# Museum Exhibition Materials Pledge

## Sustainability Goals Into Action

# Introductions

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# Growth Mindset

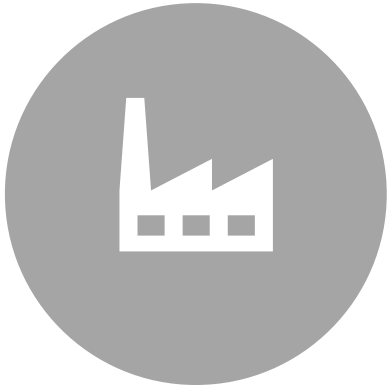
- **Don’t get discouraged** about what you are not doing.
- **Choose one thing** you can do better with each new project.
- Work together with **other museum professionals**.

# Sustainable Exhibits – Where to Start?

SOCIAL HEALTH & EQUITY

HUMAN HEALTH

ECOSYSTEM HEALTH



CLIMATE HEALTH

CIRCULAR ECONOMY

# Museum Exhibition Materials Pledge

To interior finish and graphic substrate manufacturers:

As members of the museum exhibition community, including, but not limited to the Alliance for American Museums (AAM) National Association for Museum Exhibition (NAME) and the Environment and Climate Network (ECN), we work towards accelerating change in the manufacturing community. Inspired by the AIA (American Institute of Architects) Materials Pledge of 2019 and the Lighting Advocacy Letter of 2021, we unite as museum exhibition designers, fabricators, and installers to ask manufactures to continue to raise their standards of transparency while providing long-lasting, high-quality materials that positively impact all people.

As museum exhibit designers, fabricators, and installers, we join with our colleagues who have signed the 2019 AIA Materials Pledge, and we also pledge to:

- support **human health** by preferring products that support and foster life throughout their life cycles and seek to eliminate the use of hazardous substances.
- support **social health & equity** by preferring products from manufacturers that secure human rights in their own operations and in their supply chains, positively impacting their workers and the communities where they operate.
- support **ecosystem health** by preferring products that support and regenerate the natural air, water, and biological cycles of life through thoughtful supply chain management and restorative company practices.
- support **climate health** by preferring products that reduce carbon emissions and ultimately sequester more carbon than emitted.
- 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.

To address these concerns and to meet our goals of transforming the industry, we commit to continuously updating or design libraries and specifications. We commit to sharing best practices, educational resources, and preferred products with our museum exhibition community. We further commit to giving priority to products and manufacturers with a commitment to:

- Provide publicly available material ingredient disclosure information.
- Provide publicly available environmental impact disclosure information.
- Provide publicly available Design for Freedom supplier questionnaires or similar supply chain disclosure information.
- Do not stop at material transparency, but strive for optimization.

To achieve this goal, we must work together as museum leadership, museum boards, exhibit directors, curators, exhibit designers, graphic designers, lighting designers, audiovisual designers, audiovisual specifiers and installers, building product manufacturers, graphic print houses, exhibit fabricators and exhibit installers to build awareness, share knowledge, drive demand, and deliver solutions. We ask you, as responsible product manufacturers for your commitment to work towards market transformation in the museum exhibition world. To accelerate this mission and to leverage cross-industry insight and expertise, we seek your partnership in advancing this conversation at upcoming industry annual meetings, conferences, and trade shows.

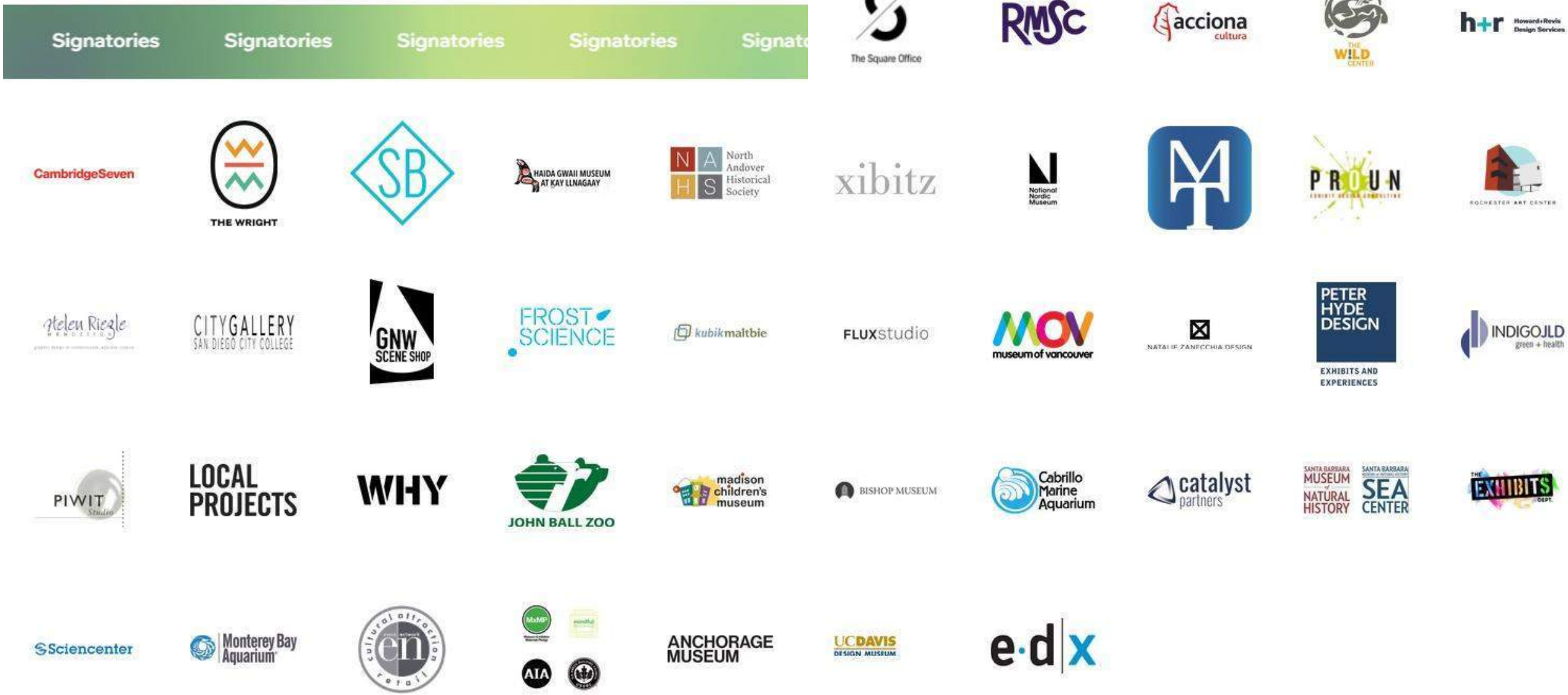
We value our relationship with each of you and we understand that the change we seek will not be accomplished overnight. Please join us in continued dialogue and collaboration as we learn from each other and improve the best practices of museum exhibitions.

Sincerely,

MUSEUM EXHIBITION MATERIALS PLEDGE SIGNATORIES

# Museum Exhibition Materials Pledge

Signatories Signatories Signatories Signatories Signat



# Museum Exhibition Materials Pledge


The Square Office

RMSC

acciona cultura

THE WILD CENTER

h+r Howard+Revis Design Services

CambridgeSeven

THE WRIGHT

SB

HAIDA GWAII MUSEUM AT KAY LLNAGAAY

North Andover Historical Society

xibitz

National Nordic Museum

PROUN

ROCHESTER ART CENTER

Atelen Riegle

CITYGALLERY SAN DIEGO CITY COLLEGE

GNW SCENE SHOP

FROST SCIENCE

kubikmaltbie

FLUXstudio

MOV museum of vancouver

NATALIE ZANECCHIA DESIGN

PETER HYDE DESIGN EXHIBITS AND EXPERIENCES

INDIGOJLD green + health

PIWIT Studio

LOCAL PROJECTS

WHY

JOHN BALL ZOO

madison children's museum

BISHOP MUSEUM

Cabrillo Marine Aquarium

catalyst partners

SANTA BARBARA MUSEUM of NATURAL HISTORY

SANTA BARBARA SEA CENTER

THE EXHIBITS DEPT.

Sciencenter

Monterey Bay Aquarium

cultural attraction retail

MxMP

AIA

ANCHORAGE MUSEUM

UC DAVIS DESIGN MUSEUM

e·d|x

# Sustainable Exhibition Design & Construction

# Toolkit

v6 Sep 2024

## Table of Contents



## Don't Worry about "Perfect." Work towards "Better."

Few museums have the resources to follow all of these guidelines. Don't get discouraged or overwhelmed. Start with low-hanging fruit. Learn more with each project and make each project better than the last. These resources are designed to help you define and improve the sustainability of your exhibitions in the ways that are most important to your community and your institution.


The Museum Exhibition Materials Pledge authors thank the American Institute of Architects, the U.S. Green Building Council, and the International Living Future Institute for their leadership on these issues.


AIA

U.S. GREEN BUILDING COUNCIL USGBC

INTERNATIONAL LIVING FUTURE INSTITUTE

## Project Timeline

**Project Kickoff**

- Start building design team awareness of different sustainable priorities.
- Hold a team kickoff meeting where sustainability goals are shared and established.
- Involve community partners.

Photo by Braden Collum on Unsplash

**Concept/Schematic Design**

- Remind design team of sustainability goals and priorities.
- Research salvage and reuse opportunities. Can salvaged materials be sourced?
- Begin transparency research for large-volume finish and millwork materials.
- Have budget conversations. Where can sustainability save money?
- Design documents should include narrative language outlining requirements.

**Design Development**

- Start conversations with product representatives.
- Focus on design for deconstruction using clips and screws, not nails and glues.
- How can salvaged materials help tell the story of the exhibit?
- Design documents should include specific requirements for transparency, absence of specific toxic materials, sustainably sourced material ingredients, and low carbon footprint materials according to sustainability goals.
- Ensure materials meet any archival and collections requirements.
- Meet with community partners to check environmental justice assumptions.

**Contract/Bid Documents**

- Ensure specification language and in the contract documents or bid documents, outline all sustainability goals with specific requirements.

**Bid/Construction Administration**

- Hold pre-bid and kickoff meeting to review and clarify expectations with the client and the construction team.
- Review submitted transparency documentation and third-party verification documentation as requested in bid/contract documents.
- Review any suggested substitutions to confirm that they comply with sustainability goals and archival requirements.



## Design for Social Health and Equity

Ensure that the entire project team truly embraces *Diversity, Equity, Accessibility and Inclusion (DEAI) goals* by setting them early in the planning process. A design team lacking in racial and ethnic diversity will be less able to see blind spots in exhibit content and exhibit sustainability goals. Reach out to community partners and DEAI specialists to review the design at key milestones. This will make the exhibition richer and more inclusive of all communities.

