

The Spec Stops Here

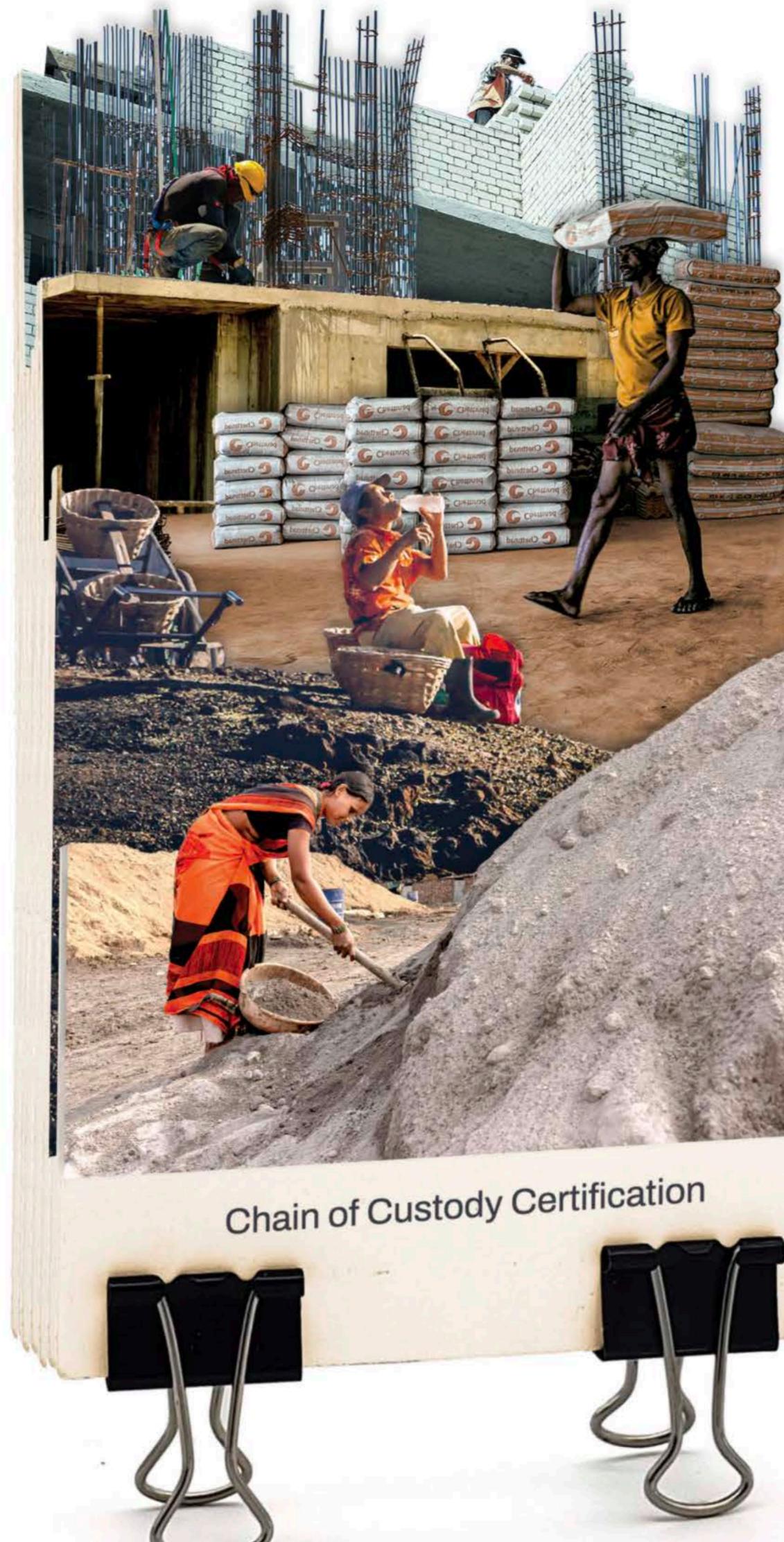
CAN TECHNOLOGY HELP DESIGNERS AVOID ETHICAL RISKS IN THE SUPPLY CHAIN?

