



design for FREEDOM toolkit

A comprehensive resource for design and construction professionals to implement ethical, forced labor-free material sourcing strategies into their practices



Is your building ethically sourced, without forced labor, as well as sustainably designed?

Since the release of the *Design for Freedom Report* in October of 2020, owners, designers, and construction professionals have been asking for a comprehensive resource to help them incorporate Design for Freedom Principles into their projects. **The *Design for Freedom Toolkit* provides means and methods for incorporating material transparency and circular value, and for prioritizing ethical selection and procurement on any construction, interiors, or landscape project, as well as in all material libraries.**

Forced labor is subsidizing the opaque and complex global building materials supply chain with impunity, and the issue remains remarkably unrecognized worldwide. Building materials comprise approximately 45% of costs on a construction project, yet they are generally not inspected, traced, or documented for fair, living wages. As construction is the largest industrialized sector in the world, it has a tremendous capacity to create a more humane future for the millions held in forced and illegal labor conditions.

One central question that needs to be asked by every AEC professional, investor, and soon the public: “Is your building ethically sourced, without forced labor, as well as sustainably designed?”

Since this question cannot be answered, we are raising awareness of this gaping human rights violation and initializing institutional responses. Given the private nature of commercial relationships, the lack of precise measurements, and qualitative research in a shadow economy, your transparency engagement will spur valuable insights and market shifts. Urgently, we aim to truncate the timeline it takes for the AEC industry to adopt Design for Freedom Principles by bringing the full ecosystem of the built environment around the table. By creating this Toolkit, already in use on our Design for Freedom Pilot Projects, collaborating with universities to educate future leaders, and continuing our partnership with over 80 industry leaders, we are making strides.

We are asking all design and construction professionals to join us as we galvanize the industry to create true market transformation and build a more equitable future together. Raising the question of whether fair labor or suffering is embedded in our materials is what puts us at the starting gate, and we hope this *Design for Freedom Toolkit* becomes well used in short order.

Onward together,



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step one

education

The first step to achieving an ethically sourced project is to educate your team, studio or organization about the scope and challenge of eradicating forced labor in building supply chains.

The disaggregated nature of the building industry requires action from those influencing the largest global supply chain – from governments, investors and owners, projects teams, manufacturers to extractors – and vigilance at every step of the building process.

This Toolkit contains resources for creating and adapting your own set of educational resources to address material transparency and circularity to your context, including guides for certification options, resources for further study, high-risk material spotlights, commonly used terminology of modern slavery, and talking points for introducing suppliers, clients, project teams, and collaborators to Design for Freedom.

learning and gathering tools

learning and gathering tools

educate your organization

key points to learn

- What is modern slavery, what are the highest risk materials for forced labor, what is the state of the industry, how can project teams best infuse Design for Freedom Principles?
- Familiarize yourself with the high-risk material spotlights that include relevant certifications, global hotspots, material overviews, global production data, applications, and end products.
- Study the *Design for Freedom Report* and Pilot Projects at designforfreedom.org

build your tools

- Become well-versed in the requirements of relevant certifications and examine your firm's standards, recognizing overlapping sustainable strategies that also include fair labor audits.
- Teach colleagues how to speak with suppliers and clients and build a common language for discussing forced labor issues.
- Explore library resources for material transparency; update your own Material Library with a Design for Freedom filter to make transparency goals legible and actionable.
- Create and cultivate relationships with suppliers. Maintain continual dialogue to support your network and increase awareness among your organization.



raw and composite materials at the highest risk of embedded slavery

Where there is no inspection, there is no accountability.

Given the current urgency to reveal supply chains, the rise of ESG investing and environmentally sustainable building practices, Design for Freedom is poised to be adopted by the AEC industry.

Materials inspection is the other half of a construction project's exposure to forced, child, and illegal labor. We now seek to extend an ethical labor ethos from the perimeter of the job site to the building materials supply chain, including subcontractors, manufacturers, processing, shipping and commodities-level providers in such areas as forestry, fiber, and mining.

The ubiquitous global materials listed here are the top building materials, along with electronics, at risk of being made with forced and child labor under the most horrific and dangerous conditions.

The complexity and sheer number of unique materials and products per building sourced globally make it difficult to gain insight into its end to end supply chain, yet there is a pathway forward. The construction industry already inspects materials for performance, health, environmental impacts, carbon sequestration; yet fair labor input assessments are missing.

Adding fair labor inputs to new and existing digitalization and transparency measures, *and* avoiding extractive resources where forced labor is the most prevalent are elemental to Design for Freedom. By incorporating material reuse strategies, circularity, prefabrication, biogenic building materials, living wages, and transparency into the global supply chain, we are creating the foundation for a more humane future of the built environment.

We ask the industry and project teams to gain insight and inspect the palette of at-risk raw and composite materials offered within this section.

bricks

copper

glass

minerals

polysilicon |
solar panels

precursors

rubber

steel & iron

stone

textiles

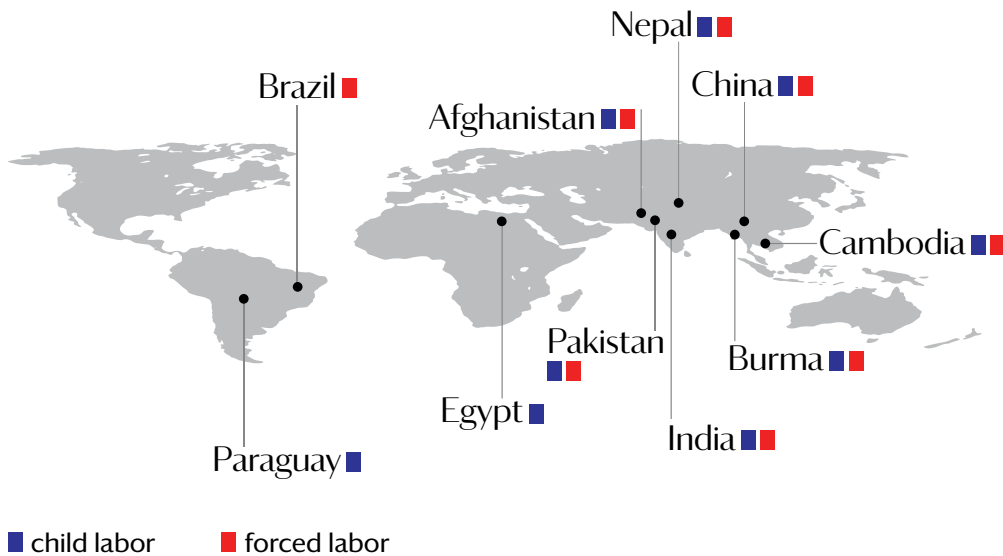
timber

bricks



Brick is one of the most used at-risk materials. Children and adults producing bricks are often held in debt bondage and breathe hazardous dust all day.¹

left: ©Sushavan Nandy/NurPhoto via Getty Images; right: ©Dennis Gilbert/View Pictures/Universal Images Group via Getty Images



Global hotspots²

Child and forced labor **Afghanistan** | **Burma** | **Cambodia** | **China**
India | **Nepal** | **Pakistan**

Limestone bricks Child labor **Egypt** | **Paraguay** | Forced labor **Brazil**

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BRICKS

Afghanistan Children in Afghanistan are subjected to the worst forms of child labor, including in commercial sexual exploitation, armed conflict, and forced labor in the production of bricks and carpets, sometimes because of human trafficking.³

Burma Children are forced by the military to work in the production of bricks in Burma. In some cases, children are recruited into the military and forced to live in barracks and work for years in brick production; in other cases, children are sent by their families on rotation to fulfill the military's forced labor mandate.⁴

Cambodia The rapid growth in the construction industry, particularly in Phnom Penh and Sihanoukville, has increased the demand for bricks and fueled child labor and debt bondage.⁵

China Child labor victims are from provinces across China; some children are abducted or trafficked through coercion and sold to work in brick kilns. The children are forced to work without pay under threat of physical violence, held against their will, watched by guards, and denied sufficient food.⁶

India In the State of Haryana alone, as many as 40,000 children, many of them forced laborers, are working in brick kilns. The kilns use a system of bonded labor in which children often work alongside other members of their debt-bonded families. Some of these children are forced to work as a guarantee for loans to their parents.⁷

Nepal Children ages 6-17 and some younger than age five are working under conditions of forced labor to produce bricks in Nepal. Two-thirds of the children are male. Between 30,000 and 60,000 children work in Nepal's brick kilns, of which up to 39% are working as bonded laborers. Migrant families, members of certain castes and ethnic minorities are particularly vulnerable to bonded labor in brick kilns.⁸

Bricks overview

Bricks, among the most at-risk materials made by forced and bonded labor, are primarily made from materials such as clay and sand or silica, commonly known elements in the building materials supply chain.⁹

Less likely known, however, is how the components that comprise brick are extracted from the earth's surface or from mines. These materials are made into bricks, fired into shapes and colored in kilns. This process can be rife with forced labor. In India for example, 96% of brick kiln molders have taken loans and had their wages withheld for months at a time.¹⁰

The pervasiveness of forced labor in the brick industry is a global issue, with more than 20 countries making the Department of Labor's *List of Goods Produced by Child Labor or Forced Labor* due to abuses in the industry.¹¹

In this fragmented industry, particularly in countries including Afghanistan, India, and Nepal, children and adults are often entrapped in employment agreements of debt bondage where the loan is impossible to pay off for generations.¹² [Better Brick Nepal \(BBN\)](#) is working to improve labor conditions in brick kilns in Nepal and established the BBN Standard.

Six major ingredients of brick¹³

Silica (SiO₂) 55% | **Alumina** (Al₂O₃) 30% | **Iron oxide** (Fe₂O₃) 8%
Magnesia (MgO) 5% | **Lime** (CaO) 1% | **Organic matter** 1%

Top 3 brick producing countries¹⁴

China 1 trillion bricks per year or 65% of global production

India 200 billion bricks per year or 15% of global production

Pakistan 45 billion bricks per year or 3% of global production

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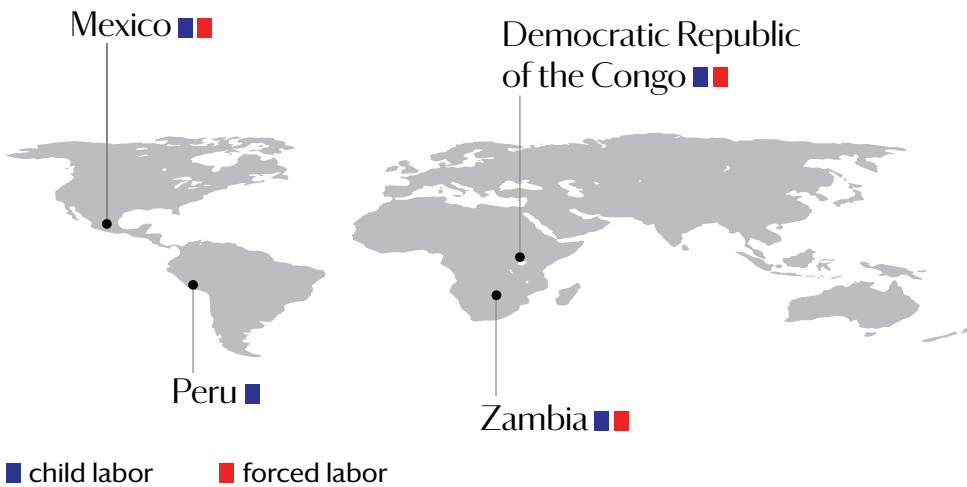
copper

relevant certifications

[The Copper Mark](#)

[Responsible Mineral Initiative](#)

[LME \(London Metal Exchange\)
Responsible Sourcing](#)



Global hotspots¹

Democratic Republic of the Congo (DRC) Child and forced labor

Zambia Child and forced labor

Mexico Child and forced labor

Peru Child labor

Democratic Republic of the Congo Children are exposed to mining, including carrying heavy loads, digging, sifting, sorting, transporting, using explosives, washing, and working underground in the production of copper.²

Approximately 15% of children between the ages of 5 and 17 in Congo are child laborers, most of whom are doing dangerous work.³

More than 11,000 tons of raw copper are produced by artisanal mines every month in DRC. Artisanal mines are more prevalent in high-risk areas.⁴

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COPPER

Zambia Most trafficking occurs within the country's borders and involves traffickers exploiting women and children from rural areas in cities in domestic servitude or forced labor in agriculture, textile production, mining, construction, and forced begging.⁵

Illegal mining syndicates, called Jerabo gangs in the copper-belt province employ children for mining activities, including forcing children to load trucks with stolen copper ore.⁶

Peru Children in Peru are subjected to the worst forms of child labor, including in mining and in commercial sexual exploitation, sometimes as a result of human trafficking. Peruvian law allows children ages 12 to 14 to do light work without specifying the activities in which children may work.⁷

Copper overview

Copper, a versatile material due to its conductivity, resistance to corrosion, along with its flexibility, is often used in our wiring, heating systems, and roofing. In fact, approximately half of the copper supply worldwide is used in buildings.⁸

Copper processing is complicated. It begins with mining of the ore, including copper oxide and copper sulfide. As with other at-risk building materials made with child and forced labor, the extraction and manufacturing of copper carries its own unique risks. From the Democratic Republic of the Congo to Mexico, workers are using their hands or rudimentary tools and often work in dangerous mines. Children are often used to navigate the small spaces.

Applications and end products⁹

Heating and cooling systems | Cladding | Flashing and coping | Refrigeration | Electronics | Copper wiring, piping, and tubing | Construction hardware | Gutters, downpipes

Top 4 copper producing countries¹⁰

Chile 5.6 million metric tons or 26% of global production

Peru 2.2 million metric tons or 10% of global production

China 1.8 million metric tons or 8% of global production

Democratic Republic of the Congo 1.8 million metric tons or 8% of global production



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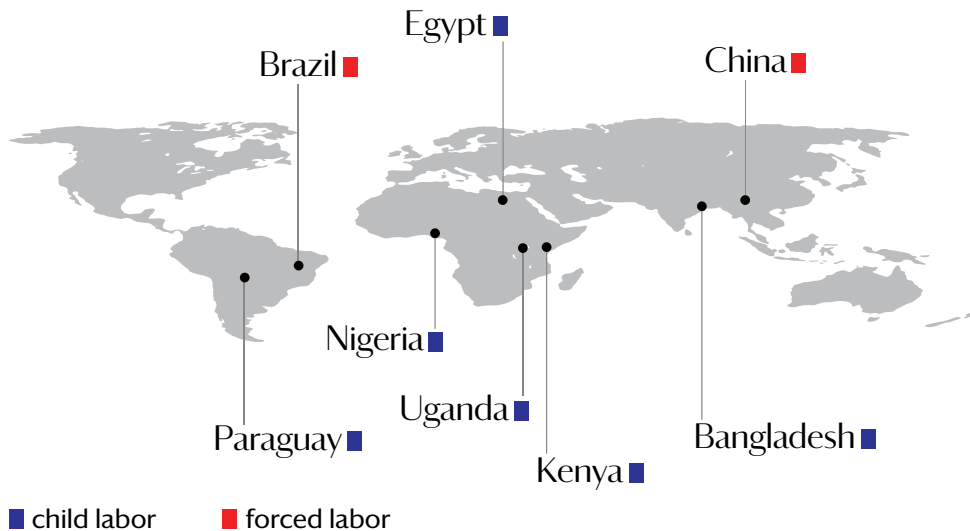
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glass



Global hotspots¹

Glass Bangladesh Child labor | China Forced labor

Sand Kenya Child labor | Nigeria Child labor | Uganda Child labor

Limestone Egypt Child labor | Paraguay Child labor | Brazil Forced labor

Silica China Forced labor

Glass overview

Glass is found in most building façades as well as in many interior applications. Commonly used glass products pose a significant risk, specifically with regard to child labor in mining the silica, soda ash, and limestone used in glass production.

Glass is a composite material composed of natural and abundant raw materials, such as sand, soda ash, and limestone, which are melted at high temperatures to form molten glass.²

Look for responsible mining certifications when sourcing glass as there is no industry standard that includes third-party audited labor inputs specific to glass.