**Ethnic Diversity**

- Document goals to increase ethnic and racial diversity among the exhibit project team. Set goals to reflect regional communities.
- Set goals to match regional ethnic and racial diversity on the museum board and in leadership.
- Hire minority-owned businesses and design/ fabrication partners.


Photo by Yasir Yusuf on Unsplash

**Gender Diversity**

- Document goals of the project to increase gender and sexual identity diversity on the design team and with outside consultants, artists and fabricators.
- US national statistics for 2022 show 51% women and 49% men[1] with 7% self-identifying as part of the LGBTQ+ community[2] (Lesbian, Gay, Transgender, Bisexual, plus other gender and sexual identities). How does your team compare?

**Community Outreach**

- Identify and engage traditionally underrepresented community partners in the exhibit development and design process. When possible, hire these members as part of the design team.
- Establish regular community review points and workshops. Ensure that community members drive decision-making by planning for a realistic project timeline and staffing resources that fully engage traditionally underrepresented groups.

1 *Total Population in the United States by Gender from 2010 to 2025*, statista.com, (collected 12 May 2022)

2 Jones, Jeffery M., *LGBT Identification in U.S. Ticks Up to 7.1%*, news.gallup.com, 17 February 2022, (collected 12 May 2022)

## Product Specific Guidelines

Here is a list of third-party standards that you can trust when looking to select specific healthy and socially just interior finish products.

**Low Emitting, High Performance Paints**

- California Department of Public Health (CDPH) Standard Method Emissions Evaluation
- Less than 50 g/l of (Volatile Organic Compound) VOC content measured after tinting
- MPI X-Green Performance Standard Certification for high performance and low VOC paints.
- Green Seal Certified
- Interior lime and mineral-based paints are becoming more mainstream. They are considered more sustainable and more durable than paints containing high amounts of petroleum based plastics and chemicals. Look at brands like Alkemis, Graphenstone, Keim, or Romabio.

Photo by David Pisnoy on Unsplash

**Interior Stains and Finishes**

- CDPH Standard Method Emissions Evaluation
- Below California's South Coast Air Quality management District (SCAQMD) limits for VOC Content
- Greenguard Gold

**Metal Finish**

- High Performance Latex, use the same CDPH Standard Method Emissions Evaluation and VOC content standards as above.
- Powder coating can be made from polyester, acrylic, polyurethane, or hybrids. Powder coating is much more durable than latex paint, but more difficult to touch up. It can use less energy to apply than liquid coatings and minimizes waste. Avoid epoxies and fluoropolymers.



**Medium Density Fiberboard (MDF), Plywood, and Particleboard**

- Meet California Air Resources Board (CARB) ultra-low-emitting formaldehyde (ULEF) or no-added-formaldehyde (NAF) emissions requirements[1]
- Forest Stewardship Council (FSC) certified or recovered waste fiber

Photo courtesy of Cambridge Seven

**Countertops**

- Natural Stone
  - ANSI/NSC 373 and/or C2C Silver or higher
  - Avoid sealers
- Engineered Stone/ Quartz
  - C2C Silver or higher
  - Declare Red List Free
  - Low Emissions
- Natural Wood
  - Local species[2]

Photo courtesy of Cambridge Seven

**Low Emitting and Low Life Cycle Impact Modular Carpet**

- Certified to CRI Green Label Plus
- Certified to C2C v3.1 Silver or higher, NSF 140 Platinum or Living Product Challenge

**Resilient Flooring**

- Linoleum or Natural Rubber Flooring[3]
- Greenguard Gold Certification
- C2C Silver or Higher

1 Wood products are not appropriate for collection storage spaces. See *NARA 1571S, Architectural and Design Standards for Presidential Libraries*, July 2018 and *NARA 1571, Archival Storage Standards*, updated January 17, 2023

2 Wood products are not appropriate for collection storage spaces. Wood should not be used in exhibit display cases unless mitigation steps are taken. Ibid.

3 Natural rubber flooring products may not be appropriate for archival spaces because they often contains sulfur. Ibid.

# Embodied Carbon Materials Study

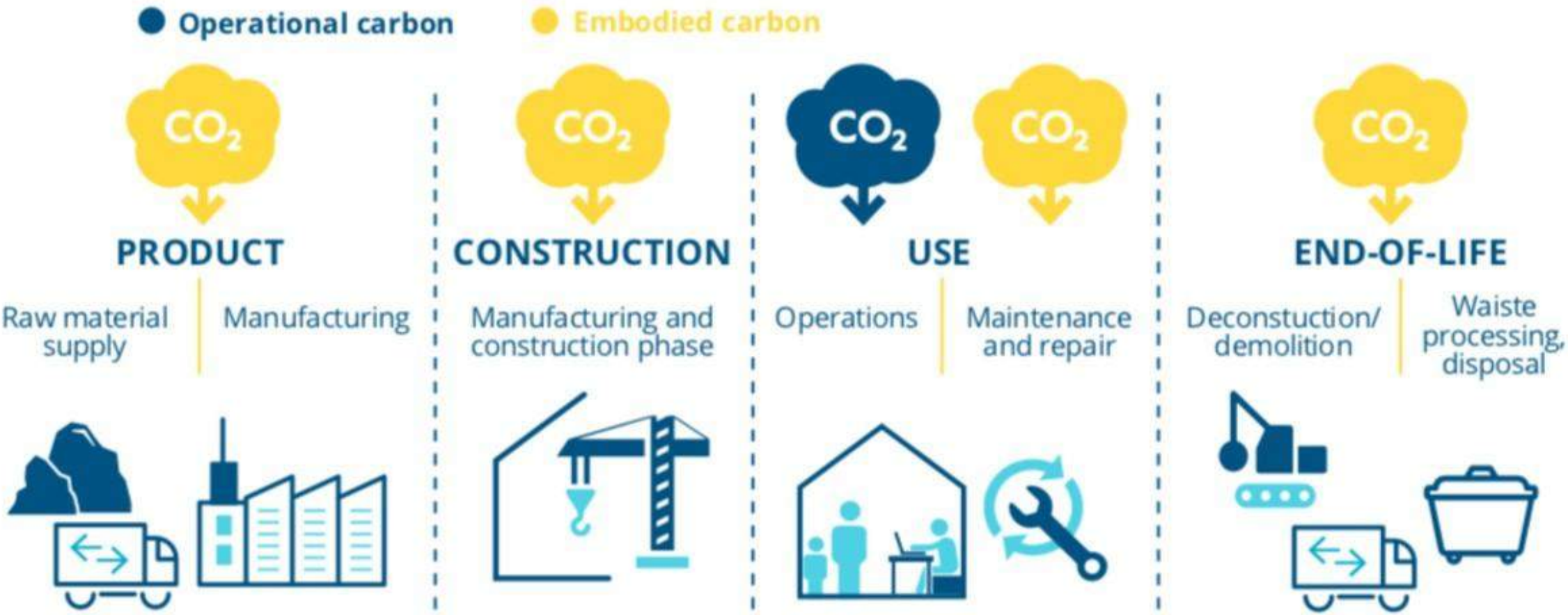

Wildlife Corridor Outdoor Exhibit

Museum of Discovery & Science (MODS)

Fort Lauderdale, Florida

# Embodied Carbon

How much does the extraction, manufacture & transportation of a product contribute to global warming?



# Embodied Carbon Materials Study

| Material | Unit | kgCO2EQ/unit | Life Expectancy (yrs) |
|---|---|---|---|
| Concrete Footings | kg | 0.190 | 100 |
| Helical Piles | kg | 1.401 | 100 |
| Thermally Modified Wood foundations | cubic meter | 278.735 | 20 |
| Alumium Posts | kg | 7.319 | 50 |
| Thermally Modified Wood | cubic meter | 278.735 | 15 |
| Naturally Rot Resistant Wood | cubic meter | 37.97 | 15 |
| Salvaged Live Oak | cubic meter | 15.75 | 15 |
| Salvaged Dade County Pine | cubic meter | 15.75 | 15 |
| Powder Coating | kg | 6.238 | 20 |
| Aluminum | kg | 7.319 | 50 |
| Corten Steel | kg | 2.088 | 100 |
| Stainless Steel Hardware | kg | 4.132 | 50 |
| Glass | kg | 1.031 | 40 |
| Inorganic ink | kg | 6.238 | 25 |
| Marine Grade Plywood | cubic meter | 504.144 | 20 |
| Perforated Aluminum | kg | 6.92 | 50 |
| 3-form Chroma XT | kg | 12.8 | 10 |
| Wheatpasting* | sq meter | 0.208 | 2 |
| Fabric Graphics (Polyurethane - Lycra) | sq meter | 0.888 | 8 |
| Fabric Graphic frame | kg | 6.92 | 50 |

| Material | Unit | kgCO2EQ/unit | Life Expectancy (yrs) |
|---|---|---|---|
| *Wheatpasting | | | 0.5 |
| Paper | sq meter | 0.035 | 0.5 |
| Flour | kg | 0.8 | 0.5 |
| Assuming 1/2 cup (.125kg) flour/sq meter | | | |
| | sq meter | 0.05 | |
| Electric cooktop 30 minutes | | 0.123 | |
| | | | |
| High Pressure Laminate 1" TH | sq meter | 94.25 | 10 |
| High Pressure Laminate 1/4" TH` | sq meter | 18.85 | 10 |
| | | | |
| Dibond | sq meter | 55.6 | 3 |
| .08 in TH Alumium | sq meter | 15.18 | 3 |
| | | | |
| | | | |
| Direct Embed | sq meter | 23.72 | 25 |
| | | | |
| | | | |
| Glass | ton | 1305 | 25 |
| Flat Glass 6mm | sq meter | 19.575 | 25 |

# Embodied Carbon Materials Study

| Scenario 1 - Baseline | | | | | | |
|---|---|---|---|---|---|---|
| | Quantity | Unit | kgCO2EQ/unit | Times replaced | Carbon Footprint kgCO2EQ | |
| **Life Expectancy** | **20** | | | | | |
| Concrete Footings | 600 | kg | 0.19 | 1 | 114 | |
| Aluminum Posts | 26 | kg | 7.319 | 1 | 190 | |
| Aluminum Panels | 4.25 | kg | 7.319 | 1 | 31 | |
| Powercoating | 0.25 | kg | 6.238 | 1 | 2 | |
| 3-form Chroma XT | 180 | kg | 12.8 | 2 | 4608 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| **Alternates** | | | | | | |
| Corten Steel | 96 | kg | 2.088 | 1 | 200 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Total Carbon Footprint | | | | | 4.945 | tonnes CO2EQ |