BY AIDAN ACKERMAN, ASLA

ILLUSTRATIONS BY MEG STUDER

A troubling reality lies beneath many of the materials we design with in the global construction industry: forced labor. According to the most recent estimates by the International Labour Organization, nearly 28 million people worldwide are trapped in forced-labor situations. A 2022 report shows that construction is one of the top five sectors accounting for the majority of adult forced labor, with mining and quarrying comprising a smaller yet significant forced-labor workforce. For landscape architects who often specify materials such as natural stone, gravel, timber, and rubber, this reality presents an ethical and legal problem.

The implications go beyond ethics—there are real project risks as well. Product shipments can be detained at ports when customs officials suspect the goods (or any upstream components) were made with forced labor, resulting in delays, mounting storage and demurrage fees, and significant impacts on project budgets and schedules. For example, between June 2022 and August 2025, U.S. Customs and Border Protection detained more than 16,700 shipments worth nearly \$3.7 billion under the Uyghur Forced Labor Prevention Act. Forced labor also exists domestically: U.S.



prison labor programs manufacture more than \$2 billion in goods, such as site furniture, each year, often paying inmates less than a dollar per hour.

For landscape architects, the emerging awareness of this issue means that ethical sourcing is becoming part of professional due diligence. The U.S. Department of Labor keeps a growing list of goods produced by child and forced labor, and it's filled with items familiar to any landscape architect: natural stone (including granite, limestone, and

sandstone), crushed gravel, timber, bricks, glass, and rubber. This means that the cobblestones under our feet or the playground tiles in a park could be produced by indentured, underpaid, or enslaved workers somewhere along the line.

Franca Trubiano, an associate professor of architecture at the University of Pennsylvania, is examining how forced-labor risk shows up in everyday landscape specifications, an effort supported by a Landscape Architecture Foundation research grant titled *Ethically Sourcing: Specifying Forced-Labor Free Materials in Landscape Architecture*. The study, a collaborative effort with Mathews Nielsen Landscape Architects, traces the supply chains of five materials specific to landscape architecture and identifies evidence of forced labor in their production. Trubiano notes that small and midsize design firms rarely have the enterprise-level risk tools that global corporations can afford, such as EcoVadis, Sedex, or Sourcingmap, which aggregate social-audit data, rate suppliers on labor and human-rights performance, and trace materials back to high-risk regions. Instead, most design practitioners try to navigate opaque supply chains with a patchwork of vendor declarations, certifications, and Internet research, hoping to spot signs of forced labor with only fragments of information.

“We didn’t want to solve the problem of just finding ethically sourced products—we wanted to solve the bigger problem of market transformation.”

—BARBRA BATSHALOM

Trubiano says that risk profiles differ between materials (single substances like gravel or sandstone) and products (assembled items that often include petrochemicals), with the latter typically involving more complex and hidden supply chains. Such products are often staples of playground, sports field, and park-surface systems that incorporate plastics. Transparency mechanisms remain thin: Manufacturers are not generally required to disclose origins or production methods, and standard safety data sheets provide minimal sourcing information. Categories flagged in the *2024 List of Goods Produced by Child Labor or Forced Labor* report, produced by the U.S. Department of Labor as required by the Trafficking Victims Protection Reauthorization Act, include materials central to the landscape: stone, gravel, and rubber. Trubiano’s research, shared in a January 2026 webinar and subsequent report, will enable designers to ask informed questions, integrate transparency into everyday practice, and recognize that environmental stewardship and labor ethics are inseparable.

