



WHITEPAPER

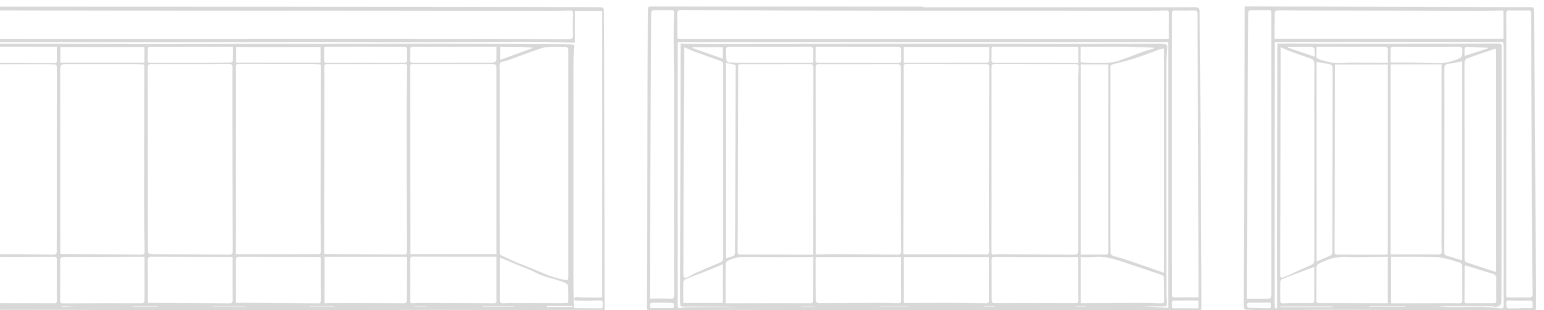
More Use, Less Waste in the Workplace: Designing for Reuse with Modular Interior Systems

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Overview

In the pursuit of long-term sustainable solutions, the Architecture, Engineering & Construction (AEC) industry consistently encounters the ongoing challenge of the environmental impact of construction waste. While progress has been made with the development of less toxic building materials, the increased utilization of materials with renewable and recycled content, and a growing trend towards materials that can sequester carbon, there remains room for improvement around waste reduction, reuse, and circularity of materials.



This whitepaper delves into advancements in interior design and construction, with a strong emphasis on adopting materials that are designed for reuse. These innovations have the potential to revolutionize the industry's approach to sustainability and waste reduction.

Key to this transformation is the incorporation of intelligent solutions, like modular interior systems.

By embracing such approaches, future interiors can be designed to minimize waste, tackle concerns related to resource depletion, and effectively reduce the environmental impact caused by routine and cyclical renovations. The integration of these forward-thinking practices promises to usher in a new era of eco-friendly practices within the AEC industry.

Challenges in Modular Interior Systems



While modular interior systems designed for demountability and reuse hold great potential, the reality often falls short. Many demountable solutions end up as throw-away, short-term fixes that fail to match the performance and aesthetic of traditional drywall construction and lack easy day 2 reuse capabilities. Without a systemic shift in construction approach and the implementation of more intelligent interior solutions, we will only continue to implement a throw-away model that creates a tremendous waste of human resources, time, and materials. And, at the end of the day, cyclical renovation of the workplace comes at too great a cost to the environment, productivity, and capital.

One way to remediate this waste is by designing interiors for future adaptability and reuse. Modular systems can be part of this solution if they are intelligently designed for easy assembly, disassembly, and reuse while maintaining the same level of performance as traditional interior construction. However, current modular systems have struggled to efficiently facilitate reuse within

customer environments, resulting in solutions that fail to deliver on the cost, time, and quality trade-off.

Embracing a kit-of-parts approach has emerged as a core attribute of good solutions, creating a flexible assembly of components that can be readily disassembled and repurposed to accommodate various common use cases, unlocking the true potential of adaptable modules.

