

# Zero Net Carbon Building Zoning

*Embodied Carbon TAG #4  
Presentation / Discussion*



# Zoom Meeting Guidance

**The BPDA will record this meeting** and post it on BPDA's Zero Net Carbon Building Zoning webpage. The recording will include the presentations, discussions and a transcript of Q&A / Chat comments.

It is possible that participants may be recording this meeting as well.

**If you prefer not to be recorded during the meeting, please turn off your microphone and camera.**

# Zoom Meeting Guidance

- Help us ensure that this conversation is a pleasant experience for all.
  - Please mute your mics during the presentation to avoid background noise.
  - It's great to see you! Participant video can be on during the meeting.
  - **Use the Chat** feature for questions and comments during the presentation.
  - Use the Raise Hand feature during the discussion segment.
  - Please be respectful of each other's time.
- As always please feel free to reach out to me directly!  
John Dalzell, AIA, LEED Fellow at [John.Dalzell@Boston.gov](mailto:John.Dalzell@Boston.gov)

# COVID-19 Resources

Stay up-to-date with COVID-19 related announcements, City of Boston reopening plans, and resources for you and your community at:

[boston.gov/coronavirus](https://boston.gov/coronavirus)

The screenshot shows the City of Boston website header with the logo, Mayor Martin J. Walsh's name, and the date July 12, 2020. The main heading is "CORONAVIRUS DISEASE (COVID-19) IN BOSTON". Below the heading, there is a paragraph of text: "The state has updated guidance on the Reopening Massachusetts website. We also continue to update City-specific guidance for Boston on our reopening website." To the right of this text is a "PUBLISHED BY PUBLIC HEALTH" badge. Below the text, there are navigation links for "TOPICS", "COVID-19 UPDATES", and "LATEST PRESS CONFERENCE". Further down, it says "BOSTON (AS OF FRIDAY, JULY 10)" and "13,673 CASES | 9,683 RECOVERED". On the right side, there is a "MULTILINGUAL CONTENT" section with links for Arabic, Kriolu (Cabo Verdean), Chinese, French, Haitian Creole, Portuguese, and Russian.

# AGENDA

## REVIEW DRAFT RECOMMENDATIONS

1. Welcome and Introductions – John Dalzell (5 min)
2. TAG Meeting #3 Summary - Michelle Lambert (5 min)
3. ZNC Embodied Carbon Recommendations - EC Working Group (60 min)
  - Policies followed by discussion
  - Practices followed by discussion
  - Awareness followed by discussion
  - What's Missing and What's most Important
4. Updates and Next Steps - John Dalzell (10 min)

# WELCOME & BRIEF INTRODUCTIONS

## WORKING GROUP

Michelle Lambert, CPHC®, LEED BD+C  
Lambert Sustainability / Carbon Leadership Forum

Rachelle Ain, AIA CPHC®, WELL AP, Utile Design  
Carbon Leadership Forum

Julie Janiski, Buro Happold  
Carbon Leadership Forum

Andrea Love, Payette

Olivia Humphrey, Jacobs

Lori Ferriss, Goody Clancy

Jennifer Efron, BSA

Meredith Elbaum, Built Environment Plus

Meghan Lewis, Carbon Leadership Forum, UW

## CITY STAFF

John Dalzell, AIA, LEED Fellow  
Sr. Architect Sustainable Development, BPDA

Richard McGuinness  
Deputy Director, BPDA

Chris Busch, AICP  
Assist Deputy Director, BPDA

Kathleen Pedersen  
Sr. Land Use Planner / Sustainability Specialist, BPDA

Alison Brizius  
Director of Climate & Environmental Planning, Boston

Kat Eshel  
Carbon Neutrality Program Manager, Boston

# WELCOME & BRIEF INTRODUCTIONS

## TAG MEMBERS

Alison Nash, DiMella Shaffer

Andrea Love, Payette

Anthony Pak, Priopta

Brad Mahoney, MP Boston

Brenda Pike,

Caroline Shannon, Howeler + Yoon Architecture

Chen Qin, HED (Harley Ellis Devereaux)