While Trubiano’s research will be an important step toward managing supply chain labor transparency, the scale and complexity of this problem can be daunting for landscape architecture firms without access to needed resources and tools. This reality underscores a critical need for tools that can translate the complexity of identifying forced labor within multilayered supply chains into information that design teams can readily

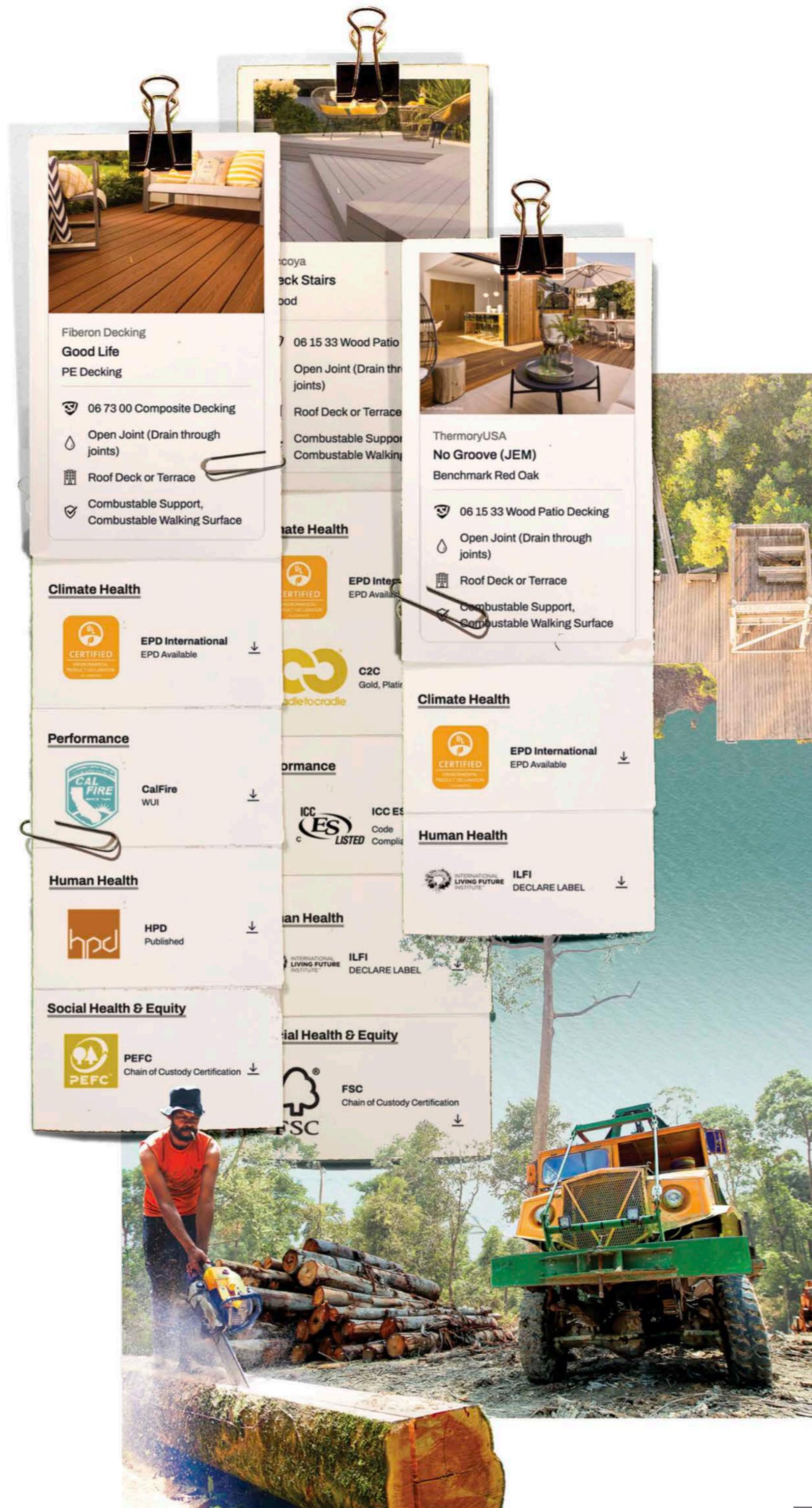
evaluate during material selection. Fortunately, new technology platforms can leverage big data, artificial intelligence, and industry collaboration to better illuminate the darker corners of global supply chains. By integrating forced-labor risk data alongside more familiar metrics, such as cost, embodied carbon impacts, material durability, and life cycle performance, these platforms aim to make ethical sourcing both feasible and routine for design firms of all sizes.

