

A group of people are seated around a wooden table in a meeting. In the foreground, a person is writing in a yellow notebook with a silver pen. The background is slightly blurred, showing other participants. A semi-transparent dark grey box is overlaid on the right side of the image, containing white text.

Shifting Practices for Material Reuse

Bay Area Deconstruction Work Group

November 21, 2024

Bay Area (& Beyond) Deconstruction Workgroup

- **Started by learning about Portland's Mandatory Deconstruction Ordinance (2017)**
- **Workgroup**
 - **Focus: San Francisco Bay Area Reuse – Fall/Winter 2024**
 - Hybrid – Bay Area, national & international participation
- **Website & Contact Us:**
<https://www.stopwaste.org/BADWG>





Deconstruction + Material Reuse: Practice Shifts

November 21, 2024

SAN FRANCISCO

ENVIRONMENT

DEPARTMENT

Session #1: Bridging the gaps



Image: Hilda Weges

PHYSICAL 'LAYDOWN' SPACE



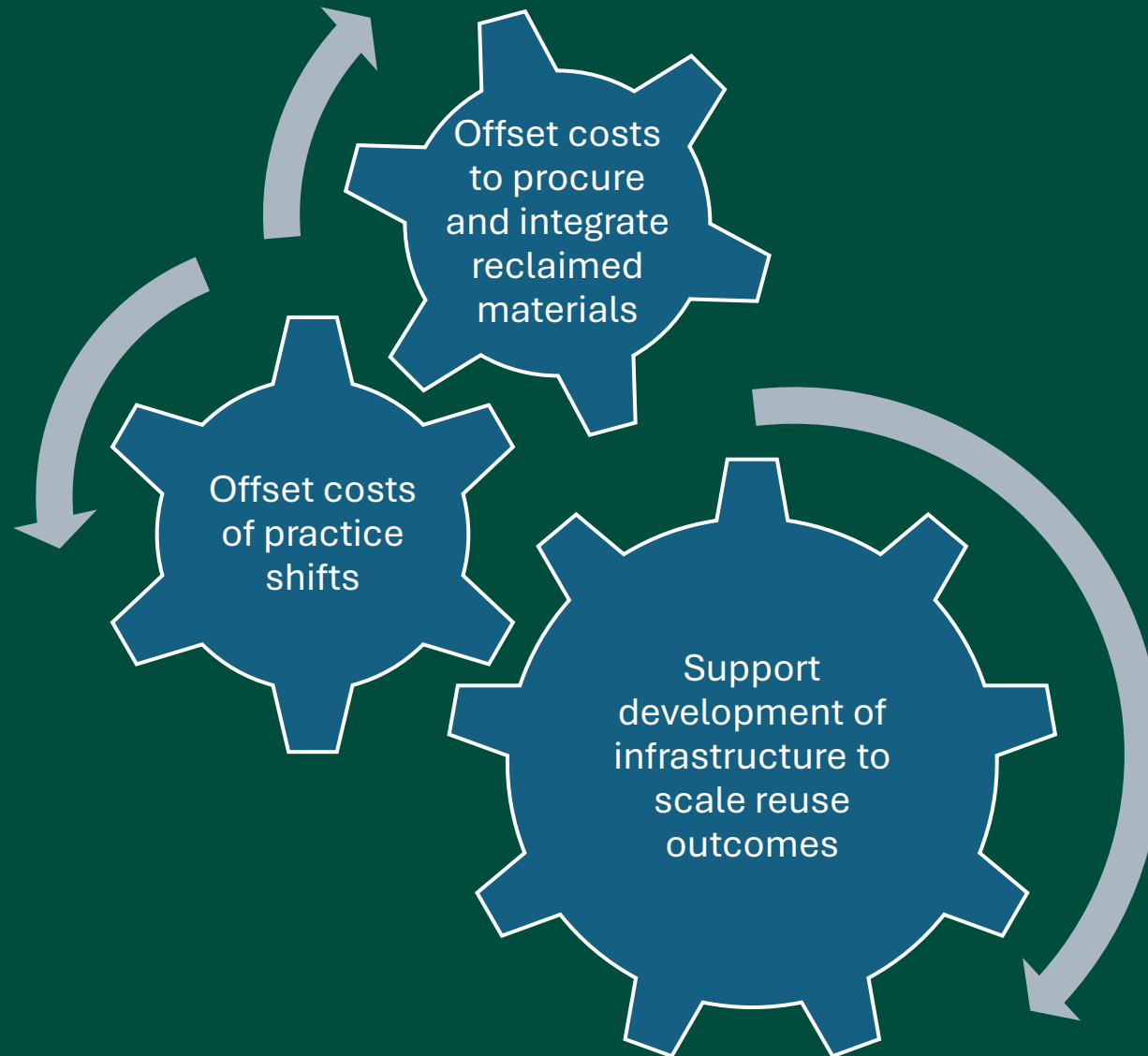
HUMAN RESOURCES



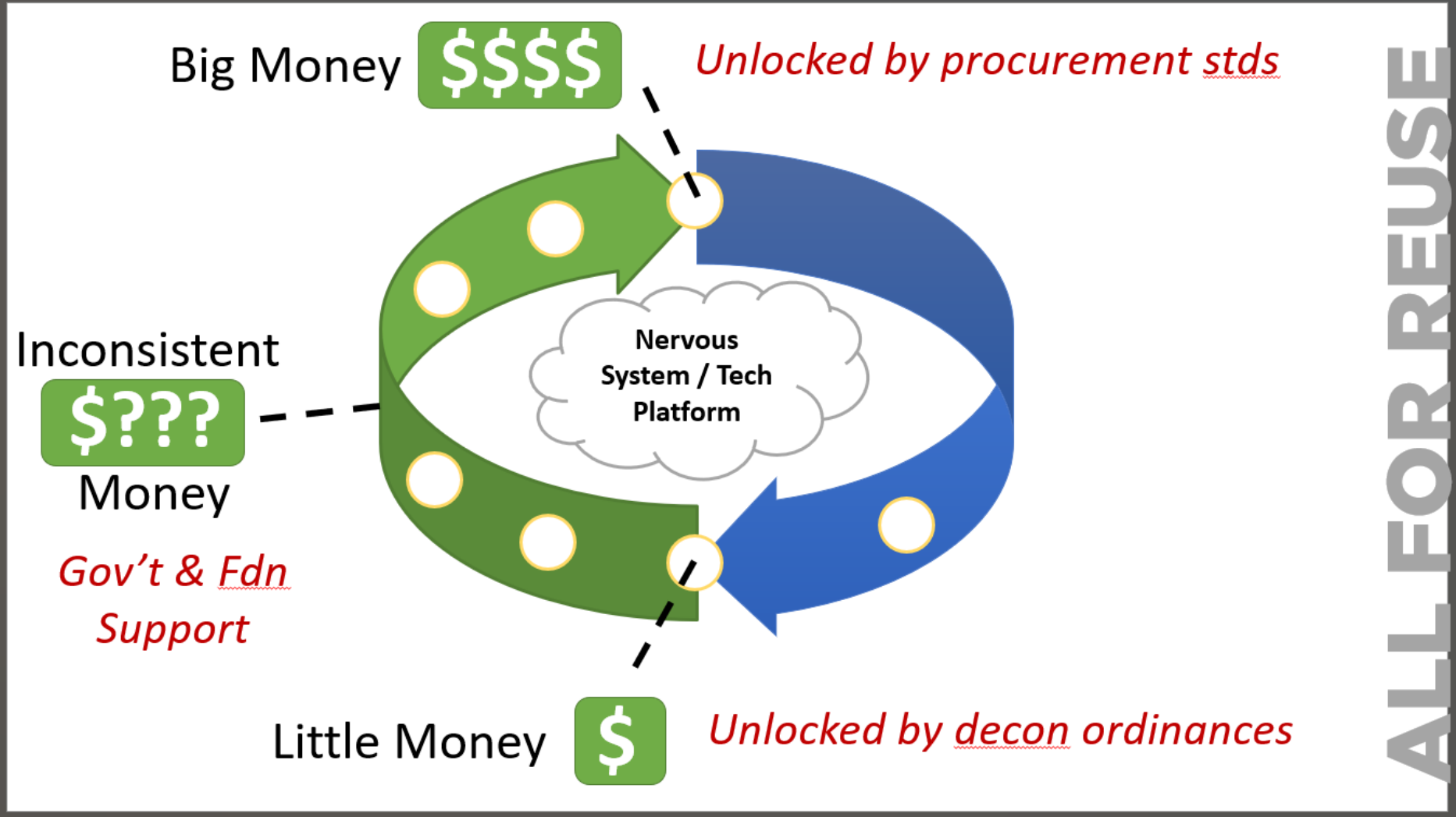
Image: Madrone

SERVICES

Session #2: Funding

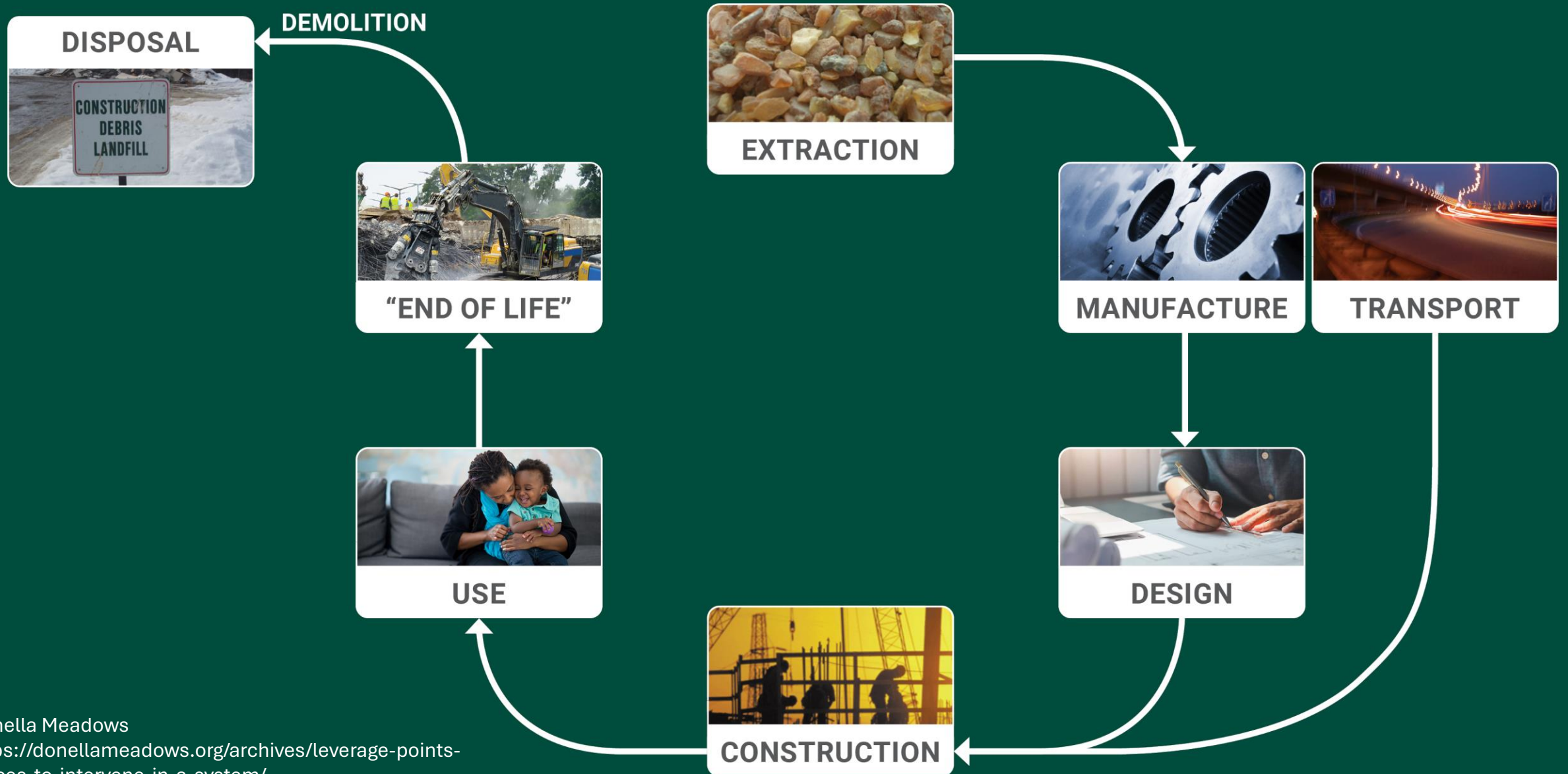


Unlocking funding

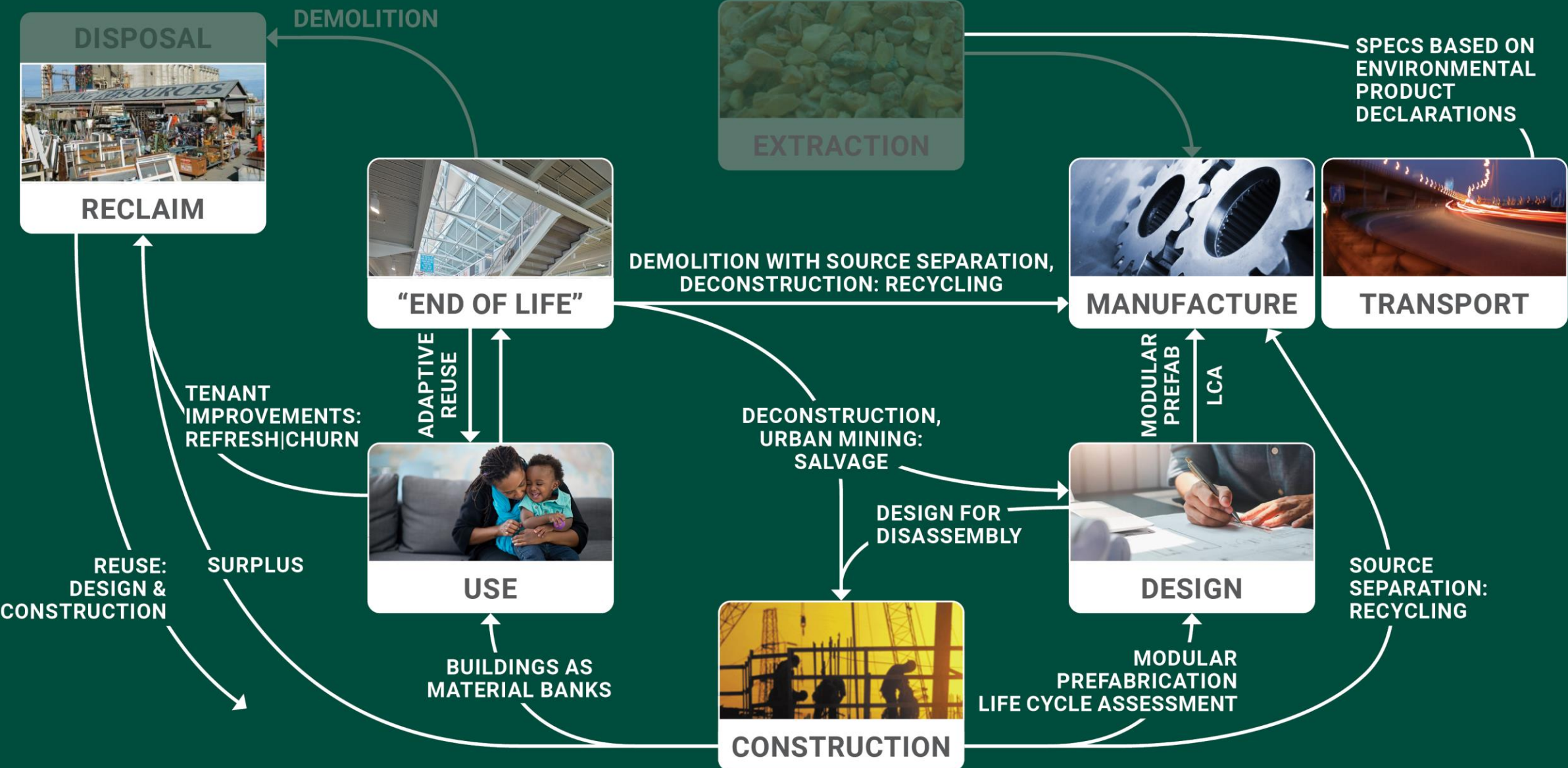


Credit: Andrew Ellsworth, All for Reuse Alliance

Session #3: Practice shifts



Breaking entrenched barriers



Agenda – BADWG Practice Shifts

10:00-10:10 – Welcome

