REDICK Daniel

From: Joel Geier [redacted]
Sent: Thursday, October 6, 2022 8:54 AM
To: Sam Imperati; Benton County Talks Trash
Subject: Fwd: How to Recycle a 14-Story Office Tower - The New York Times

Sam,

Today I received this article from a member of the public who lives in Corvallis and has been following the work group process.

The article discusses one example of the type of innovative, forward-looking policies that Benton County could consider as part of a Sustainable Materials Management Plan, consistent with the County's expressed Goals and Core values including:
- Vibrant, Livable Communities
- High Quality Environment and Access
- Diverse Economy that Fits
- Community Resilience
- Health in All Actions

Please share this with the work group as input for **Charge C. Scope the necessary tasks to start a Long-Term Sustainable Materials Management Plan process**

Thanks,
Joel

Subject: How to Recycle a 14-Story Office Tower - The New York Times

https://www.nytimes.com/2022/10/06/headway/office-tower-carbon-emissions-amsterdam.html

How to Recycle a 14-Story Office Tower

Buildings are responsible for nearly 40 percent of the world's carbon emissions. In Amsterdam, they are trying to create a blueprint to do something about it An emerging group of architects believe in designing not just for the life of a building, but for its afterlife, too.Max Pinckers for The New York Times

By Jessica Camille Aguirre

When the Dutch National Bank moved into its Amsterdam headquarters in 1968, the new buildings were epic and stylish. A sprawling Modernist landmark that took up an entire city block off the banks of the Amstel Canal, it was distinguished by a towering high-rise of polished ochre tile. Surrounding the tower were low-slung offices raised on columns, giving the impression that the whole complex was hovering, monumental and airy, just above the ground. In 1991, when more office space was needed, a second tower was built. This one, cylindrical and swathed in bluish glass, earned the nickname “the cigarette lighter” for the slanted roof that looked as if it could be flicked on.

People either loved or hated working in the cigarette lighter, with its blue-tinted offices, carpeted in gray, that splayed out from a curving central hallway like slices of pie. Eventually, though, opinions didn’t matter. A few decades into the new millennium, the entire complex began to show signs of wear. Tiles fell off the facade. Pipes began to leak. And, perhaps most troubling in a country that prized itself on environmental innovation, its overextended heating systems burned too much fuel. In 2020, an architecture firm completed a design plan that would update the original structures and transform the inner courtyard into a public garden. The plan did not include the cigarette lighter. Twenty years after it had been tacked on, it had exhausted its function. It would have to go.

Typically, the fate of a building that has outlasted its usefulness is demolition, leaving behind a huge pile of waste.

The Netherlands and other European countries have tried to reduce that waste with regulations. Buildings there are often smashed to pieces and repurposed for asphalt. When the cigarette lighter’s time came, a Dutch environmental engineer named Michel Baars thought he could do better than turn it into material for a road. Mr. Baars considers himself an urban miner, someone who extracts raw materials from discarded infrastructure and finds a market for them. The cigarette lighter, he thought, could live on as itself, rebuilt.

Lean and no-nonsense, Mr. Baars belongs to an emerging group of architects, engineers, contractors and designers who are determined to find a new way to build. This group shares a philosophy rooted in a set of ideas sometimes called the circular or regenerative economy, the cradle-to-cradle approach, or the doughnut economy. There are two main tenets to their thinking: First, on a planet with limited resources and a rapidly warming climate, it’s crazy to throw stuff away; second, products should be designed with reuse in mind. The first idea is a recognizable part of our everyday lives: Recycling has retrieved value from household trash for a long time. More recently, the approach has started to gain a toehold in industries like fashion, with secondhand retailers and clothing rental services, and in food production, with compostable packaging. The second takes more forethought and would require companies to rethink their businesses in the most basic ways.

Translating either concept to the infrastructure of human settlements requires considering reuse in much longer time scales.

Edifices are supposed to embody progress. Each generation — in stone, steel, glass or concrete — makes its mark on the future. And the need for houses and other buildings is obvious as the world's population continues to grow. For the next four decades, built space on the order of the square footage of another New York City will be added to the planet every month. But buildings use a prodigious amount of raw materials and are responsible for nearly 40 percent of the world's climate emissions, half of which is generated by their construction. The production of cement is alone responsible for eight percent of global emissions.