Christopher Stanley, Trinity Financial

Ciarán Smyth, BALA Engineers

Courtney Koslow, Beacon Communities

Dan Whittet, AHA consulting Engineers

Daniel Bailey, Takeda Pharmaceuticals

Dennis Carlberg, Boston University

Erin McDade, Architecture 2030

Gunnar Hubbard, Thornton Tomasetti

Ivan Lee, Morrison Hershfield

James Rogers, Turner Construction

Jim Newman, Linnean Solutions, LLC

Kayla Natividad, NSG Pilkington North America

Kevin Maguire, Oxbow Urban LLC

Lori Ferriss, Goody Clancy

Maura Zlody,

Meghan Lewis, Carbon Leadership Forum, University of Washington

Michael Orbank, Commodore Builders

Michael Gryniuk, LeMessurier

Michelle Apigian, ICON Architecture

Nicole Knobloch, Olifant, LLC

Patrick Kenny, Thornton Tomasetti

Paul Richardson, Buro Happold

Peter Sun, BPDA

Steven Burke, Consigli Construction Company, Inc.

Tamar Warburg, Sasaki Associates, Inc.

Tom Chase, New Ecology, Inc.

Turan Karakus, BR+A Consulting Engineers

# Summary - TAG Meeting #3 on July 14th

## Two Topics:

### 1. Diversity, Equity, and Inclusion

- **Barry Reaves**, BPDA Director of Diversity, Equity, and Inclusion

### 2. Wood / Mass Timber Practices, Benefits and Regional Challenges

- **Nicole St. Clair Knobloch**, Principal Olifant



# Summary - TAG Meeting #3 on July 14th

## Diversity, Equity, and Inclusion

- *Ensure equitable access in-*
  - Planning
  - Decision-making
  - Resource allocation
- *Will embodied carbon and/or mass timber help or hinder affordable housing projects?*
  - Lower or higher costs? Ability to build higher. More regulatory items to meet.
- *Be cognizant of implications of building reuse and/or deconstruction*
  - Waste transfer/recycling facilities located in EJ communities
  - History and perceptions around building reuse rather than new construction
- *How to make topics of carbon and embodied carbon accessible to the public to get buy-in?*
  - Make connections between fossil fuels, emissions and quality of life (air quality, heat risk, flooding)
- *New market opportunities for green jobs- mass timber, deconstruction*
  - Can we also increase DBE's and WBE's to build community wealth?

# Summary - TAG Meeting #3 on July 14th

## Wood / Mass Timber Practices, Benefits and Regional Challenges

- *Forest resources available in Northeast*
  - Lots of forest cover exists and nearly no harvesting happening
  - Supply side is waiting for signs of growing demand for buildings (from Boston, Providence, NYC)
    - Maine vacant paper/pulp mills could be re-opened
      - New markets, jobs, help for federal economic disaster zone
  - Opportunity for regional biogenic materials supply chain (rather than from Europe and Pacific NW now)
- *Development pressures on forests*
  - MA loses 67 forested acres a day to development (sprawl)
  - Well-managed, working forests with demand for timber products allow the land owners to keep them as forest
- *Need for policy, incentives and technical support to build demand, which will then spur local supply*

# Today's Meeting Goals

1. Refine individual recommendations
2. What's Missing
3. What's Most Important; consider:
  - Impact
  - Ease of implementation
  - Time frame (immediate, near-term, long-term)

# Recommendations - Framework

- Policy, Practice, and Awareness - recommendations are NOT limited to zoning and should impact one, two, or all three strategy areas
- Immediate, Near-Term, and Long Term - recommendations should be prioritized for carbon reduction impact and feasible implementation
- Action Oriented - recommendations should be task specific

## TAG Recommendations & ZNC Building Report

- Prior to finalization, the recommendations of each ZNC TAG will be circulated to TAG members for comments.
- A consolidated summary Action Report, including TAG recommendations, will be publicly circulated for comments.

Questions?