10:10-10:40 – Architect presentations and Q&A

- **David Arkin** and **Tavi Hillesland**, Arkin Tilt Architects
- **Marcus Hopper**, Gensler

10:40-11:25 – GC presentations and Q&A

- **Emi LaFountain** and **Brett Stuckey**, Turner Construction
- **Kavita Karmarkar**, Webcor
- **Emily English**, BNBuilders

11:25-11:55 – Facilitated discussion

11:55-12:00 – Closing

Material Reuse in the Residential Sector

Bay Area
Deconstruction
Working Group

Nov. 21, 2024



Tavi Hillesland, R. A. and David Arkin, AIA, LEED AP – Arkin Tilt Architects

A red car is shown from a high-angle perspective, packed with various recycled items. A white chair is leaning against the back seat, a solar panel is propped up, and a yellow license plate with the number 'HA 602' is visible. A man and a woman are sitting in the front seats, smiling. The background is a dark, textured surface.

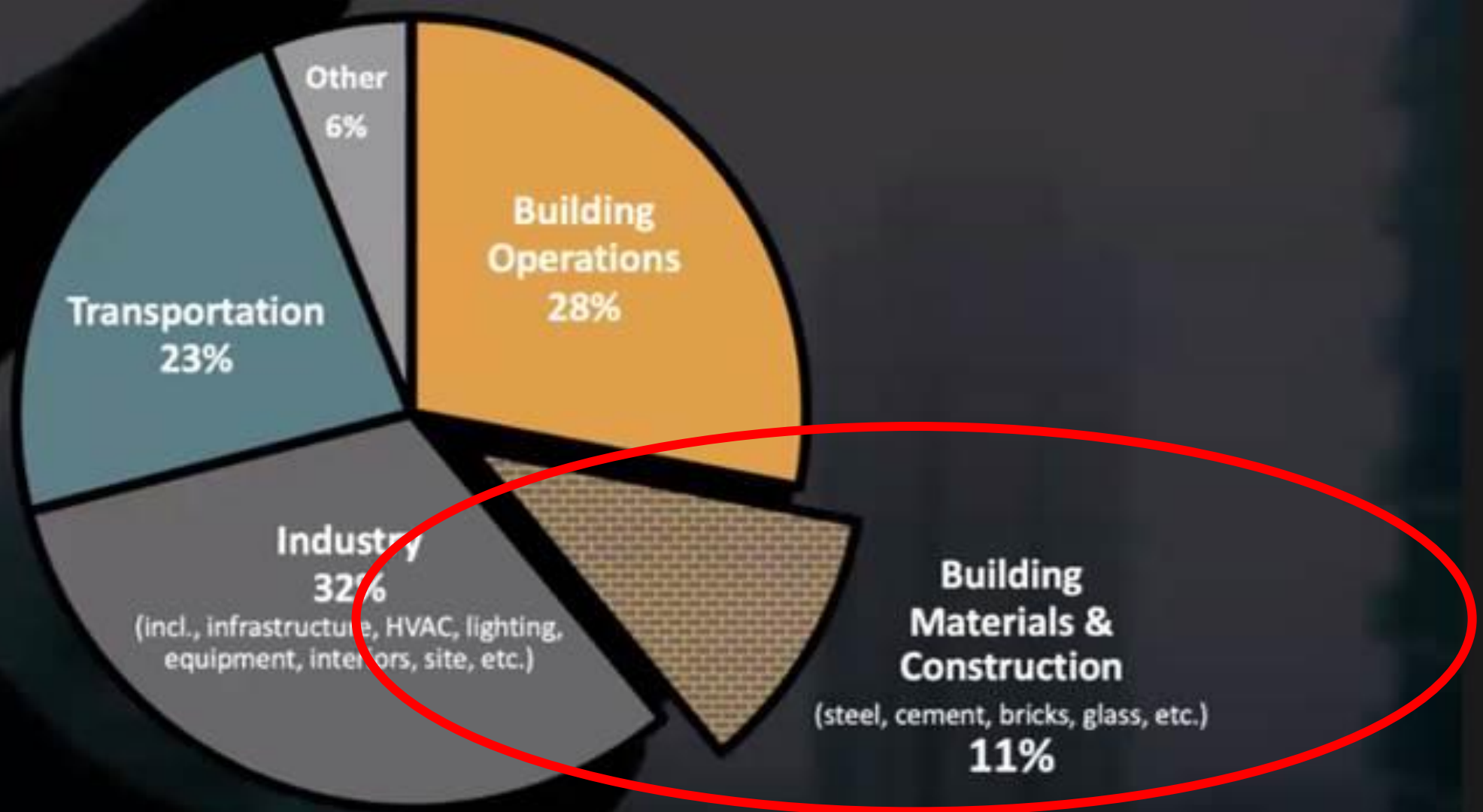
residential
architect

hanley wood

MARCH 2005

david arkin and anni tilt
drive home their message
of sustainable design:

waste not



www.architecture2030.org

Global Fossil Fuel CO₂ Emissions by Sector
Source: IEA. Global ABC



Materials Pledge Signatory



Human
Health



Climate
Health



Ecosystem
Health



Social Health
& Equity



Circular
Economy

ECHO PROJECT

Embodied Carbon
Harmonization
and Optimization

a collaboration between:



