

With Every Word

grace farms

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Special Edition

Opinion

Every building tells a story of humanity –either of dignity or exploitation

by Sharon Prince, CEO and Founder, Grace Farms

Every line a designer or architect draws sets into motion a string of actions that have environmental, social, and ethical repercussions. These words, from the essay *Good design must go beyond good intentions* by Jing Liu and Florian Idenburg, Founding Partners of the architecture and design firm SO-IL, still resonate with me today.

The essay was among more than 30 contributions from industry leaders that were included in our groundbreaking 2020 report that marked the launch of Design for Freedom, the global movement to remove forced and child labor from the built environment.

Since then, Design for Freedom has inspired a set of actions that have put its principles on the Architecture, Engineering, and Construction (AEC) industry’s agenda. As outlined in our *Design for Freedom International Guidance & Toolkit*, the three principles include: finding and addressing embedded forced labor, pursuing ethical decarbonization, and prioritizing circularity. These principles are a call to action. Without undertaking appropriate human rights due diligence in our global supply chains, there will continue to be a lack of knowledge, ongoing abuses, a lack of accountability, and no reduction in the number of people in situations of forced labor.

These principles are embedded in our initiatives including more than a dozen Pilot Projects across three continents, which demonstrate that forced and child labor risks can be assessed and reduced from our building materials supply chain. It’s also a demonstration that architecture can be a driver of humanitarian outcomes.

On any given day, nearly 28 million people around the world are held in forced labor conditions, many of them extracting the materials that go into our homes, schools, office buildings, and landscapes. The profits generated from this egregious human rights abuse are jarring. The International Labour Organization’s (ILO) valuation of illegal profits from modern slavery includes \$63 billion in goods made with forced labor. To be clear, this human rights violation subsidizes the bottom lines of residential, commercial, government, and cultural projects around the world.

On the heels of the green building movement and in an industry with thin margins, a question is often asked, “Is this going to cost more?” When I first mentioned the “slavery discount” at our 2023 Design for Freedom Summit, the more apt question is, “Are you okay with accepting the slavery discount?” Until we enforce global anti-slavery laws and reveal labor inputs of our building materials in the dozens of high-risk building materials end-to-end, we are complicit. Teaching the next generation of industry leaders to carry forward Design for Freedom’s principles has been implemented at dozens of universities through design competitions, lecture series, and at our annual Design for Freedom Summit.

If every building tells a story of humanity – either of dignity or exploitation – as an industry and a society, we must ask ourselves whether we will continue to turn a blind eye to exploitation or use our agency to end the embedded suffering in our built environment.



Sharon Prince (above) speaking at the annual Design for Freedom Summit; the River building is embedded in the natural landscape. Photo © Jacek Dolata (above); Melani Lust

Nasreen Sheikh Survivor Leader

By Grace Farms Staff

Nasreen Sheikh transformed her lived experience in modern slavery into a powerful force for change when she founded Local Women’s Handicrafts and Empowerment Collective. In 2008, while still a teenager, Sheikh opened Local Women’s Handicrafts so women could sell and get paid for their handiwork.

Sheikh’s survivor story, while unique in its journey, is also the story of 50 million people worldwide still trapped in modern slavery today. According to Walk Free’s 2023 Global Slavery Index, \$468 billion worth of goods imported annually by G20 countries are at risk of being tainted by forced labor.

Referencing these statistics while speaking at Grace Farms, Sheikh reminds us that many everyday goods are at risk of being made with forced labor. Among the top at-risk goods imported by the G20, they include \$243.6 billion in electronics, \$147.9 billion in garments, \$14.8 billion in solar panels, and \$12.7 billion in textiles. The U.S., a top at-risk importer of goods, imports \$108 billion in electronics, \$52 billion in garments, and \$4.8 billion in textiles.

Sheikh’s story mirrors that of millions born into generational slavery. As a child, she fled her border village between India and Nepal and ended up in a Kathmandu sweatshop, sewing garments for 12 to 15 hours a day. “I hated those clothes,” she said. “They were woven with the energy of my suffering.”

When the sweatshop closed, a common practice to avoid paying workers after orders are completed, Sheikh and others were left homeless and without means to care for themselves. Rather than return to her village and face forced marriage, she chose to live on the streets. There she met Leslie John, a U.S. scholar who helped her learn English, access education, and secure a loan to start her first social business at age 15. “My little [handcraft shop] became a small light in Kathmandu for women

seeking protection in each other, and also a way to lift themselves in society,” she said.

Sheikh would go on to found the U.S.-based nonprofit Empowerment Collective, a 100% survivor-led organization that advocates for seven key human rights: nature, water, food, healthcare, housing, education, and technology. “We must foster a trend of conscious consumption that globally demands products causing no harm,” she said. “Transparency encourages accountability among corporations, compelling them to adopt ethical practices.”

Every Thread Holds a Precious Life

Sheikh is now a member of the Global Commission on Modern Slavery & Human Trafficking and a member of the Design for Freedom Working Group to help move transparency into the interior textile sector.

How do you compel businesses and the public to adopt ethical practices? Perhaps there is no one solution. However, *With Every Fiber*, Grace Farms’ long-term exhibition that aims to inspire people to understand and care about the materials that make up the built world around us, highlights innovative business practices that are actively advancing ethical supply chains.



Nasreen Sheikh at the 2024 Design for Freedom Summit. Photo © Jacek Dolata

Survival and Resistance

By Grace Farms Staff

The *Global Slavery Index*, the world’s leading data set on modern slavery, asks the question, “What is a good government response to modern slavery informed by survivors in every region of the world?”

It’s a question that cuts through statistics and asks us to think also about generational trauma – trauma that is often hidden behind the data. At the 2025 Design for Freedom Summit, more than 550 global leaders from the built environment, alongside students from more than 25 leading universities, gathered to listen to the opening conversation between Grace Forrest, Founding Director, Walk Free, and Amar Lal, Child Rights Lawyer and Activist.

“In the face of such overwhelming and complex humanitarian crisis, it could easily feel powerless, and to delay, to not do the right thing. But this is precisely why we are here together because we refuse to accept that these conditions are just inevitable. Modern slavery will not reverse on its own; it does require intervention,” said Sharon Prince, CEO and Founder of Grace Farms at the 2025 Design for Freedom Summit.