One such platform is Acelab, an AI-powered material specification tool established in 2020. Acelab has rapidly grown into a database of over 175,000 building products and is used by more than 20,000 design and engineering firms. “Designers hold so much influence in how we recommend and write specifications,” says Vardhan Mehta, Acelab’s CEO. “From the start, our vision was, let’s get every data point we can imagine an architect, owner, or contractor might need when making a material selection.” That meant aggregating not just product specs and green certifications but also socially responsible sourcing information.

Acelab’s platform works as a kind of one-stop digital library for materials. Designers can search for products like unit pavers or playground surfaces and immediately see all available options with filters for sustainability and ethics. “Users immediately have access to an unbiased source with up-to-date data on every manufacturer they might need,” Mehta

explains. It even tracks over 2,000 certification programs and standards, including Grace Farms’s Design for Freedom guidelines on forced labor. If a product lacks documentation, users can flag it. Acelab will then request missing certifications or data from the manufacturer on behalf of the design community. “The power of a few architecture firms—or hundreds of firms—building that pressure on manufacturers to make these documents available can have a real impact,” Mehta says. This flagging system means that the platform not only informs users but also has the potential to leverage their collective voice to demand transparency.

Mehta emphasizes that Acelab’s AI is carefully trained in the architecture domain to avoid misinformation. It runs on a proprietary taxonomy of building materials, with the data from each supplier kept private, meaning it isn’t used to train the global model. Weekly quality assurance cycles conducted by roughly 50 staff members train the AI by rewarding correct answers and penalizing incorrect ones to improve results. Importantly, Acelab offers a “Forever Free” option that includes full access to the materials database and research tools, a critical feature since a small design studio typically can’t hire supply chain auditors to ensure



that specifications are free of forced labor. In addition to the free model, Acelab offers pro and premium plans priced on a custom basis, which provide more advanced research, management, and integration capabilities. Manufacturers and distributors also have access to a free plan for basic product listings, along with tiered paid options that expand visibility and analytics.

Acelab is structured as a venture-backed start-up. In October 2025, it announced a \$13.5 million round of funding led by Navitas Capital, bringing the total to more than \$25 million. Venture capital at this scale is risk tolerant, providing strategic guidance, industry connections, and added credibility while supporting rapid hiring, product development, and market expansion that would be difficult to achieve with conventional financing. The trade-off is equity dilution and increased investor influence, which may motivate fast growth, high valuations, and clear financial returns. For a mission-driven effort that addresses forced labor in supply chains, this structure has the potential to cut both ways: Large funding rounds can enable the development of advanced technology-driven supply-chain tools and extensive certification datasets, but growth expectations might shape how resources are balanced between long-term transparency features and nearer-term commercial opportunities.

Another platform that supports ethical sourcing is BuildingEase, founded by sustainable design veteran Barbra BatShalom. BatShalom initially founded the Sustainable Performance Institute over a decade ago to help organizations shift from isolated green projects to a fully embedded sustainability practice. BuildingEase, which is free for designers and project teams, emerged from BatShalom's recognition that existing building material product databases weren't able to institutionalize sustainability practices within companies and even governments. "We didn't want to solve the problem of just finding ethically produced products—we wanted to solve the bigger problem of market transformation," BatShalom says. BuildingEase enables firms to centralize product data, set sustainability and material standards, and automate compliance across projects. This in turn helps architects, engineers, and owners make data-driven, ethical, and environmentally responsible choices. The platform's transformation goals incorporate climate impact, human health, ecosystem health, circularity, and forced-labor reduction. These goals are based on the Common Materials Framework provided by Mindful MATERIALS, a U.S.-based nonprofit that works with manufacturers, certifiers, and design firms to standardize materials data and

make it easier to compare the sustainability performance of building products during selection and specification.