American Society of
Landscape Architects



Building
Transparency



STRUCTURAL
ENGINEERING
INSTITUTE



CONTRACTOR'S
COMMITMENT



Institute for
Sustainable
Infrastructure



INTERNATIONAL
LIVING FUTURE
INSTITUTE™

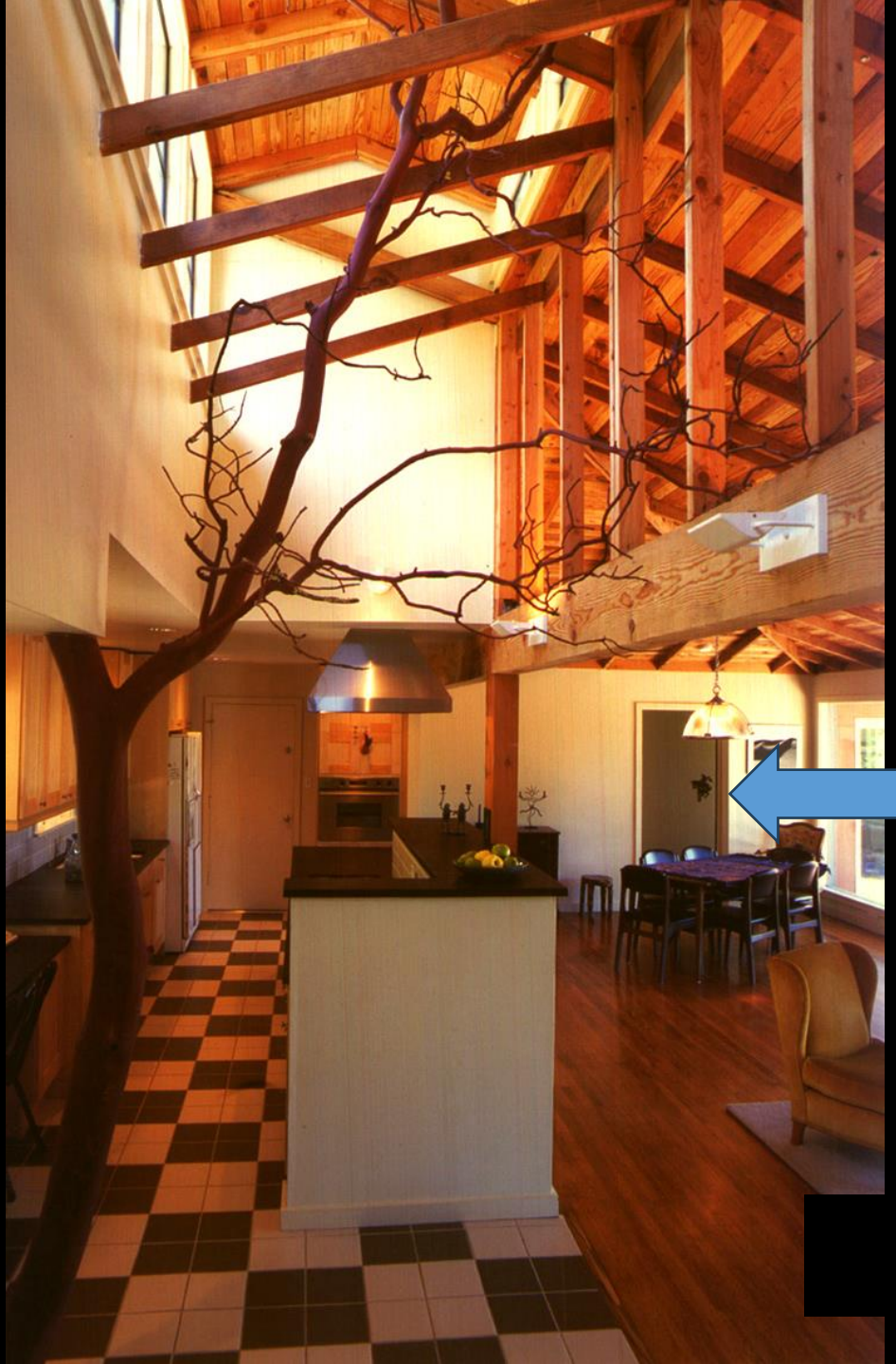
MEP 2040
Committing to Zero

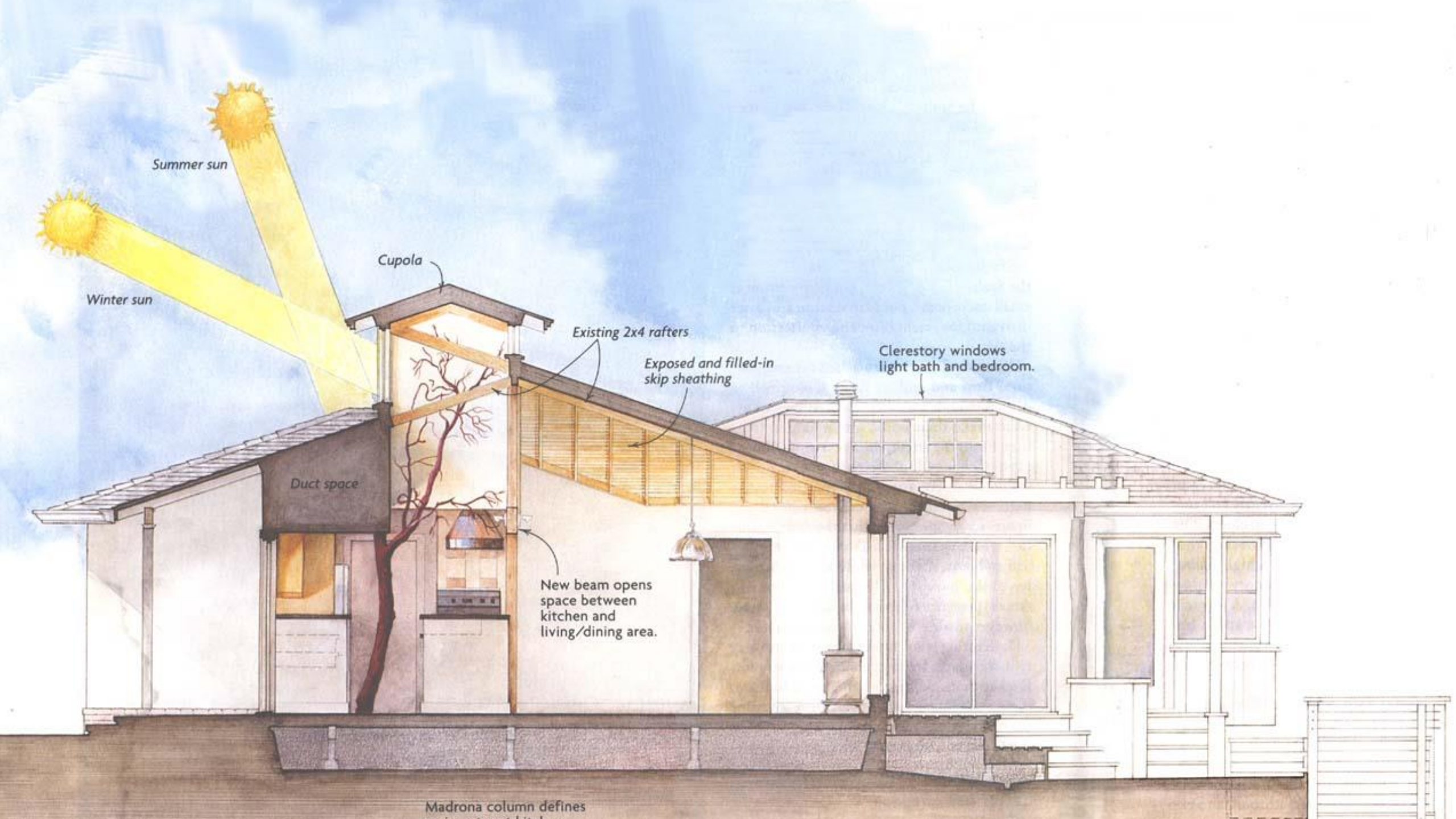


Urban Land
Institute









Summer sun

Winter sun

Cupola

Existing 2x4 rafters

Exposed and filled-in skip sheathing

Clerestory windows light bath and bedroom.

Duct space

New beam opens space between kitchen and living/dining area.

Madrona column defines











FSC, Salvaged & Reused Wood - Esalen Lodge, Big Sur, CA





Mahonia Building

Eugene, Oregon

34,000sf, \$147/sq.ft.