# Embodied Carbon Materials Study

| Scenario 2 - Low Carbon | | | | | | |
|---|---|---|---|---|---|---|
| | Quantity | Unit | kgCO2EQ/unit | Times replaced | Carbon Footprint | |
| **Life Expectancy** | **20** | | | | | |
| Wood Footings | 1 | cubic meter | 37.97 | 2 | 76 | |
| Wood Posts | 1.5 | cubic meter | 37.97 | 2 | 114 | |
| Plywood Panels | 0.03 | cubic meter | 504.144 | 4 | 60 | |
| Fabric Panels | 1.5 | square meter | 0.888 | 3 | 4 | |
| Fabric Frames | 15 | kg | 7.319 | 1 | 110 | |
| | | | | | | |
| | | | | | | |
| **Alternates** | | | | | | |
| Wheatpasting | 1.5 | square meter | 0.208 | 10 | 3 | |
| Wheatpasing Substra | 0.03 | cubic meter | 504.144 | 1 | 15 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Total Carbon Footprint | | | | | 0.364 | tonnes CO2EQ |

# Embodied Carbon Materials Study

| Scenario 3 -Pre-fab and Gel Coat Laminate | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Quantity | Unit | kgCO2EQ/unit | Times replaced | Carbon Footprint (kgCO2EQ) | | |
| **Life Expectancy** | **10** | | | | | | |
| Concrete Footings | 900 | kg | 0.19 | 1 | 171 | | |
| Aluminum Posts | 60 | kg | 7.32 | 1 | 439 | | |
| HPL Laminate | 4.46 | sq meters | 18.85 | 1 | 84 | | |
| Powercoating | 1 | kg | 6.238 | 1 | 6 | | |
| | | | | | | | |
| | | | | | | | |
| **Total Carbon Footprint** | | | | | **0.700** | **tonnes CO2EQ** | |

# Learn More

Sustainable Exhibition Design & Construction

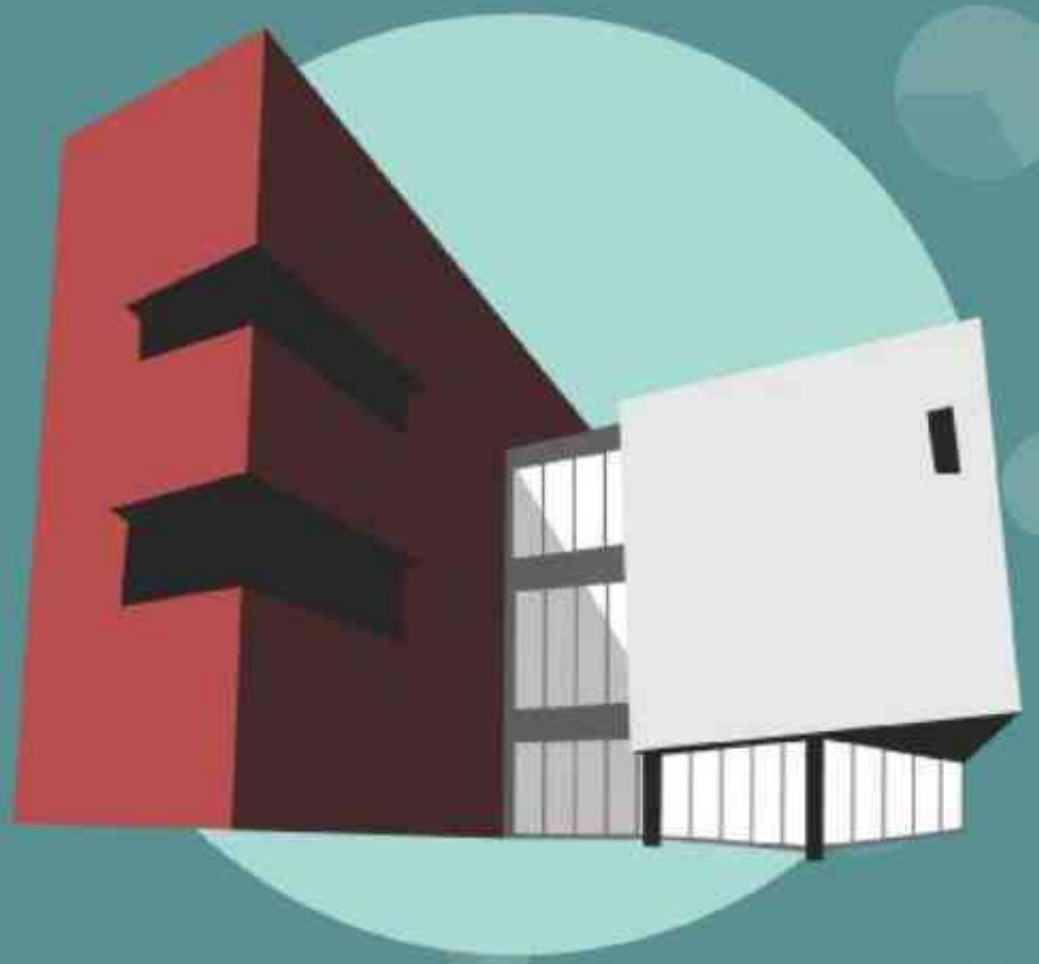
**Toolkit** v6 Sep 2024

bit.ly/MxMP2025

# *Ascend*
# Art for Birds

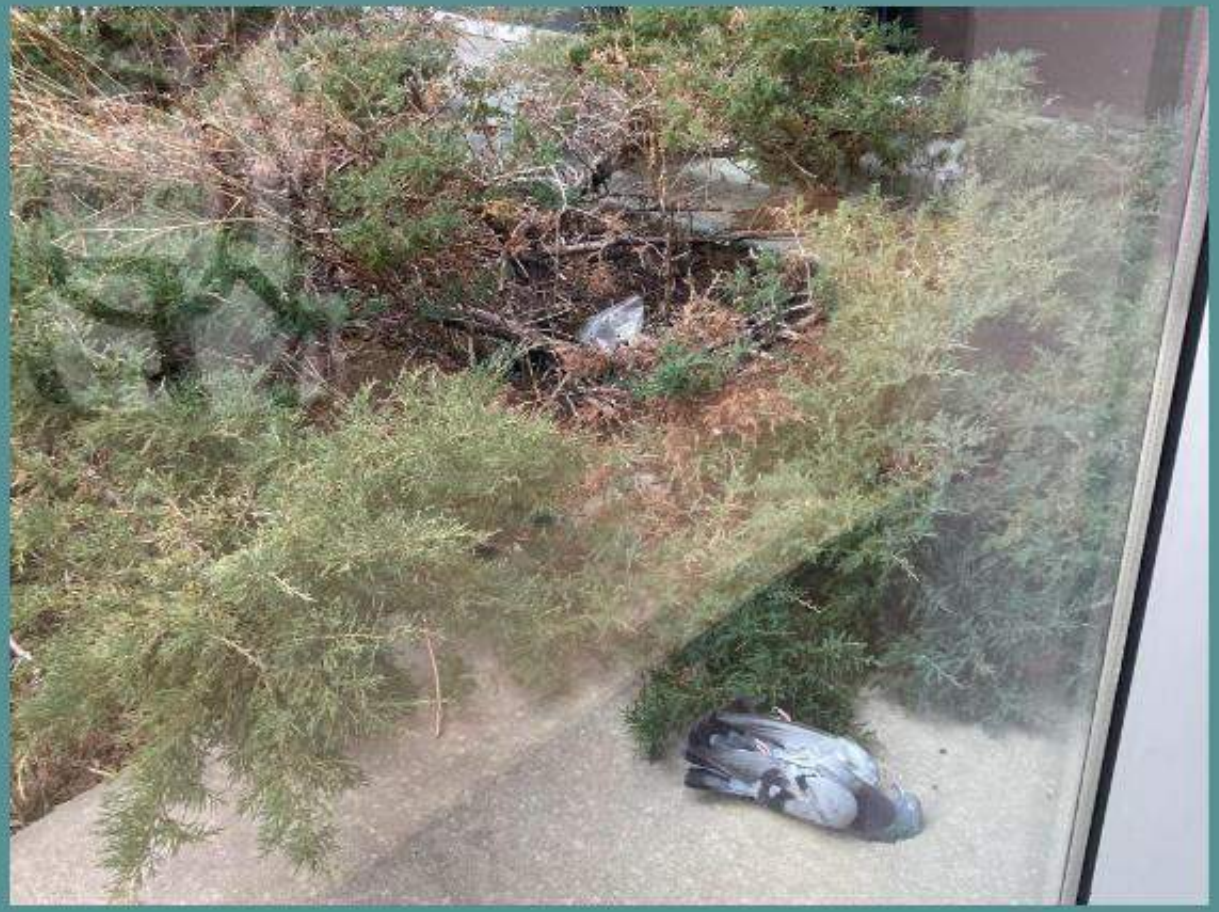
Mitigating Fatal Bird Impacts at
Rochester Art Center
Rochester, MN

Pamela Caserta Hugdahl
Executive Director



Rochester Art Center

Representative of imprints left by pigeons and other birds on the Art Center windows.



Rochester Art Center, viewed from our main gathering and event space

## Types of birds observed to be impacted at the Art Center

Blue Jay
Goldfinch
Finch
Pigeon
Sparrow

Rochester Art Center - Summer 2022

Rochester Art Center Patio

In front of Mayo Civic Center

Art Center Patio, Spring 2024

A pair of birds on the Art Center Patio, Spring 2024


Civ
Connections
Rochester Public Library
St SE
Mayo Park
Rochester Art Center
Center for varied contemporary art
3rd Ave SE
Olmsted County
Government Center
Olmsted County
Sheriff's Office
Mayo Memori

# *Nearly 1,000 Birds Die After Striking Chicago Building*

At least 961 birds died in one night in Chicago after crashing into the windows of the McCormick Place Lakeside Center during the height of the fall migration.

