PATHWAY TO ENABLE MORE BUILDING MATERIAL REUSE & DECONSTRUCTION IN MA

MASSDEP DECONSTRUCTION WORKGROUP

MEETING #6

JANUARY 17, 2024

HOUSEKEEPING

- This meeting is being recorded
- Using zoom/chat
- Ground rules

HOW THIS GOT STARTED

2030 Solid Waste Master Plan

Reduce & Reuse Working Group

Reduce & Reuse **Action Plan**

December 2021

Deconstruction Working Group

September 2022 Kick-Off

MEET THE PLANNING TEAM

Christine Beling
US EPA Region 1

Susan Cascino
City of Boston

Mike Elliott
MassDEP C&D Lead

Alison Frazee
Boston Preservation Alliance

Kristen Fritsch
Elkus Manfredi Architects

Pam Howland
Old Window Workshop

Abbey Massaro
Center for Ecotechnology

Kathi Mirza
MassDEP

Michael Orbank:
STO Building Group,
Carbon Leadership Forum

Janice Pare
MassDEP

Randy Scott
Select Demo Services

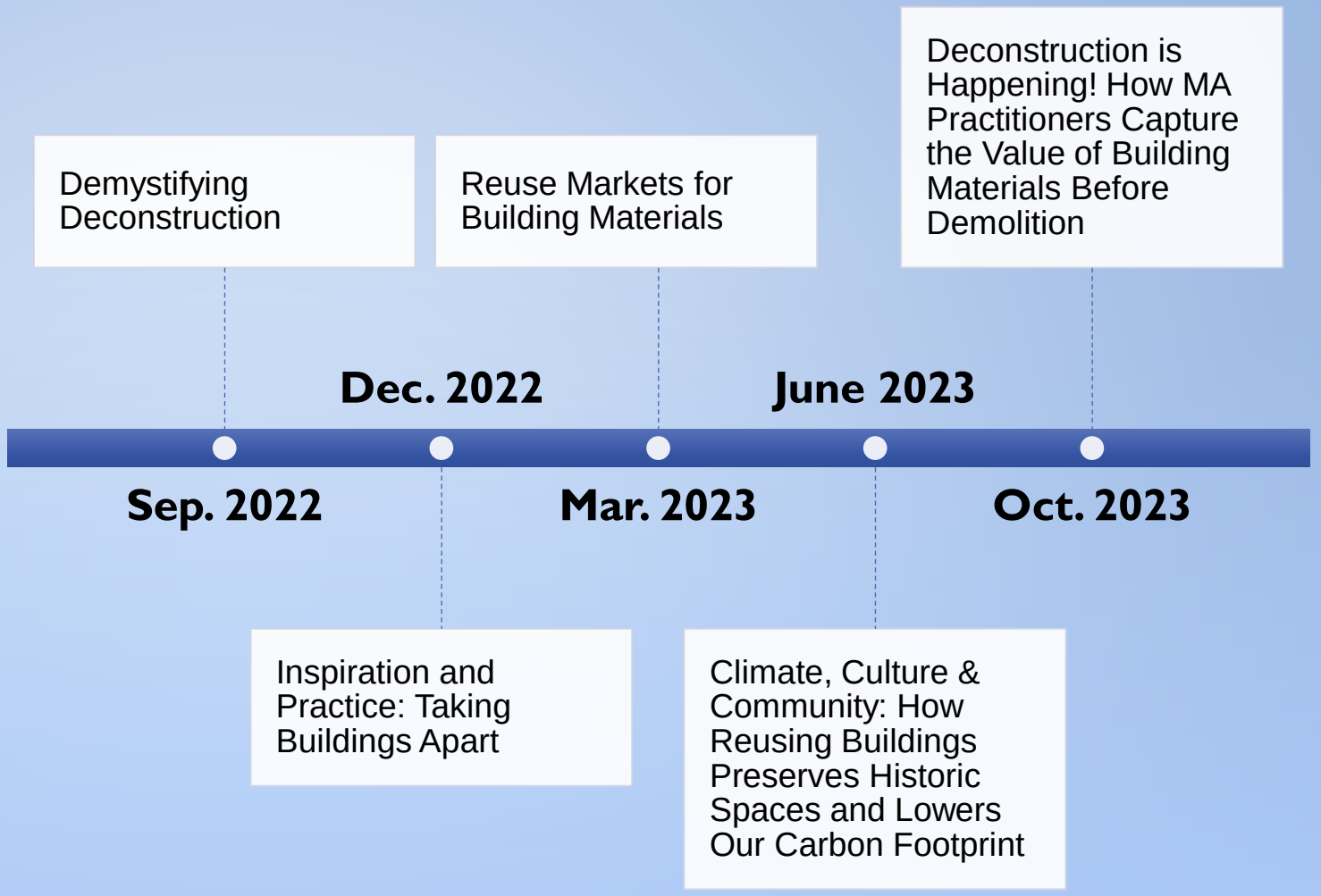
GOALS FOR THIS DECONSTRUCTION WORKGROUP

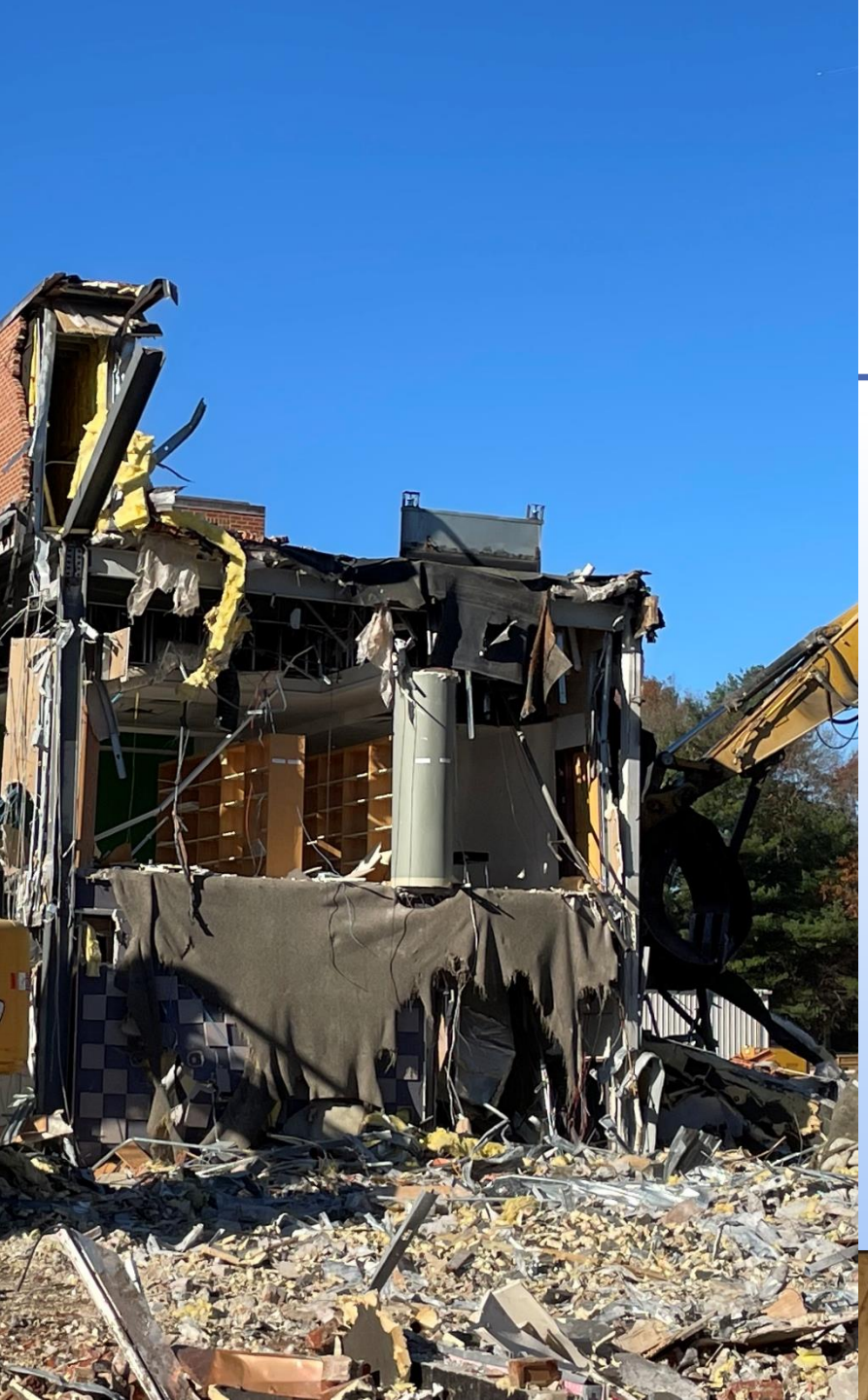
- Increase awareness about our waste disposal crisis
- Grow the Reuse Industry in MA for valuable building materials
- Connect stakeholders and share ideas
- Align with MassDEP's R&R Action Plan
- Reduce climate impacts
- Enable Job Training and Workforce Development
- Support Diversity, Equity, and Inclusion

Basic Operating Principle:

Work for the greater good, collaborate, include all stakeholders

PREVIOUS MEETINGS





SEPTEMBER 2022 KICK-OFF MEETING:
DEMYSTIFYING DECONSTRUCTION

A FEW HIGHLIGHTS

- **30% of ALL discarded materials in MA are from C&D activities**. We dispose of ~1.6M tons of C&D annually- goal is to reduce by 260K tons by 2030.