**10,886 kg CO₂e storage in
straw / wood walls salvaged
resources rainwater catchment
daylight and community**



BOEBS – Bales On End Between Studs



Erica Ann Bush – Day One Design

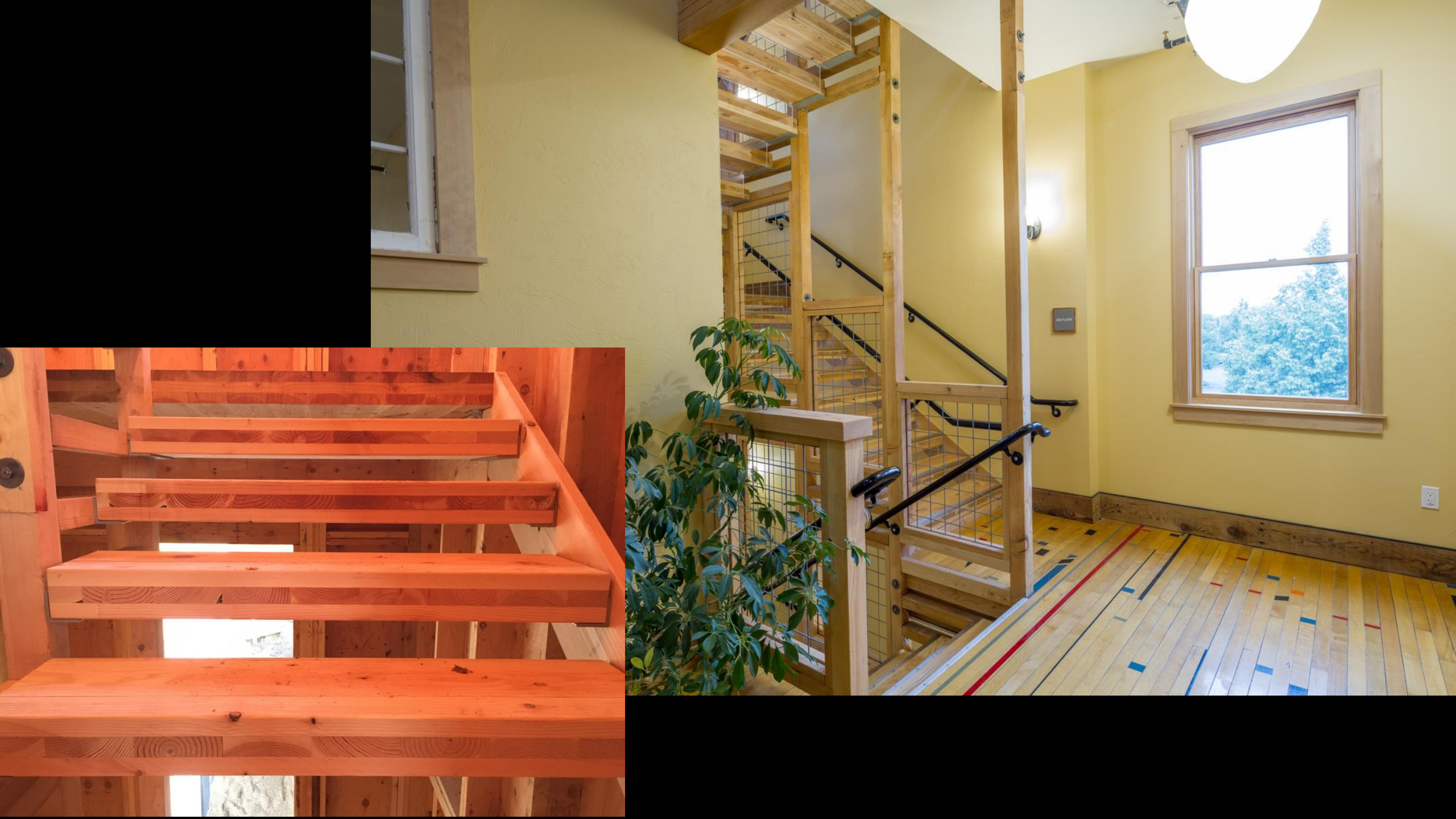


Erica Ann Bush – Day One Design













Mahonia Mixed-Use Building, Warehouse & Office – Arkin Tilt Architects



Off-Grid Cabin, Mendocino County, CA – Arkin Tilt Architects

















WHAT IT TAKES: WILLPOWER

OWNERS:

- Interest and Willingness to Integrate Salvaged Resources
- Drive Demand with Pinterest, Etsy, Dwell Magazine, etc.

ARCHITECTS / DESIGNERS:

- Knowledge to Locate Resources and Creative Integration
- Catalogs of Available Materials with Data / Support from Owner

CONTRACTORS:

- Willingness to Use Salvaged Materials / Not Overprice
- Materials Comparable to New / Warrantee Issues Resolved



Thank You

Gensler

PRACTICE SHIFTS

BAY AREA DECONSTRUCTION WORKGROUP

11.21.2024

Marcus Hopper

Senior Associate

marcus_hopper@gensler.com

[gensler.com](https://www.gensler.com)

PRACTICE SHIFTS

Research Institute

Goal: Align Gensler and our project work with sustainable design practices surrounding reuse.

- How to **embed reuse** in our standard design process?
- What are the new **service offerings**?
- What are the future **partnerships opportunities**?

What's Old Is New Again:

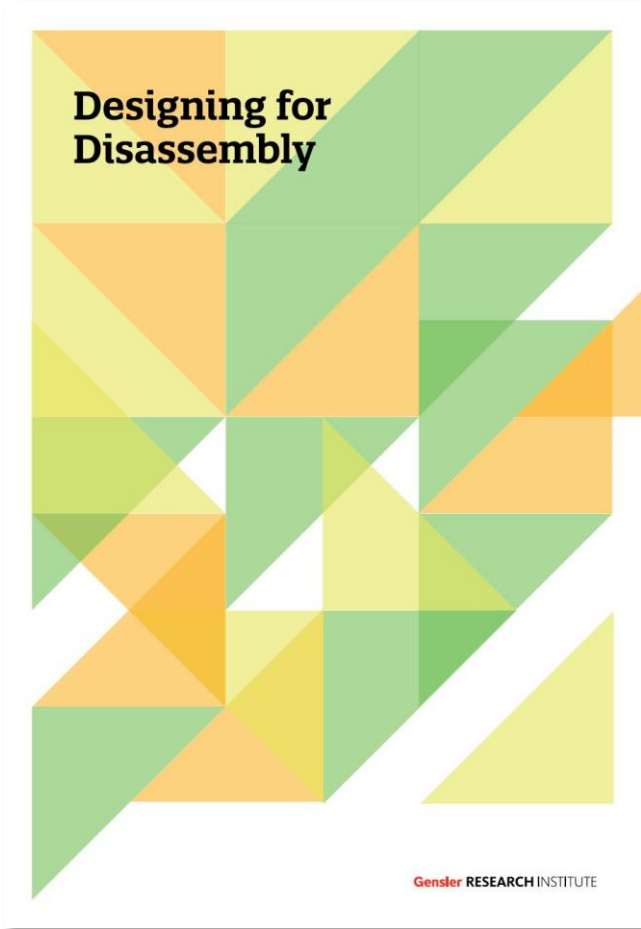
*Circumnavigating
the Circular Economy*



What's Old Is New Again, (2019).

PRACTICE SHIFTS

Research Institute





Upcycle

UpCycle, Austin, TX.

BAY AREA DECONSTRUCTION WORKGROUP

PRACTICE SHIFTS

Research Institute



gSalvage | Material Crowdsourcing

Gensler


The image shows three circular icons: a blue circle with a white chair, a green circle with a white recycling symbol, and a green circle with a white triangle. To the right is a smartphone displaying a white circle with a hand holding a heart.



Why

Clients are **requesting** unique cost-effective design solutions that tell a **story**. We have the ability to **reduce** the time and cost for material procurement. We should **utilize** the high-quality interior materials implemented on past interior projects. If we can encourage the **reuse** of materials for future tenant improvements projects, we will reduce the harvesting of natural resources for material procurement, promoting our commitment to achieving carbon neutrality in all our work by 2030.

Gensler



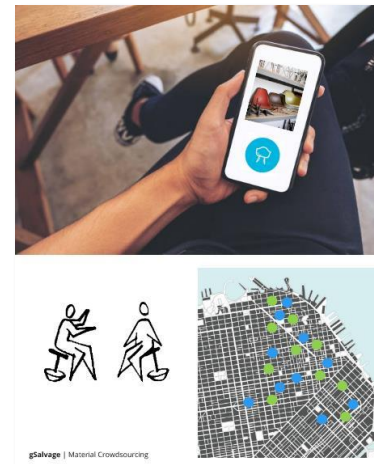
What

gSalvage, a Gensler sharing platform, **enables** a community of designers, contractors and owners to **promote** the sharing of surplus materials across projects to help **reduce** waste and the use of natural resources for procurement.

gSalvage | Material Crowdsourcing

Gensler

The image features a large orange circle containing a white icon of a hand holding a heart.



How

By crowdsourcing connectivity between design teams and developing a network for material mapping, **gSalvage** is able to implement the repurposing of materials across our projects. Ultimately the sharing platform is able to rethink the material sourcing model for projects, promote creative solutions towards material reuse and reduce waste and the use of natural resources for procurement.

Gensler

PRACTICE SHIFTS

Research Institute

THE REUSE ROADMAP

Things to Consider:

- Schedule
- Cost & Budget
- Storage capacity
- Partnerships
- Design flexibility
- Manufacturer/recycling take back programs



Questions to ask:

- What are your demolition and waste stream lease requirements?
- What of the existing material inventory can be reused or repurposed within new space?
- Is there anything in the existing site that might reveal history of the building, previous tenant or neighborhood?
- What is the value of the reuse vs. resell?
- As design evolves, what are the compromises the project team is willing to take?
- Are there fixed elements in the design that could be designed & detailed for disassembly?
- Can reused furniture be designated to certain areas, while using new furniture for higher impact moments?

1. Plan:



It is critical to start early and establish a game plan for reuse. Develop a 'Reuse Strategy' to serve as a guide. **Generate example timelines that specifically communicate the reuse commitment and expectations to the entire team,** regardless of the length of the project. Create 'toolkits' with specifications that project teams and designers will utilize.

2. Discover:



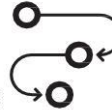
Keep a lookout for opportunities to reuse. Survey the existing project space (if applicable) and evaluate what could be reused/deconstructed/donated/returned. **Get creative!** Use reclaimed materials as your palette and find new ways to put materials together.

3. Partner:



In order to transform the design process into an increasingly reuse-friendly, circular network, the development of reuse networks will thrive with the formation of partnerships. Look for deconstruction and reuse partners to help with the various steps needed to secure reclaimed materials; even if they aren't offering the service, ask them anyway! **The more they are queried about supplying reclaimed materials, the more likely they are to consider fulfilling that role.**

4. Consider:



Be flexible. Everyone loves to see a plan executed perfectly, but it's seldom a linear journey. Twists and turns occur at every step along the way. **Your job at this stage is to put on your "what if?" hat and think through some bumps in the road before you start driving.** It is very rare for reclaimed materials to precisely match your design. Being flexible in colors, finishes, and sizes will increase the likelihood of finding matching materials, while still being true to the overall goals of the project.

5. Vision:



Help the project team visualize reuse design opportunities alongside cost implications. You may have done some of this already, but now is the time to really **focus in.** What does the end-user really want? Now, what's the realistic vision? **DON'T over commit, know your limitations, and ALWAYS manage expectations.**

6. Perform:



Now is the time to start tapping into your industry network for reuse vendors and like-minded contractors. **Again, be sure you know exactly what you are asking for. Be specific.** Don't get discouraged if someone isn't able to help. Keep at it. Remember: there are a lot of companies out there that DO want to pitch in!

7. Deliver:



Identify and secure contracts for waste/reuse materials. Explore existing manufacturer/recycling take-back programs that would benefit from any unused resources. Coordinate with furniture vendor contractors to remove and recycle furniture. For items not being reused, reach out to other project teams and local non-profit organizations in need.

8. Communicate:



Congratulations! You've successfully implemented reuse on your project. Now, share your findings with others. What were the challenges and how did your team overcome the barriers? The reuse ecosystem will only grow faster by everyone sharing project stories and 'lessons learned' with their local communities.

9. Document:



Now is the time to organize your project materials. Wrap up the success of the project and design by tracking relative metrics. Track all waste streams and/or waste reduction. Provide carbon saving calculations. Now is also a good time to put together a short presentation chronicling the work and the 'reuse story' for future project teams to access.

REPEAT

Conclusion:

As you've undoubtedly realized, this is neither an exhaustive list nor a strict check-box-style "how-to" guide. Rather, it should serve as a general list of topics to consider when thinking about starting a reuse project. **This should get you headed in the right direction and help you consider what might come next.** You may not be able to go in this exact order, and you may not want to, but anticipate how you'll approach each of these steps, as they have been critical to complete in prior reuse projects.

PRACTICE SHIFTS

Research Institute

Reuse as the First Strategy

- Reuse as much of the existing built environment as possible.
- **Reuse Action Plan** at the real estate planning phase.
- Implement a **Building Material Reuse/ Salvage Audit**.

