

> MATERIALS PLEDGE

STARTER GUIDE



This guide is not meant in any way to provide professional advice. If professional advice or other expert assistance is required, the services of a licensed professional should be sought.

> INTRODUCTION

By holistically considering all aspects of the creation and use of materials, designers can improve the health of the planet and the people on it. AIA developed the Architecture & Design Materials Pledge to inspire members to shift the way in which we evaluate the products and finishes that we specify daily.

The A&D Materials Pledge considers five aspects when evaluating products and finishes: human health, social health & equity, ecosystem health, climate health, and a circular economy. This guide will walk through each of the pledge statements and steps your firm can take to more consciously support the goals of the Materials Pledge.

THE FIVE PLEDGE STATEMENTS



Human health. We pledge to support human health by preferring materials and products that support and foster life throughout their life cycles and seek to eliminate the use of hazardous substances.



Social health & equity. We pledge to support social health & equity by preferring materials and products from manufacturers that secure human rights in their own operations and in their supply chains, and that provide positive impacts for their workers and the communities in which they operate.



Ecosystem health. We pledge to support ecosystem health by preferring materials and products that support and regenerate the natural air, water, and biological cycles of life through thoughtful supply chain management and restorative company practices.



Climate health. We pledge to support climate health by preferring materials and products that reduce carbon emissions and ultimately sequester more carbon than emitted.



Circular economy. We pledge to support a circular economy by reusing and improving buildings, and by designing for resiliency, adaptability, disassembly, and reuse, aspiring to a zero-waste goal for global construction activities.



Historically, architects haven't asked what goes into creating building materials. We used to focused on aesthetics, performance, and durability. But in the past decade, there's been a shift to thinking more holistically about sustainable design and how materials play a crucial role. Today, we're collaborating with clients to design and construct with better building materials—ones that support human health, climate health, social health + equity, ecosystem health, and a circular economy.



—Lona Rerick, AIA, associate principal at
ZGF Architects, Portland, Oregon

When selecting building materials, understanding their full impact can be either difficult to interpret from the number and range of product labels and certifications, or relevant data is nonexistent. However, despite these challenges, architects and designers can still make a difference today.

Understanding that firms have a wide range of expertise and experience, the A&D Pledge intends to give firms and designers flexibility in how they reach their materials goals. Some firms are already well-versed in the human health impacts of material selection and might want to focus their efforts on all the other pledge statements. A different firm that has just started centering its firm culture on social health and equity may want to make that approach more robust before tackling the next pledge statement. Whether you tackle one pledge statement at a time or all simultaneously, figure out what works best for your firm.

HAVEN'T JOINED YET?

Become an early adopter and help us establish reliable, consistent metrics for finding improvements in your design process. [*Join the A&D Materials Pledge >*](#)

> FIVE STEPS FOR PREPARING YOUR FIRM

As the industry evolves, we will seek out more reliable and consistent metrics to support improvements in your design process, and ultimately layer those into the pledge. However, as an early adopter of the Materials Pledge, there are many strategies you can employ to improve your impact immediately. Consider the following ideas to catalyze firm-wide changes:

- 1 Update your sustainability or climate action plan to reflect the pledge statements.** The most critical step in any change management effort is communication. Document your participation in core strategic and operating documents, such as your climate or sustainability action plan, to build staff and client awareness. These documents often provide a road map to educate your staff and clients about your values.
- 2 Create or refresh your firm's materials library and policies.** Nearly three-quarters of architects have access to their firm's policies, guidance, or library for materials and product specifications. But many libraries fall short of the five pledge statements. Work with your team to include products that support the five pledge statements and to eliminate those that do not.
- 3 Make materials and product selections based on pledge criteria.** Identify materials that have the most impact in each pledge category to prioritize. Then look to your portfolio to see where you can modify specifications to include performance criteria that support the pledge and/or implement positive change. Track progress and consider developing a filing system to retain and recall product documentation for all projects.
- 4 Build literacy and train employees about materials at your firm.** Embrace company-wide education. Consider offering or subsidizing education such as the AIA Materials Series online certificate program or the Embodied Carbon IOI series on AIAU. Contact aiau@aia.org for more information on group viewing.
- 5 Encourage conversations.** When hosting lunch-and-learns with product manufacturers, ask them to talk about how their products support the pledge. Engage clients on the pledge categories to explore and set project goals. Discuss sustainable materials requirements at pre-bid conferences. Be a resource to the construction team during the construction procurement process.

> A PLEDGE FOR EXCELLENCE

The A&D Materials Pledge includes five aspirational long-term statements to ensure that better products are specified and installed in projects. Tackle the pledge statements one at a time or together. Individually, these statements tackle pressing challenges. Collectively, they advance *AIA's Framework for Design Excellence*.