- **Embodied Carbon** in the built environment comes from emissions from extraction, manufacturing, transportation, installation, maintenance, and disposal of materials.
- As buildings become more energy efficient, an **estimated 49% of GHG emissions from buildings built between 2020-2050 will be from embodied carbon** as operational emissions fall.
- Mandatory **deconstruction ordinances**, executive orders, incentives, plans, and advisory groups are popping up all over the US and Canada.
- **What is needed to enable more reuse in this sector**: understanding benefits, technologies, training opportunities, partnerships and assistance.

DECEMBER 2022 MEETING:
INSPIRATION AND PRACTICE: TAKING BUILDINGS APART

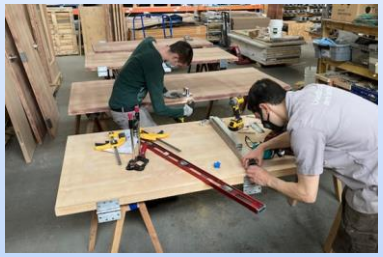
A FEW TAKEAWAYS

- **Demolition of one American home** that is 2400 sq. ft is **equivalent to a lifetime's worth of trash** for one individual (~120,000 lbs.)
- **25+ categories of materials can be captured for reuse**, such as: doors, windows, hardware, lumber, HVAC, flooring, roofing, cabinets, appliances & landscaping
- Experience with deconstruction demonstrates what is possible:
  - **>60% of a house can go to reuse**
  - 34% to recycling and
  - 5% for disposal as trash
- Deconstruction supports **green collar jobs**: some Oregon jurisdictions employ inner city youth, homeless veterans, and previously incarcerated.
- The future includes **Design for Disassembly**: Photo shown-> 99% saved for reuse!
- A trained workforce can deconstruct a house on a **cost-competitive** basis, **reduce toxins**, reduce waste, and **help low-income and cost-conscious renovators**.