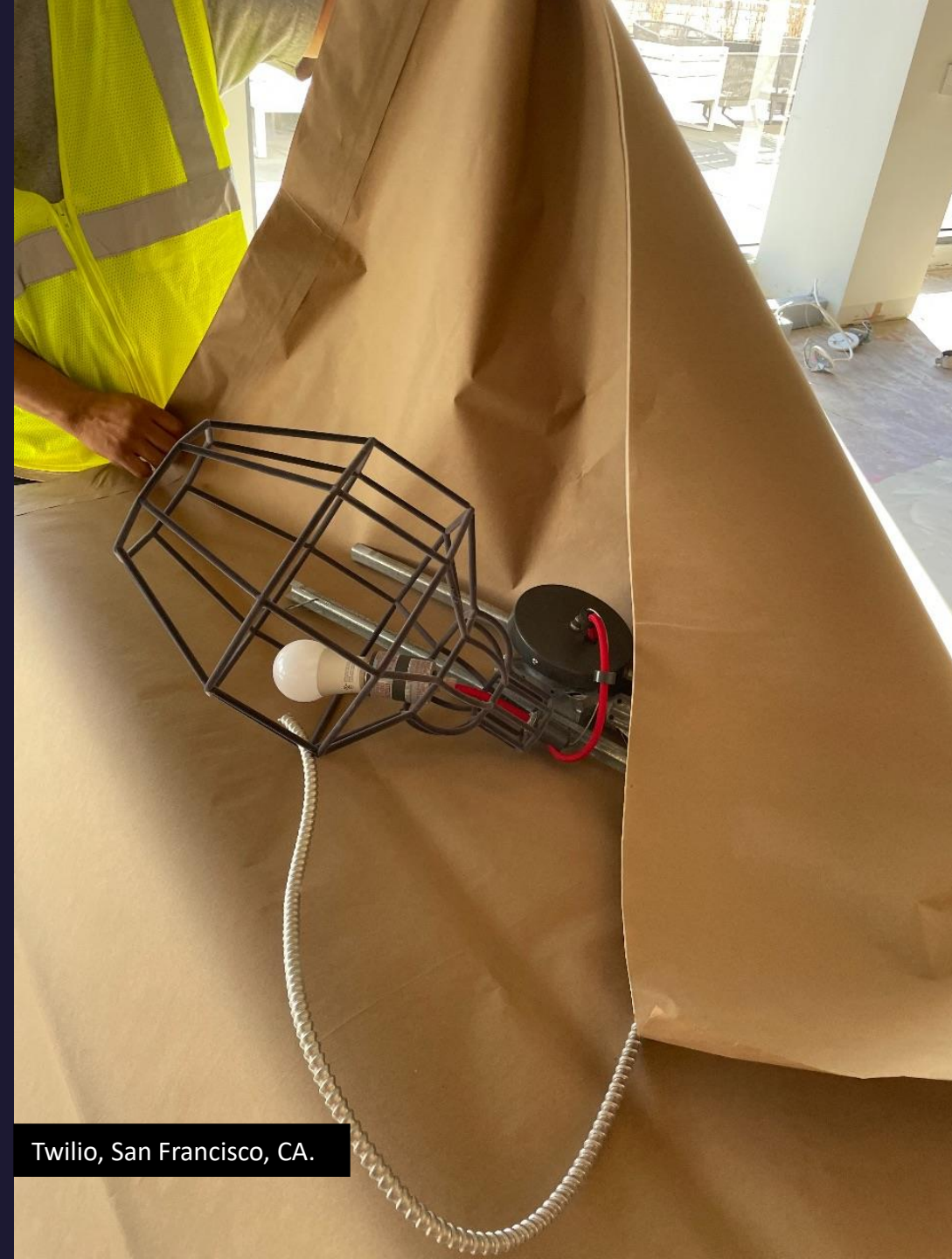


Etsy, Brooklyn, NY.

PRACTICE SHIFTS

Salvage Audit

BAY AREA DECONSTRUCTION WORKGROUP



Twilio, San Francisco, CA.



Twilio, San Francisco, CA.

PRACTICE SHIFTS

Salvage Audit



Date: 12 July 2021

To: Twilio Inc.
Francine Mercier
375 Beale Street Suite 300
San Francisco CA 94105

Project: Twilio Spear
101 Spear Street, 4th 5th Floors
San Francisco, CA 94105

Subject: Tax Receipt (Representing a Non-Cash Grant)

On behalf of the ANEW Board of Directors, I would like to take this opportunity to thank you for your generous donation in support of our Surplus Stewardship® program that matches good, useable office items to local organizations and underserved communities. Social and environmental benefits were realized because of your work with ANEW.

For your project, ANEW received office fixtures and equipment as a donation. Receipt of the goods was confirmed, matched to recipients, and provided to those organizations. The following organization gratefully received your surplus office furniture:

- Chabad of San Francisco, San Francisco, CA

Please find below a listing of your generous donation received by the above organization:

Brown teardrop pendants	4
Grey for light pendants drop down from the ceiling	2
White balls pendants	7
48" Grey light banister	150
Grey pendants old style	2
Brown umbrella pendants from the kitchen area	5
Clear pendants in kitchen area	3
Wall Track Lighting	4

Your support of ANEW goes on to serve many others in your community, across the country and around the world. Thank you for your contribution to making your community and others a better place.

Sincerely,

Rose Tourje, Founder + President

Asset Network for Education Worldwide, Inc. (ANEW) is classified as a charitable organization under section 501(c)(3) of the Internal Revenue Code, and as such, contributions to ANEW are tax deductible to the full extent permitted by law. ANEW has provided no goods or services in return for this donation. ANEW TAX ID #: 20-3884159.

doing what's right with what's left ®
T 213 943 4400 | 4586 Jessica Drive | Los Angeles, CA 90065

ATTACHMENTS

Twilio at 101 Spear Street

SAN FRANCISCO, CA

Twilio gave new energy to its San Francisco offices with a refresh addressing paint, carpet, lighting, and other physical aspects of the space. The project also included the reconfiguration of the access to elevator lobbies, adding turnstiles, the repurposing of the wellness area, an addition of an IT development server lab, the reconfiguration of some conference rooms, and the activation of the accessible roof deck. A major component of the project involved the re-use of the existing furniture, including the workstations. Twilio still purchased some limited furniture, but the majority of the new space was populated with their existing furniture.

Completion 2021

83,000 sq ft

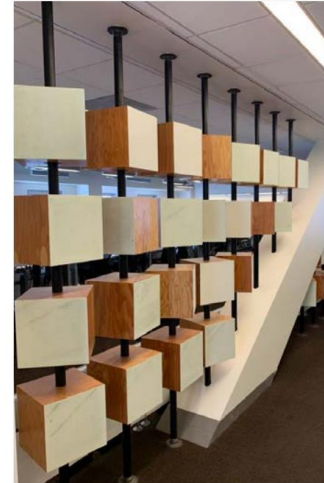
Services Provided
Interior Architectural Design
Signage & Wayfinding
Adaptive Reuse

In the process of inventorying the furniture, the project team identified unwanted items for donation and shared items on Gensler's gSalvage platform, an app powered by Trello that allows teams and consultants to trade and move unwanted/unused materials and furniture from one project site to another. Chabad of San Francisco was identified as the donor recipient and ANEW assisted in the removal and distribution of the salvaged items.

KEY OUTCOMES

The project diverted approximately 881 pounds / .44 tons of surplus commercial office fixtures, equipment and, materials from the landfill.

MAY 5, 2023



Gensler



PRACTICE SHIFTS

Salvage Audit

Challenges/Opportunities:

- Contracting Strategies
 - Direct to Owner
 - Direct to Contractor
 - Architect for Professional Services
- Responsibility Matrix
- Building Material vs. Furniture



Twilio, San Francisco, CA.

PRACTICE SHIFTS

Procurement



Gensler, San Francisco, CA.