**By Amanda Holpuch**

Oct. 8, 2023

# Call for Art


Alyssa Baguss

Rachel Coyne

Richard Bonk

Alex Young

Paul Nelson

# Jurors

**Sophia Chai**
Artist, Rochester

**Kris Acuña**
Climate and Clean Energy Organizer, Sierra Club, Rochester

**Lynn Cornell**
Save the Rockery, Rochester


Alyssa Baguss

Erin Sharkey

Artist Alyssa Baguss collaborated with writer, arts and abolition organizer, cultural worker, and film producer Erin Sharkey

CollidEscape.org

HOME PURCHASE CODE COMPLIANT FAQ CONTACT ABOUT


# Why do birds fly into glass?

Collisions are most commonly caused by the reflective characteristics of glass. Because the outside of glass reflects the environment around it, birds do not recognize it as a barrier. The birds see the reflected environment, such as trees and sky, and collide with the glass assuming it is a clear flight path. Any window, large or small can be a killer. CollidEscape is applied to the outside of a window so as to disrupt the reflection off the outside surface that birds perceive as a continuation of their environment.


melted


Not everything
real is material.
or sore
spectacle to see-through
aperture to sea threw
a portal
not launched but


Rochester Art Center
Not everything
real is material.
or sore
spectacle to see
aperture to see
a portal
a glasshouse, not stone,
a fragile protection
This is a tool-
glass Eye
spyglass
glass half full
looking glass
To perceive the invisible
one must
name a feeling
both transparent and inert
and soar
flap
lean
wander
loft


Not everything
real is material.
Pane/pain can mean vessel
or sore
spectacle to see-through
aperture to sea threw
a portal
a glasshouse, not stone,
not launched but melted hard
a fragile protection

This is a tool-
~~glass~~ Eye
spy~~glass~~
~~glass~~ half full
looking ~~glass~~

To perceive the invisible
one must
name a feeling
both transparent and inert

take new space in the v
and soar
flap
lean
wander
loft
glide

Significant support for this project is made possible through a Rochester Downtown Alliance Facade Improvement Grant and the Minnesota Main Street Economic Revitalization Program. The DMC EDA and City of Rochester administered the Main Street grant from the MN Department of Employment and Economic Development (DEED) as a partner organization.

**BUDGET**

| | |
|---|---|
| Baguss Artist Stipend | $6,500.00 |
| Sharkey Writer Stipend | $1,500.00 |
| CollideEscape (https://www.collidescape.org), printing and installation | $16,825.79 |
| Boom lift rental | $4,505.09 |
| CollidEscape stickers for programs (Made from waste vinyl) | $0 |
| Related programming expenses, staffing, supplies | $1,000.00 |
| Coordination/Administration (15% of project total) | $6,300.00 |
| Marketing - Website updates, Press release | $2,929.12 |
| 2 Install support staff | $2,440.00 |
| **TOTAL** | **$42,000.00** |


Contact: Pamela Hugdahl, hugdahl@rochesterartcenter.org

# The Wild Center

## Sustainable Materials


CLIMATE
SOLUTIONS

# New habits of mind

**What can we reuse or repurpose? Can we consume less?**

**What is the entire lifecycle of the material choice? How can we use less plastic and more wood?**

**Which product--even if more expensive--is the best environmental choice?**

# Reimagine existing Technology - What can we reuse and repurpose?


# Railing Panels

Lumicor

Resin up to 60% recycled content.

This choice was more expensive.

Railing material repurposed unistrut

# Waste to wall covering

## Pallet wood

# Reusable frames

**Stretched canvas**

# Screening on plywood

**Plywood can be re-used for small projects in the future**




# New stories told on old phones



# Graphic elements created from preserved and sustainably harvested natural materials

# Poplar bark siding

Highland Craftsman Inc.
Barkhouse.com

RAW™ -Reclaimed Appalachian Wood Waste

# Maple flooring from discarded wood

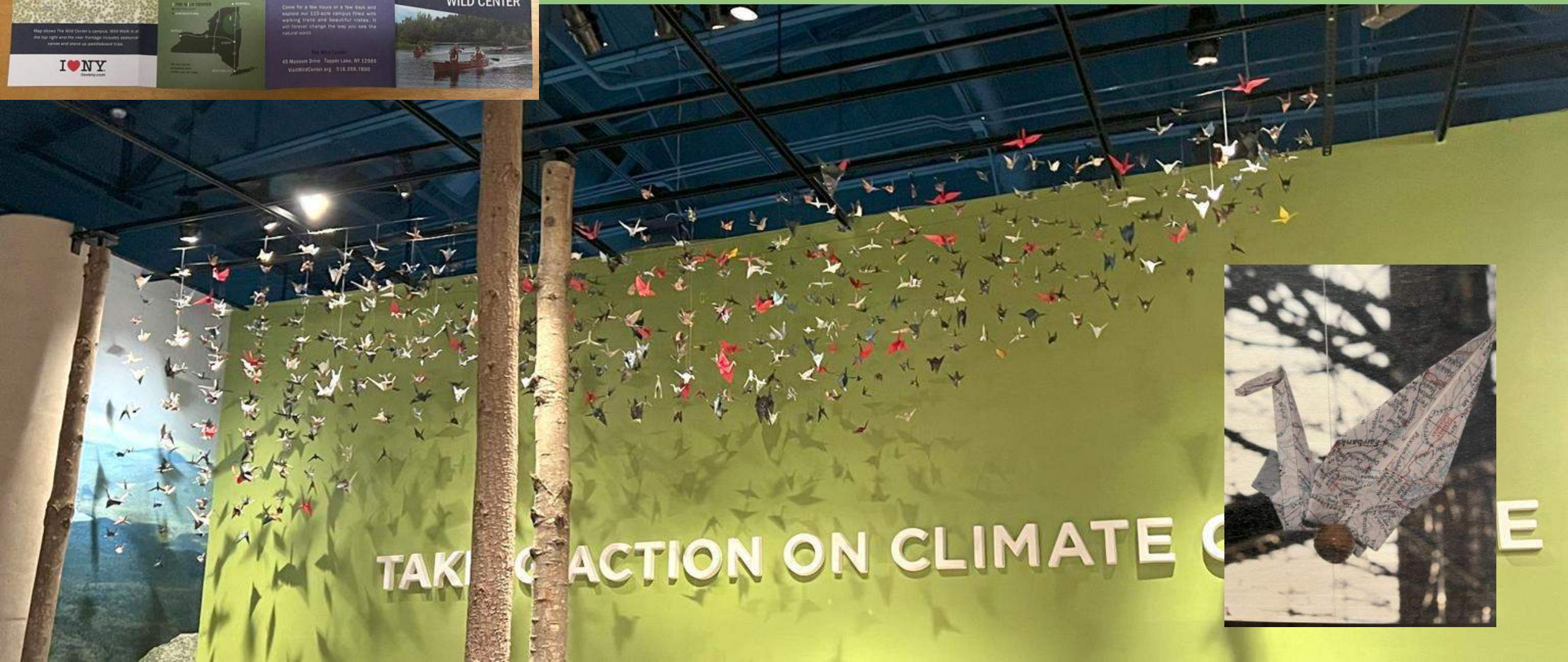

# Interface carpet

Interface.com
52% of materials in the carpet are recycled or biobased.

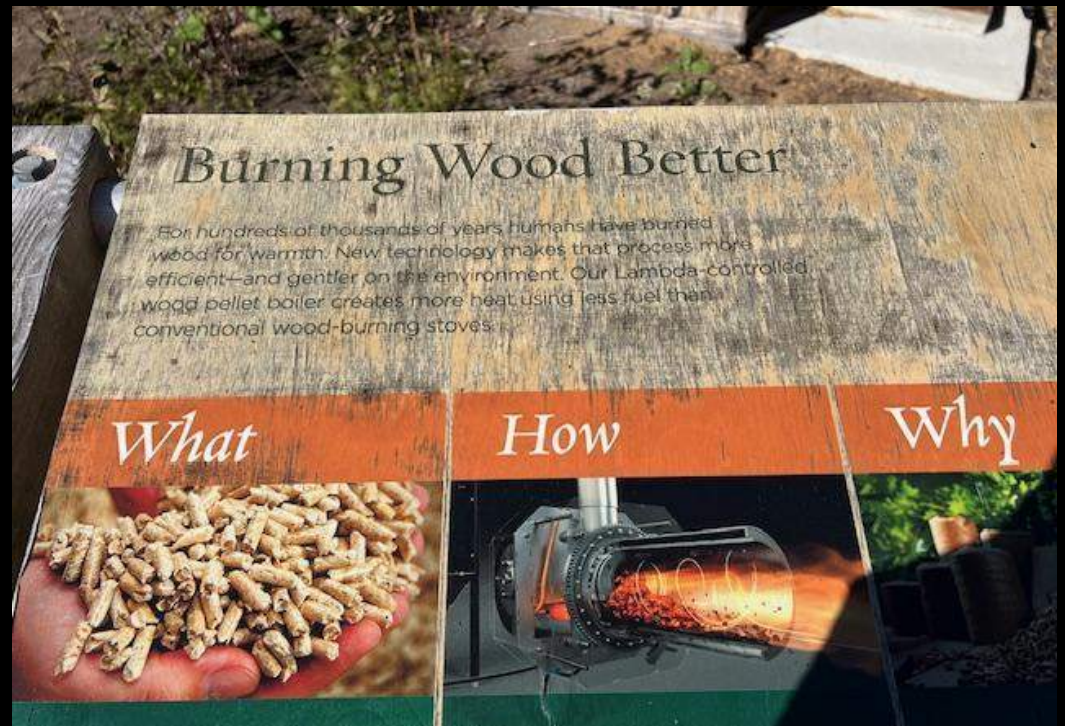
Company will recycle the product at the end of its life