Information courtesy of The Building Deconstruction Institute/Dave Bennink, and Erich Kruger/Dave Giese from Deconstruction Works

MARCH 2023 MEETING:
REUSE MARKETS FOR BUILDING MATERIALS

A FEW HIGHLIGHTS

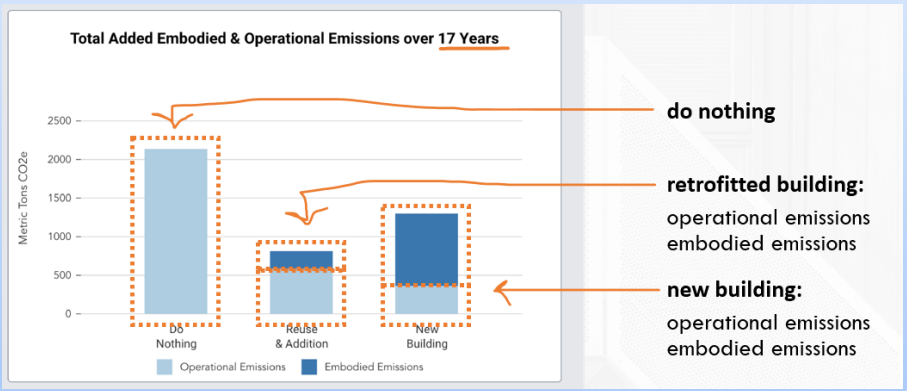


Photos courtesy of EcoBuilding Bargains/CET, Boston Building Resources, and Doors Unhinged

Presentations:

- **EcoBuilding Bargains** (Springfield, MA)
  - Diverts >300 TPY from landfill and serves 300+ contractors
  - Cabinetry, countertops, sinks, bathroom fixtures, doors, light fixtures, hardware, architectural salvage, surplus building materials + more.
  - Free site visit and pick-up service from job site
- **Boston Building Resources** (Boston, MA)
  - Process and resell donated building materials valued at more than $2mil / year
  - ~75% of sales to low- and moderate-income Members, who pay a lower price than the general public. Serves both individuals and residential contractors. Educational workshops
  - Major Product Categories: Windows and Doors, Lighting, Kitchen Cabinets, Plumbing
  - Supply is endless, Demand matters.
  - Market is growing at a rate of 15%+ annually
- **Doors Unhinged** (Pittsburgh, PA)
  - Target reclaimed commercial doors, frames, and hardware
  - 99% reduction in embodied carbon by using reclaimed materials
  - COMMERCIAL: infinite supply but need to grow demand
  - ALL FOR REUSE: Buy Reclaimed Initiative for commercial interior materials
  - Reuse ecosystem, incubation model, procurement standards open up $$

- Quality goods require quality deconstruction (and space!)
- Mindset changes are needed: “Waste is a lack of creativity”



JUNE 2023

CLIMATE, CULTURE, AND COMMUNITY:

HOW REUSING BUILDINGS PRESERVES HISTORIC SPACES AND LOWERS OUR CARBON FOOTPRINT

A FEW HIGHLIGHTS

Presentations:

Alison Frazee, Boston Preservation Alliance

- The greenest building is the one that already exists.
- Building reuse is climate action.
- NOAH: Naturally Occurring Affordable Housing

Jennifer Doherty, MA Historical Commission

- Demolition Delays and Historic Rehabilitation Tax Credits
- Demolition Delays = Pause in the demo process to consider alternatives.
- Local historical commission can choose to delay: 159 communities across the Commonwealth have adopted a demolition delay bylaw or ordinance. MHC has sample bylaw/ordinance.

Erin McDade, Architecture 2030–CARE Tool

- By 2040, embodied carbon will represent a larger carbon footprint than operational carbon.
- Within urban environments, existing buildings are responsible for a majority of emissions (Boston ~73%)
- CARE tool evaluates total carbon emissions and impact potential of existing building reuse compared to replacement new construction.
- The greenest building is the one that's been retrofitted.

Alyssa Frystak, Place Economics

- Historic preservation is economic development (job growth, small businesses, property values).
- Rehabilitation creates value, supports housing and affordability.
- Deconstruction= jobs multiplier (on site, appraisal, value-added manufacturing, warehouse, job training)
- Deconstruction = income multiplier (shifts project $$ to labor when compared with demo)

Photos courtesy of MA Historical Commission, Architecture 2030, and Place Economics

OCTOBER 2023

DECONSTRUCTION IS HAPPENING!

HOW MA PRACTITIONERS CAPTURE THE VALUE OF BUILDING MATERIALS BEFORE DEMOLITION

A FEW HIGHLIGHTS

Presentations

Peter Serafino, Home City Development, Inc. (Springfield, MA)

- Not for profit developer of affordable housing
- Elias Brookings Apartments: school built in 1925, closed in 2011
- In 2020, emptied building of books, lockers, desks, chairs, cabinets, computers, TVs, school supplies
- Furniture and educational materials donated to > 20 orgs, 23+ tons recycled (metal, books, cardboard, electronics)
- Renovated into 42 affordable rental apartments

Kristen Fritsch, Elkus-Manfredi Architects

- Simmons University Science Building: Waste Prevention in Design
- 2022: Technical assistance from RecyclingWorks, walk through with reuse orgs + volunteer event for household goods
- Seeding labs, takeback programs for carpet and ceiling tiles, tracking for LEED
  - 17 organizations removed reusable items
  - 12.2 tons diverted from landfill
  - 125+ furniture pieces reused in offices and to furnish apartments for newly housed people
  - 300+ lbs. of lab-specific glassware reused

Dan Costello, Costello Dismantling Inc.