These adaptable modules can serve various needs, from privacy pods and huddle rooms to large conference spaces and collaborative environments. Through this approach, we can break free from the industry's current wasteful practices and move closer toward a future where interior spaces are aesthetically pleasing, responsive to changing human needs, and more sustainable.

Rethinking the Approach: Reducing Waste in Interior Construction

Waste is a pressing issue that requires immediate attention. With a commitment to sustainability, KOVA's research and development efforts address the environmental and labor costs associated with the prevalent disposable mentality in traditional interior construction practices.

Conventional habits are not only rigid and inflexible but require significant demolition and renovation activities that contribute to 90% of annual construction debris (United States Environmental Protection Agency), and 40% of global carbon emissions (Architecture 2030). The outdated process includes tearing down, disposing of, and rebuilding workplace interiors to address changing needs. As a result, the typical office space is renovated on average every five years—with each renovation resulting in significant landfill waste.

In addition to the material waste produced from constant and unnecessary construction, there is equal monetary waste in labor and building material costs, particularly drywall expenditures.

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HomeGuide states in 2023, “Sheetrock and drywall prices are \$10 to \$20 per sheet or \$0.30 to \$0.50 per square foot on average, depending on size, thickness, and type.” For an average office building that stands at 19,000 square feet, initial drywall costs alone can range from \$5,700 to \$9,500 and will increase as the building undergoes a series of renovations in its lifetime.

What if current methods could be different?

Imagine the impact architects and designers could have if they challenged the assumption that drywall is the most efficient answer to interior construction.

Beyond choosing carbon-neutral or toxin-free materials, choosing products and materials that adapt to evolving human and space needs for long-term use will help reduce capital expense while minimizing construction waste.

Defining and Designing the Idea: The Modwall Adaptable Room System



The need for adaptable and flexible solutions has become increasingly paramount in the dynamic world of interior design and construction. Modular interior systems, like walls and room products, work two-fold, offering adaptable architecture for flexible spaces.

A modular room is a prefabricated system that can divide an open environment and provide a range of advantages that extend beyond the limitations of traditional construction methods. They can be easily reconfigured or removed as needed, even if the building structure isn't adaptable, making the interchangeable systems an appealing choice for designing efficient and versatile interior environments.

Modular walls are designed for disassembly and waste reduction, making reusing or recycling materials easy. Embracing these principles creates flexible, sustainable, and resilient spaces that minimize waste—an essential step toward responsible construction practices.

KOVA's Modwall system is a solution designed to adapt alongside the evolution of today's modern workplace. It is an innovative, modular, room-in-room system that addresses a broad variety of space needs, from small privacy spaces to large collaborative rooms.

Unlike other adaptable solutions on the market, Modwall is self-sufficient as its post-and-beam structure. The modular panels allow the system to be free-standing in any space, eliminating the need to tie the structure to overhead infrastructure or connect to other walls. This kit-of-parts approach to product development can create flexibility, performance, and design freedom while eliminating the staggering material waste in commercial real estate. The Modwall system intends to offer commercial interiors the ultimate

flexibility in aesthetics and performance and to be a compelling option to traditional drywall construction. While many systems force designers into a prescribed aesthetic, Modwall allows for design freedom by creating a platform that can be coupled with non-KOVA finishes.

Modwall allows for creative collaboration and individual work, both essential for productivity. A 2022 Gensler survey of over 2,000 U.S. office workers revealed that while employees value the office for focused work, they also seek diverse spaces and experiences to better support their work and create an environment where they want to be. Eighty-three percent of office workers stated they would be willing to return to the office regularly if their ideal experiences were met, calling upon office owners

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to create enticing and appealing environments for their employees (Gensler).

By embracing modular wall systems, companies can optimize their office spaces and foster a dynamic workplace environment.