- **Sand (silica)** is one main material used to create glass.³
- **Soda ash** is another material used in glass production. The production of glass is the largest use of soda ash globally in the construction industry.⁴
- **Limestone** Almost one-third of glass consists of limestone or calcium carbonate.⁵

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Applications and end products

Applications⁶

- **Building** Windows | Façades | Insulation | Reinforcement structures
- **Interior design and furniture** Mirrors | Partitions | Balustrades | Stove tops | Tables | Shelves | Lighting
- **Renewable energy** Solar-energy glass | Wind turbines
- **Insulation**

End products⁷

Embedded glass | Tempered glass | Borosilicate glass | Electronic glass | Float glass | Shatterproof glass | Laminated glass | Extra clean glass | Chromatic glass | Tinted glass | Toughened glass | Glass blocks | Glass wool | Insulated glazed units



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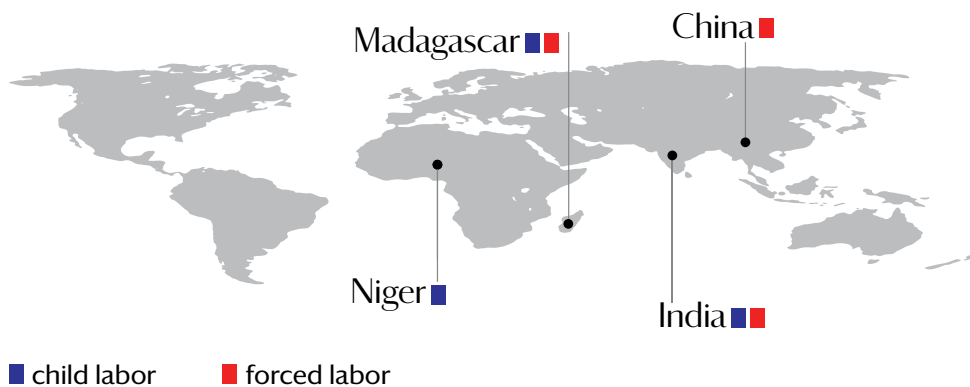
minerals mica, gypsum, silica

relevant certifications

[Initiative for Responsible Mining Assurance Standard](#)

[Responsible Mica Initiative](#)

[Responsible Minerals Initiative](#)



Global hotspots¹

China | India | Madagascar | Niger

Mica

Madagascar Child and forced labor: Madagascar exports more sheet mica globally than any other country. Notably, more than 85% of the country's exported mica is shipped to China, where it is used to manufacture products that are then distributed globally, including to the U.S.² Marginalized communities are most at-risk of the poor working conditions and economic exploitation that accompanies mica mining.³ It is estimated that 10,000 children suffer in these conditions.⁴ Typically, boys work underground digging to extract mica ore; some have suffocated to death in poorly ventilated mines.⁵ Above ground, girls haul and process mica and face frequent pressure from mica collectors to engage in sex for money.⁶

India Child and forced labor: India, the second largest exporter of sheet mica following Madagascar, has an estimated 22,000 children working in mines in the states of Jharkhand and Bihar. Most Indian mica mines are illegal.⁷

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MINERALS

Gypsum

Niger Child labor: Children in Niger are subjected to the worst forms of child labor, including in hereditary slavery and mining, each sometimes as a result of human trafficking.⁸

Silica

China Forced labor⁹

Mica overview

Mica is a particularly pernicious, shiny silicate mineral that creates more beautiful and efficient building materials, like gypsum board, paints, steel, and architectural concrete; yet it is widely dependent on child labor at the extraction level in impoverished areas of Madagascar and India. Madagascar is the 4th largest global producer of mica, behind China, Finland, and the U.S.¹⁰

Mining mica is a labor-intensive process that requires squeezing through narrow shafts that are prone to collapse leading to child exploitation and entrapment in the mines.¹¹

Those mining mica are constantly exposed to dust, which can develop into pneumonia and severe respiratory illness. In addition to illness, the children often lack the proper tools, leaving them only their bare hands which often leads to cuts and infection.¹² **Shockingly, children are estimated to make up 62% of the mining workforce in Madagascar.**¹³ As with all forms of forced and child labor exact numbers are next to impossible to pinpoint due to the secretive nature and overt effort to hide such activity.¹⁴

Micas are natural minerals that are found within layers of granite and other rocks excavated from quarries and have a wide range of applications in many different industries due to its diverse optical, functional, electrical, and thermal insulation properties.¹⁵

Mica applications and end products¹⁶

Joint compound | Gypsum wallboard | Paint | Transformers and other electrical components | Plastic sound proofing insulation | Architectural concrete | Glass | Plastics | Rubber | Thermal insulation

Gypsum overview

Modern concrete has allowed for new achievements in efficiency and design innovation; the seeming simplicity of the finished product can disguise the many ingredients – from gypsum to gravel – which have been associated with forced labor.

Although gypsum is widely used in many industries across the globe, Niger is the only country to be directly implicated by the Department of Labor to have a child labor problem at this time.¹⁷ Gypsum, or calcium sulfate hydrate, is a mineral located within layers of sedimentary rock throughout the world.¹⁸ Gypsum is used for making Portland cement, drywall, and to build cement roads and highways.

Gypsum applications and end products^{19,20}

Casting | Packaging | Gypsum | Wallboard | Textiles | Cement | Plaster | Tiles | Blocks | Paper

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Silica overview

The demand for silica sand as a foundation and façade essential raw material has exceeded supply in areas of rapid construction, creating an increased vulnerability to forced and child labor.²¹ In India, the annual amount of construction sand used has increased three-fold since 2000 and continues to rise.²² Although China currently produces 70% of the global silica supply, it is estimated that China has used more sand in this decade than the United States did in the entire 20th century.²³ The demand is so high for certain types of construction sand that Dubai, a nation surrounded by sand, has been importing sand from Australia.²⁴ In addition to China; Russia, and Brazil have evidence of forced labor in their mining industries, so silica should be inspected further if sourced from those countries.

Silica sand has countless uses in construction, as it is highly useful and necessary for making quality concrete and mortars.²⁵ Glass is the most visible product of silica sand which is formed from the molten state without crystallization.²⁶ However, silica can commonly be found within flooring, mortars, cement, roofing shingles, asphalt, and other industrial materials.

Silica applications and end products^{27,28}

Ceramics | Chemical industry | Non-slip flooring | Sand | Stone | Concrete | Mortar | Glass | Pottery | Bricks | Artificial stone | Solar panels | Latex paint | Drywall joint compound | Asphalt

Top 4 mica producing countries²⁹

China	95,000 metric tons or 26% of global production
Finland	65,000 metric tons or 18% of global production
United States	43,000 metric tons or 12% of global production
Madagascar	35,000 metric tons or 10% of global production

Top 3 gypsum producing countries³⁰

United States	23 million metric tons or 15% of global production
Iran	16 million metric tons or 11% of global production
China	13 million metric tons or 9% of global production

Top 3 silicon (raw silica) producing countries³¹

China	6 million metric tons or 71% of global production
Russia	580,000 metric tons or 7% of global production
Brazil	390,000 metric tons or 5% of global production

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polysilicon | solar panels

relevant certifications

[ASI Chain of Custody Standard \(v1\) and Performance Standard \(v2\)](#)

[Copper Mark Certification](#)

[Initiative for Responsible Mining Assurance Standard](#)

[Responsible Minerals Initiative](#)

[ResponsibleSteel Certification](#)

Solar panels are not a sustainable solution if human rights violations are embedded in them.



Global hotspot'

China

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Import ban²

In June 2021, U.S. imports of a key solar panel material from Chinese-based Hoshine Silicon Industry Co. were banned.

This could have a broad impact on the U.S. solar industry, as the world's top eight polysilicon manufacturers, which produced more than 90% of the solar-grade polysilicon output in 2020, have all been mentioned by Hoshine as customers.

Uyghur Forced Labor Prevention Act³

President Joe Biden signed the Uyghur Forced Labor Prevention Act (the Act) into law in December 2021. The Act requires the U.S. government to rapidly develop a new enforcement strategy to strengthen the prohibition of the importation of goods made through forced labor into the United States.

The Act creates a rebuttable presumption that goods produced in whole or in part in the Xinjiang Uyghur Autonomous Region (XUAR) of China are produced with forced labor and are prohibited from importation. Therefore, importers must prove no forced labor was used.

Polysilicon | Solar industry overview

Recently, the overwhelming share of the demand for polysilicon has moved from the semiconductor industry to the solar industry.⁴ The primary raw material used to produce photovoltaic cells is quartz, which is found extensively in the vast deserts of the Uyghur Region in China. Around 95% of solar modules rely on one primary material – solar-grade polysilicon. Polysilicon is melted and shaped into ingots, which are in turn sliced into wafers, and then constructed into photovoltaic cells.⁵

The solar industry has long been subsidized with cheap and forced labor.⁶ This allows relatively inexpensive products to flood the market and stifles the modernization of the industry by reducing the need for research and innovation. There is an inverse relationship between driving costs lower and the risk of raising human cost.

Even with exponential growth, the solar industry is still largely opaque in terms of its supply chain. In the last decade alone, solar has experienced an average annual growth rate of 33%. In 2019, the solar industry generated \$24.1 billion of private investment in the American economy. Despite obstacles posed by the pandemic, the U.S. solar market set a new annual record with 19.2 gigawatts (GW) installed in 2020.⁷

With 45% of the global supply of solar-grade polysilicon coming from the Xinjiang region alone, the supply chain lacks major oversight.⁸ Additionally, panel manufacturers buy silicon solar wafers from companies who in turn purchase polysilicon from other producers, thus making it difficult to track every step in the process.⁹ Further complexities in the supply chain are found in the additional materials necessary to produce the panels, including such high-risk components as copper, aluminum, silver, steel, and glass.

There are emerging solar energy technologies that remove the need for using polysilicon in panel construction including cadmium telluride, perovskite quantum dots, and organic photovoltaics. Subsidies and investment will be necessary in order to scale up future solutions.

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Solar panel components

Copper Copper is necessary to conduct power for PV systems. It is also needed to connect solar cells to the electrical grid and ensure the technology is reliable and efficient.¹⁰ PV Systems utilize approximately 5.5 tons of copper per MW of power.¹¹

Aluminum Many solar companies are turning to aluminum to build their frames and mounting systems, due to the fact that it is highly malleable. Aluminum is 100% recyclable, an important consideration for many renewable energy companies.¹²

Silver Silver is a core element of solar panels, as it has the highest electrical and thermal conductivity of all metals. A paste containing silver is a critical application in both photovoltaic cells and 90% of crystalline silicon photovoltaic cells.¹³

Steel For every new MW of solar power, 35-45 tons of steel are required.¹⁴

Glass Solar Glass is necessary to protect solar panels from dirt, water, and vapor.¹⁵

Applications and end products¹⁶

Solar panels | Appliances | Semiconductors | Heavy machinery



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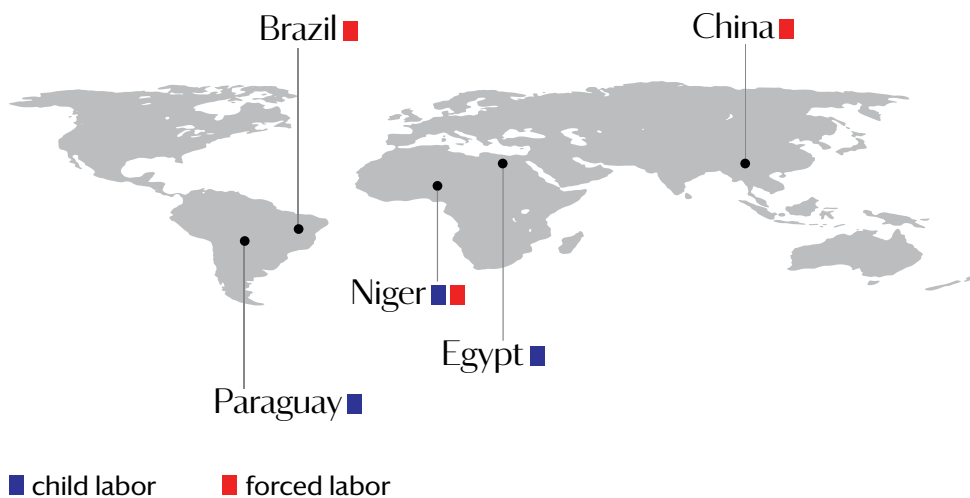
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precursors

sodium carbonate, calcium carbonate

Precursors are compounds and minerals used in the manufacturing process that participate in a chemical reaction that produces another compound. Sodium carbonate (soda ash) and calcium carbonate (limestone) are examples of precursors widely used in the construction sector.¹



Global hotspots²

Brazil | **China** | **Egypt** | **Niger** | **Paraguay**

Sodium carbonate (soda ash)

China Forced labor | **Niger** Child and forced labor

Calcium carbonate (limestone)

Egypt Child labor | **Paraguay** Child labor | **Brazil** Forced labor

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PRECURSORS

Precursors overview

Sodium and calcium carbonates generally have an unregulated extraction process with hazardous conditions, thus at risk of forced labor, yet are critical to two widely used building components – glass and concrete.

Sodium carbonate (soda ash) is one of the world’s most abundant natural resources and deposits can be found throughout the world, with some of the larger deposits located in the United States, Botswana, China, Uganda, Kenya, Peru, Mexico, India, South Africa, Egypt, and Turkey.³ There are more than 95 sodium carbonate deposits identified worldwide and the United States has the world’s largest deposit of buried trona, the raw mineral used to make soda ash, in River, Wyoming. This deposit is large enough to sustain the domestic demand for soda ash for hundreds of years.⁴ The most common use of soda ash is in glass manufacturing, where it can be used for flat glass as well as fiberglass insulation.⁵

Calcium carbonate (limestone) is a mineral found worldwide that also comprises 4% of the earth’s crust. Its most common natural forms are chalk, limestone, and marble. The largest usage of calcium carbonate is in the construction industry, mostly as a filler material in substances like cement or in its natural form of limestone and marble.⁶

As limestone is one of the primary materials containing calcium carbonate, it is at risk for being procured using forced labor.

Calcium carbonate end products⁷

Steel | Glass | Paper | Mortar for bonding bricks, concrete blocks, stones, roofing shingles, rubber compounds, and tiles | Cement | Marble

Top 3 soda ash producing countries⁸

Unites States 12 million metric tons or 71% of global production

Turkey 4.4 million metric tons or 26% of global production

Botswana 260,000 metric tons or 1.5% of global production



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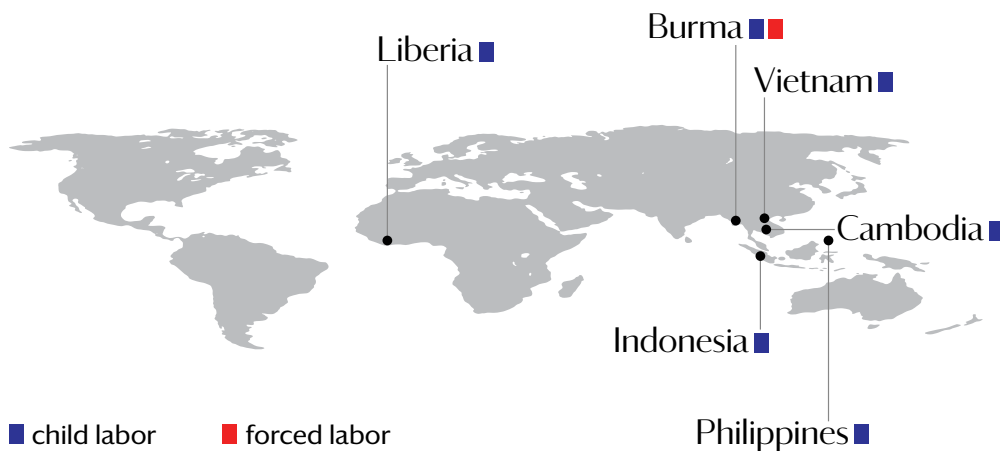
rubber

relevant certifications

[PEFC Certification for Rubber Growers](#)

[Fairly Traded Natural Rubber](#)

[Forest Stewardship Council \(FSC\) Certifications](#)



Global hotspots¹

Burma Child and forced labor | **Cambodia** Child labor | **Cote d'Ivoire** Child labor² | **Indonesia** Child labor | **Liberia** Child labor | **Philippines** Child labor | **Vietnam** Child labor

Burma Children as young as age nine produce rubber in forced labor conditions. Villagers, including children, are forced to cultivate rubber plants in nurseries and on plantations.³

Cambodia Child labor is found in the agriculture industry in the production of rubber. Insufficient resources hamper the ability to enforce child labor laws, especially in rural areas where a majority of child laborers work.⁴

Indonesia It is estimated that more than 1.5 million children 10-17 years old are working in the agricultural sector on rubber plantations.⁵

Liberia Children in forced labor conditions producing rubber work in dangerous environments and are often unable to attend school. This exploitation of children is exacerbated by poverty, the cost of adult labor, limited inspection of job sites, and enforcement of child labor laws.⁶ Liberia has a long history of forced and child labor in the rubber industry and production of tires.