PRACTICE SHIFTS



PRACTICE SHIFTS

Salvaged Metal Panels



PRACTICE SHIFTS

Salvaged Metal Panels



PRACTICE SHIFTS

Reclaimed Wood Floor



PRACTICE SHIFTS

Reclaimed Wood Floor



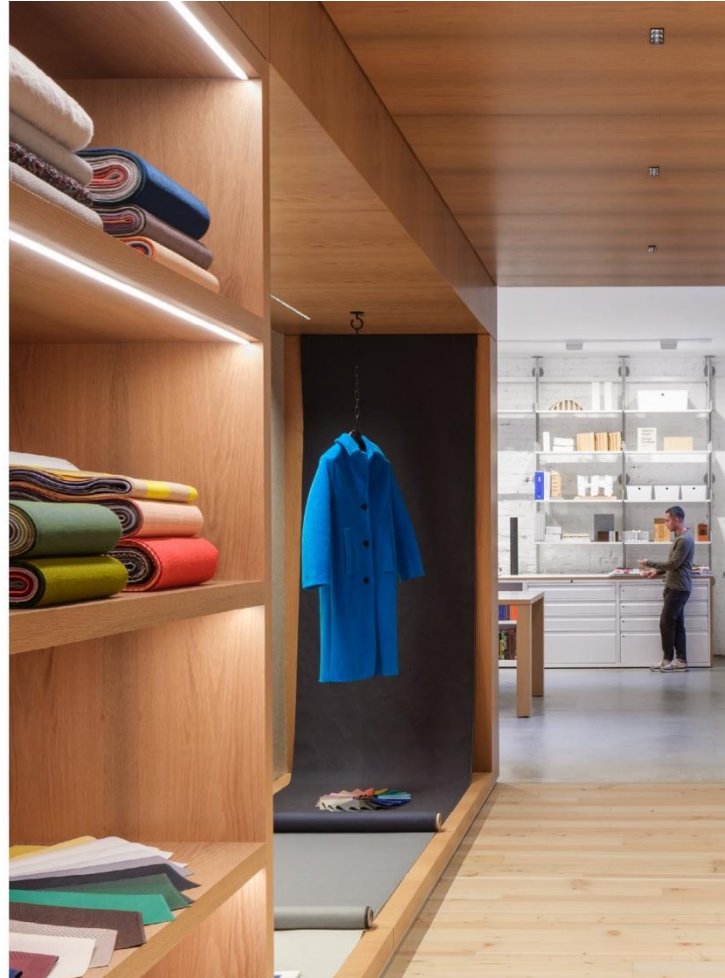
PRACTICE SHIFTS

Reclaimed Wood Veneer



PRACTICE SHIFTS

Reclaimed Wood Veneer



PRACTICE SHIFTS

Wood Cladding



PRACTICE SHIFTS

Wood Cladding



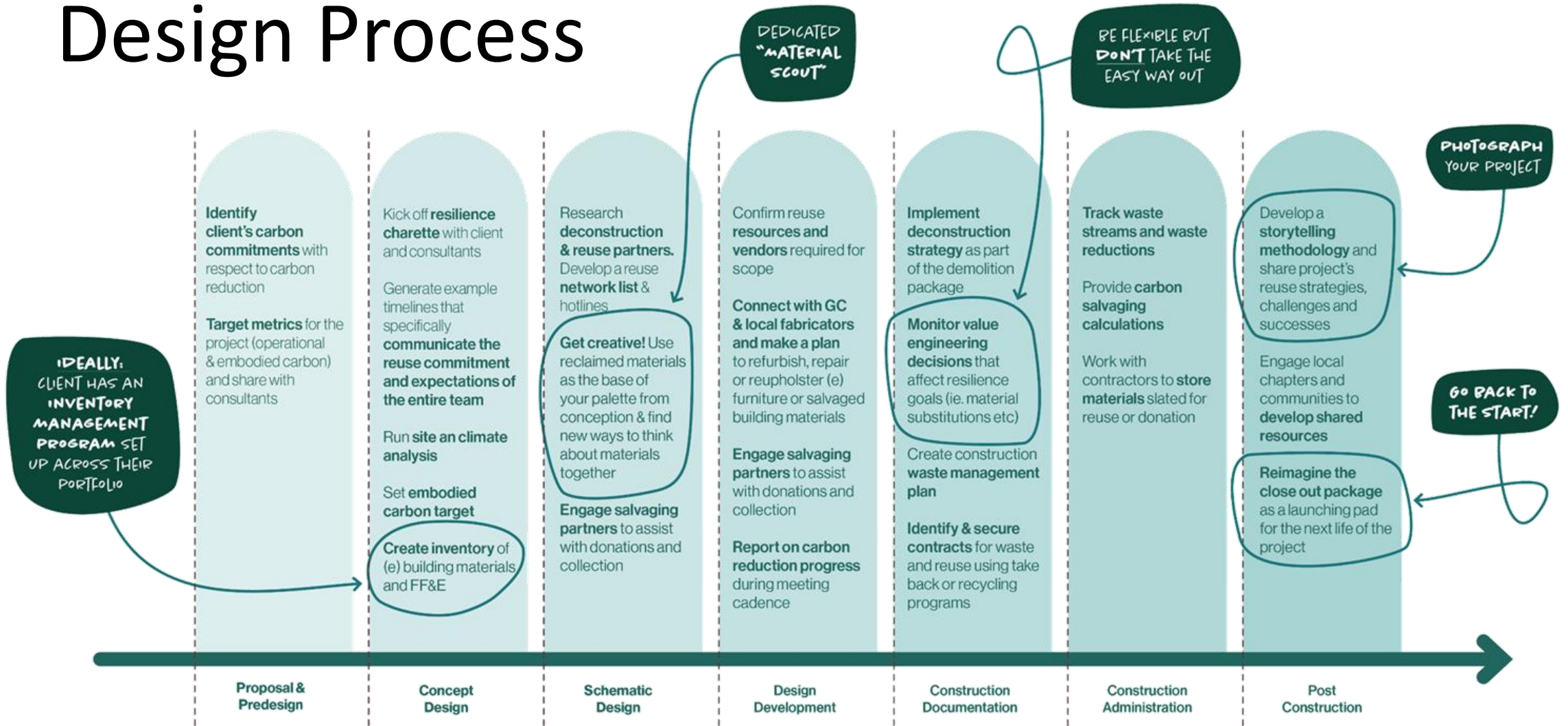
PRACTICE SHIFTS

Broadloom Lamp



PRACTICE SHIFTS

Design Process



Thank You!

Contractor Perspectives on Increasing Reuse in Commercial Projects



INCORPORATION INTO NEW PROJECTS



1. Relax warranty requirements / aesthetic expectations
2. Include storage space in first estimates
3. Perform a salvage assessment
4. Don't forget the forgotten scopes

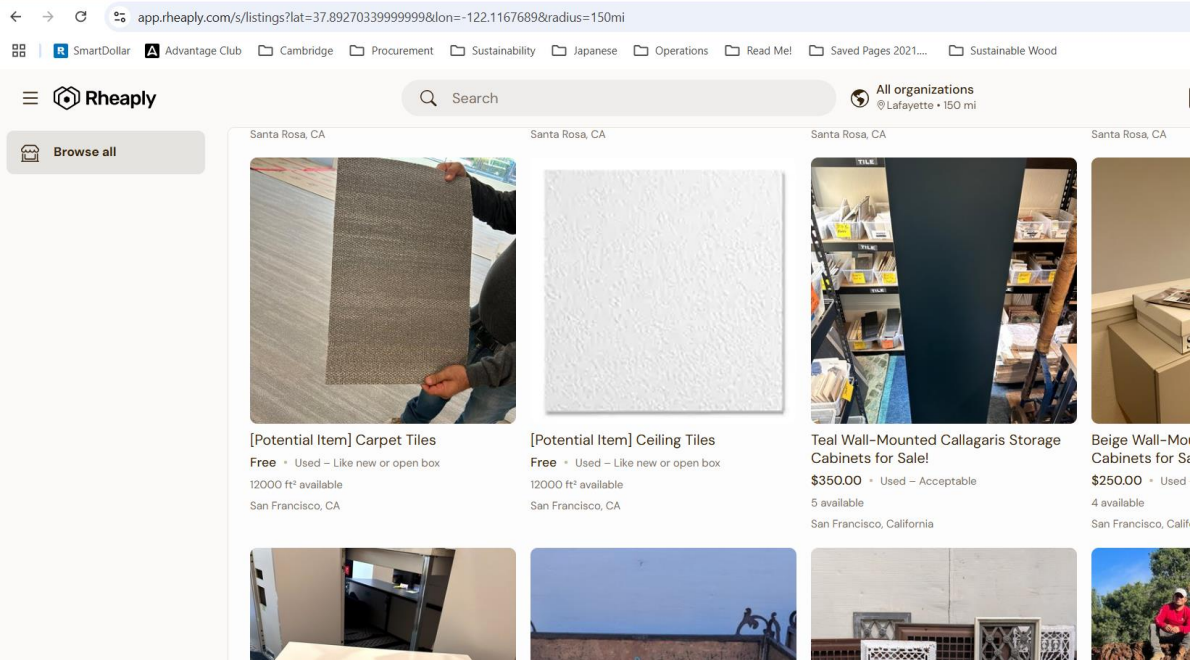
1. Relax warranty requirements / aesthetic expectations
2. Include storage space in first estimates
3. Perform a salvage assessment
4. Don't forget the forgotten scopes

1.7 PRODUCT WARRANTIES

- A. The General Conditions require all items to be guaranteed for a period of at least one year.
 1. Guarantees for more than one year required by individual Specification Sections require a separate written Guarantee form by Contractor.

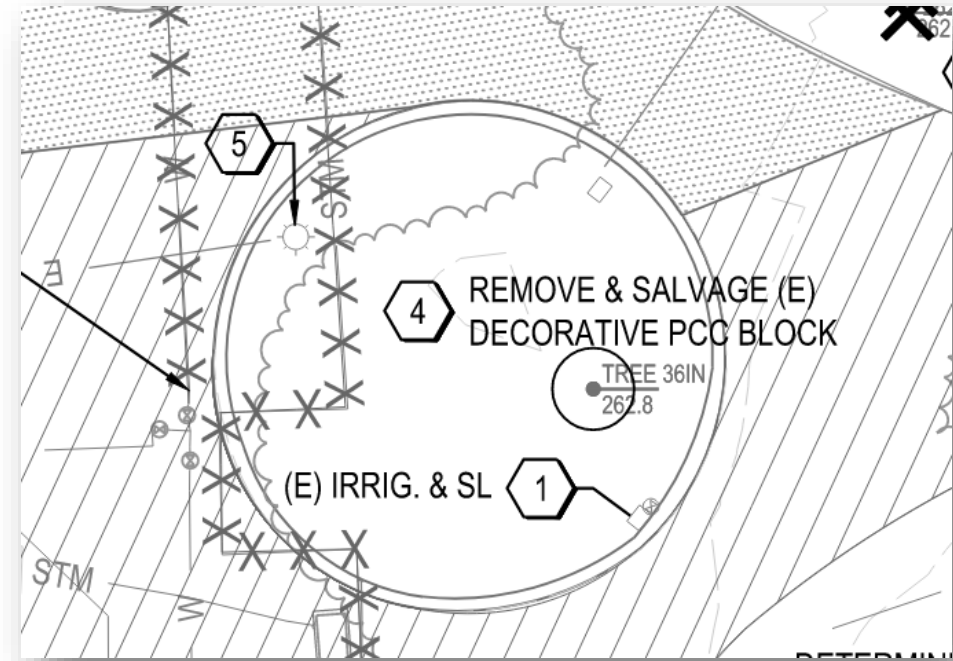
INCORPORATION INTO NEW PROJECTS

- 1. Relax warranty requirements / aesthetic expectations
- 2. Include storage space in first estimates
- 3. Perform a salvage assessment
- 4. Don't forget the forgotten scopes

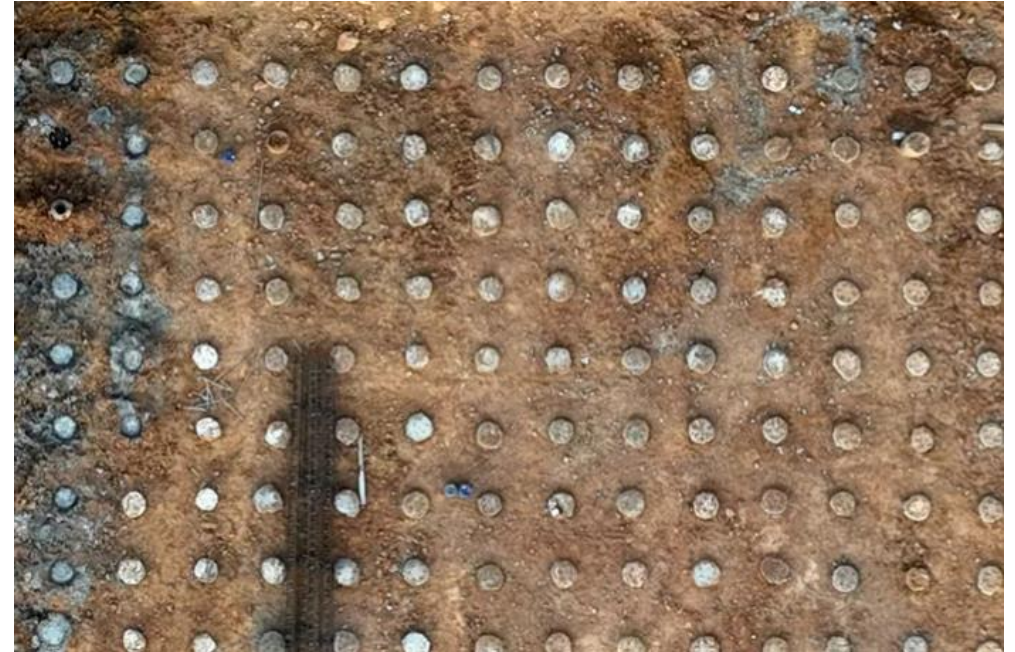


INCORPORATION INTO NEW PROJECTS

1. Relax warranty requirements / aesthetic expectations
2. Include storage space in first estimates
- 3. Perform a salvage assessment**
4. Don't forget the forgotten scopes



