MSR Design Sustainable Materials Action Packet

01 December 2025

We build with thousands of different materials. It matters, where those materials are coming from and how far they traveled, who produced them, how they were manufactured, and whether products and materials are designed for a future life when the building comes down.

This packet documents tools and thought processes that can help inform better material design choices. We encourage you to adapt these resources to the needs of your organization or practice and share them with others. The more we work together to improve the building products industry, the better it will be for our planet and its inhabitants. We welcome feedback at generativeimpacts@msrdesign.com

Download the latest version of this packet at msrdesign.com/resources/msr-design-sustainable-materials-action-packet/

Materials Library Entry Criteria

To align our projects and practice with the sustainable and healthy building materials movement, we communicate our intentions to building products sales representatives and manufacturers using this one-page handout, which contains three categories of action:

1. **What We Require: Transparency**
   A growing number of architecture firms and client organizations are requesting transparency on the composition and embodied carbon of building products.
2. **What We Avoid: Harmful Ingredients and High Carbon Footprint**
   Transparency from product manufacturers plus growing industry knowledge enables us to select products for lower toxicity and carbon footprint.
3. **Interpreting Eco-Labels and Other Data**
   We support manufacturers that are leading market transformation in their product sector and obtaining appropriate certifications.

Sustainable and Healthy Building Materials

A Practice Guide

We want the entire world to understand what it means to use better materials.

100 Level: Fast Track Learning 1-2-3
Accessible videos for everyone, including firm leadership and project managers.

200 Level: Early Steps for Better Materials
Select resources to support carbon and health-based materials decisions early in design or the RFP process.

300 Level: Find Products and Materials
Tools and databases to help you find better products.

400 Level: Advanced Learning
Chemistry deep dive, great case studies, latest research, best practice guides, and guidance for rewriting architectural specifications.

Tools for Product Manufacturers

This page highlights resources that are available to assist manufacturers in developing their documentation and becoming leaders in their sector. Opportunities for innovation abound as we find ways to move away from petroleum-based building products.

Cost-of-Documentation Matrix For Manufacturers
Transparent reporting on ingredients, supply chains, and embodied carbon is a new and rapidly expanding territory for building product manufacturers.

Architecture Samples Donation Guide
To reduce waste, we have developed a workflow for returning product samples, but sometimes they still pile up, so we worked with Twin Cities ReStore, a branch of Habitat for Humanity, to develop guidelines for donating certain reusable samples such as discontinued carpet tiles.

Materials Library Entry Criteria

01 December 2025

MSR Design is a signatory to the AIA Materials Pledge and advocate for the Common Materials Framework (CMF). These commitments guide us to track material impacts across five key categories and align with an industry-wide approach to transparency and optimization. We support manufacturers that advance innovative solutions for a healthier, more equitable, lower-carbon materials future.

Human Health

Requesting ingredient disclosure and preferring products that foster life throughout their life cycles and seeking to eliminate the use of hazardous substances.

Climate Health

Requesting carbon footprint data and preferring products that reduce carbon emissions and sequester more carbon than emitted throughout their life cycles.

Ecosystem Health

Preferring products that regenerate natural air, water, and biological cycles through thoughtful supply chain management and restorative company practices.

Social Health and Equity

Preferring products from manufacturers that secure human rights in operations and supply chains in support of workers and communities where they operate.

Circular Economy

Reusing buildings and materials, and designing for future disassembly and reuse, materials efficiency, long life, and perpetual cycling.

1A. What We Require: Transparency

Products on our shelves require documentation of composition in one of the following formats:

Health Product Declaration (HPD)[1]
An affordable option for manufacturers

Declare Label[1]
Includes listing in popular designer-facing Declare Database

1b. What We Require: Life Cycle Data

Products on our shelves require documentation of life cycle impact:

Environmental Product Declaration (EPD)[1]
A third-party prepared and verified document disclosing life cycle impact

Life cycle assessment (LCA) data
If EPD is not available, provide a description of life cycle assessment efforts in progress

2a. What We Avoid: Harmful Ingredients

- Antimicrobials
- Stain repellants and other PFAS
- Bisphenols and phthalates
- Flame retardants
- VOC emissions and VOC content[2]
- Formaldehyde[2]
- PVC (vinyl)[2]

[2] Not possible to eliminate certain chemistries yet? Talk to us.