Their dialogue humanized the global issue of forced labor, grounding it in lived experience. The story is best told from excerpts in Amar’s own words.

“I belong to a family who was bonded labor in the stone quarry sector, and my whole family, even my grandfather, father, my brother and sister, we all used to work in the similar kind of work ... you are doing everything by your hand and many times you get cut but that moment you are not able to go to a hospital because if you go to a hospital then you do not have the money to survive ... and this is kind of the life I have seen my father, my brother, and myself.”

When Lal was just seven years old, he was rescued from the quarry and had the rare opportunity to go to school in his community. An education changed his life. Early on, he decided to “fight for the justice of those children who are still in that situation. And today by profession, I’m a lawyer and I’m continuously fighting for those children who are like me every single day.”

His story is one of survival, but also one of resistance. According to the International Labour Organization (ILO), 28 million people are trapped in forced labor today, generating an estimated \$63 billion in illegal profits annually. As Grace Forrest emphasized during their conversation, “Modern slavery is touching every country and every region of the world and it’s not an issue of exploitation that is happening in isolation ... At its core, modern slavery is a manifestation of extreme inequality and a question of power,” she says.

Proactive Due Diligence

But with “power,” she noted, comes responsibility. “We actually know transparency laws alone are failing; they are not addressing modern slavery risk,” said Grace. “We need proactive due diligence.”

“Through Walk Free’s groundbreaking research and advocacy including the *Global Slavery Index*, Grace has helped elevate the issue of modern slavery to the global stage and also mobilized action with governance with businesses in civil society,” said Prince, CEO and Founder, Grace Farms.

With leading voices like Grace and Amar, they are challenging the status quo. “It’s unacceptable to not know the supply chains of the companies ... and obviously we are here today as a coalition of the willing – people who want to take that step,” she says.



Grace Farms Coffee is ethically sourced from Colombia, Indonesia, and Ethiopia.

The Importance of Glass at Grace Farms

By Grace Farms Staff

When architect Michael Ra, Founding Principal at Front Inc., and Sharon Prince, Founder and CEO of Grace Farms, walked through a glass factory together, they were into a more than two-year journey of rethinking how glass could define a space.

“One of the elemental things about Grace Farms is glass,” said Sharon Prince, CEO and Founder, Grace Farms, during Conversations in Architecture | A River of Glass, with Grace Farms Architecture Advisor Toshihiro Oki and Michael Ra April 2024. “The glass helped us achieve the vision to be a hopeful space as we are addressing pressing humanitarian issues.”

The River building features more than 200 curved, floor-to-ceiling glass panels, each uniquely sized and shaped. Since opening in October 2015, Grace Farms, a cultural and humanitarian center set on 80 acres in New Canaan, Connecticut, has earned a reputation as a boundary-defying public space.

What makes the River building, designed by the Pritzker Prize-winning firm SANAA, unique is the “clarity and transparency of the glass, achieved without compromising energy performance,” said Ra, whose firm Front acted as the project partner responsible for the design of the glass envelope. Ra is also Co-Chair of Elefront Glass and Founding Director of Via, a platform advancing innovation in design materials.

The design process behind the River building’s glass envelope was anything but conventional. After initial design work and international site visits, the glass was ultimately fabricated in England, curved in Spain, and assembled on site. The River building’s design earned it numerous awards including the 2014/2015 Mies Crown Hall Americas Prize (MCHAP) for the best built work in North and South America, with the jury noting how “the line between architecture and landscape is blurred by the ‘River’ building.”

But for all its aesthetic and structural achievements, the use of glass also raises questions about ethics in the built environment today. In Ra’s Material Analysis for *Grace Farms’ International Guidance & Toolkit*, he noted that “the fabrication of glass is highly visible as these works are done in a factory where outsider visitors are frequent. The procurement of the raw materials that comprise glass, however, is much more opaque.”

Glass, one of “the single most important materials in building and transportation architecture today,” is largely composed of silica, soda ash, and limestone – materials that are often extracted in regions vulnerable to forced and child labor.

Glass Among the Most At-Risk Materials

The *Design for Freedom* report includes glass among the 12 materials most at risk for forced and child labor. But there are currently no industry standards that include third-party audited labor inputs specific to glass, according to the *Design for Freedom International Guidance & Toolkit*.

“That’s something the industry needs to think about,” Ra said, adding that while upcycling and recycling are part of the future – the industry still needs to ask: Are these processes ethical?

Consumers have considerable power and agency to influence corporations to do the “right thing,” considering they are the major driver of the U.S. economy, accounting for about 70% of economic growth. As a collective powerhouse, consumers – especially Gen Z and Millennials – have driven the demand for ethical sourcing of food and fashion, including the explosive growth of secondhand clothing sales, according to *The Guardian*.

Over the years, consumers have become more conscious of the social and environmental issues associated with food and clothing, including environmental harm and forced labor. The global sustainable fashion market, valued at \$7.8 billion in 2023, is expected to reach \$33.05 billion by 2030, according to Coherent Market Insights. “At the heart of this growth is the escalating consumer awareness concerning environmental sustainability and social responsibility, driving a surge in demand for sustainable fashion alternatives.”

Similarly, the market for ethically and sustainably made food is seeing comparable growth as consumers shift away from products that harm

the environment and the people who make them. The launch of Grace Farms Tea & Coffee in 2021, a Certified B Corp that gives back 100% of its profits to support Design for Freedom, is the only premium coffee and tea company committed to ending forced and child labor worldwide. Since its launch, it has introduced its Wellness Teas into 26 Whole Foods Markets and expanded into corporate sponsorships.

“First the food industry was called to be accountable to fair labor and supply chain transparency, then fashion, and now shelter is being called to account,” said Sharon Prince, Grace Farms CEO and Founder.

When consumers are so removed from the daily exploration that goes into nearly everything that supports our existence, how do you call for accountability? When Prince launched Design for Freedom, the global movement to remove forced labor from the building materials supply chain in 2020 with over 60 leaders from the built environment, it started by building awareness about the systemic labor exploration.

What may have seemed impossible at the time, Prince was able to build global awareness and inspire action among leaders to make changes within their supply chains. This same premise is incorporated into Grace Farms’ long-term exhibit, *With Every Fiber*, which aims to inspire people to understand and care about the materials that make up their built world, from their homes and schools to cultural institutions.