1. Relax warranty requirements / aesthetic expectations
2. Include storage space in first estimates
3. Perform a salvage assessment
4. **Don't forget the forgotten scopes**



<https://darkhorsemetals.com/blogs/news/sustainability-in-deep-foundations-embracing-the-circular-economy>

MAXIMIZING SALVAGEABILITY



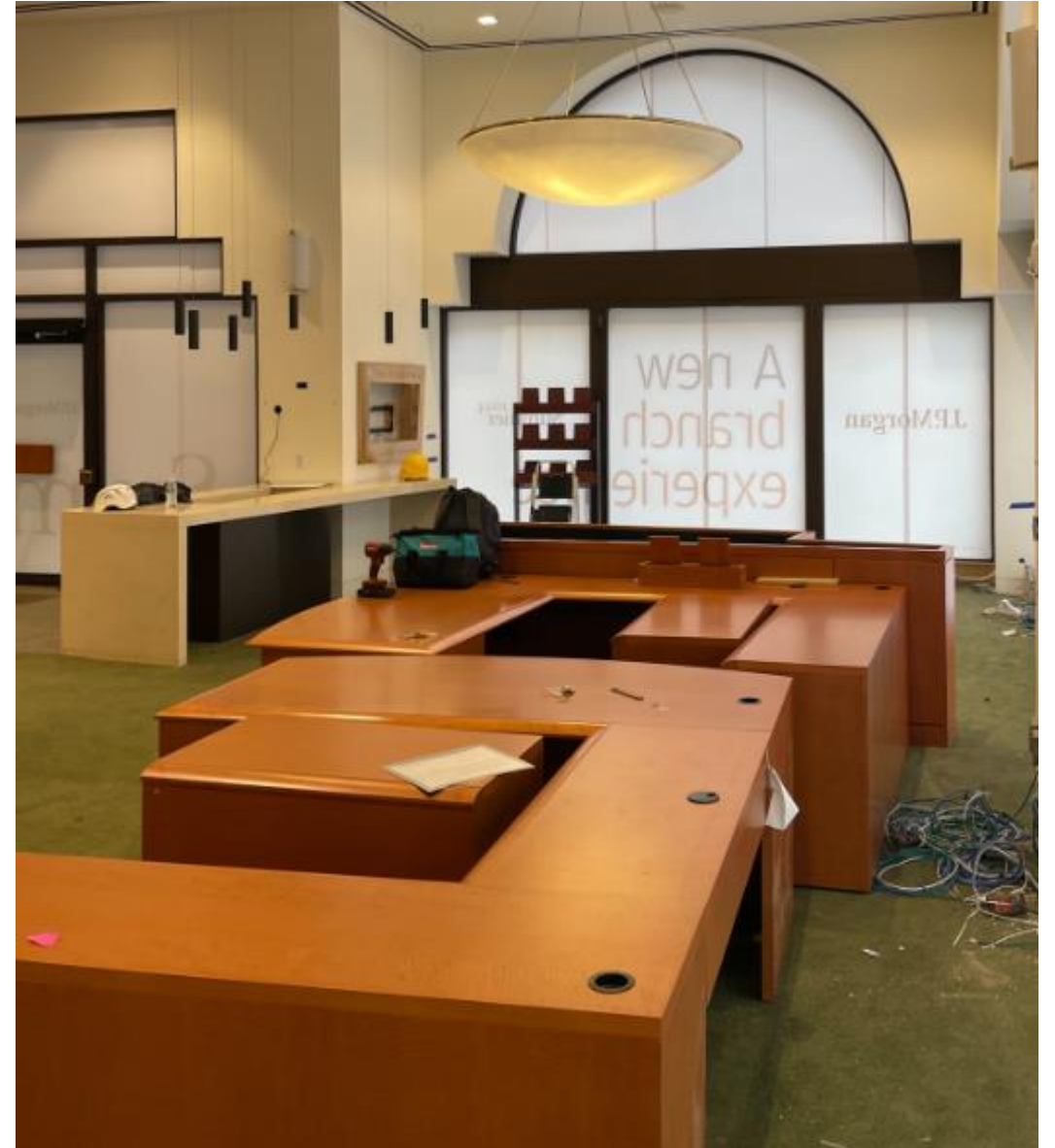
1. Client engagement

1. *Project goals*
2. *End use*
3. *Location*

2. Salvage / deconstruction professional collaboration

1. *Reuse market*
2. *Alignment with client goals*

Early... Earlier... NOW!



1. Detailed Scopes of Work, considering:

1. *Disassembly*
2. *Storage*
3. *Transport*
4. *Delivery to end user*
5. *On-site labor requirements – union vs non-union*
6. *Project required documentation*





Brett Stuckey
Regional Sustainability Manager
bstuckey@tcco.com



Emi LaFountain *LEED for Homes AP, WELL AP*
Sustainability Strategy Manager
klafountain@tcco.com





WEBCOR

SUSTAINABILITY

BUILDING SOLUTIONS. BETTERING LIVES.

Bay Area Deconstruction Working Group

Nov 21, 2024

CCC Administration Building

Demo & Renovation

- **TRUE Zero Waste for Construction Gold Certified**; Tracking LEED v4/v4.1 Gold/ Platinum
- Demolition of existing administration tower and jail block.
- Only part of reuse strategy was identified in the base scope. Additional salvage / reuse potential identified later and incorporated by change orders.
- Partial salvage/donation of some other items in the existing building was completed by the owner.
- **2,253** tons of concrete waste sent to ABM, where it was ground into aggregate base material. This material was then used as basement backfill for the new building, closing the loop on waste management.



CCC Administration Building Demo & Renovation

Reuse process:

- **Tour existing** building with design team and demo contractor to identify materials for salvage and re-use.
- **Salvage, palletize/stack & store** materials
- GC communicate available material, **quantity and sizes** to design team
- **Design team creates** design & documents in construction documents with re-used materials incorporated
- **ASTM** Testing of material required to ensure installation method can handle weight of the material.





Before | Marble Tile Wall & Floor at Lobby



Before | Marble Wall Tiles



Salvage | Marble Wall Tiles



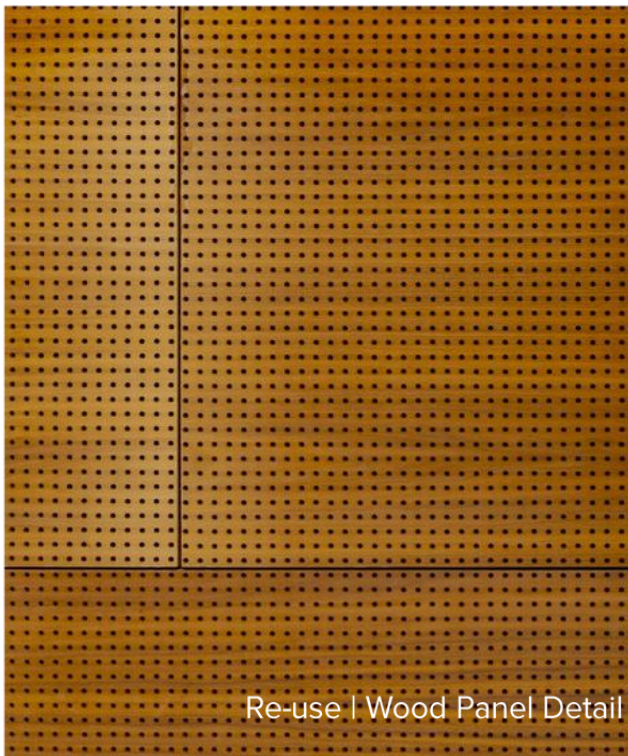
Re-use | Marble Tile Wall & Seal at Administration Building Upper-Level Lobby



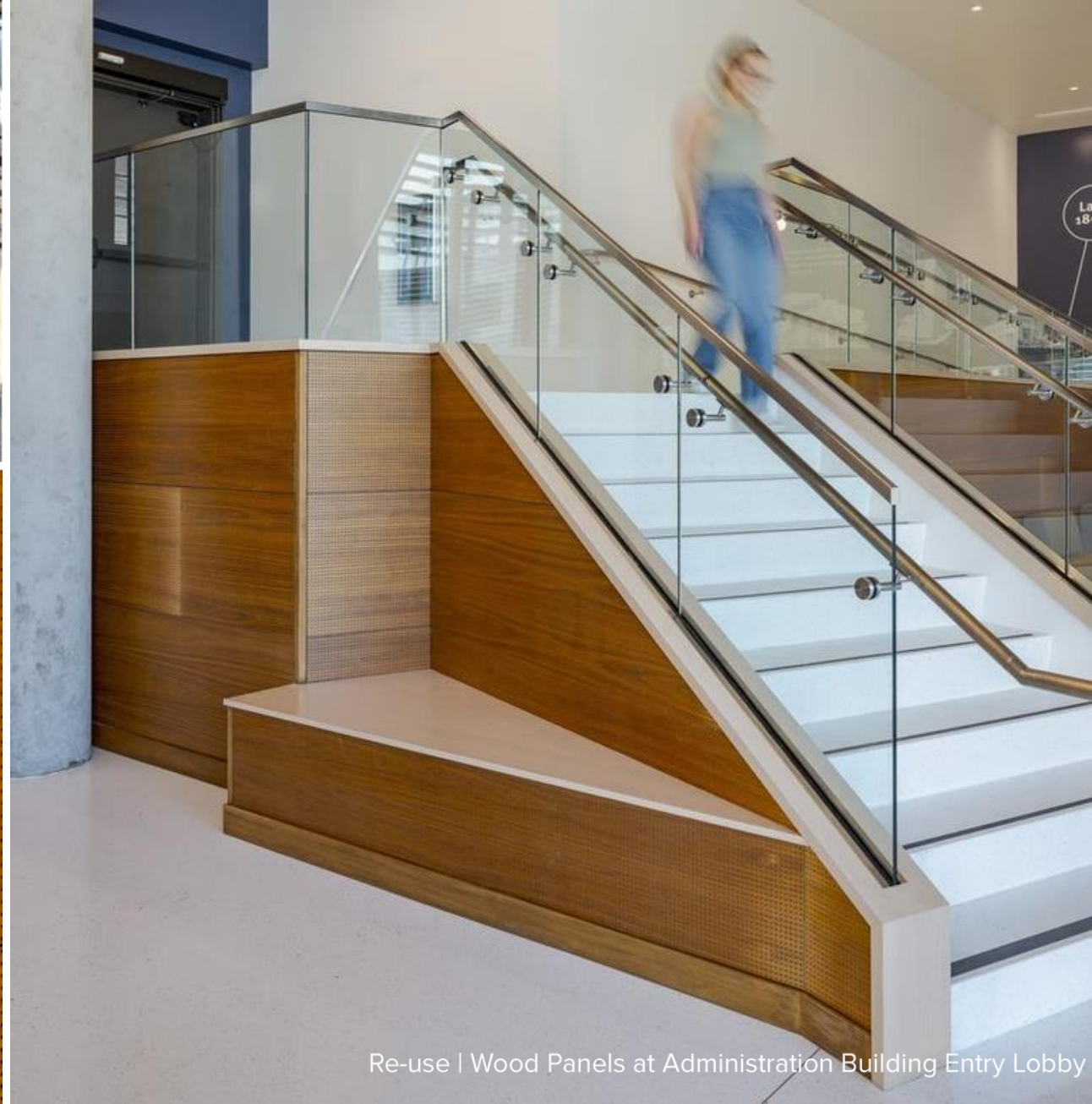
Before | Wood Panels @ Chambers



Salvage | Wood Panels



Re-use | Wood Panel Detail



Re-use | Wood Panels at Administration Building Entry Lobby



Before | Granite Exterior at Jail



Re-use | Granite Carved Blocks



Refurbishment | Granite Blocks to Pavers



Re-use | Granite Blocks (Walls) and Refurbished Granite Pavers at Jail History Plaza