AIA'S FRAMEWORK FOR DESIGN EXCELLENCE



Design for integration. Good design elevates any project, no matter how small, with a thoughtful process that delivers both beauty and function in balance. It is the element that binds all the principles together with a big idea.



Design for equitable communities. Design solutions affect more than the client and current occupants. Good design positively impacts future occupants and the larger community.



Design for water. Good design conserves and improves the quality of water as a precious resource.



Design for eco-systems. Good design mutually benefits human and nonhuman inhabitants.



Design for economy. Good design adds value for owners, occupants, community, and planet, regardless of project size and budget.



Design for energy. Good design reduces energy use and eliminates dependence on fossil fuels while improving building performance, function, comfort, and enjoyment.



Design for well-being. Good design supports health and well-being for all people, considering physical, mental, and emotional effects on building occupants and the surrounding community.



Design for resources. Good design depends on informed material selection, balancing priorities to achieve durable, safe, and healthy projects with an equitable, sustainable supply chain to minimize possible negative impacts to the planet.



Design for change. Adaptability, resilience, and reuse are essential to good design, which seeks to enhance usability, functionality, and value over time.



Design for discovery. Every project presents a unique opportunity to apply lessons learned from previous projects and gather information to refine the design process.



HUMAN HEALTH

We pledge to support human health by preferring materials and products that support and foster life throughout their life cycles and seek to eliminate the use of hazardous substances.

> The problem

While our bodies are extremely capable of processing a vast range of substances, many substances can't be metabolized and may begin to accumulate and even interact with our internal chemistry. Endocrine disruptors, for example, interfere with hormone regulation and physical development, and can lead to neurological problems, a weakened immune system, and more¹. Today there are over 160 million unique organic and inorganic chemical substances within the Chemical Abstracts Service (CAS) Registry. Though the 2016 update to the Toxic Substance Control Act (TSCA) requires the EPA to complete health risk assessments before any chemical reaches the market², the EPA still has 160 million substances in its existing inventory to evaluate and hundreds more that are invented each day. As a result, it is up to the design community to protect the health, safety, and welfare of the occupants we design for with the information available.

> Working towards a solution

The human health pledge statement commits designers to include the evaluation of emissions and harmful substances in products as part of The Standard of Care. It also commits design professionals to evaluating the material ingredients in manufacturing and the impact on workers and surrounding communities. This pledge statement entails the use and implementation of materials that have passed standardized emission testing protocols, provided fully transparent information on their material ingredients as verified by a third party, and optimized their products to remove the most harmful substances of concern.

> Framework for Design Excellence alignment



Integration



Equitable
communities



Well-being



Resources

> Where to start

- Request transparency in ingredients and health impacts from manufacturers. Transparency and disclosure documentation include *Health Product Declarations*, *Declare label*, Living Products, *Cradle to Cradle (C2C)*, BIFMA LEVEL, *OEKO-TEX*, and others.
- Eliminate “red list,” or problematic, chemicals from specifications. The *International Living Future Institute's Red List* is one example of a restricted substance list. Others include the *Green Science Policy Institute's Six Classes*, and *Cradle to Cradle Banned List of Chemicals*.
- Integrate VOC (volatile organic compounds) limits and emissions test requirement thresholds into your standard specifications. Make sure to address both VOC limits and emission tests for a more holistic assessment of health impacts.

¹ National Institute of Environmental Health Sciences. Endocrine disruptors, Introduction. National Institutes of Health –U.S. Department of health and Human Services.

² <https://www.epa.gov/tsca-inventory/about-tsca-chemical-substance-inventory> accessed 4/24/20

SOCIAL HEALTH & EQUITY

We pledge to support social health & equity by preferring materials and products from manufacturers that secure human rights in their own operations and in their supply chains, and that provide positive impacts for their workers and the communities where they operate.

> The problem

Human rights abuses and violations of decent work conditions—including, but not limited to, child labor, modern slavery, discrimination, barriers to freedom of association, and disregard for worker health and safety—occur globally in the supply chains of many goods, including building products. Architects, designers, engineers, constructors, and manufacturers often are unaware of these issues for the products they specify, use, and make, respectively. Information is difficult to obtain for complex global supply chains, and the building industry is behind other industries in demanding information about the origins and social conditions of building product manufacturing. This situation is changing as legal and reputational risks are becoming clearer, and as pressures from governments, clients, consumers, investors, and employees—particularly younger professionals—is increasing. In recent years, legislation in several countries (including the United States), corporate policies, digital supply chain mapping and tracking tools, and action by industry sectors such as apparel and food have raised both the urgency and increased the feasibility of identifying and eliminating these abuses.

> Working towards a solution

Architects and designers are the primary advisors and decision-makers on material and product selection in conjunction with owners and project consultants. The architecture and design community has a major role and, hence, opportunity to support supply chain human rights for all materials used in building projects. When architects and designers ask manufacturers for assurances that product supply chains are free of human rights violations, those manufacturers will respond. In order to implement the social health and equity pledge statement, firms must prioritize education around supply chain issues, training on tools, and methods to evaluate whether products and manufacturers support the pledge intent, and create specifications and product libraries for projects and contracts. In addition, architects should advocate for building products unburdened by human suffering to manufacturers and owners.

> Framework for Design Excellence alignment



Integration



Equitable
communities



Economy



Resources

> Where to start

- Ask manufacturers for supplier codes of conduct. Make sure that they require their supply chain sources to comply with human rights guidelines.

- Research and document social hot spots and/or human rights and labor risks for at least two commonly specified products. Download Grace Farm's *Design for Freedom report* or use the *Social Hotspots Database* for more guidance and information.
- Select at least two products each that meet requirements of abolition of forced labor, elimination of child labor, freedom of association, and equality. Reference *International Labour Organisation Core Convention* for further details regarding the rights of human beings at work. The LEED pilot credit *Social Equity within the Supply Chain* also has a list of company and product certifications that demonstrate compliance with the ILO standard.

HOW YOUR MATERIAL CHOICES IMPACT SYSTEMIC RACIAL INJUSTICE

- Materials toxicity affects environmental justice of “fenceline” communities located near a manufacturing site. Those manufacturing sites often disproportionately affect Black, Indigenous, and People of Color (BIPOC) with little recourse against bad offenders. As demand for better materials optimizes out toxics, neighboring communities will have healthier outcomes.
- Child labor, modern slavery, discrimination, barriers to freedom of association, and poor health and safety standards affect the most vulnerable communities across the globe. From forced Uighurs' labor in China to child labor in Congolese mines, addressing these issues through industry demand will improve the outlook of marginalized communities worldwide.
- Secondary building materials markets tend to be hyper-local and can spur community prosperity. Creating a viable secondary market can provide new business opportunity for local BIPOC entrepreneurs to invest in their own communities.



ECOSYSTEM HEALTH

We pledge to support ecosystem health by preferring materials and products that support and regenerate the natural air, water, and biological cycles of life through thoughtful supply chain management and restorative company practices.

> The problem

The extraction, production, and assembly of building materials often create negative environmental impacts, including air and water pollution, soil degradation, and habitat destruction. Destructive impacts to natural systems are typically excluded from material costs while the building blocks of life that we all depend on are increasingly threatened. These adverse impacts are especially hard on manufacturing “fenceline” communities and wildlife.

Globalization has exacerbated poor supply chain practices as cheaper commodities are increasingly sourced from areas with less stringent environmental regulations. Globally, this has led to millions of premature deaths due to air pollution, reduced access to safely managed drinking water as well as a reduction in forest cover.

> Working towards a solution

The ecosystem health pledge is intended to close gaps in knowledge about how the building products we use impact the building blocks of life. We seek to reward producers who provide building materials that respect and restore the health of the environment in their creation through the responsible use of soil, air, water, and other natural resources. This includes non-destructive sourcing of raw materials and safe processes throughout the supply chain. By creating collective demand for products that support and restore the Earth’s ecosystems, designers can work with manufacturers to effectively transform the marketplace. This responsibility includes considering impacts throughout the supply chain, including how sourcing and manufacturing materials impacts ecosystems and those that live in them.

> Framework for Design Excellence alignment



Integration



Equitable
communities



Water



Eco-systems



Resources



Change

> Where to start

- Ask manufacturers for information about the impacts of their raw material procurement and manufacturing processes to water, air, and soil near their facilities.
- Require Environmental Product Declarations (EPDs) from manufacturers. [Read more about EPDs.](#)
- Identify high-impact material types for initial assessment of primary environmental impacts. Some material types you might consider are petroleum-based plastics and foams; metals, wood, and other structural materials; and agricultural-based materials.
- Specify products with certifications that require environmental stewardship. These may include: Declare label, Living Product Challenge, Cradle to Cradle, FSC, NSC 337 Stone certification, etc.



CLIMATE HEALTH

We pledge to support climate health by preferring materials and products that reduce carbon emissions and ultimately sequester more carbon than emitted.