# Recommendations - Policy Discussion

POLICY	PRACTICE	AWARENESS
[01] Climate Action Plan: update with goals and strategies	[06] Pilot Programs / Demonstration Projects	[9] Recognition for Best Practices
[02] Building reuse and deconstruction ordinance	[07] Incentives	[10] City Capacity and Expertise
[03] Require LEED EC-related (LCA) Credits	[08] BPDA Advisory Group	[11] Workforce Development
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[05] Municipal & State collaboration		

# Recommendations - Policy

1. Climate Action Plan Update - Include goals and strategies to reach Zero Net Embodied Carbon.

**Goals:** Implement a comprehensive embodied carbon reduction strategy that takes advantage of complementary policy pathways and includes strategies specific to building materials, products, waste/material recovery, local production, transportation, and consumption emissions (e.g. Building disclosure, targets & thresholds, data collection & re-evaluation)

**Action:** Include embodied carbon in the next climate action plan update.

## Precedents (CAPs with embodied carbon):

- [Albany 2019 Climate Action and Adaptation Plan](#)
- [City of Austin Climate Equity Action Plan](#)
- [Eugene Community Climate Action Plan](#)
- [King County 2020 Strategic Climate Action Plan](#)
- [L.A. Green New Deal Sustainable City pLAN](#)
- [Oakland 2030 Equitable Climate Action Plan](#)
- [Phoenix Climate Action Plan](#)
- [San Francisco Climate Action Plan](#)
- [Vancouver Climate Emergency Action Plan](#)

# Recommendations - Policy

## 2a. Promote Building Reuse

**Goal:** Avoid embodied emissions of new materials by reusing existing buildings

**Goal:** Reduce emissions and local environmental / health impacts of construction waste

**Action (Immediate):** Identify barrier to existing building reuse and support implementation of Zero Waste policy and ordinances

### Precedents:

- [Los Angeles Adaptive Reuse Ordinance](#)

# Recommendations - Policy

## 2b. Promote Building Deconstruction and Material Salvaging

**Goal:** Avoid the embodied emissions of new materials by reusing existing building components and materials

**Goal:** Reduce the emissions and local environmental / health impacts of construction waste

**Goal:** Foster circular economy in the local deconstruction market by utilizing reusable and recycled materials in new construction

**Action (Immediate):** Support implementation of Boston Zero Waste initiatives

### Precedents:

- [Portland Deconstruction of Buildings Law](#)
- [San Antonio Deconstruction and Salvage Initiative](#)
- [Pittsburgh Building Deconstruction Policy](#) (in development)
- Mass DEP: [RecyclingWorks Blog - Building up Deconstruction](#)
- Mass DEP: [Construction Waste Management Plan Template](#)
- [City of Houston Building Materials Reuse Warehouse](#)



# Recommendation - Policy

## 3. Require achievement of embodied carbon related LEED Credits

**Goal:** Expand awareness and practice utilizing known rating systems

**Action (Immediate):** Update Article 37 to require specific LEED Credit achievement

### 3a. LEED Credit - Building Life-Cycle Impact Reduction, version 4.1

- **Option 3. Building and Material Reuse (25%, 50%, 75%) - if applicable**
- **Option 4. Whole-Building Life Cycle Assessment - for all projects**
  - Path 1- Includes structure and enclosure (S+E) only
  - Path 2- S+E must demonstrate a 5% reduction compared with a baseline in 3 of 6 impact categories, **one of which must be global warming potential**
    - global warming potential (greenhouse gases), in kg CO<sub>2</sub>e;
    - depletion of the stratospheric ozone layer, in kg CFC-11e;
    - acidification of land and water sources, in moles H<sup>+</sup> or kg SO<sub>2</sub>e;
    - eutrophication, in kg nitrogen eq or kg phosphate eq;
    - formation of tropospheric ozone, in kg NO<sub>x</sub>, kg O<sub>3</sub> eq, or kg ethene; and
    - depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI
  - Path 3- Must demonstrate a 10% reduction
  - Path 4- 20% reduction in GWP, 10% reduction in 2 additional categories, and incorporate reused and/or salvaged materials