Newark Civic Center

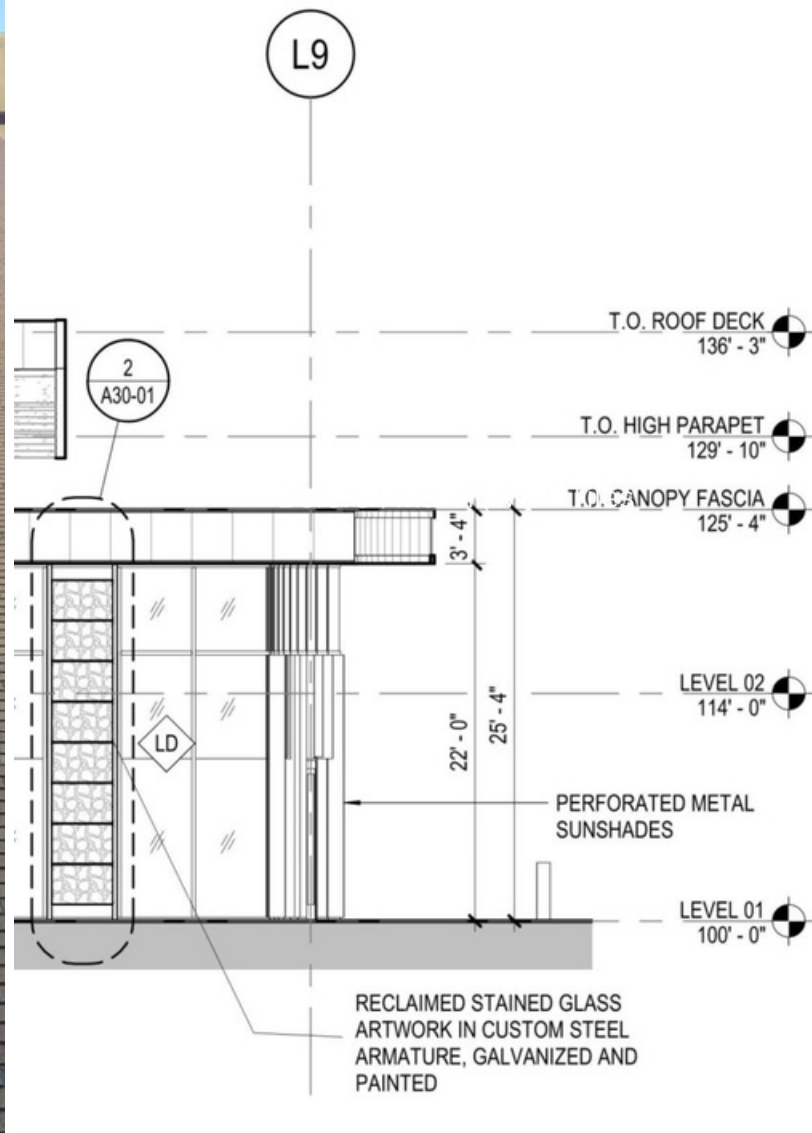
Stained Glass Re-Use

- **LEED** Silver Certified
- Existing **Stained Glass** panels at tower were salvaged prior to demolition for incorporation into the three new buildings.
- By locating the panels will access to both indoor and outdoor **light**, the original vibrant colors can now be seen and enhance the **history of development** on the site.





Before | Stained Glass at Tower



Design | Installation at Exterior



Re-use | Stained Glass at City Hall Entry Lobby

Confidential Tech Client

Piles to Tables

- **LEED** Gold Certified
- Existing **Transbay Wood Piles** were excavated at the new Transbay Terminal site. After being mostly submerged in water, once removed, they were made available for pick-up and re-use.
- A **local furniture designer** selected some of the piles, picked them up and stored them at a leased warehouse.
- As part of the furniture package for client, **custom wood tables and conference tables** were made from the **re-used wood piles** for the new building.





Salvage | Hauling Off-Site



Before | Wood Pile Excavation



Re-use | Wood Table Detail



Re-use | Wood Conference Table

Confidential Tech Client

Historic Façade Salvage for Future Reuse

- Portion of a wall in a **historic building (façade)** were salvaged and transported to an off-site location for future reuse.
- Part of **AHJ requirements** for the proposed development.
- Subcontracted to a **house-mover**
- Preservation architect provided guidance.
- Carried in the initial budget as an **allowance**.



Challenges to Reuse

- For any demo, salvage assessment is must – ideally at the design stage. Educating owners on cost, carbon, schedule, technical and aesthetic considerations of reuse.
- Develop template for procuring/bidding salvage assessment and/or deconstruction services.
- Adding requirements to **RFP** is best to ensure cost and schedule impact are considered.
- May not know exactly what you will get; process can become **iterative** with the design team; mini **design-assist** scope.
- If salvage, fabrication, transport and installation are by different orgs, it can get expensive and complicated, ultimately causing delays.
- **Storage** can be a barrier due to cost and logistics. For off-site storage, review insurance req.
- For donation, might be difficult to get small orgs prequal-ed. A service to salvage and identify/coordinate donation would be useful.





WEBCOR

SUSTAINABILITY



KAVITA KARMARKAR

kavita@webcor.com

**Project Manager,
Sustainability**

BUILDING SOLUTIONS. BETTERING LIVES.



SARAH REGE

sarah.rege@webcor.com

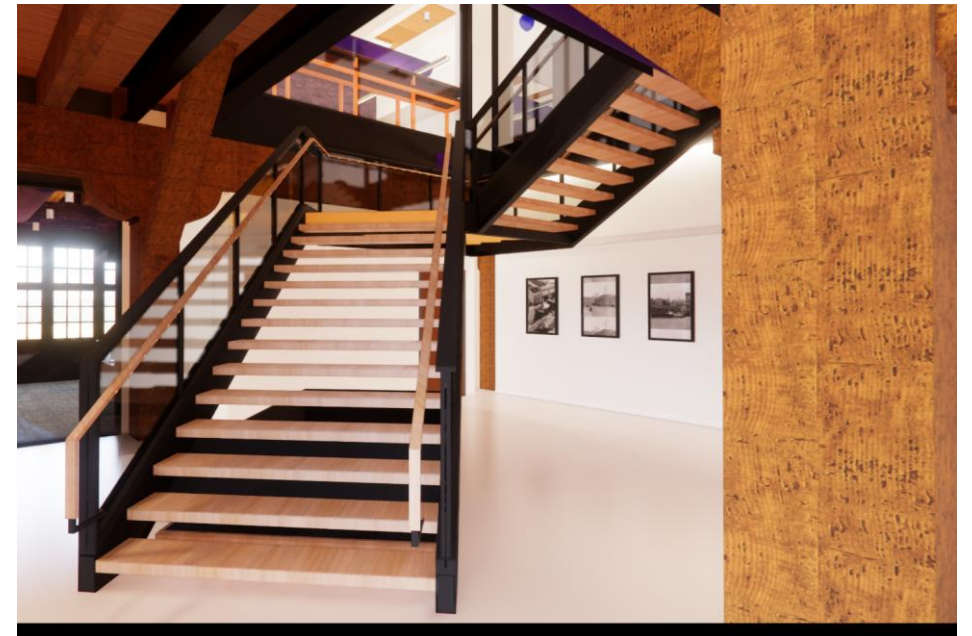
Sr. Director, Sustainability

**Thank You!
Contact Us**



Bay Area Deconstruction Working Group

HOW DO WE GO FROM...



'SHOWPIECE' SALVAGE

OR 'STARS ALIGNING' SALVAGE TO...



A vibrant display of green and yellow fireworks exploding against a black night sky. The fireworks are in various stages of explosion, creating a dense and colorful pattern of light. The colors range from bright green to a golden yellow, with some trails of light visible. The overall effect is a dynamic and celebratory scene.

SCALING REUSE!

FIRST, A PRIMER ON THINGS I'VE LEARNED BEING A GC

PRIORITIES

- Deliver the project within budget
- Deliver the project on time
- Meet required quality standards

CONSTRUCTION DELIVERY METHODS

- Traditional (Design-Bid-Build)
- Design Build
- CM, CM/GC, CMAR

STEPS TO BUYOUT/PROCUREMENT

- 1) Drawings/ Specifications
- 2) GCs Estimate and Bid on Project
- 3) GC Selection/ Award
- 4) Subcontractor Bid Solicitation/ Buyout
- 5) Submittals Process
- 6) Subs Issue POs
- 7) Material Delivery
- 8) Installation
- 9) Final Inspection

KEYS FOR REUSE TO HAPPEN 'AT SCALE'



- Plan for reuse upfront
- Put into drawings and documents, or it won't happen
- Involve GC early
- Buy-in from Owner, Architect, Contractor, and CM!
- Plan for proper storage and handling
- Align material delivery w/ construction schedule
- More likely to be successful in negotiated bid/ design-build versus hard bid (soliciting bids from multiple GCs and choosing lowest)

PERSPECTIVE SHIFTS

Sell for a GC


- Cost savings?
- Shorter lead times?
- Ability to avoid supply chain disruptions?
- Waste reduction?

+ Tips From a True Believer...

- Contractors have access to materials
- Contractors with similar clients can make matches
- Architects should partner with likeminded contractors to present approaches to clients
- More you do it, more you get familiar with it
- Must give contractor a reason to do it
- Full service end-to-end reclaimed materials suppliers = quantity, consistency, refurbish, re-warranty



QUESTIONS?



*Thank you for your
important work to scale
up reuse!*

Dec. 12, 2024 (10-12 PT)

**Next Bay Area
Deconstruction Workgroup
Meeting**

Codes and Compliance

<https://www.stopwaste.org/BADWG>

Contact Annika Sial at annika.sial@sfgov.org
to be added to the invite list