“This exhibit is a dynamic environment in which people can pause and consider the hands making our building materials,” said Chelsea Thatcher, Chief Strategic Officer and Founding Creative Director of Grace Farms. “*With Every Fiber* is a composition of collaboration; it weaves together the agency each of us has to design a more humane future for all,” she said.

As with every desire to advance the common good, saying ‘yes’ yields tremendous power. When many arms linked together and said ‘yes’ to the Design for Freedom movement, their collective agency is making change possible.

Agency begins with saying, ‘yes.’

were diverted to ‘next use’ (recycling, reuse, and aggregate or fill), roughly 145 million tons ended up landfilled. Materials included concrete – by far the largest component by weight–wood, metals, plastics, brick and masonry, and glass.

Although glass is a small component of C&D debris, less than 3% according to the EPA, it has been an essential design component for centuries. But glass, which consists primarily of sand – about 73%, according to AURP’s Re-thinking the *Life-Cycle of Architectural Glass* – is almost never recycled. “End-of-life building glass is almost never recycled into new glass products. Instead, it is often crushed together with other building materials and put into landfills or recovered for low-grade fill applications,” according to a Deloitte sustainability study cited by ARUP.

Establishing a Circular System

There are benefits, however, to recycling or establishing a circular system. For one, the raw material extractions that comprise glass are at high risk of forced labor, as noted in the *Grace Farms International Guidance & Toolkit*. “As a composite material, glass is comprised of raw materials

that are at high risk of forced and child labor that occurs during mining and extraction. There are currently no industry standards that include third-party audited labor inputs specific to glass.”

Payoffs of Recycling Glass

Another benefit to glass recycling is preserving its quality or purity, according to the Glass Recycling Foundation. “Recycling glass has big environmental payoffs as well – it saves raw materials, reduces demand for energy, and cuts CO2 emissions.”

The Durst Organization is partnering with a leading France-based international glass company, Saint-Gobain – which is at the forefront of glass reuse – along with Infinite Recycled Technologies, which has invented a machine that separates laminated glass panels found in car windshields and on large buildings.

If this initiative is successful, it could help reduce not only our global dependence on forced labor to extract materials used to make glass but also address our dwindling sand supply, a major component of glass.

When Grace Farms opened in October 2015, *Wired* featured it among the “Amazing Architecture That Captivated Us,” referencing the River building, designed by SANAA’s Kazuyo Sejima and Ryue Nishizawa. The River’s long, curvilinear roof – appearing to float above the rolling landscape – continues to captivate and take our “breath away.”

This sense of captivation extends even to the careful replacement of the original marine-grade plywood fascia that wraps the River building’s half-mile-long canopy. After Grace Farms’ first decade, a longer term design and maintenance solution for the fascia was needed. SANAA, Sciam Construction, and our design and construction teams developed the next phase of the fascia’s replacement, which included a new waterproofing and drainage system covered by solid Western red cedar tongue and groove boards. Western red cedar is known for its natural resistance to decay,

insects, moisture, and New England’s seasonal weather. To source the new fascia, Sharon Prince, CEO and Founder of Grace Farms, embarked on a journey to Haida Gwaii, an archipelago off the coast of British Columbia, Canada.

“I knew we wanted to use FSC-certified wood (Forest Stewardship Council), which ensures a chain of custody and certifies that the wood is extracted and produced with fair-labor inputs – aligning with Design for Freedom principles of addressing embedded forced labor, pursuing ethical decarbonization, and prioritizing circularity,” said Prince.

In late 2024, Prince traveled to the remote islands of Haida Gwaii to visit Taan Forest, where the Western red cedar would be harvested. Taan Forest is managed by the Haida Enterprise Corporation (HaiCo), a 100% Haida-owned company. The Canadian constitution recognizes three groups of Indigenous peoples:

First Nations, Inuit, and Métis. “What we found when we got there went beyond FSC-certification,” said Prince. “It added the human dignity that we wanted to be sure of, but also cultural preservation.”

At the 2025 Design for Freedom Summit, the panel “Generational Forest Stewardship in Haida Gwaii,” moderated by Prince, included Leticia Hill, CEO of HaiCo; Jeff Mosher, Chief Forester at Taan Forest; Toshihiro Oki, Architecture Advisor for Grace Farms; and Orrin Quinn, Manager for Western Canada at FSC.

Hill reflected on the Haida Nation’s long negotiations to regain stewardship over their forests. In 2009, the province of British Columbia and the Haida Nation signed a *reconciliation protocol agreement*, which defined joint and shared decision-making in forest management. Through continued efforts and negotiations, the Haida reclaimed control over their forestry operations.

“I was very privileged at the time because I was in the Haida Nation government, sitting across those [negotiating] tables. Standing up in those moments is an example of knowing what is right,” Hill said. Knowing what is right is interwoven in Haida’s guiding principle of *yahguudang*, which embodies respect for all living things. “It’s rooted in our culture,” said Hill. “We take only what we need. We give thanks, and we acknowledge everyone who behaves accordingly.”

Such principles have created the Haida Nation’s rigorous forestry preservation policies and HaiCo’s state-of-the-art forestry practices. Adhering to such principals, whether it’s to preserve our environment to removing forced labor from the build environment, can “shift the embedded stories from one of hardship and exploitation to one of dignity,” Prince said.



An example of an acid mine swamp in Ohio, where John Sabraw works with engineers to remediate streams polluted by acid mine drainage, turning iron oxide into artists’ paints.

Iron Oxide as New U.S. Domestic Construction Solution

By Grace Farms Staff

Iron oxide naturally occurs in stone, and is commonly used as a pigment in the fine arts, and in the construction industry through commercial paint and concrete colorant. When heated at varying temperature levels, iron oxide can turn shades of yellow, red, and purple, making it a popular pigment. An average of 240,000 metric tons of iron oxide is used in the U.S. each year, much of which is imported from China. Most U.S. imports of synthetic iron oxide pigments can pollute rivers and streams through industrial runoff. For example, large-scale iron oxide contamination occurs at the Truetown Discharge, within the Sunday Creek watershed that runs through the Appalachian region of Ohio. Truetown is the largest single Acid Mine Discharge (AMD) site in the state, releasing 988 gallons per minute, according to

True Pigments – a collaboration among Ohio University, the Ohio Department of Natural Resources, the U.S. Office of Surface Mining Reclamation and Enforcement, and the nonprofit Rural Action. True Pigments, a social enterprise started by Rural Action, recognized an opportunity to apply innovative technology to detoxify the Sunday Creek watershed by removing and collecting iron oxide from the polluted water. This process transforms the legacy of coal mining pollution into vibrant pigments used in paints and other products. Once the pollutants are extracted, clean water can be returned to the watershed. True Pigments, a social enterprise started by Rural Action, saw an opportunity to continue to detoxify Sunday Creek through the removal and collection of iron oxide from the polluted water, and then returning

the cleaned water back to the stream at a larger scale.

