



Embracing Sustainable Interior Design

**HOW DESIGNING FOR DECONSTRUCTION
CAN MINIMIZE DESIGNERS' IMPACT
ON THE ENVIRONMENT**



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Contents

This white paper examines how interior designers and architects can embrace sustainability and lessen their carbon impact by utilizing the principles of designing for deconstruction.

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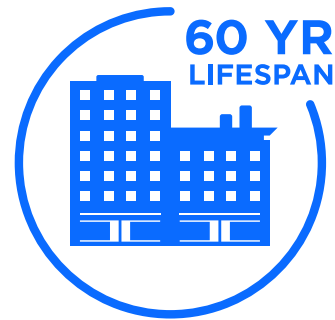


Sizing Up Interior Design's Carbon Footprint

In 2018, the U.S. generated [600 million tons](#) of construction and demolition debris, according to the U.S. Environmental Protection Agency. That astounding figure speaks to the critical need for the construction world to engage in circular practices. It also accounts for an underlying truth: while construction and demolition may conjure images of cranes, skyscrapers, expanding subdivisions and piles of rubble, not all debris is related to structure. As it turns out, interiors play a significant and crucial role in the carbon emissions of the built environment.

To understand how, one only has to consider the lifespan of a commercial office building. These projects take an incredible amount of materials to stand up, but well-built commercial spaces often stay upright for [60 years or more](#). Along the way, the space within changes hands frequently, with leases ending every few years. With industries such as the technology sector experiencing often accelerated rates of employee growth, businesses may outgrow their space quickly. Once the space falls vacant, it's not long before a new tenant shuffles in with new ideas about the aesthetic feel of their new business home. That can lead to a revamp of the space. These renovations occur every [7 to 20 years on average](#), depending on a myriad of factors. With so much interior turnover, commercial spaces end up accounting for the majority of building sector waste, with renovation projects sending a third of that waste to the landfill, according to estimates by reclaimed goods provider

WELL-BUILT COMMERCIAL SPACES
OFTEN MAINTAIN A



ASSUMING INTERIOR UPGRADES
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Doors Unhinged. Residential projects add up as well: in 2019, 70% of the U.S. homeowners who renovated their homes said they'd taken on interior remodels, as the architecture and design publication [Metropolis Magazine wrote recently](#). These redesigns keep business churning for interior design firms.

However, without clear and intentional thinking on sustainability, these projects have also come with a devastating environmental price tag. Research conducted by CLF and LMN Architects concluded that interior designers “may be responsible for emissions at least equal to those associated with the structure and envelope of a building,” Metropolis noted.

What can architects and designers do to reduce their carbon footprint and work toward a more sustainable future? For that answer, we look toward a growing movement known as, “designing for deconstruction,” and to its practices intended not to restrict interior designers, but to provide the tools to more thoughtfully approach innovative design.



What Does It Mean to Design for Deconstruction?

Deconstruction is the concept of taking down existing structural components in a way that salvages materials for reuse, when possible, or to be recycled. Designing for deconstruction, then, is how interior designers can proactively think through how their designs can facilitate a more seamless and fruitful deconstruction that allows all or most materials to have a continued lifecycle, rather than diverting them to the landfill. As the EPA puts it, the goal of designing for deconstruction is “to responsibly manage end-of-life building materials to minimize consumption of raw materials.”

“By capturing materials removed during building renovation or demolition and finding ways to reuse them in another construction project or recycle them into a new product,” the agency [wrote](#), “the overall environmental impact of end-of-life building materials can be reduced.”

Because it controls the first phase of development, design has the potential to determine 80% of a product’s environmental impact. Designers create positive results when they embrace an emphasis on designing with the end in mind.

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A Multi-faceted Approach

There is no simple, fix-all solution for conscious design. But through combined effort and planning throughout the process by multiple parties, we can implement an approach that utilizes the principles of designing for deconstruction.

Combined Effort

Designing for deconstruction takes buy-in across multiple parties:

Designers: Interior designers must commit to learning about the materials they use, understanding how their spaces could be deconstructed in the future and finding solutions that work both for their clients and the environment.

Builders: Builders should look to procure materials that can be easily deconstructed, working with designers to understand needs. As the EPA wrote, “architects and engineers can contribute to this movement by designing buildings that facilitate adaptation and renovation.”