- Deconstructing 22 Drydock Ave., Boston Seaport area
- NEED TO HAVE: salvageable building components, safe/efficient work practice for recovering materials, time in contract for decon, space
- LEED platinum project: materials recycling protocols plus salvage of architectural artifacts
- Heavy timber framing- used high reach excavator with rotating grapple- minimal labor exposure
- 1st step: asbestos abatement and haz mat recovery, then sequence dismantling
- Deliberate, careful source separation: bricks, concrete, high wood content C&D, ferrous and nonferrous scrap metal, mixed debris

Photos courtesy of Home City Development and Costello Dismantling

Deconstruction: Scalable Opportunities, Technical Assistance, Policy Examples

MassDEP Deconstruction Working Group
January 17, 2024

RECYCLINGWORKS MASSACHUSETTS

CET CENTER FOR ECOTECHNOLOGY

Deconstruction is Scalable

SCALE	TYPE	DEFINITION	EXAMPLES
MIN	Adaptive Reuse	Maintaining a building structure while renovating its interior for a different purpose	
INVESTMENT & IMPACT	Waste Management Plan	Document to plan for the reuse and recycling materials during a project	Nashville, TN
	Pre-Demo Clean Out	Removing items like furniture that can be donated before the project begins	
	Soft-Stripping	Recovers high value and easy to remove materials like appliances, lighting, cabinetry, and architectural items	
	Partial Deconstruction	Encompasses additional material including doors, trim, flooring, and windows	
MAX	Full Deconstruction	Salvaging all materials with value and outlets	Portland, OR
	Deconstruction Pathways	Provides menu of deconstruction types to select best fit based on a project	Boston, MA

RECYCLINGWORKS
MASSACHUSETTS

FREE ASSISTANCE FOR BUSINESSES & INSTITUTIONS

RecyclingWorks MA is funded by MassDEP, delivered under contract by the Center for EcoTechnology

CET CENTER FOR ECOTECHNOLOGY

recyclingworksma.com

MassDEP

Policies from Across the Country

Parameter	Type	Applies to Commercial Buildings	Applies to Residential Buildings	Building Size	Building Age/Project Cost	Requires Building Materials Reclamation & C&D Recycling
Cook County, IL	Ordinance	Yes	Yes	All buildings with loadbearing walls	N/A	The project must recycle or divert at least 70% of the material (by weight) and reuse whenever possible
Milwaukee, WI	Ordinance	No	Yes	N/A	Covers historic structures, structures in historic districts, and buildings built before 1929	Ordinance requires 85% diversion rate
Pittsburgh, PA	Executive Order	City owned, condemned buildings	N/A	N/A	N/A	N/A
Portland, OR	Ordinance	N/A	Single family homes and duplexes	N/A	Built before 1940	N/A
San Antonio, TX	Ordinance	N/A	All small-scale residential structures	N/A	Built on or before December 31, 1920 or built on or before December 31, 1945 and located within a historic district	Requires projects to be fully deconstructed

CET CENTER FOR ECOTECHNOLOGY

Priorities and Motivations for Ordinance/Incentive/Initiative

Demolition process

Building age

Building size

Building type

Historic preservation/adaptive reuse

Identify specific materials that need to be recovered

… And more

Resources

CROWD: Local Government Policy Guide to Alternatives to Demolition through Deconstruction and Building Material Reuse

Has sample deconstruction resolution language on page 33

CET: Promoting Deconstruction

RecyclingWorks Blog: Simmons University's Deconstruction Project: A Timeline for Success

RecyclingWorks Blog: Building Up Deconstruction

RecyclingWorks Guidance: Construction & Demolition Materials

MassDEP: Overview of Statewide Bulky Waste Characterization Study and Final Report

Found that materials could have been captured upstream (at the job site/point of generation) for reuse

Carbon Avoided Retrofit Estimator: CARE Tool

Compare the total carbon impact of renovating an existing building vs. replacing it with a new one

Thank You!

Abbey Massaro
Waste Reduction Consultant
Abbey.Massaro@cetonline.org

RecyclingWorks Hotline
(888) 254-5525
Info@RecyclingWorksMA.com
www.recyclingworksma.com