In recent years, concern about waste and the climate has led cities like Portland, Ore., and Milwaukee to pass ordinances requiring certain houses to be deconstructed rather than demolished. Private companies in Japan have spearheaded new ways of taking high-rises down from the inside, floor by floor. China promised to repurpose 60 percent of construction waste in its recent five-year plan. But perhaps no country has committed itself as deeply to circular policies as the Netherlands. In 2016, the national government announced that it would have a waste-free economy by 2050. At the same time, the country held the rotating Council of the European Union presidency, and it made circularity one of the main concepts driving the industrial sector across the bloc. Amsterdam's city government has set its own goals, announcing plans to start building a fifth of new housing with wood or bio-based material by 2025 and halve the use of raw materials by 2030. Cities like Brussels, Copenhagen and Barcelona, Spain, have followed suit.Even in the Netherlands, though, creating a truly circular economy is challenging. Nearly half of all waste in the country comes from construction and demolition, according to national statistics, and a stunning 97 percent of that waste was classified as "recovered" in 2018. But most of the recovered waste is downcycled — that is, crushed into roads or incinerated to produce energy. A 2020 report by the European Environment Agency pointed out that only 3 to 4 percent of material in new Dutch construction was reused in its original form, which means that trees are still being cut for lumber and limestone still mined for cement.

"We're very good at recycling, but we don't consider that the best" circular solution, Salome Galjaard, a sustainability strategist for the municipality of Amsterdam, told me. The ideal process for an old building would be to disassemble it and reuse its parts, much as Mr. Baars was doing with the cigarette lighter. Mr. Baars, who runs a circular demolition company called New Horizon, sent a crew of around 15 people to take down the office partitions. They packed off interior glass and plasterboard to companies that could make use of the materials. Then, starting at the top of the 86,000-square-foot tower, they began removing the glass facade. A crane lifted pieces to a quay, where they were loaded onto

barges in the Amstel Canal for the seven-mile trip upriver to Mr. Baars's warehouse. Once the crew hit the building's concrete and steel skeleton, it used high-pressure water and diamond saws to slice through columns, floors and a thick inner pillar that ran through the spine of the building. The pillar gave way like soft cheese.

Mr. Baars's effort to carefully deconstruct and rebuild a high-rise remains a rare example of fully circular thinking materializing in the real world. He was aided by serendipity. The cigarette lighter was raised in such a tight space that it had to be prefabricated and brought to the site in sections. "That's why we could turn the process around and get the elements out the same way," Mr. Baars told me. "It's like Legos."

That accident of history is now a goal of a number of architects in Amsterdam, a hive of planning and activity around circularity. Last fall, I traveled to the city to see how wonky ideas get translated into practice — and how they can get hung up. In recent years, I have started to think about trash as a personal failure — every plastic bag squashed into the wastebasket or random coil of unused cable seems like a heedless contribution to a ruined future. On my trip to Amsterdam, I was especially conscious of this; I rued the umbrella I bought one rainy morning and lost before I went to bed. But after spending a few days in the company of the activists, architects and designers trying to create a new built environment, I began to consider that lost umbrellas and other detritus, instead of being purely a function of my own limited virtue, might also be a consequence of unimaginative manufacture. Circularity emphasizes the composition of things, rather than their use, suggesting that anything made thoughtfully enough can endure infinitely or proffer its molecules for breakdown and reorganization. Waste need not exist, and creating a new kind of material bounty, its proponents suggest, is a matter of design.

A World Where Everything Is on Loan

The roots of circular economy thinking go back to at least the 1960s, when researchers at M.I.T. developed a computer model called World3. The effort was intended to simulate the long-term consequences of things like population growth, industrialization and the use of natural resources. In their 1972 book, "The Limits to Growth," the researchers warned that unless humankind changed the way it used and consumed material goods on a global scale, civilization would likely collapse before 2070. That, along with the first images of Earth from space and Rachel Carson's iconic 1962 book, "Silent Spring," inspired an environmental ethos based on understanding the planet as one big system.

Around the time that "The Limits to Growth" came out, a young undergraduate at Dartmouth named William McDonough began pursuing architecture. Later, while designing a day care center, he observed the way children put everything in their mouths and began

to consider the materials they were exposed to. He connected with a German chemist named Michael Braungart. The two collaborated for years, and in 2002, they published their ideas in a book called “Cradle to Cradle: Remaking the Way We Make Things,” in which they argued that biological materials, which can be composted, should be kept separate from minerals and metals, which could be reused. The book became a touchstone for a certain kind of forward-thinking architect.