# Recommendation - Policy

## 3b. LEED Credit - Building Product Disclosure and Optimization- EPD's, v4.1

- **Option 1- Environmental Product Declaration**
  - Use at least 20 different permanently installed products sourced from at least 5 different manufacturers that meet one of the disclosure criteria (Disclosure only)
- **Option 2. Embodied Carbon/LCA Optimization**
  - Use products that have a compliant **embodied carbon optimization report or action plan** separate from the LCA or EPD. Use at least 5 permanently installed products sourced from at least 3 different manufacturers (Disclosure + Action Plan)

## 3c. LEED Credit - Building Product Disclosure and Optimization- Sourcing of Raw Materials, v4.1

- Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project.
  - Bio-based materials
  - FSC Wood products
  - Materials Reuse

# Recommendation - Policy

## 3d. Pilot LEED Credit- Procurement of Low Carbon Construction Materials

- **Step 1 - Building Embodied Carbon Intensity - Baseline Calculation:**
  - Use materials embodied carbon intensity baselines (mECIb) published by the University of Washington/Carbon Leadership Forum or other approved data provider to *calculate the embodied carbon for materials used in the project.*
  - The following materials must be included if they are used on the project:
    - Concrete
    - Steel
    - Timber
    - Metal Framing
    - Glazing
    - Gypsum Board
    - Insulation
    - Carpet
    - Ceiling Tiles
  - Multiply the appropriate mECIb by the total quantity of each material used in the construction of the project.
- **Step 2 - Building Embodied Carbon Intensity – Verified Reduction Calculation:**
  - Utilizing a third party verified Environmental Product Declaration with applied UWCLF methodology, determine the actual material embodied carbon intensity (mECIa) for the materials used in the project.
  - Points are awarded base on the reduction in bECIb and bECIa. as follows:
    - **Low range reduction (0-30%) - 1 Point**
    - **Mid-range reduction (30+% ) - 2 Points**

# Recommendation - Policy

## 4. Whole Building Life Cycle Assessment - as part of permitting review

**Goal:** Build capacity of local practitioners to complete whole building life cycle assessment (WBLCA) and identify embodied carbon “hot spots” in their buildings

**Goal:** Standardize WBLCA methodology and reporting for regional practitioners

**Action (Immediate):** Request WBLCA as part of project filings

**Action (Long-term):** Create local/regional building carbon intensity benchmarks (e.g. kgCO<sub>2</sub>e/sf for different building types).

### Precedents:

- Netherlands [Building Decree 2012](#)
- [Vancouver Green Building Rezoning Requirements](#)
- [New London Plan](#)
- Copenhagen [Bæredygtighedsklassen](#) ("The Sustainability Class")
- Assessment System for Sustainable Building (BNB) National LCA requirement for German federal buildings

# Recommendation - Policy

## 5. Municipal / State Policy Alignment and Collaboration

**Goal:** Ensure consistency and alignment of regulatory policies across jurisdictions

**Goal:** Unlock Boston Regional opportunities including:

- Shared material reuse markets
- Shared education and training programs
- Uniform reporting requirements and practices (as needed)

**Action (Near-term):** Establish partnerships with local organizations and municipalities and support regular convening of public officials and stakeholders

### Precedents:

- Regional municipality collaboration: [Bay Area Low Carbon Concrete Code Working Group](#) (funded by the Bay Area Air Quality Management District)

# Recommendations - Policy Discussion

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# Recommendations - Policy Discussion