DECONSTRUCTION

A Zero Waste Boston Initiative

CITY OF BOSTON

DECONSTRUCTION

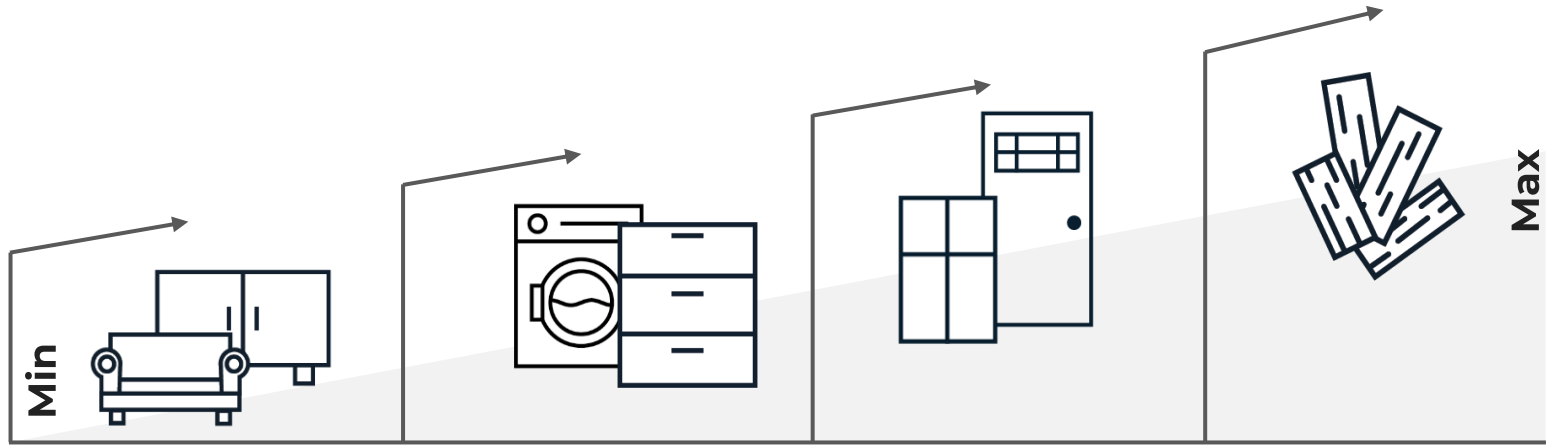
Pathways

PRESERVATION & ADAPTIVE REUSE

The reuse of a building for its original or different purpose

WASTE MANAGEMENT PLAN

Planning for reuse and recycling materials throughout the project.



PRE-DEMO CLEANOUT

Removing items like furniture that can be donated before the project begins.

SOFT-STRIPPING

Easy-to-capture and high value materials like appliances, cabinetry, and architectural items.

HYBRID

Additional material including flooring, windows, and doors.

FULL DECONSTRUCTION

Salvaging all wood and valuable materials.

Min → **Scale:** investment & impact → **Max**

PARTNERSHIP

Deconstruction Pilot

Zero Waste Boston, in partnership with RecyclingWorks MA, is providing developers free technical assistance for deconstruction. RecyclingWorks MA is a free recycling assistance program for businesses and institutions looking to recycle and reduce their waste. RecyclingWorks MA is funded by the Massachusetts Department of Environmental Protection.

FREE TECHNICAL ASSISTANCE:

- Reuse, recycling, and waste management planning
- Outlet for salvage materials
- Onsite assessment with local reuse organizations
- Identifying deconstruction crews
- Sorting equipment planning
- Training recommendations for staff
- Customizable signage for sorting procedures
- Material tracking templates

Deconstruction Projects

2022-3

- Simmons University Science Lab
- Midtown Hotel and One Cumberland
- Bunker Hill Redevelopment
- Renew Boston Trust Energy retrofit

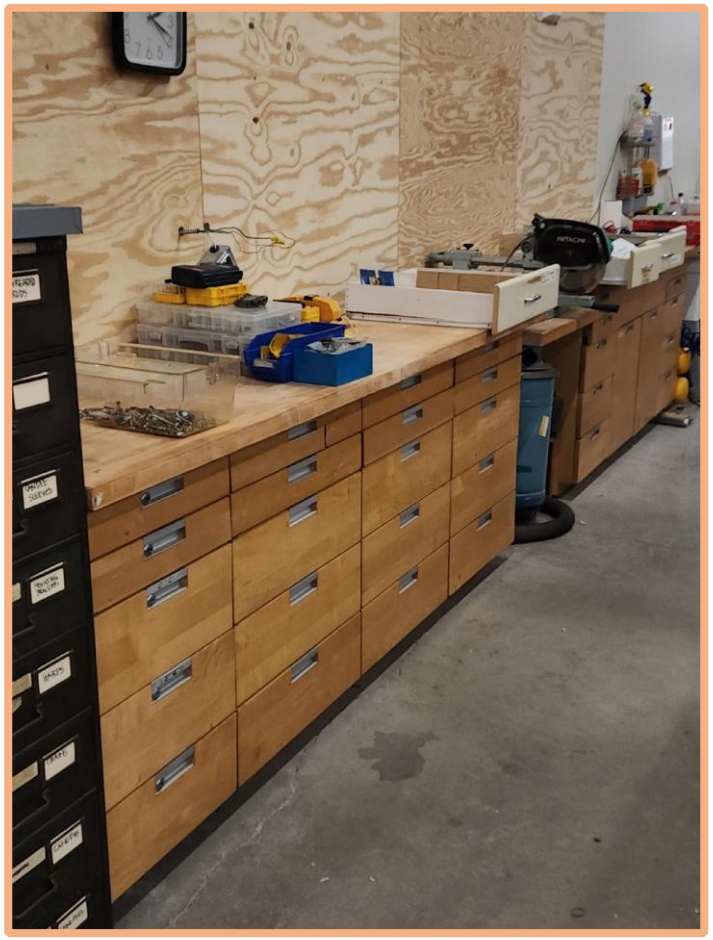
City Tree reuse

160-room hotel

7-unit building

Simmons University

Reuse of Science Building Assets



4-story building with labs and classrooms. Cabinet reuse.

Good Deconstruction Candidates

LEED C&D Waste Management Credits

- LEED C&D waste management credits
- Building has salvage opportunity
- Developer who is interested and would be a good partner

Greenough Barn

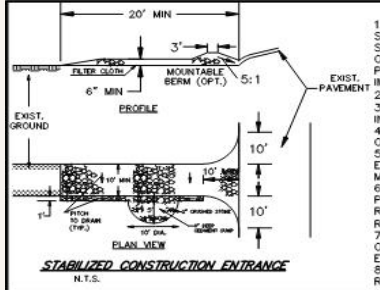
Slate Roofing Tiles

Slate roofing tiles from the barn should be salvaged.

The slate has a commercial value and the town could generate funds from the sale of the slate.