In part, they were responding to the increasingly complex nature of materials. In the early 20th century, the oil and gas industry began to use the chemical byproducts of their refining processes to develop things like plastic polymers. Insulation, varnishes, sealants, piping, pigments, fireproofing material — all contain such compounds; nearly 20 percent of plastic goes to the building industry. Jessica Varner, a historian at the University of Southern California’s Society of Fellows in the Humanities, has studied how petrochemicals have infiltrated construction in the United States. She found that the industry lobbied to shape local building codes and encourage architects and engineers to incorporate new composite materials into their designs. “How do you separate when everything is embedded with the fibers, coatings and pigments from essentially oil and gas derivatives?” Ms. Varner said.

The nature of modern building materials is one of the trickiest parts of implementing circular ideas. In many cases, refurbishing things is so expensive, demanding time and expertise, that it is cheaper to simply buy new. “Part of the problem is that so many of the materials that get used in conventional construction in the U.S. in particular are laminated, they’re multiple assemblies,” Paul Lewis, a principal at LTL Architects in New York, said. “Insulation is a foil-backed polyurethane foam, right? So those become their own inhibitors to take it apart and reuse productively in another life.” So far, much of material reuse in construction is limited to boutique, aesthetically driven choices like selling weathered wood from old barns to use as interior cladding in hip coffee shops. And there are the additional expenses of finding somewhere to store stuff while it awaits its next life and upgrading old components to meet new demands and requirements.

As a result, in many quarters, the emphasis has shifted to designing structures whose components can be disassembled and developing new, bio-based materials that can eventually be composted. “We should design man-made objects and products in such a way that we’re not destroying the resources, but that we’re basically borrowing them for a certain amount of time,” Dirk Hebel, a professor of sustainable construction at the Karlsruhe Institute of Technology in Germany, said. “And that we can take them out in their pure form and put them back into the system.”

Circularity advocates also say it's not just about materials, but about how the overall economy is structured. A British economist and Oxford University professor named Kate Raworth, who took aim at traditional economic growth models in her 2017 book, "Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist," has argued that it is impossible to achieve structural change without also rearranging basic assumptions of how production and consumption are incentivized. She is now working with Amsterdam officials on the city's circular plan.

These views might have remained at the fringes of environmentalism if not for the efforts of a British yachtswoman named Ellen MacArthur. In the late aughts, Ms. MacArthur, who broke the record for a solo circumnavigation of the globe by sailboat, started a foundation to promote the lessons she had derived on her trip, including the need to plan for resource reuse. In 2012, she presented a study,conducted with McKinsey & Company, at the World Economic Forum at Davos, Switzerland, arguing that circular design could save E.U. manufacturers $630 billion per year. Directed to company executives, the report concluded that reusing materials could be profitably incorporated into a capitalistic economic system. Companies, the report suggested, were missing out on a big opportunity to develop new kinds of products. But the world won't be saved by bamboo straws alone, and the foundation has also argued for creating new business models that lead to better design. What if, for example, manufacturers could make more money by leasing, rather than selling, their products?

Thomas Rau, an architect in Amsterdam, is a leading proponent of this idea. In 2015, he appeared in a Dutch documentary called "The End of Ownership," in which he didn't argue for abolishing ownership so much as for shifting it from individuals to manufacturers. If manufacturers retain ownership of their products, he argued, they will want to make products that last longer and need fewer repairs. Just as significant, they will want to design stuff that can be easily taken apart and used again. Theoretically, this could help consumers, too. No one wants to own a computer or television or washing machine, Mr. Rau claimed; they just want the services those products offer: computing ability, visual entertainment, textile cleaning. If you see your car or your iPhone as a mark of your taste or part of your identity, this might sound like a terrible idea. But think about the speed with which subscription music-streaming services replaced ownership of CDs. In a sharing economy era, it's an idea that has an intuitive, minimalist appeal; after all, I didn't want the umbrella I bought in Amsterdam. I just wanted to stay dry in the rain.

The Architect of Ownership

One windblown morning in Amsterdam, I met Mr. Rau at his office and we drove in his BMW to visit one of the buildings he designed. Mr. Rau grew up in Germany, but he

moved to Amsterdam as a young architect and has spent the last three decades trying to change how materials are used in construction and building structures that can be dismantled and reused. This focus on disassembly has become a leitmotif of Mr. Rau's work, including in the building we were about to visit, which housed a subsidiary of the Dutch national energy grid operator Alliander.