AMD, a Source for Iron Oxide

With the help of a \$3.5 million grant from the AMLER program, a 39-acre site for the processing of acid mine drainage is in the works, where an estimated 3 metric tons of dry pigment could be processed daily. Clean water, jobs for the local community, and a thriving ecosystem are envisioned for the once-written-off creek and community.

Iron Oxide into Pigments

Its facility works like a wastewater treatment plant. First, the plant will pump mine water from the underground mine pool to the head of the plant. From there,

it will run through processes of aeration, clarifying, settling. At that point, the iron sludge and water split paths. The facility will treat the acidic water with lime before it enters a treatment wetland before being discharged into Sunday Creek with almost no iron and bringing pH back to normal. Back at the facility, the iron oxide is dried and processed into pigment before being packed and shipped.

Although Rural Action is not the first to use AMD as a source for iron oxide, its innovative process is different. Its technology harvests large amounts of iron and treats large volumes of water with relatively small space requirements. Rural Action believes that it can treat many other mine discharges by replicating this technology across the region.

Benefits of Recyled Glass

By Grace Farms Staff

There is a good reason a large amount of flat glass ends up in landfills each year: compared to other bulk commercial demolition debris such as concrete and wood, it is far more complicated to recycle. “Easier said than done,” reports *Fast Company*, which addresses why about 12 million tons of flat building glass end up in landfills every year.

As you can imagine, sorting out wood and concrete for reuse after tearing down a building is easier than salvaging plate glass. But one corporation is aiming to find a solution. The Durst Organization, which oversees 13 million square feet of New York City property, has been trying for the past decade to recycle plate glass. “The pieces have to be carefully removed and hauled down elevators, and before discarding them, workers have to delaminate them by hand with a razor – a risky, costly, and time-consuming task.”

In 2018 alone, the U.S. Environmental Protection Agency (EPA) estimated that about 600 million tons of U.S. construction and demolition (C&D) debris were generated – more than double the volume of all municipal solid waste or household trash in the U.S. While about 455 million tons



A massive open-pit artisanal mining area at Shabara, DRC. Image courtesy of Nottingham Rights Lab.

An incomprehensible amount of plastic ends up in our waterways – so much that it’s often visualized as an island. Shockingly, paint particles alone account for 58% of all microplastics in the world’s oceans and waterways, according to a 2022 *Forbes* article citing Environmental Action.

Design for Freedom’s Principles – addressing embedded forced labor, pursuing ethical decarbonization, and prioritizing circularity – respond to the link between the climate crisis and exploitative labor in our building materials supply chain. These principles guided the development of the latest iteration of *With Every Fiber*, which explores pigments, stone, and glass through partnerships with sustainability visionaries like Sherwin-Williams and Tomorrow’s Artist, both of whom have generously contributed months of research and insights to this exhibit.

Since 2009, over 70 million gallons of paint have been diverted from residential waste streams, thanks in part to manufacturers like Sherwin-Williams and their partnership with PaintCare, a nonprofit that supports state-level paint stewardship programs in jurisdictions like California, Colorado, and Connecticut. This partnership with PaintCare, which also includes other paint manufacturers, has made it easier for households and businesses to recycle leftover paint through more than 2,500 drop-off sites, 12,266 large volume pickups, and 381 paint drop-off events to date (as of June 2023).

Sherwin-Williams’ contributions extend beyond stewardship. Their generous donation of paint for the walls of the *With Every Fiber* exhibit reflect a shared commitment to sustainability and supply-chain transparency.

Tomorrow’s Artist, a brand developed for fine artists, was created through technology developed by Encore Artistic Solutions, which intercepts between 70 to 80 million gallons of excess paint headed to landfills annually. Their process transforms this waste into professional-grade fine art acrylics. By blending, testing, and distributing reclaimed paint without sacrificing quality or color fidelity, Tomorrow’s Artist and Encore have created a closed-loop system that reintroduces waste as value.

“Every gallon of paint we upcycle saves approximately 10 gallons of water,” said Steve Ross, co-founder of Tomorrow’s Artist. “We’re doing this with recyclable aluminum packaging and sustainable supply partnerships.”

Tomorrow’s Artist is more than a paint brand – it’s a movement. It mobilizes artists, creators, and mission-driven brands who believe in restoring the earth through creativity. “We see ourselves as the bridge between creative purpose and environmental responsibility,” said Ross.

Together, Sherwin-Williams and Tomorrow’s Artist demonstrate how creativity, stewardship, and innovation can turn waste into art – and art into action.

The Silent Metal: Cobalt’s Hidden Role in Construction and Its Human Cost

By Elaine Mitchel-Hill, International Lead, Design for Freedom

Cobalt, a silvery-blue metal essential to the global energy transition, is often associated with electric vehicles and consumer electronics. Yet its presence in the construction sector – embedded quietly in building products and materials – remains largely overlooked. As the *Blood Batteries* report, launched in August 2023 by Siddharth Kara and the University of Nottingham Rights Lab in the UK, reveals, the human and environmental toll of cobalt extraction in the Democratic Republic of Congo (DRC) demands urgent scrutiny across all industries that benefit from this resource, including construction.

Cobalt plays a critical role in construction through rechargeable battery systems in smart buildings and infrastructure, including solar storage and backup power units. It is also used in pigments and coatings, where cobalt compounds produce vibrant blues in glass, ceramics, tiles, and paints. Cobalt-based alloys appear in structural components, valves, and piping systems that require high durability and corrosion resistance – especially in industrial and energy-intensive buildings. Additionally, cobalt is essential in cemented carbides and cutting tools used in construction machinery and fabrication. These uses are often embedded deep within supply chains, making cobalt a “silent” material – present but rarely acknowledged in procurement and design decisions.

Globally, cobalt mine production reached approximately 290,000 metric tons in 2024. While precise figures for the built environment are difficult to isolate, industry estimates suggest that construction-related applications – including building-integrated energy systems, coatings, tools, and heavy machinery – account for a significant share of cobalt consumption outside the transport and electronics sectors. The scale of use underscores the need for greater transparency and accountability across the built environment ecosystem.

According to the *Blood Batteries* report, 76% of the world’s cobalt is mined in the DRC, primarily in Haut-Katanga and Lualaba provinces. Kolwezi, the capital of Lualaba, has become synonymous with the brutal realities of cobalt extraction. The report documents hazardous labour conditions, especially among artisanal miners, many of whom are children and women working without protective equipment. It also reveals severe environmental degradation, including contaminated water sources and deforestation caused by industrial and artisanal mining. Despite these realities, tech and EV companies continue to promote their cobalt supply chains as fully audited and compliant with international human rights norms. One mother of three, who washes cobalt ore near Kolwezi, encapsulates the tragedy: “You want to

know about cobalt? Cobalt is a curse. It is killing Congolese people.”

The construction sector must better understand its connection with cobalt, acknowledge its role as a colossal global industry, and immediately make moves to engage. This means not only recognising cobalt’s presence in the materials, machinery, and systems that shape our built environment, but also taking direct action to address the ethical and environmental consequences of its extraction. As one of the largest consumers of industrial inputs globally, construction has both the influence and the responsibility to lead. It must go beyond passive awareness and actively collaborate on solutions – working with suppliers, manufacturers, civil society, and affected communities to build transparent, accountable supply chains. The sector must also accelerate progress on ethical sourcing and human rights due diligence, making more headway than the electric vehicle industry has to date. While EV manufacturers have faced growing scrutiny over cobalt, construction has remained largely absent from the conversation. That silence must end. The time for leadership is now.

Cobalt may be silent in construction, but its impact is anything but. As the *Blood Batteries* report makes clear, durable change begins with acknowledging the human cost – and taking responsibility for it.



Tomorrow’s Artist diverts leftover consumer paint from landfills, recycling the paint into new paint products.

Opinion

No Childhood Here: The Next Generation of Stone Labourers

By Elaine Mitchel-Hill, Design for Freedom, International Lead

In the sun-scorched quarries of Jodhpur, migrant families labour under brutal conditions to extract the stone that builds homes, offices, and monuments worldwide. For many, this work is not a choice – it’s a legacy of debt, poverty, and invisibility passed down through generations.

At the end of last year, I returned to Jodhpur with Amar Lal, a lawyer, child rights activist, and former child labourer whose life began in the quarries. Amar introduced me to his extended family and community – roadside migrant families living in makeshift tents for over 15 years. These families are not transient; they are rooted in place, yet remain undocumented and excluded from basic services like education, healthcare, and legal protections.

We met children left behind in roadside camps while their parents laboured in quarries or on construction sites. Unsupervised and without access to education, these children face the inevitability of following in their elders’ footsteps – into the same cycle of stone-breaking, debt bondage, and invisibility.

I remain deeply grateful to Amar, his family, and their community for welcoming me so generously and for the powerful discussion we shared at a community meeting. One question dominated: why do international companies refuse to pay a fair price for the stone extracted through their labour?

We were joined by humanitarian photographer Sidd Joshi, who captured striking images with the full permission of village elders, ensuring dignity and respect were upheld throughout.

Amar and I first met nearly a decade ago, united by a mission to eliminate forced and child labour from supply chains. Since 2005, I’ve worked extensively in India’s natural stone sector, advocating for ethical sourcing and systemic reform.

“I was born into Rajasthan’s nomadic Banjara community and began breaking stones by age six to help repay my family’s debts,” Amar recalls. “In 2001, my life changed when Nobel Laureate Kailash Satyarthi

helped me access education. From a children’s home in Jaipur, I reclaimed my childhood and eventually became a lawyer at the Delhi High Court, focusing on child labour and abuse. I later led India’s National Bal Panchayat, and today I advocate globally for children’s rights and ethical sourcing in construction.”

Amar’s story is exceptional – it is not the norm. For the children we met in Jodhpur, there is no intervention, no rescue, no guaranteed path to education or justice. Without systemic change, their future will mirror the past: a life of labour, invisibility, and lost potential.

At the Design for Freedom Summit in March 2025, Amar urged the construction industry to confront the exploitation embedded in its supply chains. “Human rights due diligence legislation presents an opportunity to raise standards for workers and eliminate forced and child labour,” he wrote in the *Design for Freedom International Guidance & Toolkit*.

Demand for natural stone is rising, with the market projected to reach US\$72.95 billion by 2032. But this growth doesn’t benefit those trapped in forced labour – children driving tractors or operating jackhammers. It may sound far-fetched, but I’ve seen it firsthand.

In India alone, the International Labour Organization (ILO) estimates hundreds of thousands of children aged 5-17 are engaged in small-scale mining and quarrying – defined under ILO Convention No. 182 as among the worst forms of child labour. Many will never recover from the physical and psychological trauma of such work.

Climate change adds another layer of risk. Rising temperatures in quarry regions increase heat stress, reduce productivity, and lead to more accidents and long-term health issues. Water scarcity – critical for both communities and stone processing – threatens supply chain stability and economic viability. Forced labour, bonded labour, and trafficking of children persist across India’s stone-producing regions. Non-payment of wages, abusive conditions, withheld documentation,



The youngest of 5 generations of females working on site, emphasizing the intergenerational nature of poverty and child labor. Photo © Siddhartha Joshi

and health and safety violations are widespread. Silicosis and fatal accidents remain common, yet largely unaddressed.

Governments regulate quarry licensing and earn significant revenues, yet human rights issues remain hidden and progress painfully slow. The renewed interest in natural stone must now be made to count.

When extracted and produced under the right conditions, natural stone is one of the most sustainable building materials – low in carbon footprint and rich in heritage. It offers durability, circularity, and timeless beauty. Innovations in post-tensioning techniques are unlocking new opportunities for its use in modern architecture and infrastructure.

But decarbonisation must not come at the cost of human dignity.

As we strive to decarbonise the built environment, we must also embrace ethical decarbonisation – ensuring climate solutions do not perpetuate exploitation. This means embedding a just transition into every stage of the supply chain: protecting workers’ rights, investing in safe and fair labour conditions, and ensuring that communities historically harmed by extractive practices are not left behind.

A truly sustainable future is one where both the planet and its people are protected – where climate action and human rights advance together. The voices of Amar, his family, and their community must not be sidelined – they are central to this transformation.

Their question still echoes: if international companies value the stone, why won’t they value the lives that extract it?



At the community meeting men, women and children all gathered late into the evening after a 12 – 14-hour day for many in quarries and on construction sites. Photo © Siddhartha Joshi

Blood on the Stone: The Hidden Cost of Rajasthan’s Sandstone

By Elaine Mitchel-Hill, International Lead, Design for Freedom

From garden paths in London to plazas in Paris, cobblestones from Rajasthan, India, are everywhere. But behind their rustic charm lies a harsh reality: exploitation, disease, and child labour continue to plague the sandstone industry nearly two decades after it was first exposed.

In 2005, *Budhpura ‘Ground Zero’* revealed widespread human rights abuses – modern slavery, debt bondage, and child labour. Today, new investigations show that conditions have not improved. In fact, for many workers, life has become even more precarious.

Women and Children in Crisis

A 2023 survey of 92 women working in Budhpura’s cobblestone yards paints a grim picture. Nearly half had lost their husbands to silicosis, a deadly lung disease caused by inhaling stone dustforcing them into the same hazardous work. Many earned as little as Rs 100 a day – approximately \$1 USD. With household incomes stretched to breaking point, 62% said their children worked alongside them, and 90% reported their children had dropped out of school. Every woman carried debt linked to their husband’s illness, deepening the cycle of poverty and exploitation.

Why It Matters

Rajasthan exports 90% of its cobblestones to Europe. The UK, US, France, Belgium, and Canada are among the largest importers. As these countries introduce laws requiring companies to monitor human rights in their supply chains, the pressure is mounting. But legislation alone isn’t enough – retailers must act, and consumers must care.

What the Construction Industry Can Do

Construction firms sourcing stone for buildings or public spaces must demand full traceability from quarry to site. They should work only with suppliers who provide verified sourcing data, include human rights clauses in contracts, and support remediation for affected workers. Ethical sourcing is no longer optional – it’s a reputational imperative.

What Consumers Can Do

Whether renovating a home or designing a garden, consumers can make informed choices. Ask retailers where their stone comes from. Choose suppliers who commit to transparency and fair labour practices. Support brands that publish due diligence reports. Every purchase is a vote for the kind of world we want to build – literally.

Signs of Hope

Since 2014, Rajasthan’s Pneumoconiosis Boards have diagnosed over 30,000 mine workers with silicosis, and more than 12,000 have received state relief. In 2022, the state ordered the creation of India’s first Mine Workers Welfare Board. Globally, momentum is growing for mandatory human rights and environmental due diligence – a shift in how businesses approach their supply chains.

A Call to Action

Budhpura was called “Ground Zero” in 2005. In 2025, it still is. The evidence is clear, the stories are heartbreaking, and the solutions are within reach. Governments must enforce the laws they pass. Businesses must trace their supply chains to the source. And consumers must ask the right questions.

The world knows better. The question now is: will we do better?



Exploitation and child labor plague the sandstone industry. Photo © Siddhartha Joshi



Workers breaking stone are exposed to dust that is linked to serious lung diseases. Photo © Siddhartha Joshi



The *International Guidance & Toolkit* is used to implement ethical sourcing strategies.

A Global First: Design for Freedom *International Guidance & Toolkit* Now Available in Vietnamese

By Grace Farms Staff

In a world first for the Design for Freedom movement, the *Design for Freedom International Guidance & Toolkit* has been fully translated into Vietnamese – marking a major milestone in global collaboration for ethical infrastructure.

Sharon Prince, Founder and CEO of Grace Farms Foundation, shared: “The translation of *Design for Freedom’s International Guidance & Toolkit* into Vietnamese marks a vital milestone for global collaboration. With Vietnam’s supply chains increasingly integrated into major infrastructure projects across Asia, Europe, and North America, this resource enables buyers and suppliers to work from a shared framework – helping embed ethical standards and accelerate sector-wide transitions to decarbonized, circular procurement. It’s not just about transparency; it’s about unlocking co-leadership with Vietnamese stakeholders in the movement to eradicate forced labor from the built environment.”

Vietnam plays a critical role in the global construction ecosystem, supplying core materials such as cement, aggregates, and ceramics to projects worldwide. The translation empowers Vietnamese suppliers and procurement teams with practical tools to meet rising global expectations around transparency, fair labour, and sustainable sourcing.

Elaine Mitchel-Hill, International Lead for Design for Freedom, added: “Vietnam’s scale and specialization in core construction materials position it as an indispensable contributor to the global built environment. By making the *Guidance and Toolkit* available in Vietnamese, we’re not only advancing local engagement; we’re equipping regional suppliers to meet global expectations around transparency, fair labor, and sustainable

sourcing. This is a meaningful step toward embedding ethical standards within cross-border supply chains.”

This translation reflects Design for Freedom’s commitment to inclusivity, accessibility, and co-leadership across regions – principles that are foundational to its mission: the elimination of forced and child labor in global building products and materials supply chains. By providing tools in Vietnamese, Design for Freedom is removing barriers to participation and fostering shared ownership of ethical transformation.

Design for Freedom’s work is anchored in three core principles: to find and address forced and child labor, to pursue ethical decarbonization, and to prioritise circularity and the use of regenerative materials. These principles guide its efforts to reshape infrastructure through dignity, transparency, and sustainability.

To further accelerate impact, Design for Freedom has announced a strategic partnership with the International Organization for Migration (IOM) in Vietnam. Together, they are engaging directly with the construction sector to build capacity, raise awareness, and embed ethical sourcing practices across procurement and supply chain operations.

The Vietnamese translation is more than a linguistic adaptation – it is a strategic move to embed these principles within one of the world’s most influential construction supply ecosystems. It signals growing global momentum and may be the first of several translations to follow, as demand intensifies for ethical tools tailored to local contexts.

Pollution to Collaborative Solutions

By Grace Farms Staff

When coal mines are abandoned, ground water seeps into the mines, becoming highly acidic and dissolving the minerals that contain iron. An orange sludge rich in dissolved iron leeches into the water, flowing out into streams and rivers. When this polluted water is collected and treated by scientists, the iron sludge is removed, dried, and turned into iron oxide, acid mine drainage (AMD) pigments.