# Can we consume less and consume fewer new materials ?


# Brochures to Cranes

# Outdoor signage fails



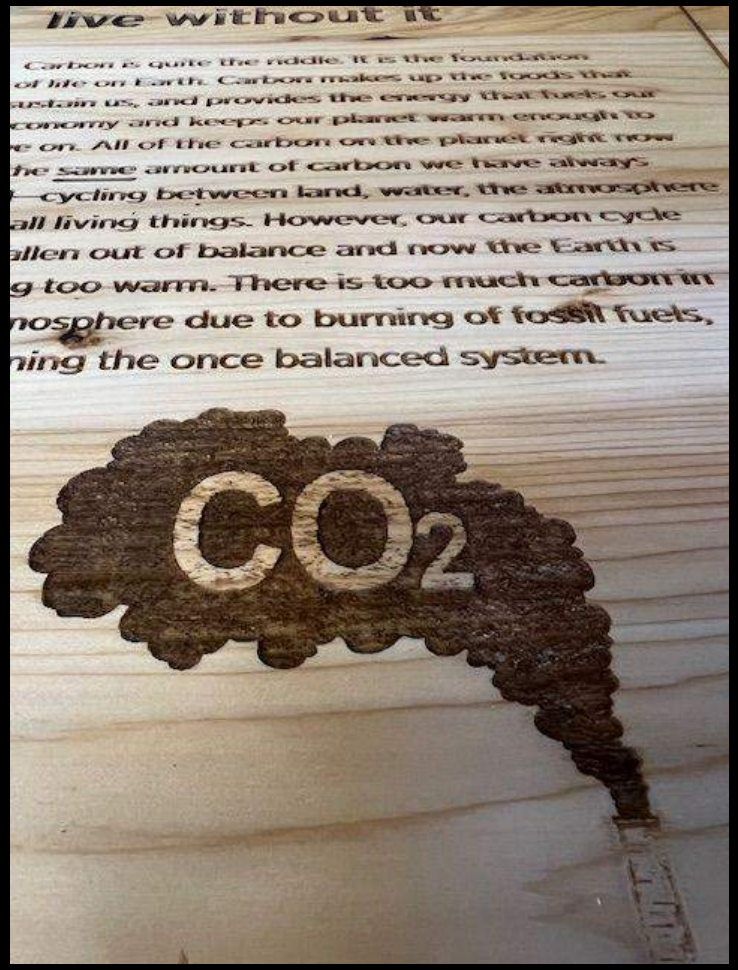

New all person’s 1 mile trail

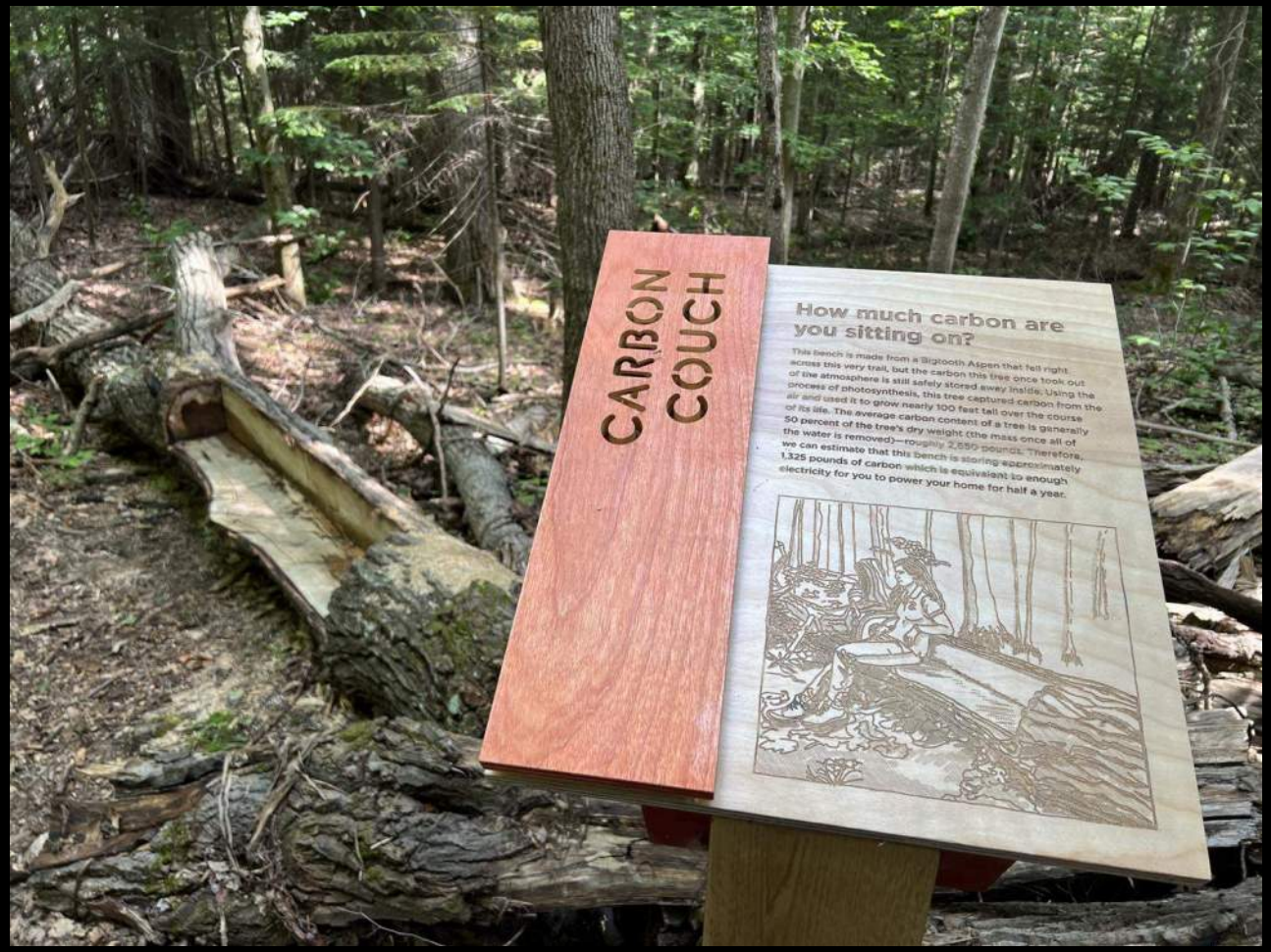
Interpretative panels including carbon as a topic

Ball run alongside trail from local rustic wood

Engraved wood labels

# Carbon focused interpretive panels

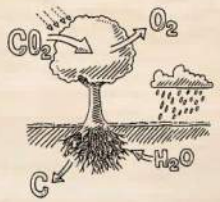


# CARBON CONTAINERS

## The planet's carbon sequestration team is a powerful clean-up crew

Carbon sequestration is Earth's own way of keeping the balance, operating silently yet powerfully through forests, oceans and soil. Trees act like giant sponges, absorbing carbon dioxide from the atmosphere as they grow. Oceans capture it in their depths. Soils lock it away in organic matter. This process not only cleans our air but also plays a crucial role in moderating global temperatures. Protecting these natural systems can amplify their capacity to absorb carbon, strengthening vital allies in our fight against climate change.




**How much carbon can a tree store?**

Tree leaves capture carbon from the atmosphere, use it to grow and keep it in their wood. This removal and storing of this carbon or $CO_2$ is called "carbon sequestration."

It is easy to measure how much carbon is stored in individual trees or even entire forests.

## It is easy to measure how much carbon is stored in individual trees or even entire forests

**What to do:**

Take a length of rope from the bucket.

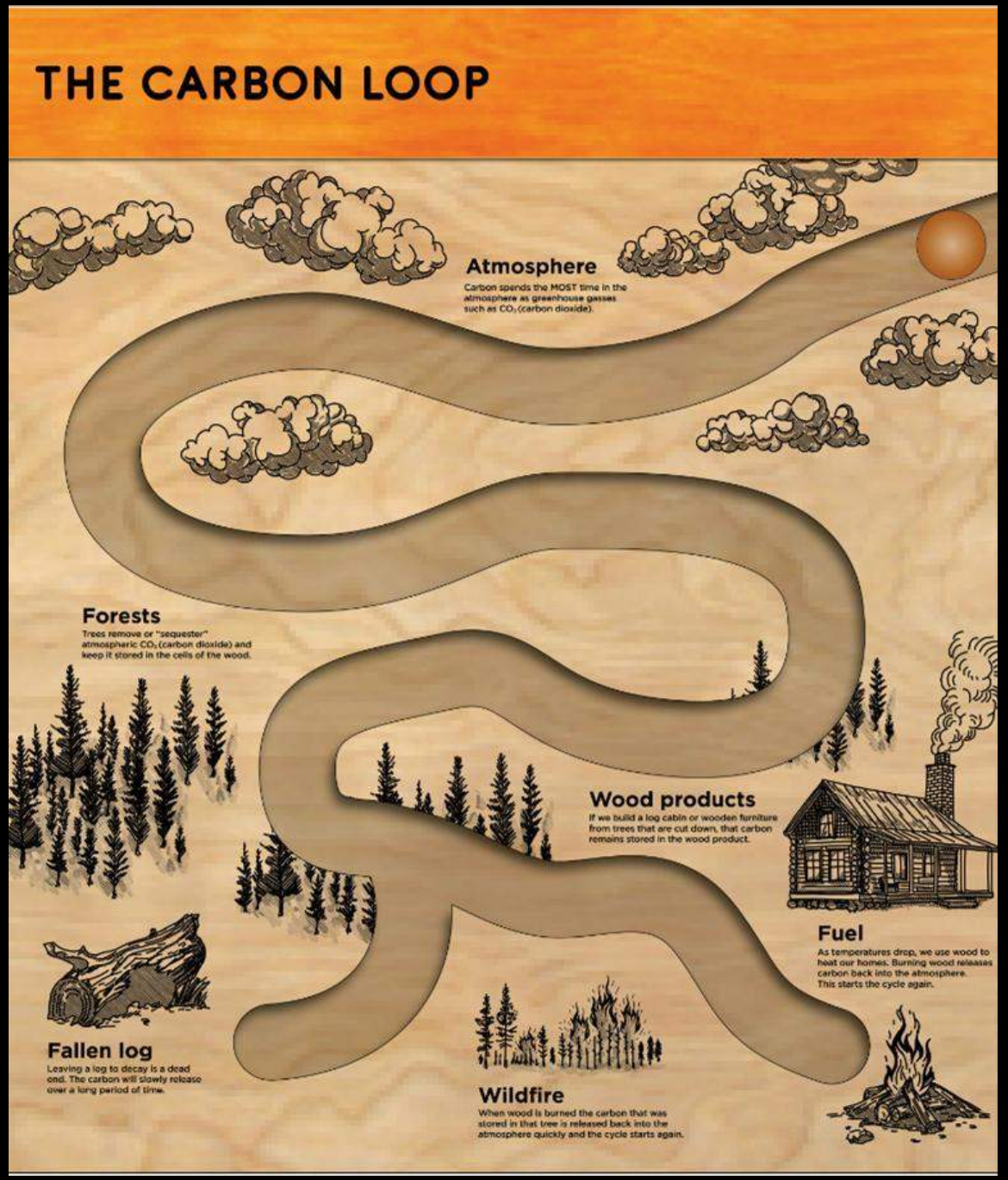
Wrap one of the ropes around a tree at the height of your chest. Pinch the rope to mark the size of the tree.

Now, lay your rope flat along the tape—this converts the size of your tree into an estimate of how much carbon or $CO_2$ your tree is storing (sequestering) and keeping out of the atmosphere.

Feel free to go hug your tree now. It is doing a great job.

If you enjoyed this exercise and want to measure the amount of carbon stored in trees from your own backyard, check out i-Tree using the QR code above.

# The medium is the message



# PLAYFULLY SUSTAINABLE

## Museum Exhibition Materials Pledge: Sustainability Into Action

madison children's museum

**Brenda Baker**
Vice President of Exhibits, Facilities, & Strategic Initiatives


WILD
BiRD NeSTIN
G GROUND KeeP
BACK 10 Feet

# Principles of Green Exhibits

-Design for circularity and disassembly (waste=food)
-Eliminate waste
-Eliminate toxins
-Low embodied energy
-Use local, sustainable and reused materials
-Decrease transportation
-Promote regeneration

# A NEW DESIGN PARADIGM


- Consider children's health and well being in every decision

- Do no harm


TRASHLAB
RETHINK. PROTECT. REDESIGN.
DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES
What was the last thing you threw away?
Where does your garbage go?

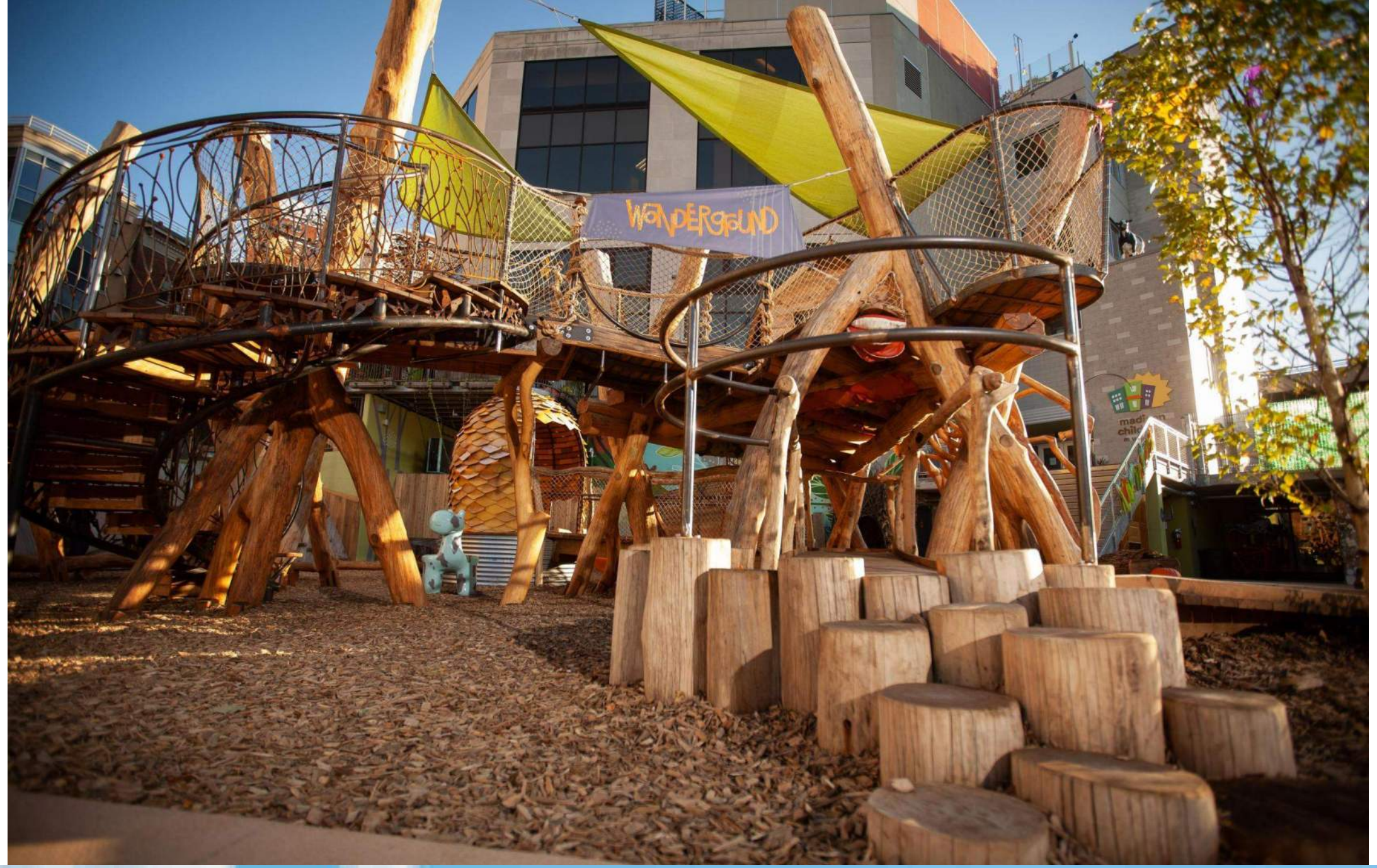

REDUCE
REUSE
RECYCLE
Match the 100% recycled products to their original source.
REFUSE
By refusing to purchase items that are not created responsibly and by refusing to accept things as they are you can have a big impact. You can set an example for others to follow and know you are making a difference.
Design for Modularity
Design for Repairability


RECYCLE
REUSE

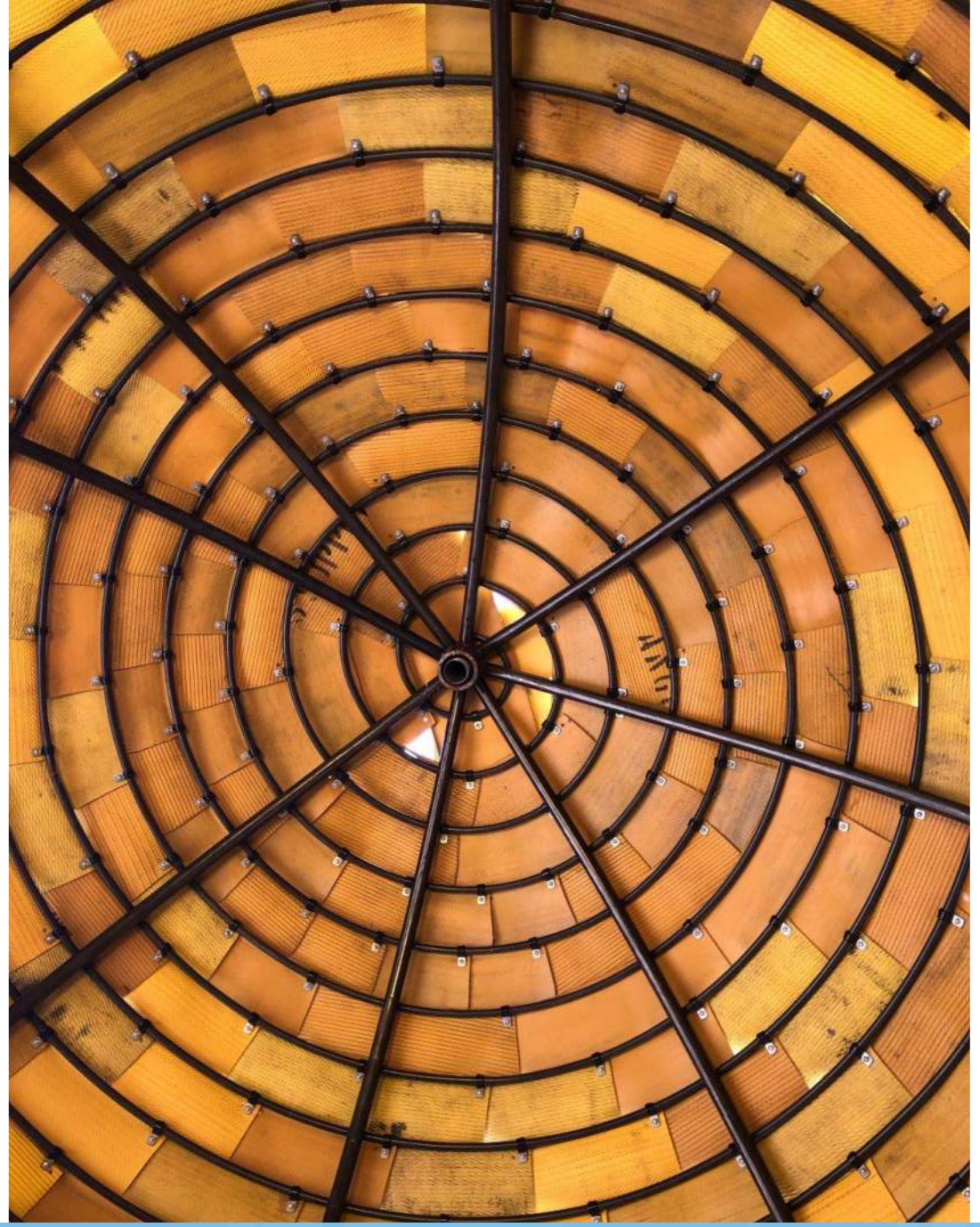

TRASHLAB
RETHINK. PROTECT. REDESIGN.
Come explore how and why we've created so much trash and RETHINK what we can do to consume less. Dive into the science of trash to understand how landfills PROTECT our environment by managing the waste our society creates. And finally, help us REDESIGN a world where landfills are not thought of as disposal sites, but as important places where trash is transformed into valuable resources. Our vision for the future is a circular system, where things are built to last longer, to be repurposed, or to be recycled, like in nature where the end of a life cycle fuels the beginning of another.
Let's RETHINK our relationship with waste,
PROTECT our environment, and
REDESIGN our production and waste systems!
90%
DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES
Exhibit created in collaboration with MADISON CHILDREN'S MUSEUM
DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES
WHAT'S IN A LANDFILL?
CONSUMER CULTURE
RETHINK
PROTECT

# Wonderground


IDEAL


WONDERGROUND


DOWN UNDER
Sport 150



# The Nice Age Trail


Every bit of kindness
can go a long way!
ABCs
of
Kindness

# CLIMATE ACTION PLAYBOOK

Supporting Young Children in a Warming World

A Developmental Framework by Caretakers of Wonder

CARETAKERS OF WONDER
SUPPORTING YOUNG CHILDREN IN A WARMING WORLD

## Nature & Well-being | Children, Birth to Age 8

**To Think About**

**There are ample solutions available even if you can't build a new nature exhibit.**

- What living things can you add to existing spaces?
- What natural materials can you add to existing spaces?

**To Do**

**Use realistic animal puppets, stuffed animals, and natural elements.**

- Provide realistic animal, plant puppets, and a stage to help caregivers engage their young children in pretend play.
- Folkmanis is a good source for realistic-looking animals. Wild Republic has a line of stuffed animals made from recycled plastic bottles.
- For more source ideas, visit greenexhibits.org.
- A young child's world is what's immediately around them: things they can see, smell, and touch. Creating opportunities for children to connect with wildlife nearby helps them focus on the local, rather than wildlife from faraway places.
- Develop an exhibit that illustrates a climate-friendly home, or remodel a play area using climate-friendly materials. Include messaging for adults about green actions they can replicate at home or work.
- Provide small, confidence-boosting physical challenges such as a path of stepping stones, a series of stumps of increasing height, a climbable tree, or a balancing log raised a few inches off the ground.

# Thank you!

madison children's museum

**Brenda Baker**
Vice President of Exhibits, Facilities, & Strategic Initiatives

bbaker@madisonchildrensmuseum.org

www.caretakersofwonder.org


# ANCHORAGE MUSEUM

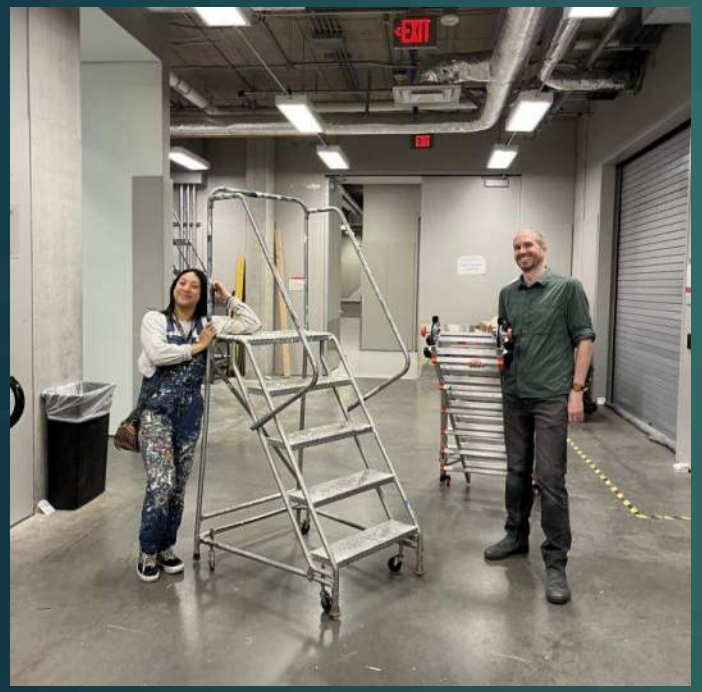
- Material use and improving process
- Adapting policies, procedures, and long-standing practices
- Transparency and reflection
- Valuing relationships with people over objects
- Embracing risk and imperfection
- Staff wellness
- Carbon Audit Process


EXIT
How to

# Thinking on How To Survive...



# Prioritizing Relationships




Setting up with Rejoy Armamento



Carolina Caycedo and Rejoy Armamento, *In Yarrow WE TRUST*, 2021

Amy Meissner, *Mother Thought of Everything*, 2020

Right: Christi Belcourt, *This Painting is a Mirror*, 2012

Left: Las Hermanas, *plumb and fathom*, 2022


Materials Library

BioPuff
JPEG • 3.55 MB

BrewedProtein
JPEG • 2.75 MB

Denuo
JPEG • 2.54 MB

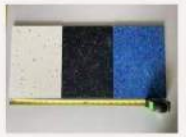
GrizzlyWood_Plastic
JPG • 797.72 KB

MateriaMadura
JPEG • 2.82 MB

MoguAcoustics
JPEG • 2.3 MB

MyHelmet
JPEG • 3.08 MB

Peelsphere
JPEG • 2.72 MB



PolygoodPanels
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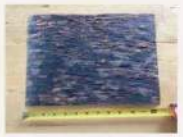
Refoam
JPEG • 2.39 MB

Solidwool
JPEG • 3.62 MB

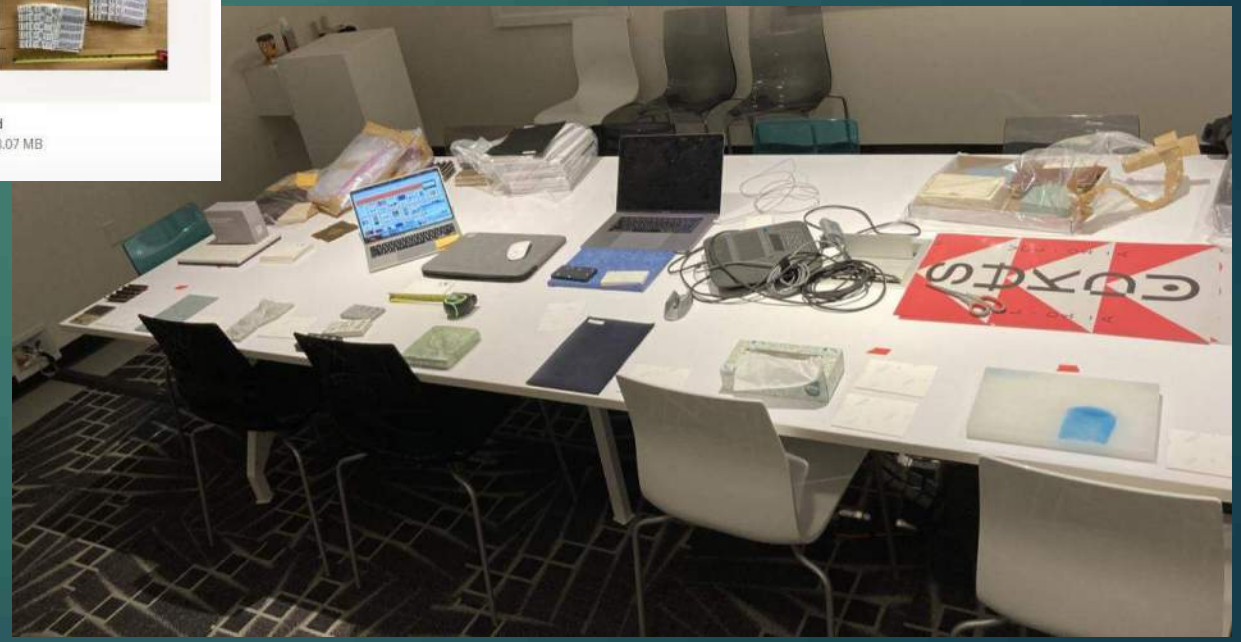


StudioSarmitePineskins
JPEG • 3.63 MB

WastelsMore
JPEG • 3 MB

Wolfwall
JPEG • 3.33 MB

WoolAid
JPEG • 3.07 MB

# Carbon Audit

What is a Carbon Footprint (CFP)?

A personal, corporate, institutional or government carbon footprint is the sum of all greenhouse gasses emitted over a certain period (typically calculated 1yr) associated with all activities over that period.

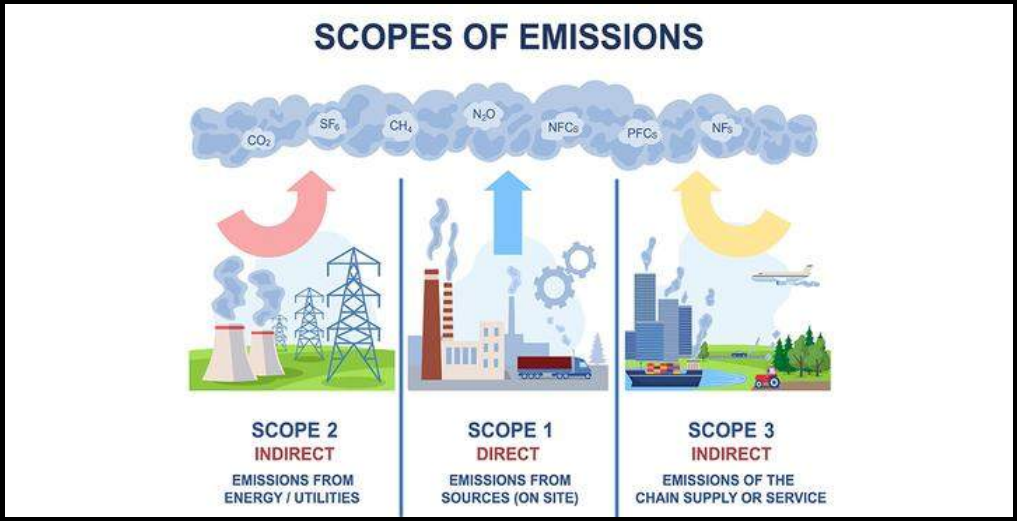
GHG Protocol Scopes:

**Scope 1:** Direct emissions from owned or controlled sources (e.g., company vehicles).
**Scope 2:** Indirect emissions from purchased electricity, heating, cooling, etc.
**Scope 3:** All other indirect emissions in the value chain (e.g., materials, business travel, supply chains).

# Scope 3 Emissions

**Included in Scope 3:**

- Staff Travel/Commuting Evaluation
- Exhibition/Design Evaluation
- Waste/Recycling Audit