2B. What We Avoid: High Embodied Carbon

We consider the impact of a product's embodied carbon footprint in comparison to the reasonable expected life of the product; the contribution to reduced operating carbon of the project; and the potential for future reuse, among other factors.

2C. What We Avoid: Monstrous Hybrids

Products made of dissimilar materials and joined with adhesives are frequently non-recyclable composites. We consider the degree to which products are designed for dissassembly.

3. How We Prioritize Other Product Data

Compliance with chemical hazard lists
Prefer free of GreenScreen Benchmark 1

Certifications, ecolabels, and verified data
We look for high quality ecolabels to help us understand reduced impacts in key areas affected by the manufacturing of this product. Prefer third-party certifications and those that address specific product category hot spots. Independent third-party verified labels and data help us reduce greenwashing[1].

Circularity programs
We give preference to products with strong take-back and realistic recycling programs

Socially responsible manufacturing
Disclosure of human rights practices in the building product supply chain is limited. We are gathering data to improve specification of manufacturing that supports workers.

[1] Manufacturers may seek third-party verification for HPDs and Declare labels. EPDs are third-party verified per requirements of the standard.

Questions? We value our relationship with you. What are the most sustainable, healthy, low embodied carbon materials you offer? Let's start a conversation.

Materials Knowledge for Everyone

01 December 2025

1

Embodied Carbon & Global Warming Potential
Carbon Leadership Forum
Collaborative of building industry professionals, material suppliers, owners, and policymakers working to decarbonize the built environment.
https://carbonleadershipforum.org

What Is Embodied Carbon in Buildings? | Video (6 min)
Author and cofounder of Builders for Climate Action Chris Magwood describes how material selection can make the difference between a large carbon footprint and a net carbon sink.
https://www.youtube.com/watch?v=h1piVin01vQ

Plastic Buildings: The New Driver of Fossil Fuel Demand
Article by the Healthy Building Network.
https://healthybuilding.net/blog/579-our-plastic-buildings-the-new-driver-of-fossil-fuel-demand

2

Avoiding Toxic Materials

Six Classes of Chemicals of Concern | Videos (4 min each)

A series from Green Science Policy Institute on chemistry to remove from use in consumer and building products.

PFAS (Per- and Polyfluoroalkyl Substances)
https://www.sixclasses.org/videos/pfas

Antimicrobials
https://www.sixclasses.org/videos/antimicrobials

Flame Retardants
https://www.sixclasses.org/videos/flame-retardants

Bisphenols and Phthalates
https://www.sixclasses.org/videos/bisphenols-phthalates

Mercury, Arsenic, Cadmium, Lead
https://www.sixclasses.org/videos/certain-metals

Specific Solvents
https://www.sixclasses.org/videos/some-solvents

3

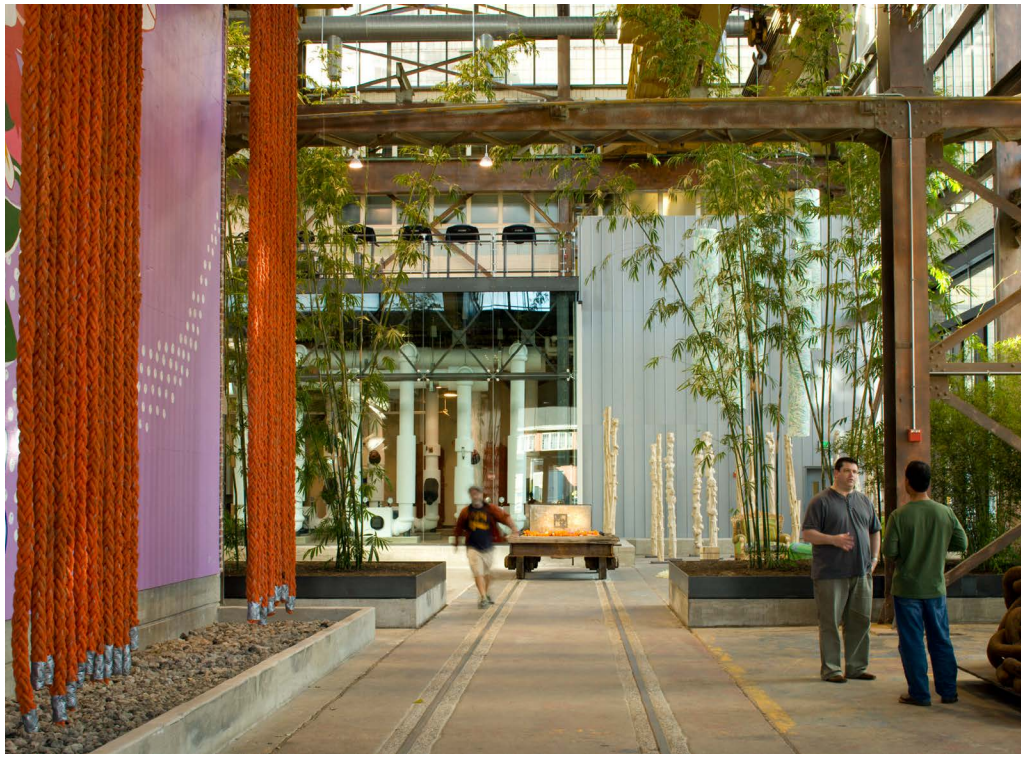
Sustainable Building Materials Big Picture
What Is a Circular Economy?
An economy where waste is eliminated, resources are circulated, and nature is regenerated.
https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview

The Impact of Toxins on the Developing Brain | Video (7 min)
From the Little Things Matter series, about body burden.
https://www.youtube.com/watch?v=E6KoMAbz1Bw

Centering Equity in Sustainable Building
The most impacted communities are underrepresented in the design and construction of sustainable buildings.
https://www.greenbuilt.org/articles/jacqui-patterson-and-mandy-lee-centering-equity-in-sustainable-buildings-why-green-buildings-are-a-civil-rights-issue

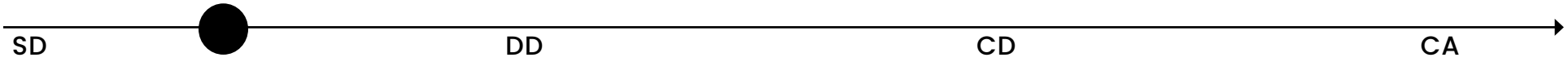
AIA Materials Pledge (Executive Summary)
Architecture firms committed to asking manufacturers for transparency and prefer products that support human, climate, ecosystem, and social health.
https://www.aia.org/pages/6351155-materials-pledge

Impact of Green Buildings on Cognitive Function | Videos (3 min each)
Summary of studies from Harvard School of Public Health, SUNY Upstate Medical University and Syracuse University conclusively linking indoor environmental quality to cognitive function of building occupants.
https://thecogfxstudy.com/study-1
https://thecogfxstudy.com/study-2
https://thecogfxstudy.com/study-3



1. **Health & Embodied Carbon** | Early Project Steps

01 December 2025



Starting a project

Design Your Materials Palette
MSR Design Materials Library Entry Criteria
The Materials Library Entry Criteria is a simple tool for filtering materials and products that demonstrate a commitment to the Resources and Well-Being Measures of the AIA Framework for Design Excellence.

Design for Human Health
HBN Informed Tool
"The easy way to select healthier building products."
https://informed.healthybuilding.net

HomeFree Transformation Targets
A stoplight chart for building your materials palette.
https://homefree.healthybuilding.net/products

ILFI Materials for Affordable Housing Product List
Resources for getting started with Red List Free materials.
https://living-future.org/affordable-housing

Design for Embodied Carbon
Carbon Smart Materials Palette
Building your palette with carbon in mind.
https://materialspalette.org

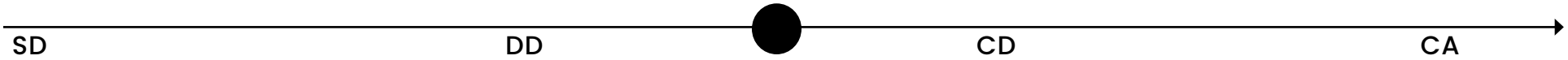
Embodied Carbon Calculation Based on Your Model or Drawings

- Tally embodied carbon modeling plugin for Revit
  https://choosetally.com
- One Click LCA embodied carbon modeling plugin for Revit
  https://www.oneclicklca.com
- Athena spreadsheet-based impact estimator
  http://www.athenasmi.org/our-software-data/impact-estimator
- CARE Tool Carbon Avoided Retrofit Estimator
  https://caretool.org

Design for Deconstruction & Reuse
All for Reuse Ecosystem Map
Salvaged and reused materials can lower your carbon footprint.
https://www.allforreuse.org/ecosystem-map