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RUBBER

Philippines The enforcement of child labor laws is difficult in the Philippines, as there are a limited number of inspectors and a lack of resources hinders the ability to inspect job sites and assess penalties.⁷

Vietnam It is estimated that more than 10,200 child laborers grow rubber in Vietnam. More than 40% of these are under 15 years old, which is the earliest age at which children are permitted to work in Vietnam.⁸

Rubber overview

For more than a century, forced labor has plagued the rubber industry. Whether synthetic or natural, rubber is intertwined in our day-to-day lives and in the making of our building materials. Natural rubber is made by extracting a liquid sap, called latex from rubber trees. Synthetic rubber, considered more resistant to wear and tear, is made from petroleum by-products.⁹ The rubber market is growing. In 2019, the rubber market was \$40.77 billion and is projected to reach \$51.21 billion by 2027.¹⁰

Regardless of whether it is natural or synthetic, child and forced labor is rampant in rubber production in countries such as Burma, Cambodia, and Indonesia.¹¹ There is a long history of children and adults being enslaved on rubber plantations, particularly in Liberia, working to meet extreme production quotas with little food or water. The factory workers making latex products, for instance, are also subject to harsh labor practices with little or no oversight for their well-being.

Applications and end products

Synthetic rubber applications¹²

GR-S synthetic rubber | Nitrile | Butyl | Neoprene | Sulfide rubber | Silicone rubber

End products¹³

Polymer mortar | Polymer concrete | Rubber flooring tiles | Neoprene

Top 3 natural rubber producing countries¹⁴

Thailand 4.7 million metric tons or 32% of global production

Indonesia 3.37 million metric tons or 23% of global production

Vietnam 1.23 million metric tons or 8% of global production



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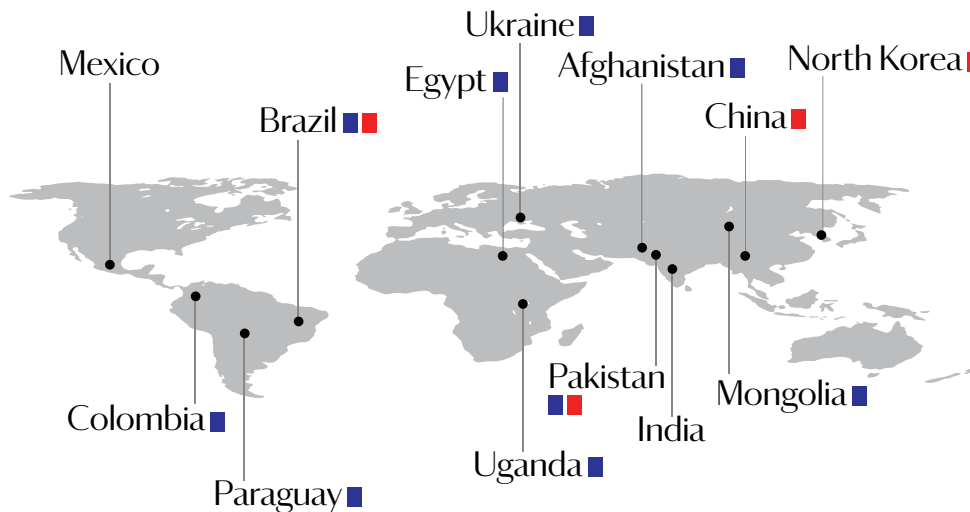
relevant certifications

[Initiative for Responsible Mining Assurance Standard](#)

[LME \(London Metal Exchange\) Responsible Sourcing](#)

[Responsible Minerals Initiative](#)

[ResponsibleSteel Certification](#)



Global hotspots¹

Afghanistan | **Brazil** | **China** | **Colombia** | **Egypt** | **India** | **Mexico** | **Mongolia** | **North Korea** | **Pakistan** | **Paraguay** | **Uganda**

Iron ore **North Korea** Forced labor | **Pig iron/charcoal** **Brazil** Child and forced labor | **Charcoal** **Uganda**² Child labor | **Limestone** **Egypt** Child labor
Paraguay Child labor | **Coal** **Afghanistan** Child labor | **China** Forced labor
Colombia Child labor | **Mongolia** Child labor | **North Korea** Forced labor
Pakistan Child and forced labor

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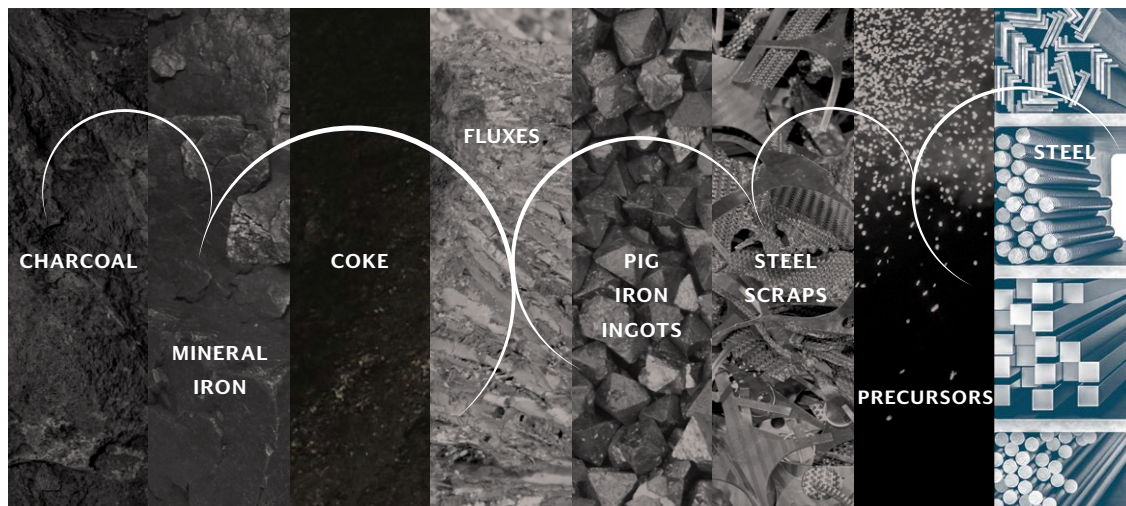
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STEEL AND IRON

Brazil Brazil is a major exporter of pig iron, a primary ingredient of steel, that is produced using charcoal.² Though the Brazilian government has attempted to address slave labor within the industry, effective monitoring is limited, and many instances of forced labor and/or poor working conditions are still reported.³ Traffickers target those who are marginalized, including Afro-Brazilian men, women, and children. Once they are trafficked, they are held in forced labor to produce charcoal, mine, and work in construction.⁴

Mexico Iron ore mining in Mexico is a highly lucrative business for drug cartels that export ore to Chinese mills.⁵ As the organized crime epidemic has infiltrated the industry, miners have been left with few labor protections, leaving them exposed to violence, human trafficking, and other human rights abuses.⁶

Pakistan In Sindh, Punjab, and Balochistan, agriculture, brick kiln, mining, and construction industries often fail to follow labor laws and there is little or no government oversight.⁷ Child laborers in Pakistan, particularly boys, often are victims of commercial sexual exploitation.⁸ Evidence of children working in life-threatening mines has been documented in Balochistan.⁹



© Getty Images/iStockphoto (8)

Source: Grace Farms Foundation

Steel and iron overview

As a primary and preferred structural building material, steel combines tensile strength with low cost, but can also come with a high human cost. There are many points of potential forced labor along the steel supply chain due to the hazardous conditions and lack of transparency ranging from extraction and smelting to production, rolling, and erecting. Almost 98% of iron ore is used in blast furnaces to make pig iron, which is the main material for steelmaking.¹⁰ Global steel production averages 2 billion tons of crude steel every year, approximately half of which comes from Chinese mills. Steel service centers, through which 70% of steel flows from mills to end users, are an important pivot point in the supply chain.¹¹

Steel has emerged as a sustainable construction material through a high rate of structural steel's end of building life reuse, at 98% in the U.S.¹² Not only has the industry reduced carbon emissions and water usage, but recycling and use of steel scraps eliminates the extractive end's forced-labor risk in the supply chain.¹³

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STEEL AND IRON

Building with steel allows for assemblies to be prefabricated offsite which provides project benefits including shorter construction schedules and increased labor oversight.

Steel ingredients

Steel, an alloy of iron with carbon and other minerals, has a two-pronged production method that traditionally first adds concentrated carbon to 4.5% by adding coke to mineral iron and fluxes (e.g., nickel, chromium, manganese, molybdenum, titanium, vanadium, or tungsten) to create pig iron.¹⁴ Thereafter, carbon is reduced through high-intensity furnaces and, with the addition of further fluxes/precursors, iron converts into steel.¹⁵

Applications and end products

Applications¹⁶

Structural sections These provide a strong, stiff frame for the building and make up 25% of the steel use in buildings

Reinforcing bars These add tensile strength and stiffness to concrete and make up 44% of steel use in buildings

Sheet products These products include roofing, purlins, internal walls, ceilings, cladding, and insulating panels for exterior walls

Non-structural steel Steel is also found in many non-structural applications in buildings, such as heating and cooling equipment and interior ducting

Internal fixtures and fittings Rails, shelving, and stairs are also made of steel

End products¹⁷

Buildings Metal roofing | Steel beams | Reinforcing steel | Mounting brackets

Infrastructure Bridges | Steel safety barriers for roads, lighting and high voltage pylons | Railings and railways

Applications and end products

Iron alloys¹⁸

Steel | Stainless steel | Carbon steel | Iron and nickel | Iron and manganese
Iron and tungsten | Mixer paddles | Augers and dies | Liner plates for ball mills,
coal chutes | Wire guides for drawing wires | Ducts | Chains | Mill linings |
Gas burners | Gears

Top 3 raw steel producing countries¹⁹

China 1.1 billion metric tons or 58% of global production

India 120 million metric tons or 6% of global production

Japan 92 million metric tons or 4% of global production

Top 3 iron ore producing countries²⁰

Australia 900 million metric tons or 35% of global production

Brazil 380 million metric tons or 15% of global production

China 320 million metric tons or 12% of global production

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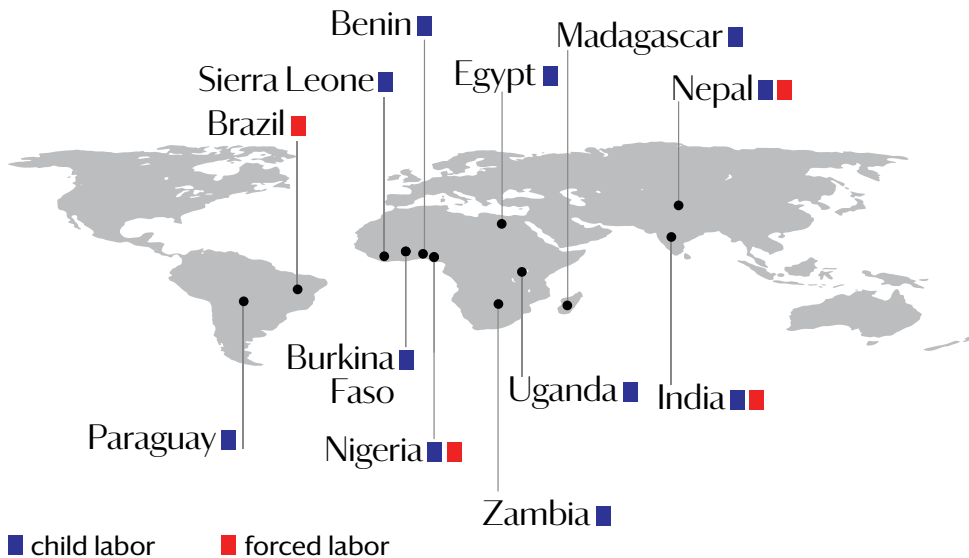
stone

relevant certifications

[Ethical Stone Register](#)

[Fair Stone](#)

[XertifiX Standard-Label](#)



Global hotspots¹

**Brazil | Benin | Burkina Faso | Egypt | India | Madagascar | Nepal
Nigeria | Paraguay | Sierra Leone | Uganda | Zambia**

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STONE

Stone and sandstone

India² Child and forced labor

Madagascar³ Child labor: Children involved in stone quarrying use dangerous tools with no protection and work in the outdoor heat.

Nepal⁴ Child and forced labor: Children as young as age five are forced to quarry stones in Nepal. These children work as bonded laborers, often working alongside their parents and other family members in quarries and riverbeds across the country.

Uganda⁵ Child labor: Children as young as age seven work in stone quarries in Uganda. Children, primarily boys, quarry and break stone in three of the country's four regions. Workers, including many children, are also known to quarry stone in informal, artisanal quarries.

Zambia⁶ Child labor: Children work in quarries, including carrying heavy loads, and crushing stones.

Limestone

Egypt⁷ Child labor | **Paraguay**⁸ Child labor | **Brazil**⁹ Child labor

Granite

Sierra Leone¹⁰ Child labor

Burkina Faso¹¹ Child labor: Children ages 5-17 work in granite quarries in Burkina Faso. Numerous incidents of child labor have been reported in these quarries, and the problem is increasing.

Benin¹² Child labor: Between 5,000 and 6,000 children from Benin are forced to work in granite quarries.

Granite and gravel

Nigeria¹³ Child and forced labor: Children, mostly boys ages 4-17, are forced to quarry granite in Nigeria and some children are abducted and trafficked.

Stone overview

Child and forced labor within the stone industry can be found in the sandstone, limestone, granite, and gravel mining pits throughout the world, although most notably in Africa and southern Asia.¹⁴ The global demand for stone in infrastructure, concrete, and interior design projects perpetuates exploitation within the industry.

Stone is utilized in many ways throughout residential and commercial buildings as an ubiquitous building material. Stones used in construction include sandstone, basalt, granite, limestone, travertine, and slate.

The stone supply chain is often complicated, unregulated, and opaque. The complexity is made more difficult due to the various stages of stone production, including cutting, splitting, polishing, and washing. All of this work is done by multiple intermediaries even before the stone reaches the final stages of sale and is ultimately transported to the consumer.¹⁵

Applications and end products^{16,17,18}

Road work | Interior and exterior design | Metal manufacturing | Glass industry | Slabs | Blocks | Countertops | Tiles | Interior design (fireplaces, bathtubs, etc.) | Kitchen accessories | Fireproofing purposes | Foundation for structures | Cement and concrete aggregate | Slate roofing

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textiles

relevant certifications

[Better Cotton](#)

[Fairtrade Cotton Mark](#)

[Fairtrade Textile Standard](#)

[FSC Certified Viscose](#)

[Global Organic Textile Standard](#)

[Good Weave](#)

[Leather Standard by Oeko-Tex](#)

[Responsible Wool Standard](#)

[Step by Oeko-Tex](#)

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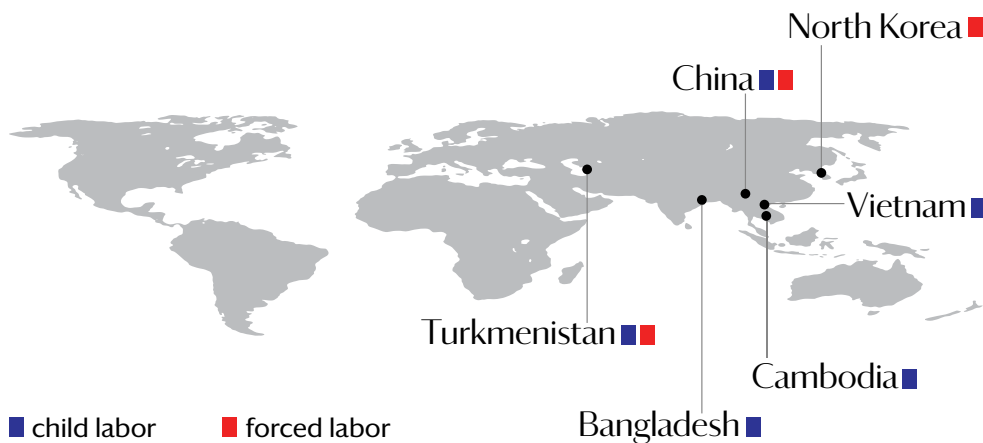
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Global hotspots¹

Bangladesh Child labor | **Cambodia** Child labor | **China** Child and forced labor | **North Korea** Forced labor | **Turkmenistan** Child and forced labor | **Vietnam** Child labor

TEXTILES

Bangladesh Children perform dangerous tasks in garment and leather goods supply chains.²

Turkmenistan On May 18, 2018, CBP issued a Withhold Release Order (WRO) banning the importation of all Turkmenistan cotton or products produced in whole or in part with Turkmenistan cotton.³

China Xinjiang is undergoing an expansion of the textile industry. Victim testimonies, news media, and think tanks report that textile factories frequently engage in coercive recruitment, limit workers' freedom of movement and communication, and subject workers to constant surveillance, retribution for religious beliefs, exclusion from community and social life, and threaten family members.⁴ Textile output from China accounts for more than 50% of the global market.⁵

Textiles overview

Interiors, which include a wide array of uses for textiles, are a gateway with a lower financial entry point and an existing ethically-sourced pathway to adopt Design for Freedom Principles on a Pilot Project or consumer purchases of upholstery, carpet, or window coverings.