Collaboration among these key players is perhaps most important of all. Builders and designers should seek to understand how each other thinks so they can select the right materials. They should also look to others in their own industry. Distributing knowledge, educating and sharing case studies allows us all to grow our understanding of effective strategies related to designing for deconstruction. Solutions aren't easily found, so there's power in numbers.

High-Quality, Simple Ingredients Matter

If there is a foundation upon which the designing for deconstruction movement stands, it may be that designers need to understand the products they're using. The fact is that clients often won't: 68% of designers said hardly any clients asked about harmful chemicals in their furnishings, [according to the Sustainable Furnishings Council](#).



Luckily, as the world becomes more environmentally minded, it's becoming easier for designers to learn about the safeties and harms of the products and furnishings they choose. Not only should designers opt for simple ingredients because they aren't harmful to the home's inhabitants, but also because they are easier to deconstruct and recycle at the end of their intended use. Carpeting, for instance, is often made of a composite of several different materials and designed in a way that makes it difficult to separate them out. But carpeting constructed with simpler ingredients is much easier to take apart and recycle.

Some manufacturers, such as Aquafil, have found innovative ways to disassemble carpets and provide the fashion and design industries with recycled nylon. It's important that these fiber and material manufacturers are transparent about their processes so that designers can fully understand the materials they use and comprehend the environmental impact of a product.



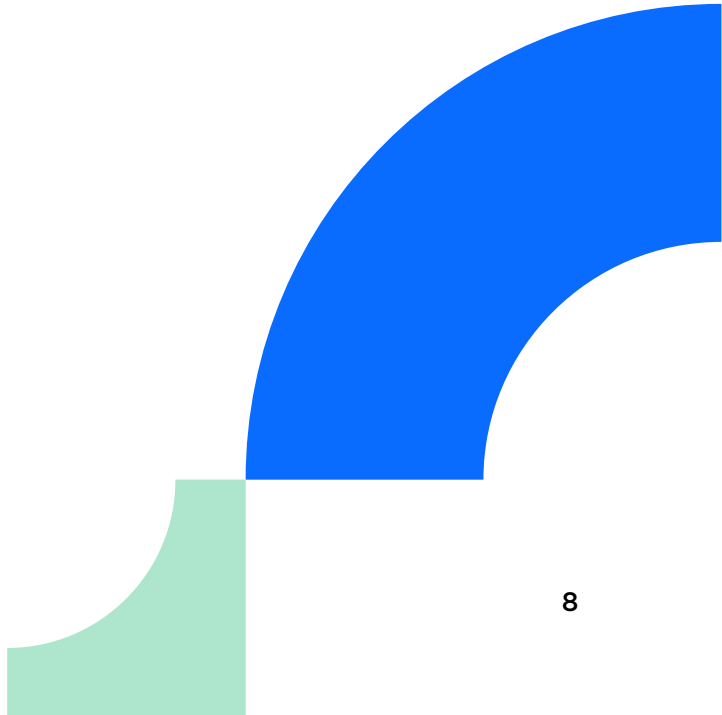
Designers should also emphasize high quality. Discount materials may look good for a few years, but with standard wear and tear will likely need to be replaced quicker than most other materials in a home or office. The hazards of poor material choices are often exposed during natural disasters. While stronger materials will generally stay in one piece during damaging storms, weak and poor-quality products can disintegrate and scatter, costing the environment.

Beyond incorporating simple, high-quality ingredients, designers should also look to minimize use of materials that have a high embodied carbon footprint or are inherently more difficult to deconstruct—such as gypsum board, metal studs, insulation and highly bespoke infrastructure. Sometimes, it's as simple as choosing to use screws—which are more easily deconstructed—over glue or nails.

Think Critically Before Going Bespoke

Customizing every inch of a commercial space for a new tenant can be a fun and rewarding experience—and sometimes the project calls for this sort of treatment. But designers who are serious about sustainability should take into account the likelihood a future tenant would utilize a similar layout.

Designing for deconstruction means programming in flexibility whenever possible, rather than locking into a singular layout for a single client. Modular layouts allow for maximum reusability and make it easy for future tenants to customize to their needs without requiring a massive overhaul of the space.