BuildingEase is a public benefit corporation (PBC) as well as a software start-up, meaning its charter commits the company to pursue a defined public benefit related to healthier, lower-impact building materials alongside financial returns. PBC directors are required to consider the effects of their decisions not just on shareholders but also on stakeholders and the stated public benefit. This requirement gives PBCs explicit legal room to prioritize outcomes, such as labor-rights protections, sustainability, and market-transformation goals, even when those choices may constrain short-term profits. This structure can help attract values-aligned investors and customers who care about social and environmental outcomes, and it demonstrates that the platform's governance is formally tied to mission rather than solely to profit. Mission-driven enterprises and PBCs can still raise private capital. For instance, BuildingEase has received non-equity assistance funding from an accelerator. Even with these advantages, legal scholars and analysts note that the dual focus on profit and public benefit can create tensions and

Price discrepancies can indicate starkly different labor conditions or sourcing practices.

ambiguity about how “benefit” is defined and enforced, raising questions about accountability.

BatShalom believes that the power of community action is part of what drives progress. “We’re seeing a real spirit of collaboration in the BuildingEase community. People are sharing resources, starting discussions, and participating in virtual hackathons where people can crowdsource solutions,” she says. That community energy is paired with a pragmatic push to improve data quality. Certifications, while helpful, still suffer from inconsistent naming, data formatting, and even basic definitions of what constitutes a product. BuildingEase collaborates with Mindful MATERIALS and the industry-led Design for Freedom movement to align and digitize standards by 2026 so that what designers see in the interface maps cleanly to what suppliers provide and what owners require. As BatShalom puts it, “I want us to have enough verified, third-party data about products’ labor impacts so designers

can make fully informed choices. Our goal is to provide professionals with tools and information so that they feel empowered and capable of taking meaningful action.”

Taken together, tools like Acelab and BuildingEase might be understood as addressing different points in the same decision chain. Acelab positions itself as an all-in-one materials management and specification platform that helps designers research, compare, and select building products. BuildingEase, by contrast, presents itself as a platform that helps organizations create internal standards, manage master material lists, and check project lists for compliance. In practice, many firms may find Acelab especially useful for discovering and vetting products for specific needs and BuildingEase for institutionalizing standards and tracking compliance across projects, though there is overlap in how each tool can be implemented.



Both Acelab and BuildingEase also draw heavily on the guidance of Design for Freedom, the industry-wide movement spearheaded by the Grace Farms Foundation. Launched in 2020, Design for Freedom formalized a growing call within the building industry to confront the hidden human costs of materials (see “Breaking Bonds,” LAM, December 2022). The initiative includes architects, engineers, contractors, and manufacturers, with the goal of eliminating forced and child labor from building-material supply chains. The *Design for Freedom* report lays the groundwork for the movement’s ongoing work, and through a tool kit and pilot projects, the organization helps professionals identify risks and implement ethical sourcing. Brigid Abraham, the senior project manager for Design for Freedom, explains that each building material carries inherent risks of exploitation, and the tool kit maps out 12 major material categories—such as stone, timber, metals, and rubber—to help designers better understand those risks and take informed action.

Design for Freedom’s approach is research based, focusing on education and transparency rather than on compliance labels. Both Acelab and BuildingEase have integrated Design for Freedom’s resources, reflecting a broader shift toward interoperability among sustainability initiatives. Carbon-accounting, health, and labor data are beginning to converge, enabling designers to evaluate environmental and social impacts simultaneously. Abraham points out that price discrepancies—for example, when one supplier’s stone costs \$2 per unit while another’s costs \$20—can indicate starkly different labor conditions or sourcing practices. Technology-driven tools are accelerating access to this knowledge. “You can ask the AI for both carbon information and responsible sourcing information at the same time, which you can’t get with typical box checking,” Abraham notes. ●

AIDAN ACKERMAN IS AN ASSOCIATE PROFESSOR OF LANDSCAPE ARCHITECTURE AT SUNY COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY IN SYRACUSE, NEW YORK.