The Truetown mine at Sunday Creek, where John Sabraw extracted an example of coal, is the worst acid mine drainage site in Ohio, where approximately 1,000 gallons of polluted water flows per minute. This sends more than 1,000 tons of granular iron oxide into Sunday Creek every year, leaving seven miles downstream devoid of life.



John Sabraw with iron oxide from acid mine drainage that he uses to make pigments. (above) John Sabraw and his team. (below) Courtesy of John Sabraw

This pollution of the state’s abandoned mine land negatively affects more than 1,300 miles of streams in Ohio, according to the Ohio’s Department of Natural Resources. His use of coal represents the story of 150 years of unregulated coal mining in Central Appalachia where extensive mining operations started in 1800, particularly in the southeastern and eastern parts of Ohio. These operations fueled the production of railroads and generated electricity in cities throughout the Eastern United States. When mines were closed, often illegally, there was no lifecycle plan, and therefore the effects from mining created polluted streams and economically depressed communities.

The pulverized coal on the *Lithologic* canvas merges with acid mine drainage pigments’ paint, which present the issue of extraction and the innovative and hopeful solutions. AMD pigments were developed in 2016 by John Sabraw, an activist, environmentalist, and Professor of Art at Ohio University where he is Chair of the Painting + Drawing program, and environmental engineer, Dr. Guy Riefler. They now have the potential, in partnership with the group Rural Action, and social enterprise True Pigments, to create a close-loop system with a new factory plant that will clean up the watershed and create more iron oxide to use in pigments, concrete, and other industry-scale applications.

“This is a really close-knit community of people who have coal miners in their families; families that were there when the coal mining companies spent those years extracting the coal, and then left and extracted the wealth. So, instead of extracting wealth, we want to extract pollution and return wealth to the area. We’ll be able to restore seven miles of Sunday Creek and then take our technology and wherever it is applicable in the world to treat the same problem,” said Sabraw.

Without New Thinking, The World Will Run Out of Sand

By Grace Farms Staff

Sand, a key component of concrete – the world’s most widely used construction material – is being extracted at an alarming rate, leading to a global shortage. This scarcity has become so critical that a lucrative black market has emerged.

“In many parts of the world, so-called ‘sand mafias’ control much of the aggregate supply chain, with sand being extracted from beaches, rivers, and lakes under cover of night and, sometimes, through the use of force and violence,” writes Dr. Chris Hackney, Senior Lecturer, School of Geography, Politics and Sociology at Newcastle University, United Kingdom, in a material analysis essay for *Design for Freedom International Guidance & Toolkit*.

Global Illegal Sand Trade

Hackney cites research estimating the global illegal sand trade (valued at the third-highest illegal trade) to be worth between \$199.88 and \$349.98 billion (Ramadan, 2020). The scale of extraction is staggering: 50 billion tons of sand are taken from

the Earth each year, enough to build a 27-meter-high and 27-meter-wide wall around the planet, according to the United Nations Environment Programme (UNEP) 2022 report, *Sand and Sustainability:10 Strategic Recommendations to Avert a Crisis*. Sand is vital to modern life, used in concrete, glass production, and infrastructure projects. Concrete alone accounts for nearly half of all human-made mass on Earth (Elhacham, 2020), Hackney added.

“The demand is so intense that riverbeds and beaches are being stripped bare, and farmlands and forests torn up,” said Pascal Peduzzi, a researcher at UNEP. “In a growing number of countries, criminal gangs have moved in, spawning a lethal black market.”

Besides the black market, labor exploitation or forced labor is generally involved in sand extraction. “The nature of this illegal trade relies on poorly regulated labour forces, often resulting in forced and child labour (Da and Le Billon, 2022; Bari and Hague, 2022),” Hackney added.



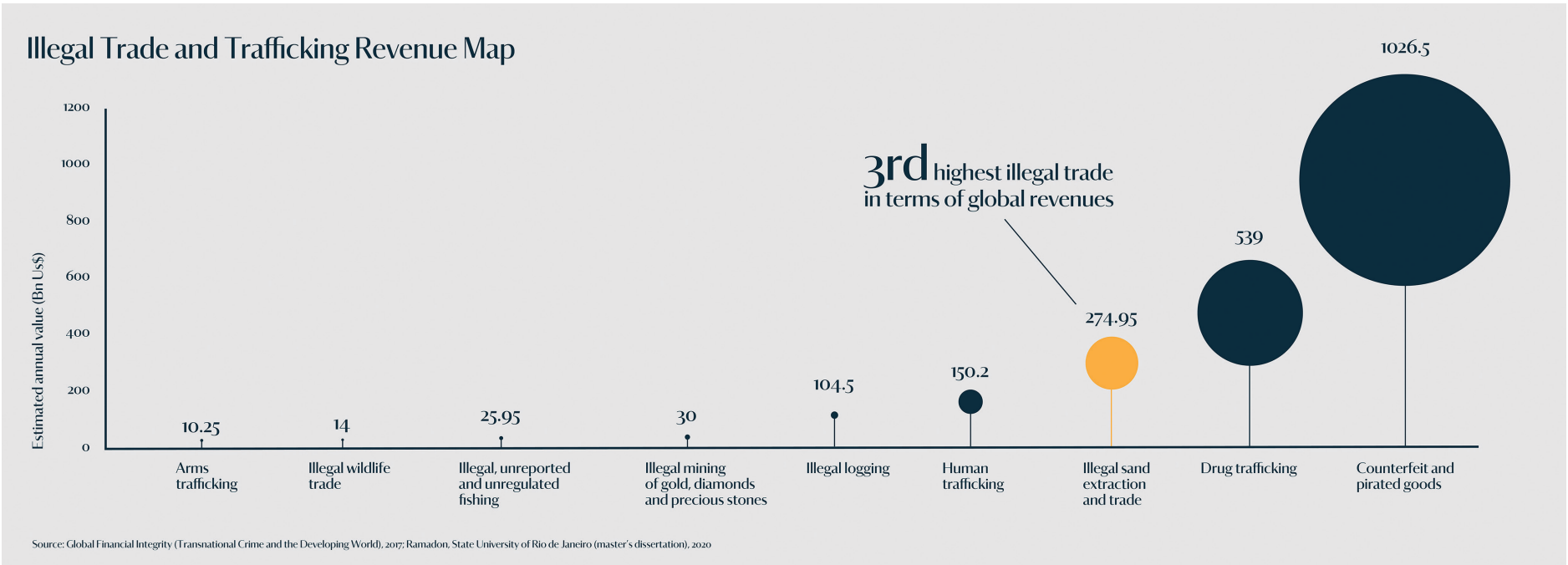
John Sabraw’s *Lithologic* is one of five art commissions in *With Every Fiber*. Image courtesy of John Sabraw

“There is a pressing need to address gaps in understanding labor markets, worker welfare, and illicit supply networks to ensure the global sand trade is sustainable, fair, and just.”

From a consumer perspective, this crisis may not feel – at least not yet – that a sand shortage will impact consumers’ well-being. While this literally is a grain of sand in terms of awareness, thieves are increasing stealing hundreds of truckloads of sand at a clip, particularly in places such as the Caribbean. What can one

consumer do? You can choose where and how you use your purchasing power. For example, *Forbes* suggests when selecting a vacation spot or resort, inquire about environmental certifications or awards that indicate a commitment to conserving natural resources and reducing carbon footprints.

Kenyan poet Beatrice Kariuki, who partnered with UNEP to raise awareness about the crisis, sums up the hidden crisis: “... without new thinking, the sands of time will run out.”



Illegal sand trade is the 3rd highest illegal trade valued up to \$350 billion.

Alicja Kwade’s New Sculpture, ParaPosition, Invites Us to Expand Our Perspectives

By Grace Farms Staff

Grace Farms, known for its arts and cultural programming and offerings, unveiled a new permanent sculpture, *ParaPosition* (2024) by Alicja Kwade, on September 13, 2025.

Breaking Down Frames of Perception

The internationally acclaimed artist is recognized for her sculpture, expansive public installations, film, and photography, which “investigate and question universally accepted notions of space, time, science, and philosophy by breaking down frames of perception,” according to 303 Gallery in New York. “Observational and impartial, Kwade prompts us to reflect on our relationship with the world.”

The unveiling of *ParaPosition* launches the Foundation’s 10th season, which

runs through May 2026. Under the theme “We all build,” the year of programs feature a series of marquee events celebrating Grace Farms’ evolution as a cultural and humanitarian center. Since its founding, Grace Farms has produced notable outcomes, including the 2020 launch of Design for Freedom, a global movement aimed at eliminating forced labor from the building materials supply chain.

Society and Human Flourishing

“The placement of ordinary rocks and an ordinary chair in *ParaPosition* make us realize how extraordinary existence is. And yet what I see is that the gravity is in question. There’s a sense of weightlessness of the rocks, the chair upside down. What do we give weight to in our lives, in families,

in communities, in businesses? What gravity is holding these systems together? These are questions we explore at Grace Farms,” said Chelsea Thatcher, Grace Farms’ Chief Strategic Officer and Founding Creative Director.

Composed of interlocking steel frames that support two boulders and an inverted blue chair made of bronze, *ParaPosition*’s array of metal and stone draws viewers into the frame of this massive, yet fragile, universe.

“My efforts to understand and represent something I can barely grasp – and my failure to do so – bring forth my work,” Kwade told *Artnet*. According to *ArtReview*, Kwade gained wider recognition after winning the Piepenbrock Förderpreis for Sculpture in 2008, a prestigious

biennial award presented in Berlin by the Hartwig Piepenbrock.

Since then, her work has “placed her within a generation of young European artists – including Germans Michael Sailstorfer and Kitty Kraus, Swedish artist Nina Canell, and Austrian artist Judith Fegerl – who are exploring aspects of nature, time, and space; testing belief systems, and exposing what is ‘real’ and ‘true’ in our environment,” notes *ArtReview*.

ParaPosition joins a distinguished other installations on permanent display include on permanent display at Grace Farms, including *Moon Love Dreaming* (2016) by Beatriz Milhazes, *Double Glass River* (2015) by Teresita Fernández, and *Farm 56 & Farm 88* (2015) by Thomas Demand.



ParaPosition, by Alicja Kwade, is Grace Farms’ first permanent outdoor sculpture. Photo © Dean Kaufman

Exhibit Advisors

Nandita Roy Baul, Model United Nations Coach, Editor and Educationist
Alexandre Bertrand, Chief Executive Officer, The Stone Masonry Company Limited
Pierre Bidaud, Creative Director, The Stone Masonry Company Limited
Nina Cooke John, Principal, Studio Cooke John
Raj Deshpande, Senior Director ESG Sustainability & Compliance, Saint Gobain NA
Andrea Dinice, Sherwin-Williams, Sustainability Ambassador
Sarah B. Gregg, Marketing Director, Natural Stone Institute (USA)
Dr. Christopher Hackney, School of Geography, Politics and Sociology at Newcastle University, UK
Elodie Jacoby, Monitoring, Evaluation, Accountability and Learning (MEAL) Officer, IOM-UN Migration
Narayan Khandekar, Director of the Straus Center for Conservation and Technical Studies at Harvard Art Museums, Curator of the Forbes Pigment Collection
Amar Lal, Child Rights Lawyer
Sydney Mainster, RA, LEED AP, Vice President of Sustainability & Design Management, The Durst Organization
Thu-huong Nguyễn-võ, Associate Professor of Southeast Asian and Asian American Studies
Guy Riefler, Professor, Ohio University

Gavin Robotham, CRAB Studio
Steve Ross, Founder, Tomorrow’s Artist
Jonsara Ruth, Co-Founder and Design Director of Healthy Materials Lab (HML) at Parsons School of Design
John Sabraw, Professor of Art at Ohio University, Area Chair, Professor of Painting + Drawing, Area Chair of Digital Art + Technology, Founder, True Pigments
Kaabe Shaw, South Region Manager, ODNR Abandoned Mine Lands South
Michelle Shively MacIver, Director of Project Development for True Pigments, LLC.
Dave Stanger, Director, Tectonix Ltd
Dr. Hannah Rose Thomas, PhD and Artist
Anastasia Vynnychenko, Project Manager at IOM
Steve Webb, Founder, Webb Yates
Stanley Yee, VP for Sustainability & Technical Initiatives at In inite Recycled Technologies