At Gensler, some global clients have started embracing modular layouts: a phone room is exactly half the size of a small meeting room, a small meeting room is exactly half the size of an office, an office is exactly half the size of a large meeting room and so on. That allows designers and builders to work together and lay out infrastructure in a way that makes it easier to subdivide or combine rooms as needed, greatly reducing waste.

Of course, it's not always possible to avoid a full-scale revamp. Designers encountering a renovation scenario can lessen the damage by ensuring the products you remove from the space are recycled whenever possible. For example, if the space you are renovating has carpet, send a sample of the existing carpet to local collection companies to verify whether it can be recycled. As in all scenarios, it's important during the demo phase that designers understand the materials they're working with.

Effective Policy Can Accelerate Change

Even with more designers thinking critically about sustainable design, one of the most profound ways to make a difference would be through enacting a change in policy.

California offers a compelling example. In 2010, the state enacted the first statewide carpet stewardship program, designed to ensure discarded carpets became a resource for new materials. In 2018, the state strengthened the law by adding accountability measures and setting a recycling rate goal. [According to the state](#), the program's purpose is to "increase the amount of post-consumer carpet that is diverted from landfills and recycled or otherwise managed in a manner consistent with the state's waste management hierarchy."

Although residents have yet to hit the goal of 24% recycled, the state's program has significantly raised carpet recycling rates. Across the U.S., just 4% of carpet is recycled. In California, the rate is [21%](#).

THREE STEPS INTERIOR DESIGNERS CAN TAKE TO LOWER THEIR CARBON OUTPUT:

- 1. Prioritize low-carbon solutions:**
While durability is important, interiors often "ugly-out" or become unusable for new tenants before they give out, so prioritizing low-carbon solutions is key.
- 2. Reward conscientious manufacturers:**
Some have adopted good practices and optimized products faster than others. Reward them with your business.
- 3. Analyze material options early:**
Thinking through innovative ingredients early in the process keeps more options open. Firms should also work to establish a "go-to" set of consciously created products.



Design With the End in Mind

A truth about interiors: whether it happens in three years or 20, every design will eventually be torn down and redone. This process has too often sent loads of materials to the landfill.