> The problem

Construction materials generate over 11% of worldwide greenhouse gas emissions. According to Architecture 2030, to avoid triggering irreversible climate change the building sector must reduce carbon emissions by 65% by 2030, quickly followed by getting to zero by 2040. If we continue with business as usual, more than 50% of the emissions from new construction will come from the CO₂ emitted in production of materials, with the majority coming from cement and steel. While the building industry needs to drastically reduce operating emissions, there must also be a coordinated effort to reduce embodied carbon from materials.

> Working towards a solution

The climate health pledge statement commits those who design buildings and select materials to accelerate the drive to zero by building less, reusing and retrofitting more, and choosing materials and products that will store carbon in our buildings in the long term. Designers should make use of environmental product declarations and whole building life-cycle assessment. Especially for this pledge statement, collaboration with industry and design partners is crucial to meeting critical climate targets.

> Framework for Design Excellence alignment



Integration



Equitable communities



Water



Eco-systems



Economy



Energy



Resources



Change

> Where to start

- Ask for transparency in carbon impacts of material ingredients. This can be found in EPDs.
- Build whole building Life Cycle Assessments (LCAs) into your practice. Focus first on using LCAs to select materials and systems that reduce your building's carbon impact, and then compare across other available LCA impact categories. *Read more about LCAs.*
- Use low-carbon and carbon sequestering materials. This can transform our buildings from carbon emitters to carbon sinks.
- Start by evaluating the highest-impact materials and work down: structure, envelope, wallboard, flooring, insulation, ductwork, ceiling panels, etc.
- Advocate for policies and practices that impose greater transparency of, and limits on, the global warming impacts of building products and interior materials, and for investment in tools that enable us to select low-carbon and carbon storing materials.

3 Architecture 2030 New Buildings Embodied Carbon <https://architecture2030.org/new-buildings-embodied/>



CIRCULAR ECONOMY

We pledge to support a circular economy by reusing and improving buildings, and by designing for resiliency, adaptability, disassembly, and reuse, aspiring to a zero-waste goal for global construction activities.

> The problem

The Industrial Revolution created a real estate economy where buildings have limited lifespans instead of capitalizing on the significant investment and reusing the buildings or building components for generations. This current status quo is inefficient, wasteful, and squandering of the earth's finite natural resources. Demolition and renovation activities are significant contributors to global waste.

> Working towards a solution

The Circular Economy pledge statement is intended to significantly change attitudes toward building design by encouraging teams to prioritize reusing existing building stock over new construction. Renovation and new construction methodologies and specifications must evolve to be based on product modules (to eliminate cutoff waste), design for disassembly, and reuse. Appropriate material selection, material assemblies, and detailing are key aspects of design that are essential.

> Framework for Design Excellence alignment



Integration



Equitable
communities



Economy



Resources



Change

> Action items to promote circular economy

- Renovate, retrofit, and reuse. Advocate for teams and clients to reuse and improve existing building stock and salvaged building materials. Take advantage of the strong financial and carbon reduction arguments. [Read more.](#)
- Design new buildings with a plan for future ease of disassembly or with a strategy for how the building may be reused in the future. [Explore strategies.](#)
- Reduce construction waste. Consider modular design to increase efficiencies in the entire construction process. [Learn more.](#)
- Select materials and furnishings that can be recycled into the same type of material. Alternatively, select materials and furnishings from manufacturers with active product leasing or takeback programs.
- Require manufacturers to publish end-of-life strategies. Encourage end-of-life-cycle assessments (Module "D") for all building materials.

> RESOURCES

> AIA documents

- *Healthier Materials Protocol*. Use the AIA Healthier Materials Protocol to gain practical insights and methods into incorporating healthier materials into your next project.
- *Modular and Off-Site Construction Guide*. Reduce material input and waste in your projects, and save client time and money along the way!
- *Renovate, Retrofit, Reuse*. Uncover the hidden value in America's existing building stock to reduce global carbon emissions.
- *Design for Adaptability, Deconstruction, and Reuse*. Explore strategies for designing for adaptability, deconstruction, and reuse to capitalize on their environmental, health, and economic benefits.

> AIAU online series

- *AIA Materials Series*. The courses cover different types of impacts, and best practices for reducing these impacts, from industry-best instructors. Take all five courses and earn a certificate!
- *Embodied Carbon IOI series*. Over 12 courses you'll learn how to measure, manage, and implement practical solutions from expert practitioners including architects and sustainable building product manufacturers.

> Other resources

- *Mindful Materials*. The mindful MATERIALS (mM) industry initiatives page compiles all the commitments related to materials, exhibiting their synergies with A&D Materials Pledge to transform the building product ecosystem.
- *Material Bank*. Material Bank helps you sample hundreds of materials overnight, but, most importantly, it has sustainability integrated into the selection of materials.