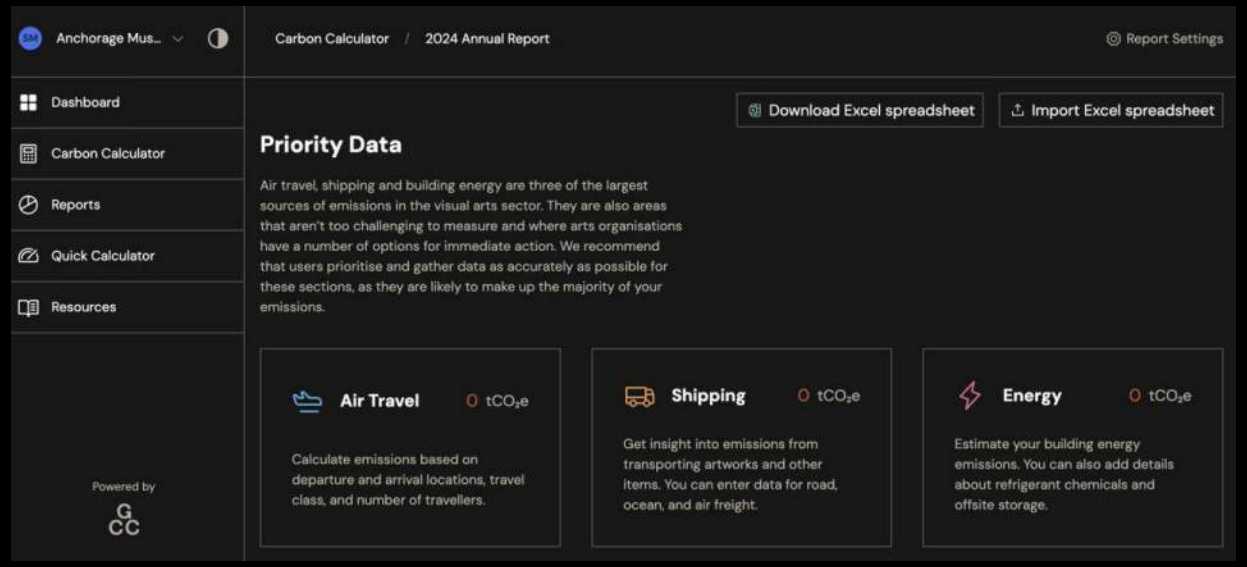


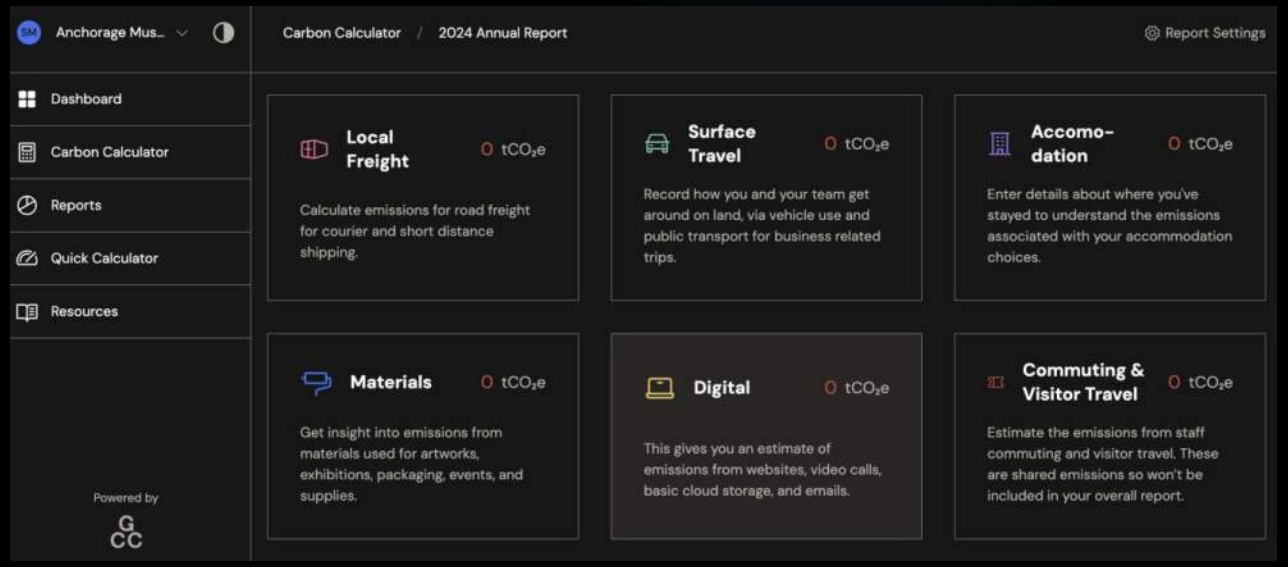

Scope 3 activities are all other activities that **create emissions indirectly** within the operational boundary. For example, employees traveling to and from work generate indirect emissions (the employees are required to travel to work, even though the vehicles themselves are not operated by the museum).

Scope 3 emissions account for by far the highest proportion of total emissions and may occur over several years.

# Carbon Accounting Tools

The **Gallery Carbon Calculator** is a  tool for estimating the greenhouse gas emissions of art organizations and projects. It identifies three primary sources of carbon emissions common to art galleries and institutions -- travel, shipping and building energy consumption.



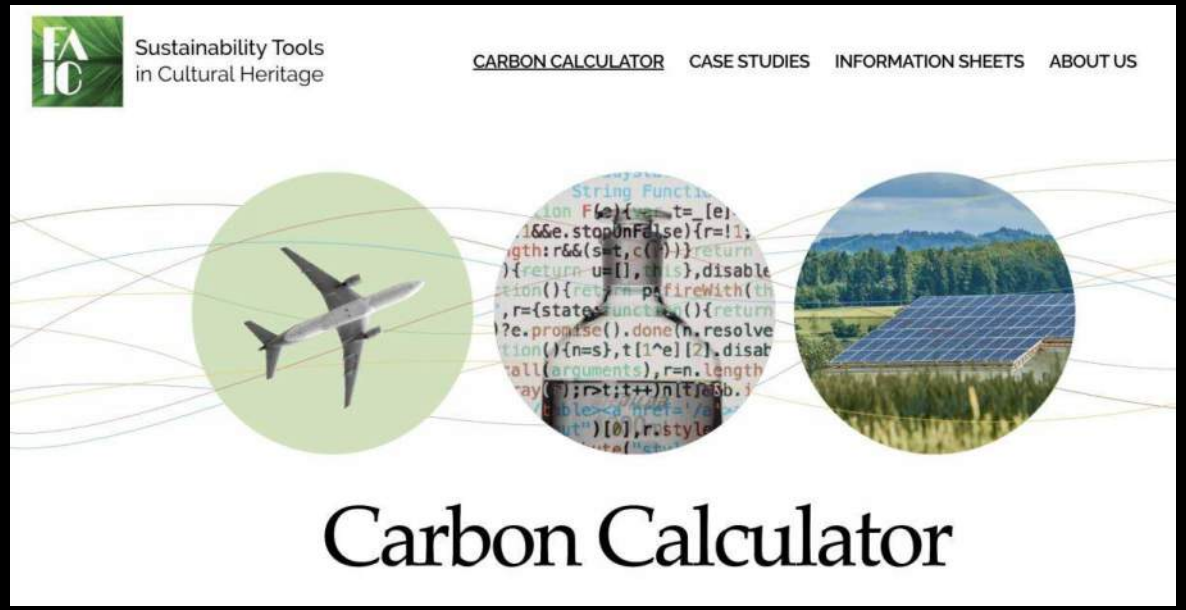
# Measuring Carbon Emissions in an Exhibition

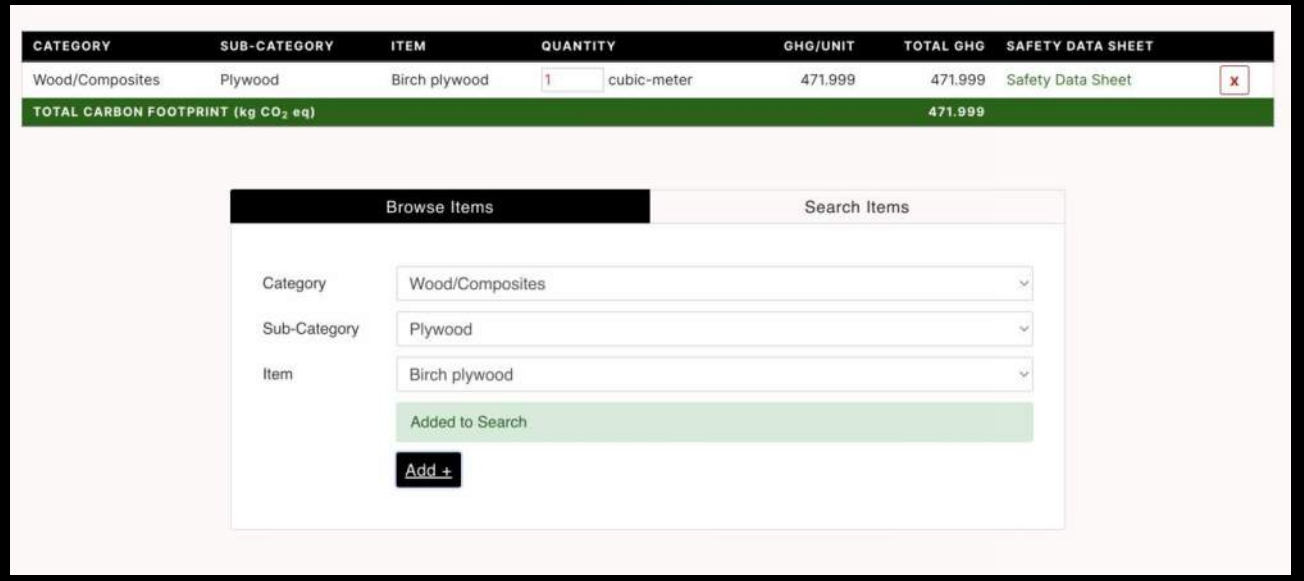
GHG Emissions:
- Materials (e.g., construction and packing materials, paint, hardware)
- Travel (e.g., artists, curators)
- Shipping (e.g., art shipping, loans)
- Printed media (e.g., catalogues, vinyl lettering)
- Digital footprint (e.g., web design, energy consumption of electronic devices)

(Energy consumption is embedded in Scope 2)

# Materials Carbon Calculator

A tool to determine or compare the carbon footprint between materials.



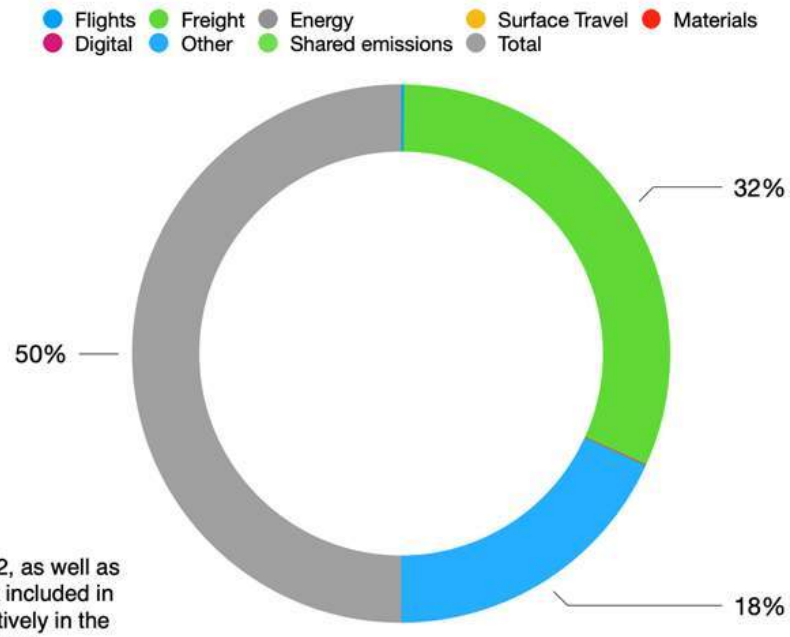
# Measuring Results: Quantitative and Qualitative Evaluations

- Exhibition Sustainability & Carbon Footprint Reports
- Post-Installation video walkthroughs
- Documenting sources for future reference
- Establishing consistency

**How to Survive**

| Activity | $tCO_2e$ |
|---|---|
| Flights | 3.0831 |
| Freight | 524.6286 |
| Energy | 0 |
| Surface Travel | 0 |
| Materials | 0.9641 |
| Digital | 0 |
| Other | 302.1449 |
| Shared emissions | 0 |
| Total | 830.8207 |

GHG emissions related to Scope 1 and 2, as well as digital emissions under Scope 3, are not included in this report but are accounted for cumulatively in the institution's Annual Carbon Footprint Report.



# Actions for Creating Ecologically Aware Exhibitions

- Energy-efficient lighting
- Material Selections
- Modular & reusable displays
- Responsible deinstallation
- Engage local communities
- Extend exhibition duration
- But everything in balance and prioritize staff wellness!

# Questions?

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# Learn More

Sustainable Exhibition Design & Construction

**Toolkit** v6 Sep 2024

**bit.ly/MxMP2025**

- **Exhibit Carbon Footprint Calculators Workshop**
  Friday, 1:30-3:30, Rm 502A