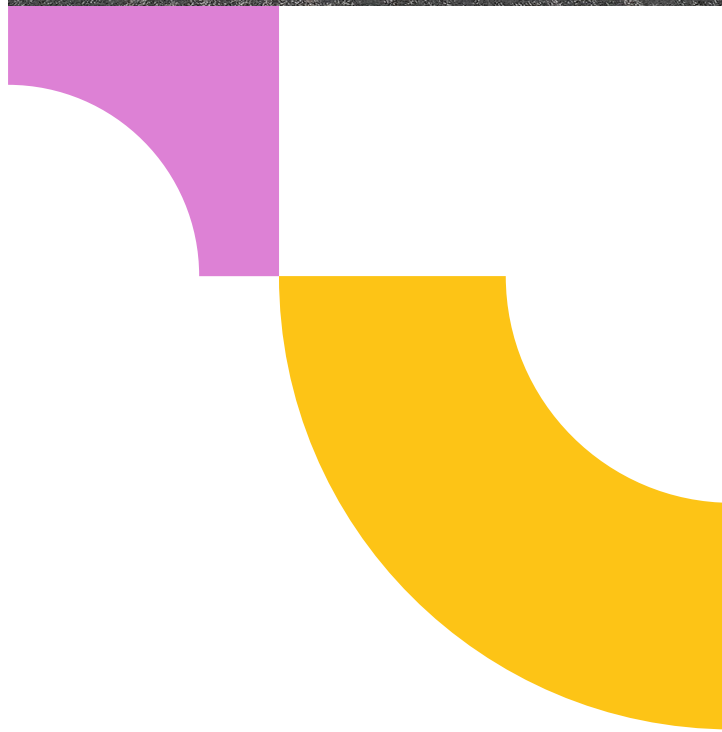
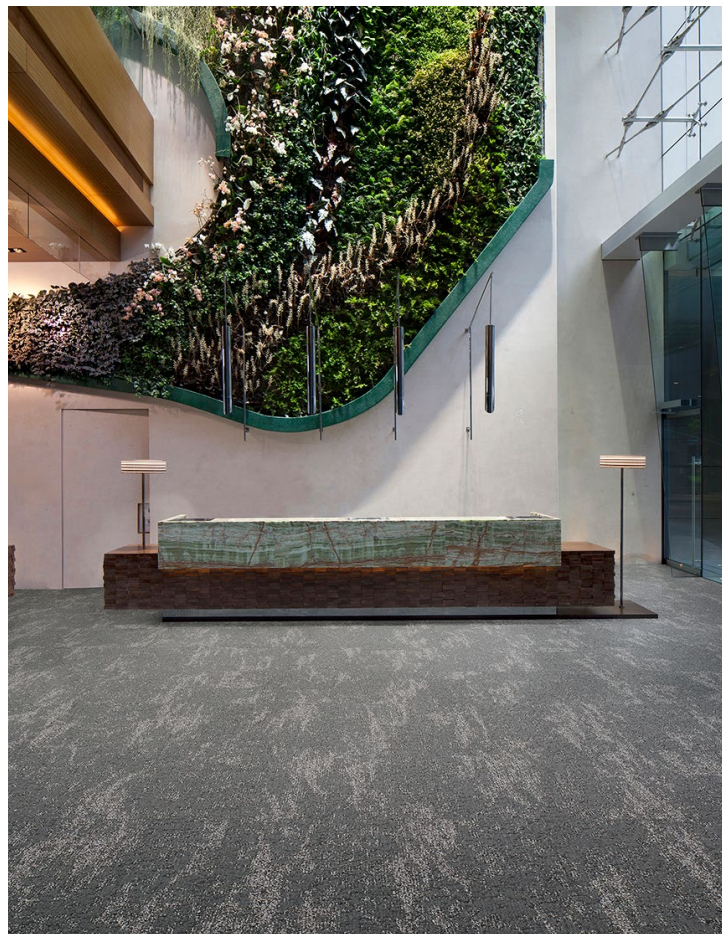
If we want to reach a circular economy, there's a better way. By following the principles of designing for deconstruction, utilizing partnerships and understanding the materials we're selecting before we begin to design, we can reduce waste and make the architecture and design industries more sustainable.

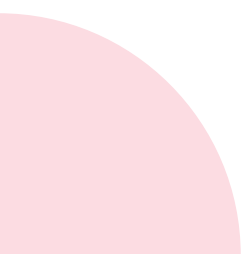
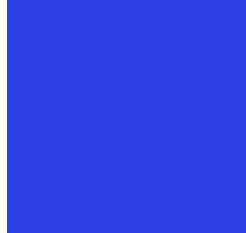
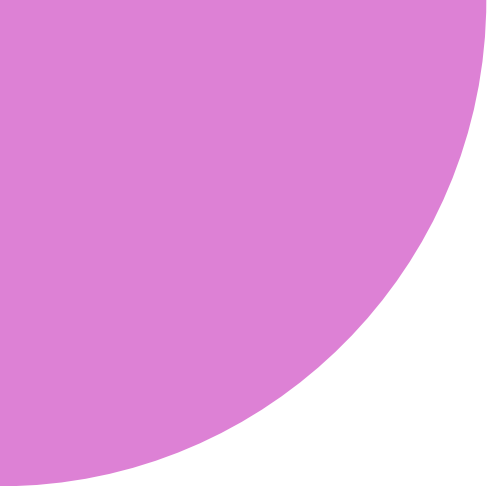
At [Aquafil](#), we're doing our part to close the loop with [ECONYL® nylon](#). We regenerate nylon waste from materials such as fabric scraps, carpet flooring, old fishing nets and industrial plastics, and chemically transform it into yarns and polymers for reuse. Our appetite to create and enjoy new products knows no bounds, but the planet's resources are finite. With the ECONYL® regeneration process, we get the best of both worlds. We empower textile designers to create new products without ever having to draw more precious resources. Designers in the interior and fashion industries use ECONYL® nylon to create sustainable clothing and design products, knowing the nylon can be recycled, recreated and remolded—and perform like new time after time.

A more sustainable future is within our grasp.

IT'S TIME TO BE MINDFUL OF OUR MATERIALS—AND CAPTURE IT.

Learn [more](#).





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