Post & Beam Barn Frame

Horse Stalls

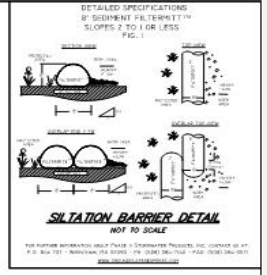


STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

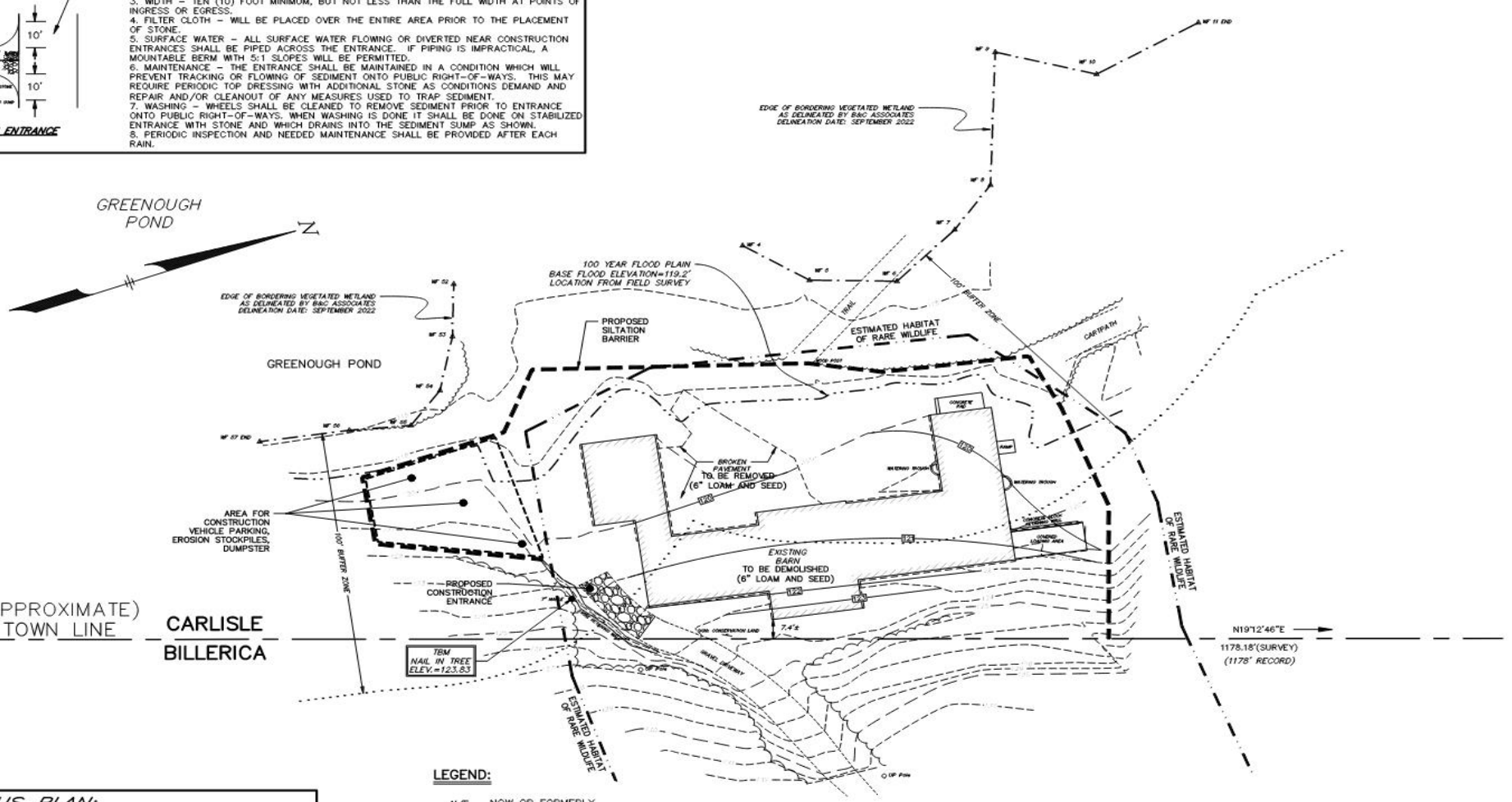
CONSTRUCTION SPECIFICATIONS

1. THE ENTRANCE OF THE PROPOSED DRIVEWAY SHALL INITIALLY HAVE 6" OF 2" CRUSHED STONE LAID DOWN AS A TRAFFIC SEDIMENT CONTROL SURFACE AS SHOWN IN THE STABILIZED CONSTRUCTION ENTRANCE DETAIL. THIS STONE PACK SHALL BE PLACED OVER THE DRIVEWAY FOR A MINIMUM DISTANCE OF 20 FEET FROM THE EDGE OF PAVEMENT AND SHALL BE REMOVED AND REPLACED WITH ROADWAY GRAVEL IMMEDIATELY PRIOR TO THE PLACEMENT OF PAVEMENT.
2. STONE SIZE – USE 2" CRUSHED STONE.
3. WIDTH – TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS OF INGRESS OR EGRESS.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACEMENT OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED NEAR CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
7. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS DONE IT SHALL BE DONE ON STABILIZED ENTRANCE WITH STONE AND WHICH DRAINS INTO THE SEDIMENT SUMP AS SHOWN.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



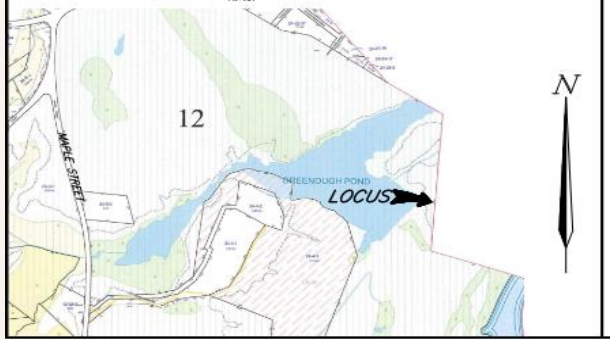
SILTATION BARRIER DETAIL

NOT TO SCALE



LOCUS PLAN:

N.T.S.



LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG•	GAS GATE
G	GAS SERVICE (BURIED)
WG•	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
120	EXISTING CONTOUR
122	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT
TBR	TO BE REMOVED
191.00	PROPOSED SPOT GRADE
×100.5	EXISTING SPOT GRADE

DATUM

N.A.V.D OF 1988.

NOTES:

1. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION OR REPAIRING. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN. SEE CHAPTER 370, ACTS OF 1963 MASS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS THE APPROPRIATE PUBLIC UTILITY ENGINEERING DEPARTMENT MUST BE CONSULTED. DIG SAFE TELEPHONE No. 1-888-344-7233.
2. THERE SHALL BE NO CHANGE IN GRADE IN THE 100 YEAR FLOODPLAIN.

WETLAND PERMITTING PLAN
IN
CARLISLE, MASSACHUSETTS
(MIDDLESEX COUNTY)

FOR: TOWN OF CARLISLE
SCALE: 1"=20' OCTOBER 31, 2022
REV: JANUARY 11, 2023 (LIMIT OF WORK)

STAMSKI AND MCNARY, INC.
1000 MAIN STREET ACTON, MASSACHUSETTS
ENGINEERING – PLANNING – SURVEYING

GEORGE DIMAKARAKOS CIVIL No. 41287 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

0 10 20 40 60 80 FT

(5458 WPP.dwg) Greenough Pond SM-5458

Waste Management Plan Template

Project:

Designated Recycling Coordinator: (blank)

Waste Management Goals:

- ❑ This project must recycle or salvage for reuse [**approximately 50%**] (non-haz) by weight of the waste generated on-site.

Communication Plan:

- ❑ Waste recycling activities will be discussed at the beginning of each activity, including communication with all trucking venders, personnel, equipment operators.
- ❑ As each new subcontractor, vender comes on-site, the recycling coordinator or designated representative will present him/her with a copy of the Waste Management Plan and provide a tour of the recycling areas prior to transportation.
- ❑ The supervisor will insure all debris is separated into the appropriate waste streams for proper transportation to the appropriate recycling or waste facility.
- ❑ subcontractor and venders will be expected to make sure all their crews comply with the Waste Management Plans and coordinated daily.
- ❑ All recycling containers for metals and debris will be clearly labeled and debris piles will be neatly monitored and controlled.
- ❑ Lists of acceptable/unacceptable recyclable materials will be posted throughout the site and coordinated with operators, labor, venders, and subcontractors.
- ❑ All debris loading, trucking will be monitored moment by moment to insure compliance.

Expected Project Waste, Disposal, and Handling:

The following chart identifies waste materials generated on this project, their disposal method, and handling procedures. ***Please be advised, these calculations are for informational purposes and are subject to change.***

Recycling chart

Material	Quantity	Disposal Method	Handling Procedure

- **The above chart showing 50 % recycling must be met with this contract**
- **All documentation must be provided upon completion.**

Completed Waste Management Plan

Project: Greenough Barn

Designated Recycling Coordinator: Town of Carlisle

Waste Management Goals:

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Completed Waste Management Plan Cont.

Recycling chart

Material	Quantity	Disposal Method	Handling Procedure
Concrete, Masonry, CMU	150 tons	Will be recycled as needed by end user for reuse on site or road base	Reuse as processed material – on or off site
Post & Beam Structure	7 tons	Will be dismantled and reassembled by others	Building to be carefully dissemble in orderly fashion, then stacked on trailer for shipping..
Ferrous and non- ferrous metals	1 Tons	Transferred to a recycler	Will be separated and placed into dumpsters clearly marked for metal, recycling. I.e. iron, #1, #2 HTH, various soft metals.
Non-recyclable Materials	175 tons	Comingled / landfill	Dispose in "C&D" dumpsters
Slate roof	13 tons	Salvaged and re used	Carefully remove and stacked in bins, to be shipped off site

- **The above chart showing 50 % recycling must be met with this contract**
- **All documentation must be provided upon completion.**

Estimated Barn Weight
-Wood/structure above concrete 348,000 lbs / 487 cubic yards
- Concrete – slabs, foundation walls, footings / 340,000 lbs / 148 cubic yards
Overall total – 688,000 lbs / 635 cubic yards

Diversion
Concrete – approx. 45% by weight
Post & beam structure approx. 1% by weight
Ferrous & non ferrous metals 2,000 lbs approx .1% by volume
Slate roof approx. 26,000 lbs 1% by weight

In most cases on modern structures, we attempt to achieve a recycling rate of 90%
And in most cases, they will require a minimum of 75%
But due to the age and build out of this structure (mostly painted wood, plaster and the fact there is no structural steel- which carries a lot of weight when you're looking for higher diversion rates), the real recycling is in the concrete and salvage.

Estimated value of recycled materials
Post & Beam structure after being dismantle $15,000.00
Slate- after being removed - $5,000.00
Concrete- if crushed can produce net $3.00 per ton

Recapping Deconstruction Group Meetings

MassDEP Deconstruction and Reuse Working Group

Michael Orbank – Sustainability Manager, Structure Tone

CLF Carbon Leadership Forum Boston

STRUCTURE TONE

Recap: Previous Meeting Topics

- Why Deconstruction?
  - MassDEP Solid Waste Masterplan
  - Carbon impacts of C&D waste
- Material Reuse
  - What is possible now?
  - What does “better” look like, and how do we get there?
- Policy Movement
  - Deconstruction ordinances
  - Demolition delays
- Incentivizing Circularity
  - Carrot Vs. Stick
  - Grants, tax breaks, funding opportunities
- Circularity + _____ = Success
  - Historic preservation
  - Technology

What's The Point of It All?

Waste Reduction and Diversion

- Meeting Mass DEP masterplan goals
- Reducing waste burden and landfilled waste

Carbon/Environmental Impact

- Keeping embodied carbon within built environment
- Reducing carbon intensity and meeting climate goals

Economic Development

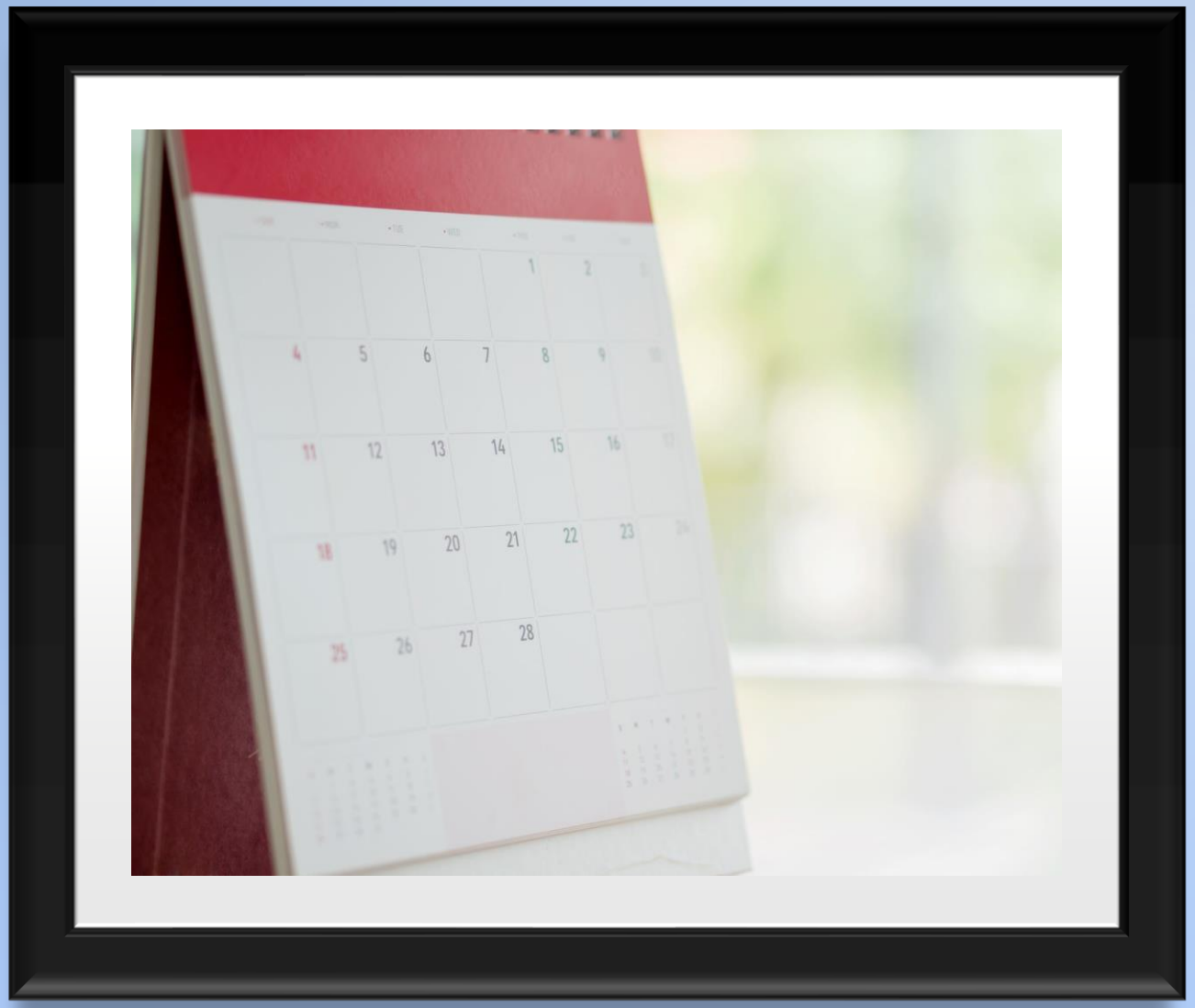
- Supporting regional and community circular economies
- Workforce training for deconstruction

Historic Preservation

- Preserving historic significance and importance
- Enabling adaptive reuse

Next Steps and Q&A

- MassDEP Deconstruction Group – 2024 Charette/Workshop Series
- Live Group Q+A
  - What are your major roadblocks in enacting or pursuing circular reuse policies?
  - What additional information or resources would help move the needle?
  - How else can this group help advance deconstruction and reuse in MA?
  - Do you plan on attending the 2024 Charette/Workshop series?
    - What do you want to see out of these meetings?



NEXT MEETING

Save the Date

MA Deconstruction Workgroup

April 24, 2024

Announcements:

- EBC 18th Annual Construction and Demolition Summit 1/26/2024
- Thank you and best wishes to Susan Cascino!

THANK YOU!

DECONSTRUCTION & BUILDING MATERIALS REUSE

Increase Material Supply
Create Jobs
Reduce Waste
Lower Costs
Save Energy
Preserve Value
Conserve Resources

Let's Do This... Together!

MASSDEP CONTACTS

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Kathi.Mirza@mass.gov

Janice Pare
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Reduce and Reuse Working Group

https://www.mass.gov/service-details/massdep-reduce-reuse-rr-working-group