When we arrived at the Alliander building, which he renovated in 2015, we parked under a bank of solar panels and walked toward what had been a cluster of low-slung buildings. Mr. Rau had kept them intact but altered their appearance. He took discarded industrial cable spools and used their weathered wood to reclad the exteriors. He transformed former parking lots, wedged between the buildings, into one large, light-filled atrium where meeting spaces were interspersed with trees and coffee stands. In creating an enormous roof for the atrium, Mr. Rau wanted something that could be disassembled. He thought about who might have the skills to design structures that were lightweight and easy to disassemble, but sturdy enough to provide a yawning overhang. He approached a roller-coaster designer, who was skeptical at first but came up with an undulating steel frame that Mr. Rau fitted with stretched white cotton and large skylights. On the day we visited, the atrium was bathed in sunlight.

Mr. Rau is fond of creating word scrambles — he calls products intended for disposal "organized problems," for instance. The tendency can come across as twee or overwrought, but his purpose is to confound so that he can rearrange basic assumptions. In addition to running his architecture office, he created a consulting company with his wife, Sabine Oberhuber, to encourage corporate circular efforts, as well as a foundation called Madaster devoted to keeping track of the materials in buildings. He also gives a lot of speeches. Tall and white-haired, though youthfully jocular, he is considered by many young architects to be part of a vanguard that helped establish circular ideas in Amsterdam.

One of Mr. Rau's first publicly lauded projects was the renovation of a terminal of the Schiphol airport in Amsterdam. His creation had a sleek, utilitarian aesthetic, but as with many of his projects, what was unique about it couldn't be seen with the naked eye. At the start of the job, he learned about the Centennial Bulb — a light bulb that has been burning in Livermore, Calif., for more than 120 years — and it prompted him to consider how manufacturing might change if there were no incentive for obsolescence. He thought about all the bulbs needed for the airport terminal and how the airport would toss them in the trash when they wore out.

He approached Philips, the technology and lighting conglomerate, with an unusual proposal. Rather than supply physical light bulbs, Philips would provide light as a service.

Over 15 years, the airport would pay Philips a regular fee for a certain amount of light. Philips would own the equipment, including the light bulbs, and obtain and pay for the electricity. In Mr. Rau's view, this would make it in Philips's interest to manufacture something that was of high quality (so it wouldn't have to be replaced), that would use as little energy as possible (so the electricity bill was lower), and whose constituent elements could be reused once the product reached its end of life. The lighting contract ended up saving 50 percent in energy consumption, and Philips, which now markets similar service contracts under the name Signify, says its circular bulbs last 75 percent longer than traditional ones do.

The experiment led Mr. Rau to push against the consumer ownership model in other industries. In 2012, his and Ms. Oberhuber's consulting company began working with a Dutch affordable housing provider called Eigen Haard. They negotiated a seven-year project in which Bosch, the appliance maker, would provide washing and cooling as a service to residents. The company installed 63 appliances, including washing machines, dryers and refrigerators, in individual apartments; Eigen Haard managed the monthly billing and directed maintenance requests to Bosch. Although the pilot was a mixed bag — a few machines went missing because people thought they owned them — Bosch went on to start BlueMovement, which offers service contracts to households in Europe at a monthly fee for nearly any of its appliances. Miele, another appliance manufacturer, followed suit with its own subscription service. The service is still new, but "it's interesting enough to put significant effort in to find out how big it can be," Stefan Verhoeven, the chief executive of Miele Netherlands, said.

"This generation of 20-, 25-year-olds, they see things totally different," he said. "They need clean garments, so access to a washing machine, and they don't care who owns it. That doesn't go for the entire market, but it's a significantly bigger part of the market than it used to be."

But those experiments with service contracts have not led to a redesign of products in the way Mr. Rau had hoped. For a company like Miele, which relies on a reputation for quality, anything that revisits its engineering is subject to intense scrutiny. Dealing with global supply chains and ensuring timely product delivery make incorporating recycled elements complicated.

Mr. Rau, however, remains confident that the case for reuse will grow stronger. When I was in Amsterdam, Ms. Oberhuber and Mr. Rau met with Miele engineers at Road2Work, an electronics waste recycling plant, to brainstorm how to reuse components of discarded machines. At first, the engineers wanted to know what kinds of materials could be harvested from old appliances — basic ingredients that comprise the machines' shells and

adhesives, like polypropylene — but they soon realized that it would make more sense to focus on assembled parts that are expensive to manufacture and easier to isolate, like circuit boards. They didn't come to any conclusions, but as they talked with the recycling center managers, the engineers responsible for the creation of an object began to talk about what happened at its end.