2. **Find Products & Materials** | Tools for Designers and Specifiers

01 December 2025



Product Databases and Procurement Platforms

Mindful Materials Portal
Search products, documentation, and certifications.
https://portal.mindfulmaterials.com

Ecomedes
Search products, documentation, and certifications.
https://products.ecomedes.com

Declare Product Database
Search Red List Free and Red List Compliant products.
https://living-future.org/declare

Origin Database
Searchable by category, brand, or certification type.
https://www.origin.build/#

Red2Green (subscription platform and database)
Platform and database tailored specifically to the documentation requirements of the Living Building Challenge Materials Petal.
https://materiallybetter.com

Practice Greenhealth (formerly Healthier Hospitals Initiative)
List of furniture that avoid chemicals of concern for use in healthcare and other settings. Expanded website includes additional guidance on sustainable procurement as well.
https://practicegreenhealth.org/topics/safer-chemicals/healthy-interiors

EC3 Embodied Carbon Comparison Tool
Tool for comparing the embodied carbon footprint of specific brands, as opposed to estimating based on product category averages.
https://buildingtransparency.org

Product Samples

Material Bank
Filter, order and return product samples by brand and certification.
https://www.materialbank.com

Quick Search for Transparency Documentation

Sustainable Minds Transparency Catalog
All HPDs and all EPDs in North America with MasterFormat filtering.
https://www.transparencycatalog.com

Eco-Label Quality Check

Ecolabel Index (free basic access)
What is a good ecolabel? Look for independent, third-party verified.
http://www.ecolabelindex.com/ecolabels

Salvaged Materials Sourcing

Building Product Ecosystems map
A growing network of resources for procuring salvaged materials from commercial and residential-scale projects.
https://www.buildingproductecosystems.org/regional-reuse-resources

3. References

Natural and Biobased Materials

Sustainably harvested, bio-based building materials have the potential to sequester more carbon than we emit by using them. Avoid green washing by using certified products. Avoid plastic-based glues, binders and components that jeopardize the possibility of end-of-life recycling or composting.

Forest Stewardship Council (FSC) certified lumber
FSC supplier search for North America.
https://sourcing.climatesmartwood.org

Hempitecture
Resources for building with hempcrete
https://www.hempitecture.com/post/hempcrete-wall-detailing

Parsons Healthy Materials Lab: Hemp and Lime
Hempcrete demonstration projects; information on industrial hemp cultivation, hemp and lime use, the potential of manufacturing, and creation of hemp-based products to create a complete cycle of block production to construct affordable and healthier housing.
https://healthymaterialslab.org/tool-guides/hemp-lime-1

Endeavour Centre Sustainable Building Encyclopedia
Encyclopedia of sustainable building materials.
https://endeavourcentre.org/resources-for-building-green/free-encyclopedia-of-sustainable-building-materials

Straw Bale Building Details: An Illustrated Guide
How to build with straw bale.
https://www.strawbuilding.org/Straw-Bale-Building-Details

Salvage and Reuse

Material Reuse in Commercial Projects report (CallisonRTKL)
Opportunities for material reuse within commercial projects, where high turnover of interiors means valuable materials can go to waste.
https://cdn.crtkl.com/wp-content/uploads/sites/1/2021/03/CRTKL-CoLab_Report-1.pdf

Healthy Materials Deep Dive

Harvard For Health
Clear, actionable core elements of healthy indoor environments.
https://forhealth.org

Parsons Healthy Materials Lab
(free articles and paid certificate program)
Podcast, videos and other resources on nontoxic building product developments. Online material health certificate program.
https://healthymaterialslab.org

Parson HML Textiles Guides
https://healthymaterialslab.org/tool-guides/textile-guides

Chemical Databases

The Red List
Up-to-date restricted chemistry from the Living Building Challenge.
https://living-future.org/red-list

Pharos and Chemical Hazard Data Commons
Look up chemicals to understand their hazard indicators.
https://pharosproject.net

Green Screen List Translator System
Understand the "list of lists" approach to quickly identify chemicals of high concern. Chemicals identified as Benchmark 1 (highest concern) through Benchmark 4 (lowest concern) based on a chemical's presence across many international hazard lists.
https://www.greenscreenchemicals.org/learn/greenscreen-list-translator

Upgrade Your Specs

HomeFree Product Spec Guidance
Within several different product categories, HomeFree has provided sample specs that meet dark green and light green criteria on the HomeFree hazard spectrum. For example, in the paint category:
https://homefree.healthybuilding.net/files/homefree-paint-specifications