## Meeting Notes

- Part of our task is prioritizing and focusing; describe action timeframes for short term and long term goals, to help the city's efforts.
- Susan Cascino updated the group on Zero Waste Plan 2019 to reduce waste stream on construction & demolition debris. The city is working with RecyclingWorks & Jim Newman to promote education on building deconstruction. Victoria Philips is working on a one-page construction waste management plan template.
- Cross-Jurisdictional Alignments. Jim Newman: LF Collaborative demonstrated appetite for collaboration & need for coordination across jurisdictions. Andrea Love: Cambridge is interested in coordination.
- What's the appetite for a statewide green code? DOER updating to "Net Zero"; MA EZ Stretch Code had appendix focused on Embodied Carbon;
- What is the scale, size, and types of projects that are targeted here?
  - Goal is to reset Article 37 to a 20,000 sf threshold
  - Possible to create different requirements based on area. ie, Whole building LCA is difficult for certain small projects.
  - Some guidance, ie LEED credits, can apply regardless to size or type of project
- Smaller scale projects could produce LCA on specific materials - eg, steel, wood, concrete - and help raise awareness and expand practices.
- Vancouver - they are developing tools that simplify LCA for small residential buildings for quick assessment.
- Small Communities surrounding Vancouver fitting into larger BC policy framework for cohesion, standardization.
- Value in creating a roadmap with tiers to target reduction; LEED credits are good starting points. Consider specifying how many points must be met and a timeline to meet them.
- Focus on low-hanging fruit, ie concrete. Mike Gryniuk & Jeremy Gregory collected LCA's of regional concrete mixes - they have the data and structural engineers should come together and work with ready mix suppliers.
- We can create target values right now, we have the data.
- There are structural implications to consider in re-using buildings and building structure.

## Chat Notes

- Dan Whittet: LEED was never designed to be code, that's why 189.1 is being developed. It's written in code language
- Jim Newman: Yes, 189 is code-ready, but unfortunately wimpy

# Recommendations - Policy Discussion

## Chat Notes

- Dan Whittet: LEED was never designed to be code, that's why 189.1 is being developed. It's written in code language
- Jim Newman: Yes, 189 is code-ready, but unfortunately wimpy
- 
- Mike Gryniuk (LeMessurier): This is interesting - it may be easier to determine an appropriate baseline building for Boston given all of our collective experience. Establishing the baseline is key.
- Meredith Elbaum | Built Environment Plus: Here's a link to the recording of that event and the slides for those who didn't make it: <https://builtenvironmentplus.org/road-to-net-zero/>
- 
- John Dalzell: There are synergies in using LEED credits including nationally developed standards and market value for LEED Certified buildings.
- Dan Whittet: I am interested in ways to incentivize reuse and optimization of existing buildings
- Julie Janiski, Buro Happold: I can also send this to everyone on the calendar invite as a follow up at the end of the meeting.
- Christopher Stanley: This point may be too technical and big for this discussion, but developers of housing might be interested in net zero carbon tax credits as an incentive. Similar to LIHTC, an investor would be given a tax break if they invest in affordable housing that is net zero. Some issues of double dipping on affordable housing. Tax credit financing is an enormously successful tool, and it might be applied to the issue of net zero buildings. Heavy lift - needs state and federal approval.
- Dan Whittet: As workforce develops is there opportunity for economic growth associated with it?
- Dan Whittet: I mean, it creates jobs right?
- Meredith Elbaum | Built Environment Plus: We have an event coming up next week looking at how one community is promoting low carbon buildings. <https://builtenvironmentplus.org/event/pathways-to-low-carbon-buildings-in-somerville/>
- Ivan Lee: I think it's important to keep in mind we're ultimately want to create better buildings, which could be more durable and requires less maintenance and ultimately cheaper to operate. This could help get around the economics
- Julie Janiski, Buro Happold: Thanks all for your input and the discussion! Please go to the survey at the following link and submit a ranking of the recommendations. John will also send this out in an email; we would appreciate having your thoughts this week while it's fresh in your mind! <https://forms.gle/vfQKfaShjwWYfmqw5>



# Recommendations - Practices

## 6. Pilot Programs / Demonstration Projects

**Goal:** Rapidly advance specific practices and expand local expertise

**Action (Immediate / Near-term):** Identify partners and resources to implement programs

### **Potential Focuses:**

- Tall Wood Buildings
- Low Carbon Concrete
- Carbon-Storing Materials
- Material Salvage & Reuse

**Precedents:** Boston Mass Timber / Cross Laminated Timber Practice Acceleration TA Program

# Recommendation - Practices

## 7. Incentives for Best / New Practices - Consider:

- Density Bonus
- Expedited Permitting
- Reduced Permitting Fees
- