the tower. This tactical approach paid off, resulting not only in a new building but also in a whole new kind of architecture — a rebuild-retrofit typology — that can be exported to other contexts. “We’re looking at another skyscraper in Sydney to see if it’s suitable for a similar restoration,” says Holt excitedly. “We’ve got a candidate in London too.” 3xn.com

The AMP Centre, a skyscraper built in 1976 in Sydney, Australia, posed a problem for urbanists: It was too good to tear down but not good enough to keep. Lasse Lind, a partner at the Copenhagen firm 3XN/GXN, describes it as “a machine for people to sit in.” The tower, he explains, “was able to accommodate a lot of desks but didn’t have the open public or social spaces you’d expect from an office complex today.” Yet it’s not as if the building had nothing going for it. The central core was sturdy. The ceilings were high. There were no load-bearing partition walls, so the interior space was flexible. “From an architectural standpoint, it was not up to date,” says Lind, “but it had good bones.”

So what to do with it? Implode it and send a perfectly serviceable tower to the scrapyards? Or renovate it, in which case you’re beholden to its many flaws? Lind and his peers decided on a third course of action. Beginning in 2019, workers under 3XN’s direction (BVN was executive architect) commenced two simultaneous projects at the site. They removed the cladding on the AMP Centre tower, stripping all facades down to the core. At the same time, they built a second tower right beside the deconstructed north face: a series of five stacked boxes, like a vertical village, each unit the size of a medium-rise building and each with its own multi-floor atrium.

This new portion of the tower was built with temporary propping to allow it to stand on its own until it settled enough to be linked to the existing building. The last step was to connect the two structures, past and present, into an integrated whole, albeit with twice the capacity. The new skyscraper, called the Quay Quarter Tower, effectively cannibalizes the AMP Centre tower. To look at it, you wouldn’t know the old tower had ever been there — except that, in a meaningful sense, it’s still there. “We grafted a new building onto the existing one,” says Lind.

Because the Quay Quarter Tower was the first of its kind, the team faced daunting engineering challenges — and a fair bit of uncertainty. They had access to architectural proofs from the AMP Centre tower, but concrete buildings settle over time, and 50-year-old