Other product categories:
https://homefree.healthybuilding.net/products

Journalism and Research

BuildingGreen.com (membership)
The latest journalism on high performance buildings and materials.
https://www.buildinggreen.com

Green Building Advisor (free basic access)
Detailed advice on high performance buildings and assemblies.
https://www.greenbuildingadvisor.com

Healthy Building Network
In-depth research reports and chemical expertise
https://healthybuilding.net

Parsons: Trace Material Podcast Series/Podcast
A fascinating series of podcasts on the problems and promises of developing material categories.
Trace Material Season 1: Hemp
Trace Material Season 2: Plastics
Trace Material Season 3: Fungi
https://healthymaterialslab.org/projects/podcast

Ensia Magazine
A solutions-focused nonprofit media outlet reporting on our changing planet, and groundbreaking things people are doing to address climate change mitigation.
https://ensia.com

Project Drawdown
Project Drawdown is a world-class research organization that reviews, analyses, and identifies the most viable global climate solutions, and shares these findings with the world.
https://drawdown.org

Tools for Product Manufacturers

Choose a certification

Estimated Cost Matrix

See following page.

Select the Best Ecolabel

Ecolabel Index

What is a good ecolabel? Find out whether a label is independent and third-party verified, and choose the best one for your product.
http://www.ecolabelindex.com/ecolabels

Create Documentation

Composition

Health Product Declaration Collaborative (HPDC)

HPDC is a resource and network for manufacturers looking to use the HPD standard for ingredient disclosure.
https://www.hpd-collaborative.org/hpd-user-guide

Toxnot Online Platform

Automate product compliance, get feedback to improve supply chains, and streamline sustainability reporting .
https://toxnot.com

Declare Product Database

Use the Toxnot platform to prepare your product label on Declare.
https://living-future.org/declare

Pharos Tutorials

Guided tutorials and webinars help you get the most out of Pharos.
https://pharosproject.net/tutorials

Innovate

Lead in Your Sector

Living Product Challenge

A framework for manufacturers to create next-in-class products.
https://living-future.org/lpc

The Circular Design Guide

An exhilarating time to be an innovator / safe and circular materials.
https://www.circulardesignguide.com/safe-circular

Green Chemistry

12 Principles of Green Chemistry | Video

John Warner presents the principles of green chemistry.
https://www.johnwarner.org/learning

Implications of green chemistry in science, engineering and design.
https://bioneers.org/tag/john-warner

Plastics

Clean Production Action

Links to the chemical footprint project, Principles for Chemical Ingredient Disclosure, Greenscreen, The Plastics Scorecard more.
https://www.cleanproduction.org/resources/category/cpa-videos

The Plastics Scorecard report

Measuring the chemical footprint of plastics and evaluating progress to safer chemicals in polymer manufacturing.
https://www.biznGo.org/sustainable-materials/plastics-scorecard

Biomaterials (An Introduction)