Scrappy Idealists With Salvaged Countertops

Before traveling to Amsterdam, I read about a community there called Schoonschip, created by a group of 144 scrappy idealists who built 46 floating houses on an urban canal. Unlike a corporate construction project, Schoonschip was an explicitly grass-roots effort to create a utopian vision of circular design. I wrote to a generic email address inquiring about a visit, and someone named Pepijn Duijvestein answered a few days later inviting me over to his house.

When I arrived, the morning's rain was ebbing and a frothy sunlight was brightening the sky. From the sidewalk, the houses seemed almost like an exhibit, the pieces arranged on the canal at a standoffish distance from each other. A gangway speckled with potted plants and overhung with festive lights meandered through the houses, which rose up against the dark waters underneath.

Schoonschip was started in 2008 by a woman named Marjan de Blok, who approached the municipality to get permission to build a neighborhood on one of the canals of Amsterdam's former industrial northern zone. Officials looking for creative ways to expand affordable housing options welcomed Ms. de Blok's overtures. She began recruiting like-minded people, and after around 10 families had signed on to the project, the group wrote up a manifesto. They spent years figuring out the building and permit process, as well as finding contractors willing to work with their unusual requests and banks open to financing unconventional ownership arrangements. The future residents formed working groups and came up with lists of recommended materials, although each household ultimately had the freedom to choose what it would use. Most built houses with timber frames and used materials like burlap or straw for insulation. "It's a totally community-driven project, and that's the success of the project," said Sascha Glasl, one of the architects who helped design the neighborhood and who now lives there.

It wasn't until 2020 that the neighborhood was finally finished. Today, hundreds of solar panels produce energy that is stored in large batteries in every house and managed locally by a private smart grid. Heat pumps use thermal energy from the canal water to regulate temperatures. Green roofs collect rainwater and help keep buildings cool. The

people who live in the community take part in a car-sharing program, and group chats are alive with offers: People post their dinner leftovers, and the leftovers are picked up. I rang the doorbell at the address Mr. Duijvestein gave me, and he ushered me into an understated living room whose length was fitted with a floor-to-ceiling glass door that opened onto the dockyards. We climbed a set of stairs and sat at a table in his kitchen, where we drank espresso from tiny ceramic cups. Mr. Duijvestein, who is now 37, was 26 when he got involved in the community and didn't have the same financial resources as some others, but his house was nonetheless stylish. He chose clay for many of the walls. Some of the beams came from wood harvested from tree branches that had fallen in Amsterdam parks during heavy storms.

There had been many complications. Finding the right stuff used rather than buying new is an annoyingly bespoke process, Mr. Duijvestein told me. He had to redesign his kitchen after the secondhand countertops he ordered arrived with different dimensions than had been advertised. But countertop design was an easy problem compared with resistance from lenders and contractors. When he chose clay for his interior walls and ceiling, contractors said they could not guarantee their work with such a strange material. Now, the clay roof is leaking, and he has no one to call. "If they experiment, they don't want to give a guarantee; they don't want to take a risk," Mr. Duijvestein said. "For the whole transition to a circular economy, it would be great if the banks or finance people would say, 'OK, let's take the risk together.' Now, I'm the one who has to pay for fixing the roof because I'm a crazy, sustainable experiment bunny."

Taking a cue from Mr. Rau, some members of the Schoonschip community tried to implement a service model for their heat pumps. ("I don't want a heat pump!" Mr. Duijvestein said. "I want heat. I want comfort.") But the banks couldn't quite get on board with extending a mortgage for a house in which some of the essential components didn't belong to the owner. Even in the Netherlands, whose government has committed to supporting a circular economy, figuring out the regulatory process for new forms of material salvage and ownership is a challenge. Banks can be reluctant to extend financing for projects that rely on service contracts, with their unusual liabilities and time frames. Contractors shy from guaranteeing the performance of materials they are unfamiliar with. Potential customers can balk at the additional cost of certain parts of going circular, or at the prospect of not achieving ownership.

Mr. Duijvestein estimates that he invested between 375,000 and 450,000 euros in his floating house, having done much of the work himself, but he doesn't care much for ownership; he sees himself as a steward of his home's constituent materials for a certain moment in time, recognizing the fact that they will outlast him. On the terrace outside his kitchen, a riot of flowers and plants leaned against the bamboo balustrade. They had been

cultivated by a woman with a rooftop garden; when she was near death, she sought someone who would care for them. Mr. Duijvestein brought them to his house. When the woman died, he arranged a bouquet for her coffin. He calls them his secondhand flowers, even though "if you look at it in a philosophical way, all flowers are secondhand," he said. "It's one big system."