Modwall Features

Flexible & Reusable

Modular kit-of-parts can be easily installed, moved, and reused as space needs evolve

Easy Installation

Can be assembled in one weekend without specialized trades

Thoughtful Design

Mechanical, electrical, and fire protection systems are integrated into the system in the shop, providing plug-and-play connections that enable easy connection to base-building systems

Value

Finish selections suit all budgets; ease of assembly saves time and money

Quality

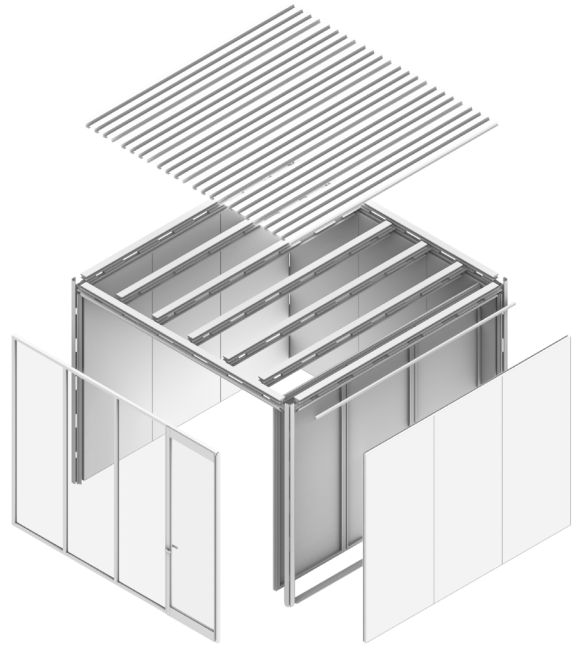
Made from best-in-class, durable materials

Performance

Glass rating of STC 39 and flexible acoustic finish selections for a quiet, private meeting space

Acoustical Privacy

Achieved in the workplace by using gaskets, dry seals, and plant-based batt insulation



Balancing design and flexibility, Modwall offers:

A fully realized solution that matches the design intent

Designed for assembly, disassembly, and reuse, allowing for redesign and renovation without demolition

True replacement for drywall with benefits that include a lower environmental impact and superior acoustic performance

In Practice: Increased Mental and Environmental Benefits



Flexible solutions offer employees more control of their workspace and how they use it, allowing workers to manage their stress better. Recognizing that applying adaptable, intuitive solutions decreases potential user anxiety and removes stress from the workplace. Solutions, like the Modwall, allow employees to step away for quiet or focused time as needed without relocating to a separate room; offering privacy without sequestering employees.