Recent shifts in consumer preferences have created a demand for increased visibility in the textile industry, thus the greatest level of transparency and number of ethical and sustainable textile certifications above. Yet, adoption of ethical textile sourcing requirements has not been acknowledged or incorporated into commercial and residential interior design projects within the construction sector.

The high-risk garment industry made some progress in providing transparency and has taken steps to address exploitation within their supply chain, due to widely reported human rights violations from sweatshops to the end fiber source. The apparel industry offers us a field guide on transparency and consumer demand.

Interior design projects, renovations, and retrofits can serve as an entry point for many firms to apply Design for Freedom Principles into their material selection.

Applications and end products⁶

Indoor/outdoor surfacing | Roofing material | Thermal insulation | Building façades | Interior design products | Furniture | Acoustical panels | Fabric-wrapped wall panels and partitions | Textile reinforced concrete | Fiber grids | Fiberglass | PTFE-coated fiberglass membrane | Vinyl-coated polyester | Film | Shade cloth

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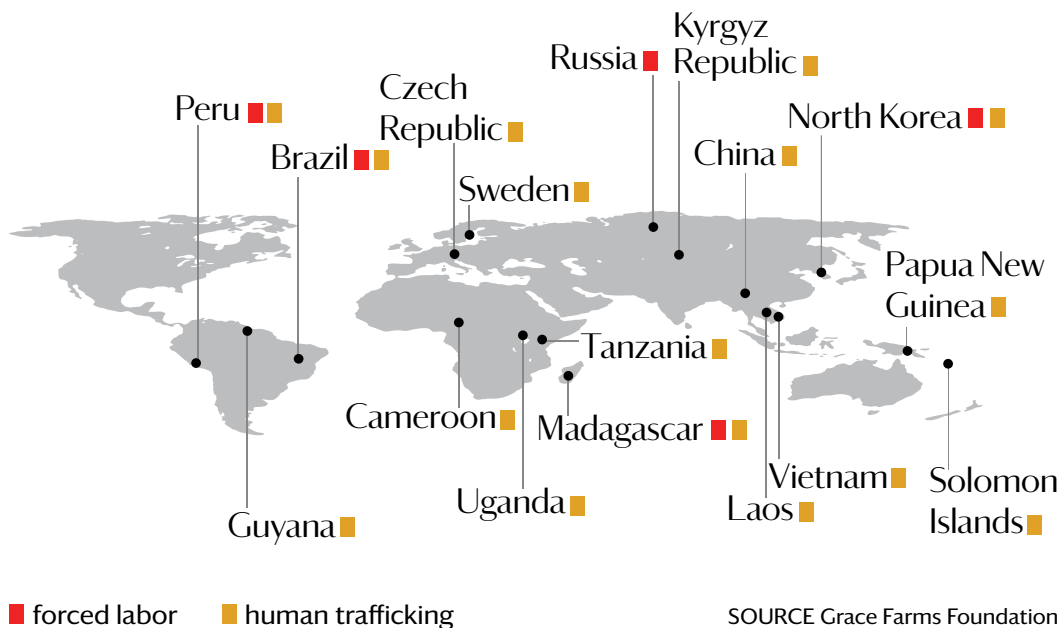
relevant certifications

American Tree Farm System (ATFS)

Forest Stewardship Council (FSC) Certifications

Programme for the Endorsement of Forest Certification (PEFC)

Sustainable Forestry Initiative (SFI)



Global hotspots¹

Brazil | Cambodia | Peru | North Korea | Russia | Vietnam

High-risk illegal logging which can include forced labor:

West Africa Nigeria, Cameroon, Senegal, Gambia

East Africa Tanzania, Mozambique, Madagascar

Central Africa Democratic Republic of the Congo

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TIMBER

Brazil In addition to the use of labor trafficking, large swaths of illegal timber flow out of Brazil.² In May 2021, Brazilian police carried out raids in locations connected to government officials in a investigation of allegations they allowed illegal exports of timber from the Amazon region to the United States and Europe.³ Between February 2020 and May 2021, approximately 100,000 metric tons of timber were exported to the United States, France, Japan, Germany, and Belgium, of which a portion came from rainforest species considered threatened by the Brazilian Forestry Service (SFB).⁴ The most common wood in these shipments are from trees prized for their durability, making them ideal for use in the shipbuilding industry. These species included angelim-pedra, itaúba, garapeira, and cerejeira. SFB has labeled these species as vulnerable.⁵

Peru It is estimated that over 60% of the timber inspected by Peru’s Agency for the Supervision of Forest Resources and Wildlife (OSINFOR) in multiple regions has illegal origins.⁶ The 60% figure has been deemed to be on the conservative side because it reflects only OSINFOR supervised forests, which are only about 40% of Peru’s total forests.⁷ There have been multiple instances of organizations being accused and found guilty of the import/export of illegal timber from Peru.⁸

In September 2021, Global Plywood and Lumber Trading LLC pleaded guilty to importing illegal Peruvian timber. The company violated the Lacey Act, which prohibits the importation of illegal timber into the U.S.⁹

Russia Despite reports that the Democratic People’s Republic of North Korea (DPRNK) has operated camps in Russia that have forced thousands of North Korean workers into forced labor conditions, the Russian government did not identify any North Korean trafficking victims or screen them for trafficking indicators.¹⁰ Reports of labor trafficking have continued with North Koreans in Russia experiencing exploitation in logging, sawmills, and other construction-related industries.¹¹

In 2019, Russia exported more than \$12 billion in timber. Much of the wood that is logged in the east of the country – upwards of 50% – is believed to be illegally harvested.¹²

Timber overview

Timber is one of the most widely used construction materials in the world. Timber from Brazil and Peru is ranked as the fifth largest product by value (estimated at \$100 billion) at risk of forced labor imported into the U.S.¹³ Up to 50% of illegal logging globally is dependent on forced labor.¹⁴ With imports valued at \$44.5 billion in 2019, the U.S. is the world’s second largest importer of wood globally and imports hard and soft woods from countries that have high rates of forced labor in their own logging industries. Given that an estimated 38% of wood products globally are being used for buildings and construction, an examination of timber’s provenance and the labor input is the responsibility of all decision-makers on design, construction, and manufacturing teams worldwide.¹⁵

Between 10% and 30% of globally traded timber is illegal, and for tropical hard and soft woods, that figure may be as high as 90%.¹⁶ China is the world’s largest importer of illegal timber. China also often processes wood that is found in illegal shipments coming from Africa and Asia before being sent to other countries around the world for use in construction and products.¹⁷ Workers in illegal timber operations are vulnerable to unsafe working conditions without regulations due to their remote locations, government corruption, and lack of oversight and regulation.¹⁸ Illegal logging is not just associated with modern slavery, but also with other illicit activities such as militias, child soldiers, organized crime, and terrorist outfits.

For more in-depth information on timber species, go to the [Design for Freedom Report](#).

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TIMBER

At-risk sawn wood timber¹⁹



Brazil softwood

Pine



Brazil & Peru hardwood

Peru: White Oak
Walnut

Brazil: Tropical Lumber (i.e., Teak, Mahogany, Ipe)



Russia softwood

Pine
Spruce
Fir



Russia hardwood

Oak
Birch
Aspen
Elm

Source: Grace Farms Foundation

Applications and end products

Sawn timber²⁰

Architectural roof trusses, cladding, decking, fencing, flooring, framing, pergolas | Rails, balustrades; interior/exterior | Retaining walls | Stairs | Packaging

Wood veneer²¹

Laminated wood | Furniture applications and decoration | Interior doors | Mosaics | Inlays | Flooring decoration | Door cladding

Plywood²²

Laminated wood | Furniture | Formwork for wet concrete | External wall construction | Flooring systems | Packaging

Laminate wood²³

Flooring | Furniture | CLT (Cross-Laminated Timber)²⁴ | Doors | Cabinetry

Percentage of global consumption & production

Global consumption (2020)²⁵

Industrial roundwood

18% United States
12% China
9% Russian Federation
7% Brazil
6% Canada

Sawn wood

25% China
22% United States
5% Germany
3% Canada
3% Japan

Wood-based panels

41% China
13% United States
3% India
3% Germany
3% Russian Federation

Global production (2020)²⁶

Industrial roundwood

19% United States
10% Russian Federation
9% China
7% Brazil
7% Canada

Sawn wood

18% China
17% United States
9% Russian Federation
3% Canada
6% Germany

Wood-based panels

44% China
9% United States
4% Russian Federation
3% Germany
3% India

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relevant certifications, labels, and standards

While we acknowledge that we cannot “certify” our way out of the problem, we recognize that certifications can and should be part of the solution. Certifications and standards that include fair labor audits can illuminate the products, suppliers, and manufacturers that are taking steps to create ethical construction material supply chains. In coming years, additional digital tools will hopefully give greater visibility further down the supply chain, with more specificity as to individual products and materials.

Material specific supplier product certifications, labels & standards

[American Tree Farm System \(ATFS\)](#)

Family forest owners can receive this five-step, third-party verified certification and become part of a vast network of sustainably-managed forestland.

[ASI Chain of Custody Standard and Performance Standard](#)

From the Aluminum Stewardship Initiative, these standards serve ASI members who want to create responsible supply chains by providing a common standard in the production of aluminum on environmental, social, and governance performance.

[Better Brick Nepal Standard](#)

BBN Standard sets measurable, verifiable criteria against which a “better brick” can ultimately be certified. BBN is a collaboration between the Global Fairness Initiative (GFI), GoodWeave International (CWI), and several Nepali NGOs.

[Concrete Sustainability Council Certification](#)

The Concrete Sustainability Council offers a product certification for all products manufactured and supplied by a concrete plant. Cement and aggregate suppliers can also obtain a supplier certificate for responsible production standards.

[Copper Mark Certification](#)

Recipients of the Copper Mark have been independently assessed as having implemented policies and practices conforming with the Copper Mark Responsible Production Criteria.

[Ethical Stone Register](#)

This online tool provides a single source point for ethically and responsibly sourced natural stone. The Ethical Stone Register was created in response to the U.K. Modern Slavery Act.

[Fair Stone](#)

Fair Stone is an international social standard for natural stone imports from developing and emerging markets. Importers can become Fair Stone partners if they implement criteria within their supply chains that improves working conditions in stone processing factories and quarries.

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Material specific supplier product certifications, labels & standards (continued)

[Fairtrade Cotton Mark](#)

This mark indicates that a product made with raw cotton has been fairly produced and traded, directly traceable through all stages of production and separated from non-Fairtrade cotton during processing. For non-cotton fibers there is a separate Responsible Fiber Criteria.

[Fairtrade Standard for Gold and Associated Precious Metals for Artisanal and Small-Scale Mining](#)

This standard creates opportunities for artisanal and small-scale miners and their communities by promoting the formalization of this sector through establishing membership-based artisanal and small-scale mining organizations. The goal is to improve working conditions for miners and strengthen mining organizations and their capacity to advocate for a range of improvements and benefits.

[Fairtrade Textile Standard](#)

The Fairtrade Textile Standard is one component of the greater [Fairtrade Textile Programme](#) to facilitate change in textile supply chains and related business practices. This comprehensive approach engages manufacturers and workers in the supply chain to bring about better wages and working conditions, and engages brands to commit to fair terms of trade.

[Forest Stewardship Council \(FSC\)](#)

The Forest Stewardship Council offers two certifications: FSC Chain of Custody Certification that identifies wood products and confirms that they are made with environmentally and socially responsible sources. FSC Forest Management Certification confirms that forest land is being preserved in a way that benefits biological diversity and the people and workers within it.

[Initiative for Responsible Mining Assurance Standard](#)

IRMA's Standard for Responsible Mining defines good practices for what responsible mining should look like at the industrial-scale. It provides the list of expectations that independent auditors will use as the benchmark for responsible mines.

[International Tin Supply Chain Initiative](#)

ITSCI works to avoid conflict financing, human rights abuses, or other risks in mineral supply chains in Burundi, the DRC, Rwanda, and Uganda. Companies can become an ITSCI member and submit supply chain information for transparency so that metal users can source responsibly and miners can benefit from business opportunities.

[LEVEL by BIFMA | Furniture](#)

From the Business + Institutional Furniture Manufacturers Association comes LEVEL, a third-party certification program that signals the environmental and social sustainability of furniture products in the built environment.

[Programme for the Endorsement of Forest Certification \(PEFC\)](#)

PEFC is a leading global alliance of national forest certification systems. An international not-for-profit, PEFC promotes sustainable forests managed with environmental, social, and economic requirements through independent third-party certification.

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RELEVANT CERTIFICATIONS, LABELS, AND STANDARDS

Material specific supplier product certifications, labels & standards (continued)

[Responsible Minerals Initiative \(RMI\)](#)

RMI offers companies and their suppliers a third-party audit to determine which smelters and refiners can be verified to responsibly source minerals, as well as a disclosure template to report on those who do so within their supply chains. As a member organization, RMI also helps train companies on risk management, regulatory requirements, OECD guidance, and international best practices for sourcing responsibly.

[ResponsibleSteel Certification](#)

The not-for-profit organization ResponsibleSteel has developed an independent certification standard for steel producers and suppliers at all levels of the steel labor chain.

[Sustainable Forestry Initiative \(SFI\)](#)

SFI offers several certification standards for forest management, fiber sourcing, chain of custody, and certified sourcing for companies that sell or use forest products.

[TCO Certified | IT](#)

TCO Certified is a comprehensive, third-party sustainability certification for IT products that are independent of the IT industry and its buyers. It ensures that a product is socially and environmentally sustainable throughout its lifecycle.

[XertifiX Standard-Label | Stone XertifiX](#)

This standard, set by XertifiX, an NGO that supports and lobbies for improved working conditions and environmental protection in the Asian stone production industry, certifies that a factory, quarry, and company meet a set of values based on International Labour Organization's core labor conventions.

General supplier product certifications, labels & standards

[BES 6001: Responsible Sourcing, Construction Products](#)

This U.K. certification standard comes from BRE Group, a group of researchers, scientists, engineers, and technicians working to better the built environment. It addresses stakeholder engagement, labor practices, and the management of the supply chains of a singular product.

[BES 6002: Ethical Labour Sourcing Standard](#)

This U.K. certification standard comes from BRE Group, and allows companies to demonstrate their commitment to eliminating any possibility of human trafficking or modern slavery in their supply chains. Born of the 2015 Modern Slavery Act in the U.K., it includes a framework by which companies can evaluate themselves and achieve an Ethical Labour Sourcing verification from BRE Global.

[Cradle to Cradle](#)

Cradle to Cradle Certified contributes to the achievement UN before Goal 8, Targets 8.7 and 8.8 by encouraging applicants to be aware of manufacturing facilities and direct suppliers of certified product input materials that are associated with a high risk of child labor, forced labor, occupational health and safety issues, excessive working time, and low wages. This is determined based on industry and location-based risk identification.

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General supplier product certifications, labels & standards (continued)

[Fairtrade International and Fairtrade Mark](#)

Fairtrade Standards ensure fairer terms of trade between farmers and buyers, protect workers' rights, and provide the framework for producers to build thriving farms and organizations. The Fairtrade Mark stands for fairly produced and fairly traded products that are fully traceable (kept separate from non-certified products) from farm to shelf.

[Global GreenTag International MSD](#)

GGTI MSD is the world's first Modern Slavery Declaration for products. At its core, the GGTI MSD addresses the profound humanitarian need to help minimize the conditions of modern slavery prevailing in global supply chains.

[Global Recycle Standard \(v4.0\)](#)

GRS is a global product standard that sets requirements for third-party certification of recycled content, including a product's chain of custody as well as its social and environmental influences.

[Living Product Challenge](#)

Created by the International Living Future Institute (ILFI), the Living Product Challenge is a certification that declares the social, environmental, and economic responsibility of a product or manufacturers.

[SA8000® Standard](#)

This long-established standard from Social Accountability International ensures the fair treatment of workers in factories and organizations around the world.

Corporate supplier certifications and initiatives labels

Industry coalitions indicate a commitment to ethically and sustainably managed operations which can then be extended towards ethically sourcing end-to-end.