University of Colorado Living Materials Laboratory

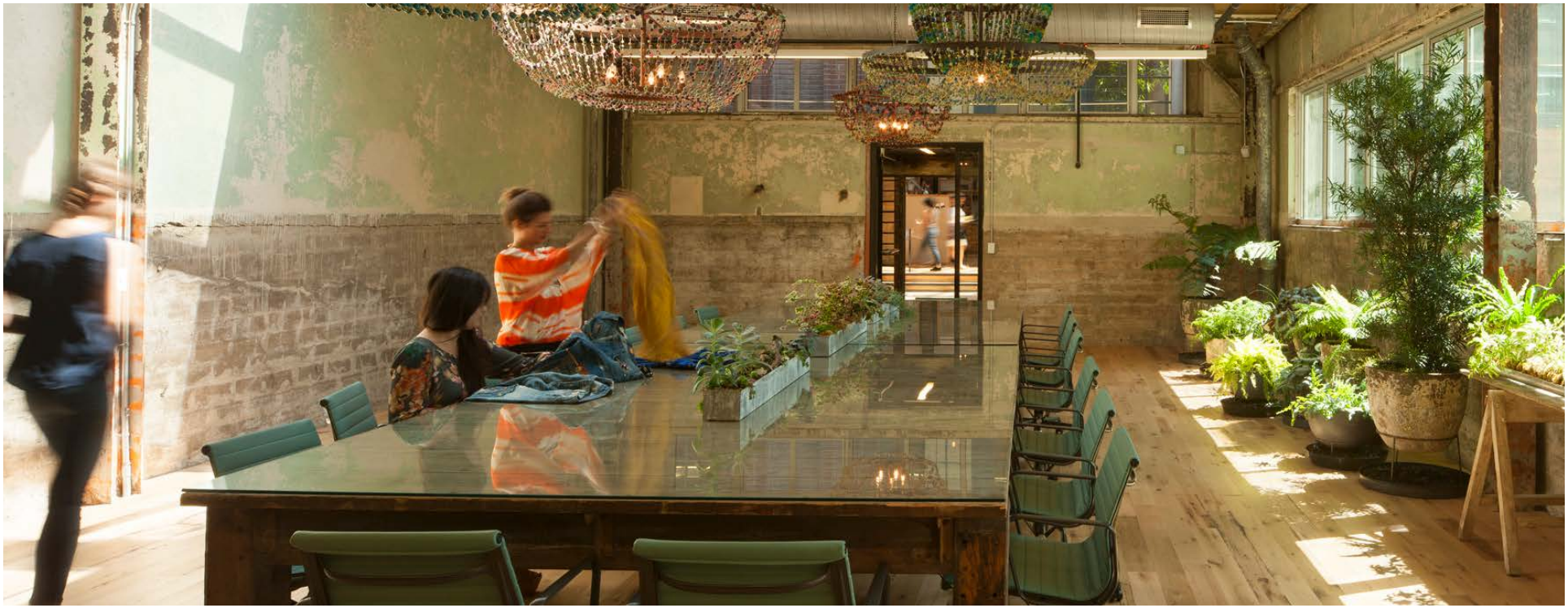
Biology meets polymer and cement chemistry to create bio-based building materials.

https://spot.colorado.edu/~wisr7047

Tidal Vision

Chitosan is one of the most abundant biopolymers in the world, second only to cellulose.

https://www.tidalvision.com/chitosan



Example Costs of Product Labels and Disclosure

		HUMAN HEALTH		LIFE CYCLE IMPACTS			
				PRICING REFLECTS RIGOR AND EXTENT OF PROGRAM REQUIREMENTS AND ASSESSOR CREDENTIALS			
		hpd	Declare.	Material Health / cradle to cradle		level	ISO EPD
		Health Product Declaration (HPD) documents the contents of a building product along with associated health information.	Declare is a nutrition-style label created to support the Living Building Challenge Red List. (Also consider Living Product Challenge)	Material Health Certificate is a singular achievement score, evaluated based on the C2C banned list of chemicals.	Cradle to Cradle (C2C) certification is a multi-attribute label based on the concept of circularity and continuous improvement.	Level is a multi-attribute certification applicable to furnishings. It evaluates both the product and the manufacturing facility.	Environmental Product Declaration (EPD) is a comprehensive report that evaluates a product's environmental impacts.
	Valid for	3 years	1 year	2 years	2 years	ongoing	5 years typ.
HARD COSTS	**Cost of label**	$250 for five HPDs, using HPD Builder platform	$1000 for 1-10 labels, volume discount for 11+	$3600 standalone; or free with C2C certification	$3600, includes Matl Health Certificate	$25,000+ total over a three year process	$4000-$8000+, based on program and scope
	Membership	$500-$1500 (optional, includes unlimited HPDs)	$250	$1800+, depending on scale of manufacturer	$1800+, depending on scale of manufacturer	$3200+, depending on scale of manufacturer	n/a
	Change fee	n/a for minor updates	case by case	$650-750	$650-750	n/a	n/a
	Renewal fee	$250 for five HPDs, renewal does not apply	$800	$1000	$1000	$8000 (annual)	$0-$1300, depending on program operator
SOFT COSTS	**Difficulty**	Easy to Intermediate, depending on method of inventory and disclosure; completeness of data.	Intermediate, with largest hurdle being ability to disclose to 100ppm.	Easy, if done in tandem with C2C certification, where required data is already complete.	Advanced. Requires expert-level knowledge of the product and manufacturing.	Intermediate to Advanced; number of plant locations and complexity.	Intermediate to Advanced; complexity of product and product category.
	Timeframe	Intermediate depending on complexity. Days to weeks.	Intermediate, depending on complexity. Weeks to several weeks or more.	Substantial, but reduced if pursuing simultaneous C2C certification.	Substantial. Three months to one year.	Substantial. Three years for full certification cycle.	Intermediate. Minimum 4 weeks based on program operator and complexity.
	Consultant fees	$2500+ per HPD, depends on complexity*	$2500+ per label, depends on complexity*	$10,000+ alone; $1000 or less combined with C2C	$25,000+	Included in costs above	Requires an independent LCA practitioner. Fee varies based on provider and scope; $2000 to $10000+ for greater complexity.
	Third-party verification	$2000+ (optional)	$2000+ (optional)	Included by default	Included by default	Included by default	
	Notes	Fillable PDF version of HPD is available at no cost to manufacturers. However, use of the HPD Builder is recommended.*	Renewal fee waived for removing Red List ingredient or removing all proprietary ingredients.*	Free label cost with simultaneous C2C intial certification or recertification.*		Additional BIFMA licensing fee $5000+ to use Level logo.	Additional LCA review (refer to LEED v4 credit language) may increase fees by $3000-$4000.