The Cigarette Lighter's Rebirth

Mr. Baars' company is on a quay off the North Sea Canal, the city's main waterway, and it has the distinctly industrial rumble of a working factory. Tractors amble in and out of warehouses. Clouds of dust billow off piles of debris. A big part of Mr. Baars's business is recycling old concrete, and conveyor belts bearing demolition waste stream through the looming halls to towering, clunking machines. Inside, giant metal plates rub the chunks of concrete together to produce a mixture that can be separated into active cement dust, sand or gravel. This process avoids most of the carbon emissions associated with new cement production. He powers his machines with solar energy and reuses the other elements of old concrete — the sand and gravel — and markets his product as a climate neutral; he is working on a 300-million-euro project with the city of Amsterdam to supply concrete for repairing canal walls.

When Mr. Baars started his company in 2015, he wasn't really sure what he was doing. He started soliciting demolition projects with the guarantee that his work would not cost more than competitors' and with a vague promise to do something circular with the stuff. Slowly, policies aimed at curbing carbon emissions began to work in his favor. When regulations drove up the costs for gas-fired brick making, a prominent facade and roofing manufacturer reached out to Mr. Baars to obtain ceramics reclaimed from old buildings. When the Dutch government announced that it would phase out coal-fired power plants, Mr. Baars realized that gypsum manufacturers, which use the sulfur byproduct of coal production, would run into sourcing problems. Gypsum is found in most plaster, so he started collecting salvaged plaster material from demolition sites. It took three years to get approval from the Dutch government to sell what it considered waste, he told me. But now he is selling the gypsum. "I don't think it's waste," he said. "It's just material."

Recasting waste as material as a matter of policy, though, is complicated. In February, the city released some data about its circularity plan. The tone was self-critical. The city found it was using more raw materials than had previously been assumed. It also pointed out that the city could be doing a much better job reusing materials from demolition projects in new construction. "There is potential to be harnessed by using this waste to meet the city's considerable need for construction material," the report stated. City officials have run into the bottlenecks that circularity advocates face

everywhere — how to develop and pay for the specialized labor needed to deconstruct and refurbish old materials; where to store the materials as they are being updated for their next iteration; how to gather enough data about existing buildings and their demolition schedules to be a useful resource for designers. “There is a lot of piloting going on,” Ms. Galjaard, the city’s sustainability strategist, told me. “What we are now facing is a big step in the transition from piloting and researching and testing to large-scale implementation, and that comes with a lot of new challenges that you don’t really experience when you’re piloting.”

In the circular dream, nothing gets lost or discarded, waste gathers in specialized workshops to be remade and designed in the future, building materials fade into the environments they were derived from and the concept of ownership gives way to best use. The obstacles to that dream — standardized building components made with composite materials, rigid supply chains, laws and contracts — are a long way from vanishing. In reality, every project that can be called circular, in its broadest sense, is still mostly an act of passion — the Dutch designer Hester van Dijk’s pavilion strapped together out of unchanged components; the Ghanaian-British architect David Adjaye’s forays into compressed earth buildings; the American architect V. Mitch McEwen’s experiments with felt building envelopes and hemp-based concrete. “The folks who are trying to design for 50 years from now are really trying to think toward, How can we build in a way that can respond to the crises that are already here?” Ms. McEwen told me, pointing to how materials like felt are more resilient to environmental disasters like flooding than traditional building elements are. “And how can we build in a way that won’t produce more crises?”

Mr. Baars’s contribution to that effort currently rests in a hangar. He led me along the quay as tractors trundled by, walking from the concrete reprocessing factory to an enormous, adjacent warehouse. Inside were the remnants of the cigarette lighter, shorn concrete panels neatly stacked to form aisles. “We’re creating a new building from it,” Mr. Baars told me. Together with a project development company called REBORN, Mr. Baars is providing the material for an elder-care center for a large health care company. Later, he showed me the mock-ups: the building’s original cylinder would be reconstructed as three shorter, uneven buildings with greenery and walkways linking the spaces between them. The pie slices, with their soaring windows, would become apartments for people in nursing care. Mr. Baars expects to begin reconstructing the pieces this autumn. In its new iteration, the cigarette lighter wouldn’t tower over the city, but rather create a homey cluster of spaces. This is what Mr. Baars sees when he looks out into the city: Within the decaying buildings and aging infrastructure are the raw materials for another life.

Jessica Camille Aguirre is a freelance writer whose work focuses on climate and the environment.