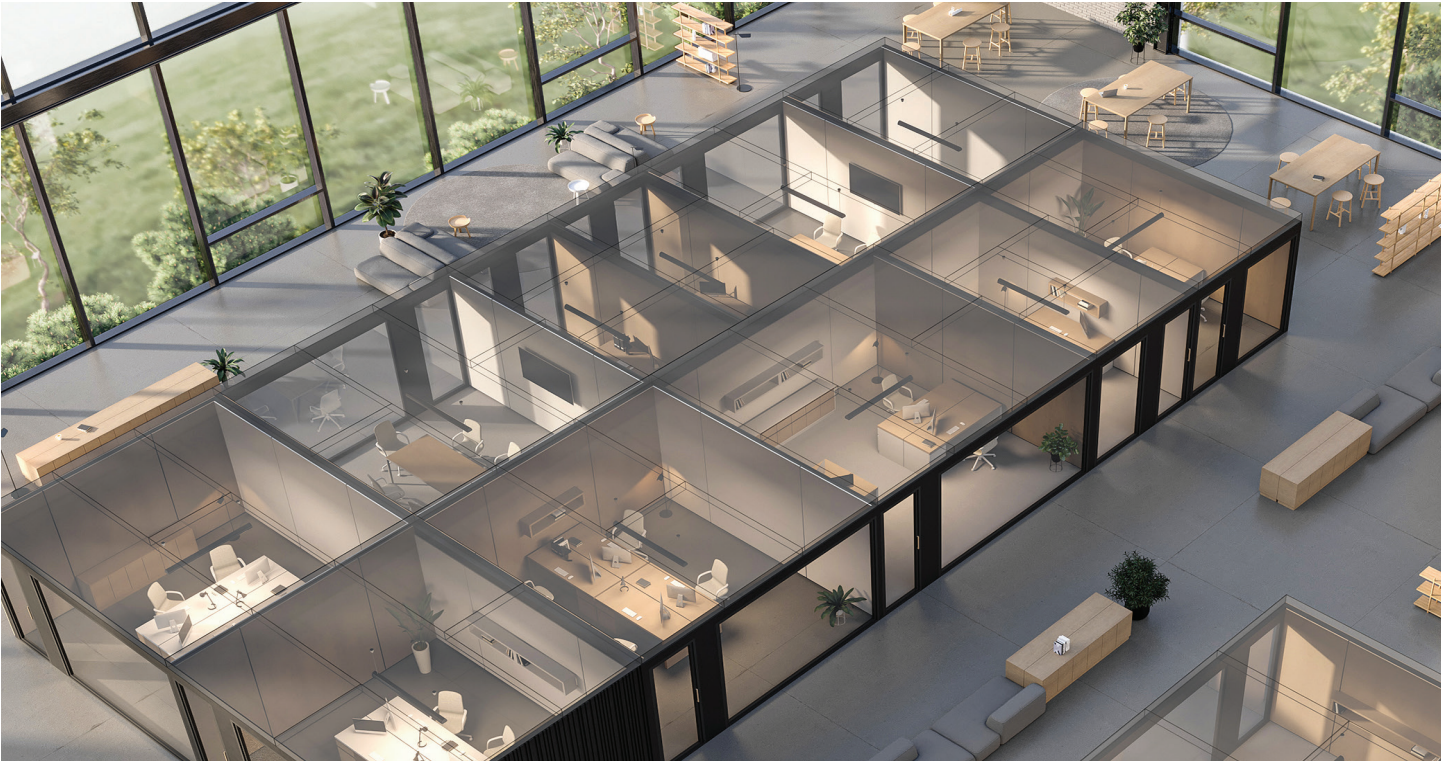
High decibel levels in the workplace have clear and demonstrable impacts on focus and productivity, job satisfaction, and employee health.

However, implementing tactics in the construction phase can ease those troubles and reduce lasting effects from the start. Solutions designed using plant-based batt insulation made of natural plant fibers, such as Modwall, not only absorb

condensation and are impervious to moisture (Today's Homeowner), but the material's density suppresses surrounding noise better than standard, synthetic fiber insulation.

Modwall's post-and-beam structure and modular panels allow the system to be free-standing in any space, removing the need for traditional building materials like drywall from the equation. The Centers for Disease Control and Prevention (CDC) states residual drywall dust "may cause persistent throat and airway irritation, coughing, phlegm production, and breathing difficulties similar to asthma" (CDC). By replacing this potentially harmful element with a simple aluminum wall frame insulated with a sustainable, plant-based batt that slides into the post-and-beam structure, contractors and designers have the opportunity to improve the space's air quality and acoustics all with one system that is 100% recyclable at the end of its lifecycle.

Conclusion



Designing a more sustainable future has become less of a project initiative and is now integral in the AEC industry's daily practices.

Instead of allowing traditional, sometimes toxic building materials to further permeate new construction sites, developers, contractors, and designers have mitigated the potential pollutants produced by introducing new techniques and solutions to their workflow.

Addressing individual material components and using renewable or recycled contents contributes to greener designs, but constant renovations and upgrades to spaces simply to meet the newest design trends combat the positive efforts, bringing us to a net-zero gain.

By promoting sustainable alternatives and responsible construction practices, the industry can reduce reliance on conventional materials and promote a circular economy for a greener future.

Modular interior systems provide adaptable architecture and flexibility, allowing businesses to modify and transform their spaces easily in one day, cutting the need for business-closing construction that delays employee productivity. A reduced number of job sites and the use of traditional materials associated with new builds, such as drywall, further withers routine, and cyclical renovations as the standard and embraces new possibilities that align with how humans need and want to work.

Citations

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