*For the most efficient process, recommend manufacturer identify a point of contact in-house who is technically advanced, familiar with production, and connected to upstream suppliers. An experienced consultant, familiar with program language and requirements, can significantly reduce company time spent pursuing certification.

Costs and fees will vary by consultant, program operator, location, and complexity of the product and supply chain.
Contact **A Greener Space** consulting firm with questions. https://www.agreenerspace.com specializes in educating and helping manufacturers obtain certification.

Minnepolis / Saint Paul Area Design Firms:

GOT ARCHITECTURAL + INTERIOR DESIGN PRODUCT SAMPLES?
UP-CYCLE THEM!

ReStore
Twin Cities Habitat for Humanity

Twin Cities ReStore sells donated building and project supplies for DIY projects and uses the proceeds to support Habitat for Humanity building projects in Minnesota. Architecture and interior design firms throw away a lot of product samples every month because they cannot be returned to the manufacturer.

Note:	Some manufacturers request that their samples be returned to the product representative, or offer a prepaid return box. Returns should always be a first priority.
Drop-off locations:	510 County Road D W, New Brighton, MN 55112 2700 Minnehaha Ave S, Minneapolis, MN 55406
Drop-off hours:	Tuesday - Friday 10AM-5PM, Saturday 10AM-3PM
Email:	restore@tchabitat.org
Phone:	612-588-3820
Schedule a pickup:	Donations can be brought to a drop-off location or ReStore offers a free pick-up service: **restore.tchabitat.org/donate**
Donatables:	Stack larger items neatly; sort and box smaller items into similar categories. ReStore can deliver tote bins to your office to be filled and picked up in the same week, please phone or email to arrange.

Donation Guidelines: Architectural Samples*

Brick	Loose brick & blocks, dirt free and not broken **No** brick samples mounted to sample boards
Door hardware	Door and other hardware can be used in Habitat projects, even if it is mounted to sample boards.
Flooring	Carpet tiles of all sizes and styles **No** laminate, resilient flooring or wood flooring pieces
Furniture (used office furniture)	ReStore does not accept or sell office furniture. Instead please contact Furnish Office & Home: **http://www.furnishofficeandhome.org/**
Glass	Loose glass tile, glass block, glass panels **No** insulated glass units (IGUs) or window glass samples. No mirrors except small and framed.
Solid surface	Pieces of polished solid surface in different colors, especially in matched sizes and attractive display boxes
Stone	Loose stone facing & blocks, dirt free and not broken **No** stone samples mounted to sample boards.
Textiles	Contact ReStore regarding large pieces of fabric **No** textile memos
Tile	Loose ceramic tile of different sizes and colors, not broken or chipped
Wall panels	Plastic or other material wall and partition panels larger than coaster-size, especially in matched sizes and attractive display boxes
Wood	Limited to interesting or attractive wood pieces 8"x8" or larger (i.e. something you could picture using in an art project). Matched coaster-size pieces may be acceptable. **No** siding, trim, really big pieces, lumber
Random odds and ends / small pieces	Interesting and attractive samples that you could imagine using in an arts & crafts project, coaster-size at minimum, preferably 8"x8" or larger. Especially when there are multiples of a similar size, and attractive display packaging such as decorative boxes, bins or baskets. **No** fasteners, foam, binders, books, paint chips, laminate chips, acoustic tile, insulation, or assemblies.

*See general donation guidelines for any category not listed in this chart.