[Building Responsibly Worker Welfare Principles](#)

Building Responsibly is a coalition of engineering and construction companies that is committed to promoting the rights and welfare of workers on the job site, including those free of forced and child labor.

[Certified B Corp](#)

Administered through the not-for-profit B Lab, the B Corporation certification means that businesses meet both the highest standards of third party-verified social and environmental performance. It signals to the world that a business is committed to public transparency and legal accountability in its effort to balance profit and purpose.

[Ethical Trading Initiative](#)

Working with companies, trade unions, and volunteer organizations, Ethical Trading provides training on best practices to ensure ethical labor in their supply chains, based on the ILO standards.

[Global Reporting Initiative](#)

GRI provides a global common language for companies to use as they disclose/report their impacts on sustainability.

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Corporate supplier certifications, and initiatives labels (continued)

GRESB

GRESB is an industry-led organization that provides actionable and transparent ESG data to financial markets. GRESB assesses and benchmarks the ESG performance of real assets, including real estate and infrastructure, providing standardized and validated data to the capital markets.

Just Label

From the International Living Future Institute (ILFI), the Just Label is a voluntary disclosure tool for organizations to be rated based on how they treat employees, as well as their community and financial impacts.

Responsible Business Association: Risk Assessment Platform (RBA)

Made by the Responsible Business Alliance Foundation (RMB), this online platform is part of the RBA Risk Assessment Model, which helps RMB members ensure supply chain sustainability.

SGE 21 Ethical and Socially Responsible Management System (Spain & Latin America)

This standard allows for the implementation, auditing, and certification of an ethical and socially responsible management system. It certifies that companies are taking responsible leadership seriously not only within their organization but also for their customers as well.

UN Alliance 8.7

Any group can join this coalition as they work to advance Target 8.7 of the UN's SDGs by 2030, which seeks to eradicate forced labor and child labor.

UN Global Compact

UN Global Compact is a corporate sustainability initiative that CEOs and company leaders can join to ensure the adoption of the UN's S.D.G.s into their company values and goals, including Target 8.7, which seeks to eradicate forced labor and child labor.

Material Transparency Standards

Adding fair labor inputs to these well-used EPDs and HPDs will accelerate transparency.

Environmental Product Declaration

EPDs signal a manufacturer's commitment to measuring and reducing the environmental impact of its products and services and report these impacts in a hyper-transparent way. With an EPD, manufacturers report comparable objective, and third-party verified data that show the good, the bad, and the evil about the environmental performance of their products and services.

Health Product Declaration

HPDs provide standardized specification for the accurate, reliable, and consistent reporting of product contents and associated health information for products used in the built environment. HPDs are harmonized with programs such as International Living Future Institute, Cradle to Cradle Product Innovation Institute, LEED, BIFMA, WELL, and many others.

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[Design for Freedom Report](#)

The *Design for Freedom Report* by Grace Farms, released in October 2020, provides relevant data and analysis of forced labor in the built environment and is a call to action to create a radical paradigm shift by removing slavery from the building materials supply chain.

[Fair Labor Association](#)

The not-for-profit FLA is a collaborative of business, civil society organizations, colleges and universities that work to protect workers' rights and improve working conditions around the world through the adherence of national and international labor laws.

[A Blueprint for Mobilizing Finance Against Slavery and Trafficking \(FAST\)](#)

The Blueprint by the Liechtenstein Initiative provides a framework for the whole financial sector and professional service providers to demonstrate their commitment to accelerating action to end modern slavery and human trafficking.

[Fighting Modern Slavery and Human Trafficking Certificate](#)

Created by Finance Against Slavery and Trafficking (FAST) and the Association of Certified Anti-Money Laundering Specialist (ACAMS), this online training raises awareness about the financial footprints left by modern slavery and human trafficking.

[Global Estimates on Slavery, ILO](#)

A collaboration by the ILO, Walk Free, and the International Organization for Migration, the Global Estimates on Slavery details where, how, and who is involved in forced labor or forced marriage.

[Global Slavery Index](#)

Created by Walk Free, the Global Slavery Index reveals the number of people held in modern slavery ranked by country and includes data on how governments and organizations are responding to the risk.

[Global Sustainable Enterprise System](#)

A platform for measuring the sustainability performance, production process, and supply chain of a product, as well as the organization based on corporate social responsibility, sustainable procurement, CO2 emissions, circular economy, and health and safety.

[iSeal](#)

iSeal works with governments, businesses, and NGOs in more than a hundred countries and across various sectors to determine their impacts in production, supply chains, and business practices.

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[Know The Chain](#)

A resource created by Humanity United, the Business & Human Rights Resource Centre, Sustainalytics, and Verité. Know The Chain provides benchmarks for companies and investors to assess forced labor in their supply chains.

[LEED Social Equity Credits](#)

Social equity pilot credits within USGBC's LEED v4.1 rating system aim to create more equitable and healthier environments. Specifically, forced and child labor are addressed in the Social Equity within the Supply Chain Pilot Credit.

[Living Wage Calculator](#)

The Living Wage Calculator estimates the cost of living in a particular U.S. community or region based on typical expenses. The tool helps individuals, communities, and employers determine a local wage rate that allows residents to meet minimum standards of living.

[Material Circularity Indicator \(MCI\)](#)

Developed by The Ellen MacArthur Foundation and Granta Design, MCI enables a company to support decision making on tradeoffs between circularity and the economic, environmental, and societal objectives on product design and materials procurement.

[Mindful Materials](#)

A library of aggregated information on product sustainability and collaborative of manufacturers and design teams that want to incorporate product transparency.

[Modern Slavery Registry](#)

The U.K. government recently created its own registry that monitors compliance with the U.K. Modern Slavery Act, which applies to businesses with sales of more than £36 million and if some or all of its business is in the U.K.

[Organisation for Co-Operation and Development \(OECD\)](#)

OECD works with governments, policy makers, and citizens to establish evidence-based international standards that address social, economic, and environmental challenges.

[Researching Forced Labour in the Global Economy](#)

A comprehensive compilation of research and analysis edited by scholar and expert Genevieve LeBaron, this book outlines methodological challenges and advances to understanding the political, social, and economic impacts of forced labor globally.

[Re:Structure Lab](#)

Re:Structure Lab is working to end forced labor, modern slavery, and human trafficking on a global scale by reimagining the business dynamics that sustain it. Their forced labor evidence briefs include Social Auditing and Ethical Certification, Investment Patterns and Leverage, and Commercial Contracts and Sourcing.

[Rights Lab](#)

Created by the University of Nottingham, Rights Lab is a consortium of slavery scholars and academic experts that advances survivor-led research on modern slavery. They also measure and communicate data through their *Freedom Blueprint: A plan for achieving Sustainable Development Goal 8.7 by 2030*.

[Social Hotspots Database](#)

The Social Hotspots Database is a three-layered system that assesses the social risk, human rights impacts, and ethical compliance for companies that want to achieve sustainable practices.

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[Stronger2gether](#)

A U.K.-based group aiming to reduce modern consumer and construction supply chains. It provides guidance, training, resources and a network for employers, labor providers, workers, and their representatives to work together to reduce exploitation.

[Transparency in Supply Chains \(TISC\)](#)

TISC is an open data platform committed to ending corruption, supply chain labor abuses, and modern slavery. As an open data initiative, it meets the compliance requirements of section 54 of the U.K. Modern Slavery Act 2015.

[Trafficking in Persons Report](#)

The U.S. government's principal diplomatic tool to engage foreign governments on human trafficking. It is also the world's most comprehensive resource of governmental anti-trafficking efforts and reflects the U.S. government's commitment to global leadership on this key human rights and law enforcement issue.

[Transparency Catalog](#)

An online library of information on brands and products that can be used for LEED, WELL, Living Building Challenge, CHPS, BREEAM, and Green Globes building projects. All searchable within this system that brings more transparency to the process of specifying healthier and greener building products.

[United Nations Guiding Principles on Business and Human Rights](#)

A set of guidelines for states and companies to prevent, address, and remedy human rights abuses committed in business operations.

[U.S. DOL – List of Goods Produced with Child and Forced Labor](#)

The Bureau of International Labor Affairs (ILAB) maintains a list of goods and their source countries that are believed to be produced by child or forced labor – ILAB's Sweat & Toil App.

[Walk Free Foundation](#)

An international human rights group focused on eradicating modern slavery around the globe by producing reports and connecting people and businesses with resources to purchase sustainable products and protect their supply chains.

[Who Builds Your Architecture? \(WBYA?\)](#)

Initiated by Columbia's Graduate School of Architecture, WBYA? is a coalition of architects, activists, scholars, and educators that examines the links between labor, architecture, and the global network that is involved in design and construction.

“Forced labour business models do not arise in a vacuum but are shaped by global economic structures that encourage ‘the relentless pursuit of low cost manufacturing to maximize profits and the pressures on suppliers to deliver their products as cheaply as possible.’ Forced labour business models have been documented in a range of sectors and are especially common in those that are labour intensive – and where labour costs comprise a high proportion of costs – and characterised by high levels of subcontracting and intermediaries.” – Re:Structure Lab. Forced Labour Evidence Brief: Commercial Contracts and Sourcing (Sheffield: Sheffield, Stanford, and Yale Universities, 2021)

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Government policy

[Australia Modern Slavery Act of 2018](#)

This act requires businesses based or operating in Australia, with an annual consolidated revenue of more than \$100 million to report annually on the risks of modern slavery in their operations and supply chains. The annual reports are publicly filed and maintained in a repository known as the Modern Slavery Statements Register.

[California Transparency in Supply Chains Act of 2010](#)

The California legislature declared that large retailers and manufacturers in that state must provide consumers with information about their efforts to stop modern slavery and human trafficking within their own supply chains. It also educates on how to find goods by companies that responsibly manage supply chains.

[CBP U.S. 307](#)

This section of the Tariff Act of 1930 prohibits the importation of products mined, produced, or manufactured using forced labor into the United States.

[EU's Sustainable Finance Disclosure Regulation \(SFDR\)](#)

EU's Sustainable Finance Disclosure Regulation (SFDR) is a new transparency requirement for financial market participants related to key environmental, social, and governance (ESG) criteria. The purpose is to increase market transparency and direct capital towards more sustainable businesses. For many asset managers, the main challenge of SFDR will be reporting detailed product-level ESG characteristics.

[French Corporate Duty of Vigilance Law](#)

Large French companies must submit a vigilance plan that establishes they have taken effective measures to identify human rights and environmental risks and to prevent such impact.

[Lacey Act](#)

This act is a U.S. law that bans illegal trafficking of wildlife, fish, and plants into the United States, including wood products illegally-harvested.

[Trade Facilitation and Trade Enforcement Act of 2015](#)

This act prohibits products made from forced labor from being imported into the U.S.

[Trafficking Victims Protection Act \(TVPA\)](#)

Passed in 2000, TVPA combats trafficking in persons into the sex trade, slavery, and involuntary servitude, addressing just and effective punishment of traffickers, and protection of their victims.

[U.K. Modern Slavery Act of 2015](#)

Consolidates current slavery and human trafficking offenses and provides new measures like trafficking reparation orders and prevention orders. It also ensures that companies publish an annual statement of sales more than £36 million and determine what steps, if any, they have taken to ensure slavery is absent from their supply chains.

[The United States-Mexico-Canada Agreement](#)

On July 1, 2020, the United States-Mexico-Canada Agreement (USMCA), which replaced the North American Free Trade Agreement (NAFTA) strengthens Customs and Border Protection's ability to investigate and prosecute environmental crimes like illegal logging and marks the beginning of international collaboration on labor obligations and child labor issues.

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[Uyghur Forced Labor Prevention Act](#)

This law enacted in 2021 gives the U.S. government new tools to prevent goods made with forced labor in Xinjiang, China from entering U.S. markets and to further promote accountability for persons and entities responsible for these abuses.

[Supply chain mapping services](#)

[Bureau Veritas](#)

Tests, inspects, and certifies the quality, health, safety, environmental protection, and social responsibility of work done by companies, public authorities and other clients in building, infrastructure, and mining, among other sectors.

[EcoVadis](#)

Analyzes environmental and ethical sustainability, as well as rates the human rights, labor, and sustainable procurement practices of companies.

[FairSupply Analytics](#)

Based in Australia, FairSupply provides data-driven analytics and compliance assistance with ESG goals including modern slavery in the supply chain.

[FRDM](#)

Software that companies can use to identify end-to-end risk optics throughout product supply chains. FRDM compiles a predictive Bill of Material (BOM) for products and services purchased to make a product.

[Modern Slavery Map](#)

An interactive map that describes global and local initiatives and organizations that businesses can partner with on anti-trafficking efforts within their company operations, products, services, and supply chain.

[Panjiva Supply Chain Intelligence](#)

Created by S&P Global Market Intelligence, this web-based platform provides real-time, global trade data and offers supply chain solutions. It also provides data-driven analytics and compliance assistance with ESG goals including modern slavery in the supply chain.

[Sedex \(Supplier Ethical Data Exchange\)](#)

A membership organization that offers tools, training, and a network to companies that want to improve responsible sourcing, working conditions, and sustainable practices. SMETA (Sedex Members Ethical Trade Audit) assesses a site based on their organisation's standards of labour, health and safety, environment and business ethics.

[Sourcemap](#)

Software that maps the sector and material supply chains for traceability and transparency.

[Thomson Reuters ONESOURCE Supply Chain Compliance Tool](#)

ONESOURCE is an integrated offering to increase visibility, manage compliance, and mitigate risks across the supply chain, including forced labor.

[Verité](#)

Global supply chain knowledge, analytics and mapping firm that assesses forced and child labor, and human trafficking in supply chains. Verité's Forced Labor Commodity Atlas identifies material hotspots.

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High-risk Materials

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design for FREEDOM

terminology

Design for Freedom

A movement and initiative by Grace Farms to create a radical paradigm shift within the built environment towards ethically-sourced, forced-labor free materials.

Modern slavery

Used as an umbrella term covering practices such as forced labor, debt bondage, forced marriage, and human trafficking.¹

Human trafficking

The recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation.²

Forced labor

All work or service which is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily.³

Child labor

Work that deprives children of their childhood, their potential and dignity, and that is harmful to physical and mental development. It refers to work that is mentally, physically, socially, or morally dangerous and harmful to children and/or interferes with their schooling.⁴

Debt bondage

Forced to work to repay a debt and not being able to leave, or being forced to work and not being able to leave because of a debt. Just over half of forced labor victims worldwide are held in debt bondage.⁵

Ethical sourcing

A process of verifying that products are sourced and produced through responsible methods. This includes that all workers are paid a fair and living wage, have a safe and healthy work environment, that human rights are met, and the surrounding community is considered.

Global supply chains

Goods and services that cross international borders for consumption or as inputs for further production.⁶

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Living wage

A living wage is an essential aspect of decent work to ensure that all workers, families, and communities can live in dignity. It is a wage that enables workers and their families to meet their basic needs.⁷

Supply chain transparency

Involves two components: visibility and disclosure. Visibility is accurately identifying and collecting data from all links in the supply chain. Disclosure is communicating that information, both internally and externally, at the level of detail required or desired by the consumer or specifier.

Upstream

Used to refer to production processes in supply chains that occur closest to raw material production.

Downstream

Used to delineate those production activities in supply chains that occur closest to retail.

Precursors

Compounds and minerals used in the manufacturing process. A compound that participates in a chemical reaction that produces another compound.

Tier 1 suppliers

Tier 1 suppliers are partners that you directly conduct business with. They are easily identified as companies with whom you transact financially in the procurement process.

Tier 2 suppliers

It is simplest to identify Tier 2 suppliers as the sources where your Tier 1 suppliers get their materials.

Tier 3 suppliers

Tier 3 suppliers or partners are one step further removed from a final product and can work in raw materials. In complicated supply chains, there can be 10 or more tiers.

Circular economy

A circular economy is a global economic model that aims to decouple economic growth and development from the consumption of finite resources. Measuring how effective a company is in making the transition from 'linear' to 'circular' models is still in its infancy.

Closed loop

In a closed loop, used products come back to the manufacturer and components or materials are used again to produce new products of the same type.

Fully linear product

A product is called fully linear if it is made purely from virgin material and it completely goes into landfill or energy recovery after its use.

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material circularity

Pivoting from linear to circular material flow

Claire Weisz, FAIA

WXY architecture + urban design Founding Principal
Visiting Critic Parsons School of Design

There are important tools being developed and work being done around circularity that is central to Design for Freedom's purpose and points the way for how architecture and construction can influence how we live better and less destructively. Distinct from making "to-do lists" this approach to understanding **renewables and biological materials** vs the reuse and repurposing of **finite** materials leads to thinking about great design and construction as the creation of "not to-do lists." By looking at the ways to avoid extractive resources we can be part of the creation of a circular economy that is meaningful locally and globally.

[Material Circularity Indicator \(MCI\)](#)

Florian Idenburg, RA, AIA-IA

SO – IL Founding Principal, Cornell Architecture, Art, and Planning Professor of Practice

Architects and engineers do not make buildings. We translate spatial needs into instructions for construction in the form of drawings and specifications. Depending on the size and location of the project, these instructions can result in tens if not hundreds of thousands of actions. If we see architectural design not as envisioning future space but as defining a series of instructions for future actions, we ought to be able to examine these strings of actions beforehand and reduce the amount of harm they may cause. The activities we prescribe typically involve the use of energy to relocate material – assemblies of atoms – from one location on this planet to another. Laborers arrange them into a temporary constellation, which we might call a building or a city.

So architects organize energy and materials, and some of this energy might be human energy extracted involuntarily. One could maximize automation to reduce the risk of involving harmful human energy, known as slavery. Using robots rather than humans minimizes the risk of exploitation. We ought to ensure that the energy and material used to create and power the robots are ethical in this approach. We all know well that the extraction of fossil fuels frequently involves deplorable labor conditions. However, I question if eliminating humans in the construction process is the solution. How might we keep the jobs but make them less exploitative?

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MATERIAL CIRCULARITY

If we look at the supply chain, we can generally observe that the more complex and international a supply chain is, the greater the risk of discovering modern slavery. Can we rethink the notion of supply as a whole? How would we pivot away from a linear material flow towards circularity of material? Changing a material's source would eliminate extraction, processing, and shipping at the top of supply chains where forced labor is the most prevalent.

Circularity has a lot of obvious benefits for the environment. Apart from thwarting the depletion of natural resources, it is estimated that reaching an 85% material recycling rate across our economy would reduce CO₂ emissions by up to 50 billion tons – the equivalent of taking 10 billion cars off our roads. However, I want to address the notions of circularity from the angle of labor. Mining existing buildings close to home allows more control over the labor conditions and can strengthen local economies. For instance, one calculation stipulates that every 10,000 tons of recycled waste can create more than 100 jobs, while the repairing and leasing economy could create exponentially more.

Construction is the most extensive material storage and waste stream in the economy. By changing the perspective on materials and acknowledging their ongoing economic value, the built environment becomes a material depot that we can continue to reuse. We tend to think of reuse on the scale of the building – as a task to accommodate changing functions within a fixed structure. If we think of design as temporarily allocating a finite amount of material to accommodate specific activities, we should consider its disassembly. How can we detail buildings for more precise deconstruction so that parts of a building can be reused?

To preserve the value of materials and reallocate them for future functions, we need to know their type and quality. Driven by urgent sustainability goals, the shift to circularity has sprung numerous startups in Europe to facilitate capturing essential material information through a raw materials passport and online marketplaces. The raw materials passport establishes the identity and use of materials and is made available via an online platform. This platform functions as a public library of materials in the built environment, allowing the preservation of the raw materials' value. Designers work with materials available in the library, much like a chef preparing a meal based on what is in season.

Notwithstanding the environmental, social, and economic advantages, circular construction will only become interesting when its added value is measured and accepted. There is a lack of knowledge of these concepts among builders, clients, financiers, and other parties in the chain. If an investor cannot assess the value of the raw materials in a dismantlable building, they cannot include them in the spreadsheet. Government policy can address this by mandating circularity for public projects, spearheading data gathering, developing and disseminating knowledge, and initiating standardization while involving all partners in the chain to be effective and accepted. Modular or demountable construction is currently more expensive than linear construction approaches because of its innovative nature and the limited supply of circular construction solutions. In addition, the merits of a circular building can only be realized in the long term as it takes years before a project will be renovated or dismantled. Therefore, circular construction must be stimulated, possibly through tax incentives and regulations, so that companies can test new building methods and financial structures.

All of this could greatly benefit labor conditions. Construction would become de- and re-construction, and construction workers would become material librarians. I should note that the U.S. still builds more buildings than it demolishes, so net imports of raw materials will continue to exist. Circularity is thus not the catch-all solution to ridding the world of modern-day slavery in the built environment, but it can certainly contribute.

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step two

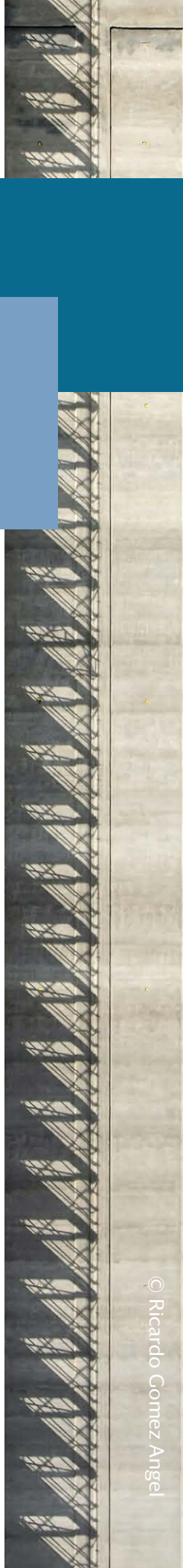
commitment

The second step to achieving an ethically sourced project is to form a team that is committed to working on a Design for Freedom Pilot Project.

This Toolkit has resources to assist design teams in introducing how Design for Freedom Principles can be implemented at each phase of a project in a way that is achievable and contributes to broad transformation of the building industry.

Potential Design for Freedom Pilot Projects should be recognized for their capacity to expand engagement widely among project teams and move the marketplace towards forced labor-free sourcing. Other design goals, such as material transparency or sustainable design strategies, are closely aligned with human rights concerns. Seek out and embrace the overlap of Design for Freedom Principles with other goals, such as sustainability metrics, carbon reduction, and healthy materials practices.

**Mandate or get the job,
set goals, create an action plan**



mandate or get the job, set goals, create an action plan

Start a project by talking about an owner's, client's, or team's values, and embrace a conversation about ethical procurement

- As an owner, add Design for Freedom to your Owner's Project Requirements (OPR).
- Bring in a values-aligned project team if not already assembled.
- Acknowledge that a project begins with a narrow selection of materials and products to examine.

Build consensus among all project team stakeholders

- Share the Design for Freedom Overview with the project team, subcontractors, suppliers, and manufacturers.
- Establish general goals for the project team and consider forming contractual commitments among the OAC team.
- Initiate a pragmatic strategy and create an action plan to execute.
- Build consensus and energy towards achieving multiple industry-wide humanitarian, sustainability and innovation outcomes with your Design for Freedom project.

design for FREEDOM

principles

mission

Design for Freedom by Grace Farms has an audacious mission to harness the power of the built environment for justice: to create a radical paradigm shift by removing forced and child labor from the building materials supply chain.

goals

Design for Freedom aims to mobilize the full ecosystem of the global architectural, engineering, and construction professions to create institutional responses that add fair labor material sourcing to existing and new industry wide practices and material transparency measurements, and adopt shorter material supply chain methods to create a more humane and sustainable future.

- To acknowledge that the choices made in the sourcing of building materials have environmental, social, and ethical repercussions
- To have a moral and ethical obligation to end exploitation that subsidizes the bottom line of residential and commercial construction projects globally
- To understand that ethical business models reduce risk and improve long-term results
- To recognize that cheap and exploitable labor stifles the modernization of the industry by reducing the need for innovation
- To embrace emerging technologies that can improve supply chain transparency
- To embrace material circularity that eliminates material extraction where forced labor is the most prevalent, including harvesting, mining, processing, and shipping of raw materials
- To commit to adopting internal ethical sourcing policies
- To engage with federal and local government agencies and advocate for systemic change through policy, law, and enforcement of human rights violations
- To replicate our learning journeys for colleagues and peers

designforfreedom.org

design for FREEDOM^{by}grace farms



[Download the Design for Freedom Principles](#)

design for FREEDOM

overview

A global movement to end forced labor in the built environment



The problem

Global laws forbid the use of slave labor in the built environment, yet the materials that go into our buildings are heavily reliant on forced labor.

Almost 25 million people are working in forced labor conditions and close to 160 million children from the ages of five to 17 are subjected to child labor globally.

The human suffering embedded in building materials is much harder to know than the tensile strength, energy efficiency, or even carbon footprint. And yet, without an intentionality of practice, designers, manufacturers and builders risk “baking” forced labor into their projects – fusing the legacy of abuse into the very life cycle of the building.

The construction industry is the least modernized and most disaggregated industry, accounting for more than 13% of global GDP with a 1% productivity annual growth rate over the past 20 years. Modern slavery found in the construction industry is rife with forced labor, with exploitation occurring on both sides of the building life cycle: raw material production and the construction site. The building materials

supply chain is getting a labor transparency pass, yet materials account for approximately 45% of the cost of an average project in an industry with razor thin margins.

Unchecked and unregulated forced labor in the material supply chain subsidizes a project’s return on investment (ROI) and is also linked to environmental degradation.

The materials at-risk

The disaggregated and opaque nature of the construction industry increases the risk of worker exploitation. The complexity and the thousands of unique raw and composite materials per building makes it nearly impossible to knowingly purchase slave-free materials. We have developed a growing list of risky raw and composite materials, as well as global “hot spots,” which can provide navigation to make ethical decisions. The groundbreaking [*Design for Freedom Report*](#) (October, 2020) and [*Design for Freedom Toolkit*](#) (2022) note 14 + at-risk raw and composite materials: *bricks, copper, electronics, glass, minerals, polysilicon in solar panels, precursors, rubber, steel & iron, stone, textiles, and timber.*

Know the laws and assess risk

Slavery is illegal in nearly every country, and countries are moving to make corporations more accountable. Details on specific laws and policies are included in the [Design for Freedom Report](#). Policies move enforcement to a more proactive, industry-wide posture, and are therefore tools of prevention and prosecution.

Regardless of the variations of these instruments, they boil down to one takeaway: **firms are no longer able to outsource responsibility for abuses in their supply chain, but now have a duty of care to know who makes their inputs and under what conditions.**

1900–2021 U.S. Lacey Act (illegal logging)

2000 UN TIP Protocol

U.S. Trafficking Victims Protecting Act

2010 California Transparency in Supply Chains Act (CTSCA)

2015 U.S. Trade Facilitation and Trade Enforcement Act (TFTEA)

2015 U.K. Modern Slavery Act (MSA)

2017 French Corporate Duty of Vigilance Law

2018 Modern Slavery Act – Australia

2021 U.S. Uyghur Forced Labor Prevention Act

TFTEA holds significant tracking and compliance weight globally as it prohibits all products made by forced labor, including child labor, from being imported into the U.S., which is a leading importer of goods worldwide.

The movement

Launched in October 2020, Design for Freedom by Grace Farms has an audacious mission to harness the power of the built environment for justice: to create a radical paradigm shift by removing forced labor from the building materials supply chain. The movement was initialized by Grace Farms Foundation and has galvanized more than 80 industry leaders and experts to join a working group and movement. Together, we work to illuminate forced labor in

the building materials supply chain and develop and incorporate an anti-slavery ethos in the design and construction process.

Over the last several decades, the sustainability movement has helped pave the way for this next step in material transparency and architectural justice.

At this historic time, social injustices, climate crisis, global conflict, and the COVID-19 pandemic have illuminated supply chain risk and lack of transparency. Design for Freedom leaders are initializing institutional responses to employ ethical material selection and procurement practices and embrace material circularity to eliminate material flow where forced labor is the most prevalent while increasing environmental sustainability.

Pragmatically, mandating a measure of material transparency in new projects is just beginning with leaders in the movement. Advocates ranging from owners to construction managers to manufacturers and associated AEC teams will benefit from transparency tools and platforms, leading to market transformation.

The call to action | Design for Freedom Pilot Projects

“Are our buildings ethically sourced, without forced labor, as well as sustainably designed?”

“Where are the raw and composite materials sourced from and by whom?”

Raise these questions and select a number of materials and products on your next project to determine the provenance of the materials and conduct a material fair labor transparency assessment. We are also asking for Material Libraries at universities and design firms to add a fair labor input filter and adopt the Design for Freedom Principles. Any effective movement depends as much on its participants as its leaders – change comes from within and is spurred on by public demand.

DESIGN FOR FREEDOM OVERVIEW

Design for Freedom has begun enacting these principles with leading innovators and through several **Design for Freedom Pilot Projects**, including the 21st Serpentine Pavilion *Black Chapel* designed by Theaster Gates and located in Kensington Gardens, London; the Harriet Tubman Monument, *Shadow of a Face* designed by Nina Cooke John in Newark, NJ; and the New Canaan Library and Grace Farms installations in New Canaan, CT. We expect over 1 million people to experience these public projects annually. Collaborations in both the private and public sectors have been initiated, but it is only the beginning.

Whether as an individual or as an organization, we all have a duty to act

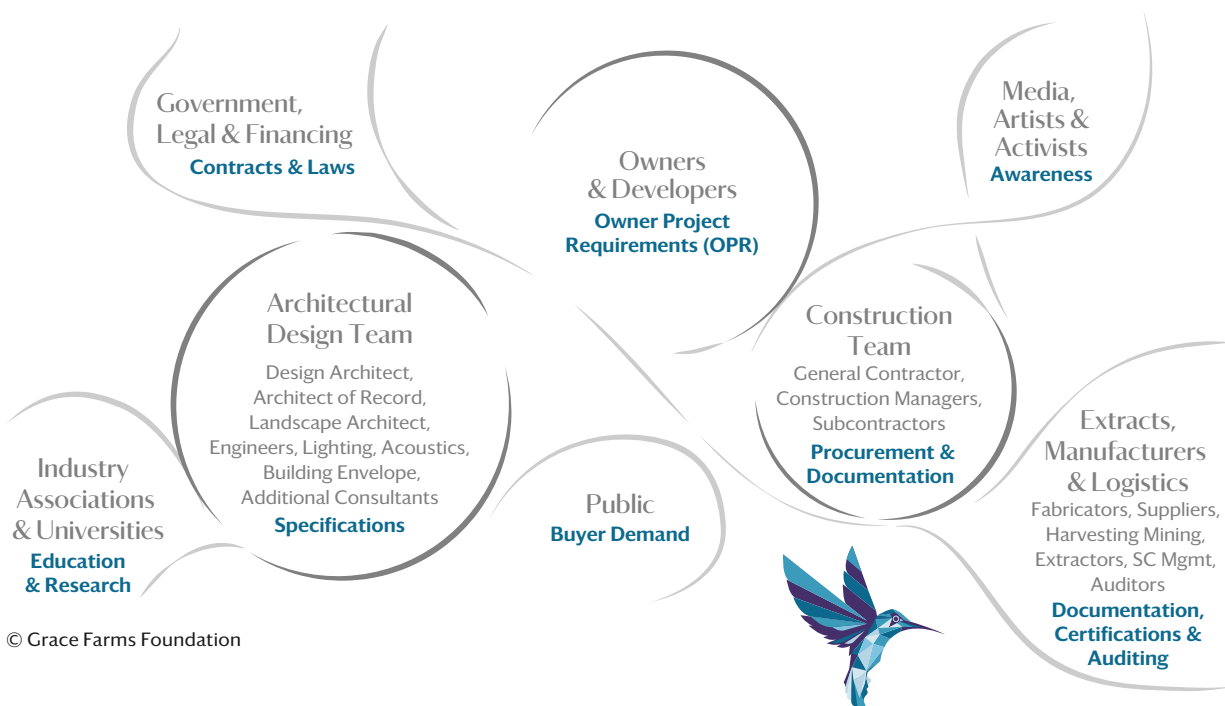
We invite all project teams, universities, governments, and the public to join us in this critical humanitarian work. Together we will reduce the industry's dependency on forced labor, which subsidizes ROIs, and which will in turn unlock innovation and lower environmental degradation. Use the [Design for Freedom Toolkit](#) and let us know about your project and findings as we begin to assemble data in our expanding Design for Freedom material knowledge base.

Through Design for Freedom, the entire ecosystem of the built environment can and must work together to design and build a more humane future.

To learn more and stay updated, visit designforfreedom.org

Ecosystem of the built environment

Means and methods to ethically influence the building material supply chain



[Download the Design for Freedom Overview](#)

step three

implementation

The third step is to implement a step-by-step plan for achieving your ethical project goals. The plan should identify decision-making milestones, assign team member responsibilities, and establish reporting mechanisms.

It is also important to maintain ongoing education opportunities for all project stakeholders, including funders, consultants, and contractors, who may join your project after Design for Freedom goals have been established.

Finally, your accountability procedure should include a commitment to share your data, successes, and challenges with the Design for Freedom team at Grace Farms and the wider community.

action and accountability



action and accountability

Establish concrete goals and requirements

- Assign responsibility requirements and evaluate staffing needs for design team, ownership, contractor, and other stakeholders.
- Assess certification requirements, reuse and material circulation options, and feasibility.
- Assess overlap of Design for Freedom goals with other goals, such as sustainability and healthy materials practices; embrace overlapping strategies.
- Determine which materials and/or products will be traced and establish requirements.

Incorporate goals into spec language and design

- Add Division 1 Ethical Design Requirements Section into Specifications.
- Consider how you will educate internally and externally about your Design for Freedom interventions and selections on your project.

Establish and implement accountability procedures

- Distribute the Supplier Outreach Letter to initialize the conversation with suppliers and manufacturers.
- Request transparency through the Supplier Questionnaire.
- Gather documents, certifications, and self-assessments.
- Use the Design for Freedom Material Tracking Schedule to document product data, submittals, certification requirements, manufacturing/harvest locations, material reuse and circularity, and material costs.
- Make a procedure for tracking findings, successes, and lessons learned.

Share data, findings, and lessons learned

- Share with Design for Freedom team at Grace Farms and the wider community via DFFPilotProjects@gracefarmsfoundation.org

ethical design requirements specifications

<Project Number>		<Project Name> <Project Location>
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SECTION 018113.63 - ETHICAL DESIGN REQUIREMENTS

Revise this Section by deleting and inserting text to meet Project-specific requirements. Review the [Design for Freedom Website](#), [Report](#), and [Toolkit](#) to become familiar with the initiative in support of this Section. Where practical, terminology used in this Section has been made identical to or at least consistent with terminology used in Design for Freedom; Guiding humanitarian design principles contained herein are based upon “The Design for Freedom Principles”.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general guidance and procedures for compliance with the Design for Freedom Initiative (hereafter, "Design for Freedom").
 1. Some project requirements depend on product selections and may not be specifically identified as Design for Freedom principles. Compliance with Design for Freedom Principles may be used as one criterion to evaluate substitution requests and comparable product requests.
 2. Reference Material Tracking Schedule in [Project Manual] [Drawings].

1.3 TERMINOLOGY

- A. Definitions referenced as a part of Design for Freedom apply to this Section.
 1. Design for Freedom: A movement and initiative to create a radical paradigm shift within the built environment towards ethically sourced, forced-labor free materials.
 2. Design for Freedom Toolkit: A comprehensive resource for design and construction professionals to implement ethical, forced labor-free material sourcing strategies into their practices.
 3. Modern Slavery: Used as an umbrella term covering practices such as forced labor, debt bondage, forced marriage, and human trafficking.
 4. Forced Labor: All work or service which is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily.
 5. Child Labor: Work that deprives children of their childhood, their potential and dignity, and that is harmful to physical and mental development. It refers to work that is mentally, physically, socially, or morally dangerous and harmful to children and/or interferes with their schooling.
 6. Debt Bondage: Forced to work to repay a debt and not being able to leave, or being forced to work and not being able to leave because of a debt. Just over half of forced labor victims worldwide are held in debt bondage.
 7. Human Trafficking: The recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation.
 - a. Supply Chain Transparency Involves two components: Visibility and Disclosure:
 - a. Visibility is accurately identifying and collecting data from all links in the supply

ETHICAL DESIGN REQUIREMENTS

018113.63- 1

[Download Ethical Design Requirements Specifications](#)



[Date]

Dear [Supplier],

Our organization has made a commitment to work toward equitable supply chains. With Design for Freedom by Grace Farms, we are working to create new outcomes in terms of material transparency in the products we specify and procure on our projects. We invite you to be a collaborator in this important work.

Almost 25 million people are working in forced labor conditions and close to 160 million children from the ages of five to 17 are subjected to child labor globally. Modern slavery found in the construction industry is rife with forced labor, with exploitation occurring on both sides of the building life cycle: raw material production and the construction site.

Design for Freedom by Grace Farms has an audacious mission to harness the power of the built environment for justice to create market transformation by removing forced labor from the building materials supply chain. Our movement of industry experts and thought leaders is working together to illuminate forced labor in building materials supply chains and to develop and incorporate an anti-slavery ethos into the design and construction process.

Our project team is fully supporting this movement and would like to ask for your participation to help us to achieve our goal of greater material transparency.

How to take action:

1. Let's start a dialogue:
 - Share this letter and its message internally at your company to provide context for requests
 - Respond directly to this letter to confirm your participation and start the conversation
 - Forward this message to your suppliers
2. Learn more about forced labor issues within the building materials supply chain:
 - [*Design for Freedom Report*](#)
 - [*Design for Freedom Toolkit*](#)
3. We will be asking you to complete the attached supplier questionnaire prior to procurement to highlight material transparency on this project.

We sincerely appreciate your commitment to this effort.

Signed,

[Owner] [Designer] [Contractor]

design for FREEDOM supplier questionnaire



As a supplier for this project, our team is asking you to complete this questionnaire in order to disclose transparency about your products. Please provide responses to each question below and provide back-up or supplemental documentation as necessary.

Company Title _____

Date _____

Product Name _____

Product Number _____

Does this product contain any of the following high-risk materials (check all that apply)?

- Bricks Copper Electronics Glass Iron Minerals Polysilicon Precursors
 Rubber Steel Stone Textiles Timber

Organizational questions (transparency & data collection):

1. Please list the country(ies) in which your organization is headquartered.

2. Please list the country(ies) where your organization manufactures this product.

3. What kind of operations and manufacturing activities do you conduct in your facilities?

4. How many people does your company employ? _____

Risk assessment questions

5. Do you employ seasonal, transient, migrant, or low-skilled workers? _____

6. Is your lowest paid worker receiving a living wage? _____

Use these living wage calculators specific to your region:

[U.S. Living Wage](#) | [Global Living Wage](#) | [U.K. Living Wage](#)

SUPPLIER QUESTIONNAIRE

7. What are the expected working hours and schedules for the workers? _____
8. Are workers subject to paying recruitment fees? _____
Do workers pay fees or owe debts? _____
9. How many workers are provided by a third-party labor provider? _____
10. Do you retain workers' identification documents? _____
If so, where are documents kept and do you have a policy to manage this? _____
11. Do you provide any accommodation for workers? _____
If so, detail the cost of the accommodation and how it is paid. How do you ensure that living conditions are up to standard on site? _____

Risk mitigation questions

11. What organizational or product specific certifications do you have that address fair labor, chain of custody, living wages, material reuse, and/or ethical supply chains?

12. Do you have an audit program and/or other due diligence program for your suppliers? _____
Please describe or provide audit documentation. _____

13. Are fair labor policies available to workers within the organization and communicated to them? _____
(If yes, please provide a copy of the policy.)
14. Are fair labor policies available to your suppliers and communicated to them? _____
(If yes, please provide a copy of the policy.)
15. Is there internal corporate training to create awareness of fair and equitable labor practices within supply chains? (Please provide the training records.) _____
16. What grievance and whistle-blowing mechanisms do you have in place for employees? Please describe the management system for listening to and addressing worker complaints. _____

17. Does your auditing and/or other due diligence program include auditing labor providers (including overseas labor brokers) or employment agencies providing migrant labor? _____





material tracking schedule

design for FREEDOM^{by}grace farms

DESIGN FOR FREEDOM MATERIAL TRACKING SCHEDULE

PROJECT NAME:

PROJECT LOCATION:

PRODUCT INFORMATION					
PRODUCT NAME	TAG	MATERIAL/PRODUCT TYPE	PRODUCT NUMBER	PRODUCT SIZE / COLOR / FINISH	SUPPLIER/MANUFACTURER NAME
PRODUCT NAME 1	M-1	MATERIAL 1			
PRODUCT NAME 2	M-2	MATERIAL 2			
PRODUCT NAME 2	M-3	MATERIAL 3			
PRODUCT NAME 4	M-4	MATERIAL 4			
FURNITURE PRODUCT 1	F-1	FURNITURE ITEM 1			
FURNITURE PRODUCT 2	F-2	FURNITURE ITEM 2			

FOOTNOTES:

1. PRODUCTS LISTED ABOVE ARE TARGETED FOR DESIGN FOR FREEDOM COMPLIANCE; ALL LABOR PRACTICES AND MATERIALS TO BE PROCURED/SOURCED IN A SUSTAINABLE AND ETHICAL MANNER ACCORDING TO DESIGN FOR FREEDOM REQUIREMENTS SPEC FOR ADDITIONAL INFORMATION ON SUBSTITUTIONS, SUBMITTALS, TERMINOLOGY, ETC.
2. SEE ETHICAL DESIGN REQUIREMENTS SPEC FOR ADDITIONAL INFORMATION ON SUBSTITUTIONS, SUBMITTALS, TERMINOLOGY, ETC.
3. INFORMATION UNDER HEADINGS "PRODUCT INFORMATION," "MATERIAL CERTIFICATION/STANDARDS," AND "OTHER" WILL BE PROVIDED BY DESIGN TEAM.
4. MATERIAL CERTIFICATIONS ARE PROJECT SPECIFIC AND SHOULD BE EDITED ACCORDING TO PRODUCT/MATERIAL TYPES BEING TRACKED
5. CONTRACTOR TO PROVIDE INFORMATION UNDER HEADINGS "MANUFACTURING INFO", "SUPPLIER POLICIES/STATEMENTS," "COST", AND "MATERIAL REUSE"; MULTIPLE SOURCES/LOCATIONS MAY EXIST - PROJECT SPECIFICATIONS/SCHEDULES FOR RELATED INFORMATION.
6. SEE OTHER PROJECT SPECIFICATIONS/SCHEDULES FOR RELATED INFORMATION.
7. SEE ALSO PLANS, ELEVATIONS AND DETAILS.

steps to an ethically sourced project

Education: Learning and gathering tools

1. Educate your organization

What is modern slavery, what are the highest risk materials for forced labor, what is the state of the industry, how can project teams best infuse Design for Freedom Principles, and what is currently being done?

Familiarize yourself with the high-risk material spotlights that include relevant certifications, material overviews, global hotspots, import data, applications, and end products.

Study the *Design for Freedom Report* and Pilot Projects at designforfreedom.org.

2. Build your tools

Become well-versed in the requirements of relevant certifications and examine your firm's standards, recognizing overlapping sustainable instruments that also include fair labor audits.

Teach colleagues how to speak with suppliers and clients and build a common language for discussing forced labor issues.

Explore library resources for materials transparency; update your own Material Library to make the transparency goals legible and actionable.

Create and cultivate relationships with suppliers. Maintain continual dialogue to support your network and increase awareness among your organization.

Commitment: Mandate or get the job, set the goals, create an action plan

3. Get commitment from team or client

Start a project by talking about an owner's, client's, or team's values, and embrace a conversation about ethical procurement.

Bring in a values-aligned project team if not already assembled.

Acknowledge that a project begins with a narrow selection of materials and products to examine.

4. Build consensus among all project team stakeholders

Establish general goals for the project team and consider forming contractual commitments among the OAC team.

Initiate a pragmatic strategy and create an action plan to execute.

Build consensus and energy towards achieving multiple industry-wide humanitarian, sustainability and innovation outcomes with your Design for Freedom project.

Implementation: Action and accountability

5. Establish concrete goals and requirements

Assign responsibility requirements and evaluate staffing needs for design team, ownership, contractor, and other stakeholders.

Assess certification requirements, reuse and material circulation options, and feasibility.

Assess overlap of Design for Freedom goals with other goals, such as sustainability and healthy materials practices; embrace overlapping strategies.

Determine which materials and/or products will be traced and establish requirements.

6. Incorporate goals into spec language and design

Add Division 1 Ethical Design Requirements Section into Specifications.

Consider how you will educate internally and externally about your Design for Freedom interventions and selections on your project.

7. Establish and implement accountability procedures

Distribute the Supplier Outreach Letter to initialize the conversation with suppliers and manufacturers.

Request transparency through the Supplier Questionnaire.

Gather documents, certifications, and self-assessments.

Use the Design for Freedom Material Tracking Schedule to document product data, submittals, certification requirements, manufacturing/harvest locations, material reuse and circularity, and material costs.

Make a procedure for tracking findings, successes, and lessons learned.

8. Share lessons learned

Share with Design for Freedom team at Grace Farms and the wider community via DFFPilotProjects@gracefarmsfoundation.org



Footnotes

Bricks

- ¹ <https://www.antislavery.org/report-slavery-india-brick-kilns/>
- ² https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?tid=All&field_exp_good_target_id=5754&field_exp_exploitation_type_target_id_1=All&items_per_page=10&combine=&page=1
https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Egypt.pdf
https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Paraguay.pdf
<https://news.mongabay.com/2021/08/333-people-rescued-from-slavery-in-brazil-mines-since-2008-exclusive-report-shows/>
- ³ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/afghanistan>
- ⁴ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/burma>
- ⁵ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/cambodia>
- ⁶ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?tid=All&field_exp_good_target_id=5754&field_exp_exploitation_type_target_id_1=All&items_per_page=10&combine=&page=1
- ⁷ Ibid.
- ⁸ Ibid.
- ⁹ <https://civiltoday.com/civil-engineering-materials/brick/132-brick-composition-ingredients-with-functions>
- ¹⁰ <https://www.antislavery.org/report-slavery-india-brick-kilns/>
- ¹¹ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?tid=All&field_exp_good_target_id=5754&field_exp_exploitation_type_target_id_1=All&items_per_page=10&combine=&page=1
- ¹² <http://www.endslaverynow.org/learn/slavery-today/bonded-labor#:~:text=Bonded%20labor%2C%20also%20known%20as,a%20debt%20from%20a%20relative>
- ¹³ <https://www.antislavery.org/report-slavery-india-brick-kilns/>
- ¹⁴ <https://hablakilns.com/the-brick-industry/the-brick-market/>

Copper

- ¹ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/2020_TVPRAListOnline_Final.pdf
https://www.state.gov/wp-content/uploads/2021/07/TIP_Report_Final_20210701.pdf
- ² <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/congo-democratic-republic-drc>
- ³ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/congo-democratic-republic-drc>
- ⁴ <https://www.ihrb.org/focus-areas/commodities/global-demand-for-copper-and-human-rights-challenges>
- ⁵ <https://www.state.gov/reports/2021-trafficking-in-persons-report/zambia/>
- ⁶ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/zambia>
- ⁷ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/peru>
- ⁸ <https://www.bambamresources.com/copper-in-construction/>
- ⁹ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-copper.pdf>

Glass

- ¹ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/2020_TVPRAListOnline_Final.pdf
<https://www.washingtonpost.com/technology/2020/12/29/lens-technology-apple-ughur/>
<https://news.mongabay.com/2021/08/333-people-rescued-from-slavery-in-brazil-mines-since-2008-exclusive-report-shows/>
<https://www.cbp.gov/newsroom/national-media-release/department-homeland-security-issues-withhold-release-order-silica>
- ² <https://www.glassallianceeurope.eu/en/what-is-glass#:~:text=Glass%20is%20made%20from%20natural,temperature%20it%20behaves%20like%20solids>
- ³ <https://www.corning.com/worldwide/en/innovation/materials-science/glass/how-glass-made.html#:~:text=The%20sand%20commonly%20used%20to,is%20also%20known%20as%20silica>
- ⁴ https://www.ima-na.org/page/what_is_soda_ash
- ⁵ <https://www.nordkalk.com/applications/industry/glass-and-sugar/#:~:text=Almost%20one%20third%20of%20glass,as%20flux%20in%20glass%20manufacturing>

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FOOTNOTES

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Glass (continued)

- ⁶ <https://www.glassallianceurope.eu/en/applications#:~:text=Glass%20is%20used%20in%20the,conservatory%2C%20insulation%2C%20reinforcement%20structures>
- ⁷ https://www.globalspec.com/learnmore/materials_chemicals_adhesives/ceramics_glass_materials/glass_materials/
<https://theconstructor.org/building/types-glass-properties-applications-construction/14755/>

Minerals | Mica, Gypsum, Silica

- ¹ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/2020_TVPRAList_Online_Final.pdf
<https://www.cbp.gov/newsroom/national-media-release/department-homeland-security-issues-withhold-release-order-silica>
- ² <https://www.dol.gov/agencies/ilab/eliminating-child-labor-mica-producing-communities-and-promoting-responsible-mica>
- ³ Ibid.
- ⁴ <https://www.dol.gov/newsroom/releases/ilab/ilab20220216#:~:text=An%20estimated%2010%2C000%20children%20endure,death%20in%20poorly%20ventilated%20mines.>
- ⁵ Ibid.
- ⁶ Ibid.
- ⁷ <https://stopchildlabor.org/ending-child-labor-in-mica-mines-in-india-and-madagascar/>
<https://www.fairplanet.org/story/child-labour-in-mica-mines-the-beauty-industry%E2%80%99s-dark-secret/>
- ⁸ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Niger.pdf
- ⁹ <https://www.cbp.gov/newsroom/national-media-release/department-homeland-security-issues-withhold-release-order-silica>
- ¹⁰ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf>
- ¹¹ <https://stopchildlabor.org/ending-child-labor-in-mica-mines-in-india-and-madagascar/>
- ¹² Ibid.
- ¹³ <https://www.theguardian.com/global-development/2019/nov/21/children-as-young-as-five-make-up-most-of-madagascars-mica-mining-workforce>
- ¹⁴ <https://www.fairplanet.org/story/child-labour-in-mica-mines-the-beauty-industry%E2%80%99s-dark-secret/>
- ¹⁵ <https://www.mining-technology.com/features/mining-mica-can-the-industry-overturn-its-legacy-of-exploitation/>
- ¹⁶ <https://responsible-mica-initiative.com/mica/mica-uses>
- ¹⁷ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/niger>
- ¹⁸ <https://www.mclanahan.com/blog/five-things-you-didnt-know-about-gypsum>
- ¹⁹ <https://www.britannica.com/science/gypsum>
- ²⁰ <https://www.gravelmill.com/knowledge/gypsum-application-and-usage.html>
- ²¹ <https://www.bbc.com/future/article/2019108-why-the-world-is-running-out-of-sand>
- ²² Ibid.
- ²³ Ibid.
- ²⁴ <https://www.bbc.com/worklife/article/20160502-even-desert-city-dubai-imports-its-sand-this-is-why>
- ²⁵ <https://www.becosan.com/what-is-silica-sand-for-in-construction/>
- ²⁶ <https://ijisrt.com/assets/upload/files/IJISRT20DEC382.pdf>
- ²⁷ <https://www.osha.gov/silica-crystalline>
- ²⁸ <https://www.eurosil.eu/13-what-are-main-uses-silica#:~:text=Industrial%20silica%20is%20used%20in,in%20water%20filtration%20and%20agriculture>
- ²⁹ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf>
- ³⁰ Ibid.
- ³¹ Ibid.

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Polysilicon | Solar Panels

- ¹ <https://www.cbp.gov/newsroom/national-media-release/department-homeland-security-issues-withhold-release-order-silica>
- ² <https://www.nasdaq.com/articles/u.s.-targets-five-chinese-companies-over-alleged-forced-labour-in-xinjiang-2021-06-24>
- ³ <https://www.hklaw.com/en/insights/publications/2022/01/breaking-down-the-uyghur-forced-labor-prevention-act-for-us-importers>
- ⁴ <https://www.bernreuter.com/polysilicon/uses/>
- ⁵ Murphy, L. and Elimä, N. (2021). "In Broad Daylight: Uyghur Forced Labour and Global Solar Supply Chains." Sheffield, UK: Sheffield Hallam University Helena Kennedy Centre for International Justice. <https://www.shu.ac.uk/helena-kennedy-centre-international-justice/research-and-projects/all-projects/in-broad-daylight>
- ⁶ <https://www.pv-magazine.com/2021/02/18/chinas-cheap-electricity-crowds-out-foreign-polysilicon/>
- ⁷ <https://www.seia.org/solar-industry-research-data>
- ⁸ <https://www.politico.com/news/2021/06/21/biden-solar-ban-china-forced-labor-495330>
- ⁹ <https://www.greentechmedia.com/articles/read/solar-industry-pushed-to-examine-supply-chain-after-reports-of-forced-labor-in-china>
- ¹⁰ <https://issues.solarindustrymag.com/article/rise-solar-unique-opportunity-copper>
- ¹¹ <https://www.renewableenergyworld.com/storage/will-the-transition-to-renewable-energy-be-paved-in-copper/#:~:text=These%20systems%20require%20more%20copper,15%20million%20pounds%20of%20copper.>
- ¹² <https://www.prnewswire.com/news-releases/why-silver-prices-could-realize-huge-benefits-from-surge-in-solar-panels-and-5g-demand-301192774.html>
- ¹³ <https://www.clintonaluminum.com/aluminum-in-solar-panels/#:~:text=That%E2%80%99s%20why%20many%20solar%20companies%20are%20turning%20to,an%20important%20consideration%20for%20many%20renewable%20energy%20companies>
- ¹⁴ <https://corporate.arcelormittal.com/media/case-studies/steel-is-the-power-behind-renewable-energy>
- ¹⁵ <https://sinovoltaics.com/learning-center/materials/solar-glass-applications-and-comparison-to-light-trapping/#:~:text=solar%20panel%20manufacturing.,Strength,than%20other%20types%20of%20glass>
- ¹⁶ <https://www.emerson.com/documents/automation/product-brochure-polysilicon-industry-solution-flier-fisher-en-5989068.pdf>

Precursors | Sodium Carbonate, Calcium Carbonate

- ¹ <https://www.sciencedirect.com/topics/engineering/calcium-precursor>
- ² <https://qz.com/650121/us-border-agents-seized-goods-tied-to-forced-labor-for-the-first-time-since-2001/#:~:text=US%20border%20agents%20seized%20a,Sanyou%20Group%2C%20a%20Chinese%20corporation>
https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/2020_TVPRAList_Online_Final.pdf
<https://news.mongabay.com/2021/08/333-people-rescued-from-slavery-in-brazil-mines-since-2008-exclusive-report-shows/>
- ³ <https://www.worldofchemicals.com/439/chemistry-articles/interesting-facts-about-soda-ash-washing-soda-sodium-carbonate.html>
- ⁴ <https://www.earthmagazine.org/article/mineral-resource-month-soda-ash/#:~:text=Although%20more%20than%2095%20sodium,for%20soda%20ash%20for%20centuries>
- ⁵ https://www.ima-na.org/page/what_is_soda_ash
- ⁶ https://www.ima-na.org/page/what_is_calcium_carb#:~:text=Calcium%20carbonate%2C%20or%20CaCO3%2C%20comprises,coral%20over%20millions%20of%20years
- ⁷ Ibid.
- ⁸ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf>

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Rubber

- ¹ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?items_per_page=10&combine=rubber&field_exp_exploitation_type_target_id_1=All&tid=All&field_exp_good_target_id=All&order=name_1&sort=desc
<https://www.state.gov/wp-content/uploads/2021/09/TIPR-GPA-upload-07222021.pdf> (pg. 195).
- ² <https://www.state.gov/wp-content/uploads/2021/09/TIPR-GPA-upload-07222021.pdf> (pg. 195).
- ³ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?items_per_page=10&combine=rubber&field_exp_exploitation_type_target_id_1=All&tid=All&field_exp_good_target_id=All&order=name_1&sort=desc
- ⁴ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Cambodia.pdf
- ⁵ https://www.ilo.org/jakarta/areasofwork/WCMS_126206/lang--en/index.htm
- ⁶ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?items_per_page=10&combine=rubber&field_exp_exploitation_type_target_id_1=All&tid=All&field_exp_good_target_id=All&order=name&sort=asc
- ⁷ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Philippines.pdf
- ⁸ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?items_per_page=10&combine=rubber&field_exp_exploitation_type_target_id_1=All&tid=All&field_exp_good_target_id=All&order=name_1&sort=desc
- ⁹ https://www.designingbuildings.co.uk/wiki/Rubber_in_the_construction_industry - :.text=Rubber%20is%20highly%20elastic%20and%20Joints%2C%20seals%20and%20gaskets
- ¹⁰ <https://www.fortunebusinessinsights.com/industry-reports/infographics/rubber-market-101612>
- ¹¹ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods-print?items_per_page=10&combine=rubber&field_exp_exploitation_type_target_id_1=All&tid=All&field_exp_good_target_id=All&order=name_1&sort=desc
- ¹² <https://civilengineeringx.com/bdac/elastomers-or-synthetic-rubbers/>
- ¹³ <https://www.buildersmart.in/blogs/rubber/>
- ¹⁴ <https://www.fao.org/faostat/en/#data/QCL>

Steel and Iron

- ¹ <https://www.state.gov/wp-content/uploads/2021/09/TIPR-GPA-upload-07222021.pdf>
https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5764&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Charcoal)
https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5769&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Coal)
https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5813&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Iron)
https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Egypt.pdf (Limestone)
<https://www.dol.gov/agencies/ilab/resources/reports/child-labor/paraguay> (Limestone)
- ² <https://oec.world/en/profile/hs92/pig-iron>
- ³ <http://www.ipsnews.net/2020/03/slavery-modernises-adapts-stay-alive-brazil/>
- ⁴ <https://www.state.gov/wp-content/uploads/2021/09/TIPR-GPA-upload-07222021.pdf> (pg. 139)
- ⁵ <https://www.businessinsider.com/mexican-drug-cartels-mining-2013-11>
- ⁶ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Mexico.pdf
- ⁷ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Pakistan.pdf
- ⁸ Ibid.
- ⁹ <https://www.theguardian.com/global-development/2020/feb/19/coal-workers-are-orphans-the-children-and-slaves-mining-pakistans-coa>
- ¹⁰ <https://r4dn.com/what-happens-to-iron-ore-in-a-blast-furnace/>
- ¹¹ <https://worldsteel.org/wp-content/uploads/2020-World-Steel-in-Figures.pdf>
- ¹² <https://www.aisc.org/why-steel/sustainability/>
- ¹³ https://www.oecd.org/greengrowth/GGSD2019_IssuePaper_CementSteel.pdf
- ¹⁴ [https://chem.libretexts.org/Bookshelves/General_Chemistry/Map%3A_General_Chemistry_\(Petrucci_et_al.\)/23%3A_The_Transition_Elements/23.3%3A_Metallurgy_of_Iron_and_Steel](https://chem.libretexts.org/Bookshelves/General_Chemistry/Map%3A_General_Chemistry_(Petrucci_et_al.)/23%3A_The_Transition_Elements/23.3%3A_Metallurgy_of_Iron_and_Steel)
- ¹⁵ <https://www.steel.org/steel-technology/steel-production/>
- ¹⁶ <https://worldsteel.org/steel-by-topic/steel-markets/buildings-and-infrastructure/>
- ¹⁷ <https://www.jernkontoret.se/en/the-steel-industry/production-utilisation-recycling/end-products-of-steel/>
- ¹⁸ https://www.globalspec.com/learnmore/materials_chemicals_adhesives/metals_alloys/ferrous_metals_iron_alloys
- ¹⁹ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf> (pg. 88)
- ²⁰ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022.pdf> (pg. 85)

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Stone

- ¹ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5854&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Stones)
- https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5855&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Limestone)
- https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=17001&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Sandstone)
- https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5804&field_exp_exploitation_type_target_id_1=All&items_per_page=10 (Granite & Gravel)
- ² https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/India.pdf
- ³ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Madagascar.pdf
- ⁴ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Nepal.pdf
- ⁵ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Uganda.pdf
- ⁶ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Zambia.pdf
- ⁷ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Egypt.pdf
- ⁸ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Paraguay.pdf <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/paraguay>
- ⁹ <https://news.mongabay.com/2021/08/333-people-rescued-from-slavery-in-brazil-mines-since-2008-exclusive-report-shows/>
- ¹⁰ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Sierra-Leone.pdf
- ¹¹ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Burkina-Faso.pdf
- ¹² https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Benin.pdf
- ¹³ https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2020/Nigeria.pdf
- ¹⁴ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5854&field_exp_exploitation_type_target_id_1=All&items_per_page=10
- ¹⁵ https://www.americanbar.org/groups/human_rights/reports/tainted-stones--bonded-labor-and-child-labor-in-the-india-u-s--s/
- ¹⁶ <https://cmpstone.com.au/what-is-the-best-stone-for-building/>
- ¹⁷ <https://dreamcivil.com/uses-of-stones/>
- ¹⁸ <https://www.stonecontact.com/products>

Textiles

- ¹ <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/bangladesh>
- <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/cambodia>
- https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5865&field_exp_exploitation_type_target_id_1=All&items_per_page=10
- <https://www.cmtradelaw.com/2018/05/u-s-customs-and-border-protection-cbp-halts-imports-of-cotton-and-cottongoods-from-turkmenistan/>
- ² <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/bangladesh>
- ³ <https://www.cmtradelaw.com/2018/05/u-s-customs-and-border-protection-cbp-halts-imports-of-cotton-and-cotton-goods-from-turkmenistan/>
- ⁴ https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods?tid=All&field_exp_good_target_id=5865&field_exp_exploitation_type_target_id_1=All&items_per_page=10
- ⁵ <https://www.fibre2fashion.com/industry-article/8471/top-10-exporting-countries-of-textile-and-apparel-industry>
- ⁶ <https://www.textileblog.com/application-of-textiles-in-building-and-construction/>

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Timber

- ¹ <https://www.verite.org/africa/explore-by-commodity/wood/>
<https://www.worldwildlife.org/stories/stopping-illegal-logging-in-africa>
<https://eia-global.org/subinitiatives/west-africa>
- ² <https://www.reuters.com/business/environment/brazil-police-investigate-potential-crimes-related-wood-exports-2021-05-19/>
- ³ <https://news.mongabay.com/2021/12/exports-of-threatened-species-timber-boomed-under-bolsonaro-probe-finds/>
- ⁴ Ibid.
- ⁵ Ibid.
- ⁶ <https://news.mongabay.com/2019/02/peru-report-reveals-high-rates-of-illegality-in-timber-extraction/>
- ⁷ Ibid.
- ⁸ <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2020/october/ustr-announces-enforcement-action-block-illegal-timber-imports-peru>
- ⁹ <https://insightcrime.org/news/yacu-kallpa-illegal-timber-impunity-peru/>
- ¹⁰ <https://www.state.gov/reports/2021-trafficking-in-persons-report/russia/>
- ¹¹ Ibid.
- ¹² <https://news.mongabay.com/2020/12/report-illegal-russian-lumber-flooded-europe-despite-timber-laws/#:~:text=Russia%20exported%20more%20than%20%2412,engaged%20in%20local%20sustainability%20programs>
- ¹³ <https://www.globallslaveryindex.org/2018/findings/country-studies/united-states/>
- ¹⁴ <https://newforests.com.au/wp-content/uploads/2015/07/New-Forests-Timberland-Investment-Outlook-2015-2019.pdf>
- ¹⁵ https://www.usitc.gov/research_and_analysis/tradeshifts/2020/forest.htm
- ¹⁶ Green Carbon, Black Trade: Illegal Logging, Tax Fraud and Laundering in the World's Tropical Forests: Green Carbon, Black Trade: Illegal Logging, Tax Fraud and Laundering in the World's Tropical Forests | GRID-Arendal (grida.no)
- ¹⁷ <https://www.cbp.gov/frontline/cbp-stops-illegal-logging>
- ¹⁸ <https://s38965.pcdn.co/wp-content/uploads/2017/04/EO-and-Commodity-Reports-Combined-FINAL-2017.pdf>
- ¹⁹ Sources: Repórter Brasil, World Bank, Verité, U.S. Department of State, EIA
- ²⁰ <https://www.woodsolutions.com.au/wood-product-categories/sawn-timber>
- ²¹ <https://startwoodworkingnow.com/types-of-wood-veneer/>
- ²² <http://www.understandconstruction.com/plywood.html>
- ²³ <https://mccoymart.com/post/what-is-laminated-plywood-its-types-and-design/>
- ²⁴ <https://www.fao.org/forestry/statistics/80938@180723/en/>
- ²⁵ Ibid.

Design for Freedom Terminology

- ¹ *International Day for the Abolition of Slavery, 2 December*, United Nations.
- ² *Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime*, United Nations Human Rights, Office of the High Commissioner. November, 15 2000.
- ³ *What is forced labour, modern slavery and human trafficking*, International Labour Organization (ILO).
- ⁴ *What is child labour*, International Labour Organization (ILO).
- ⁵ *Global Estimates of Modern Slavery: Forced Labour and Forced Marriage*, International Labour Organization (ILO). Geneva, September 19, 2017.
- ⁶ *Ending child labour, forced labour and human trafficking in global supply chains*, International Labour Organization (ILO), Organisation for Economic Co-operation and Development
- ⁷ <https://www.unglobalcompact.org/what-is-gc/our-work/livingwages>
- ⁸ *Ending child labour, forced labour and human trafficking in global supply chains*, International Labour Organization (ILO), Organisation for Economic Co-operation and Development (OECD), International Organization for Migration (IOM), and United Nations Children's Fund (UNICEF). 2019

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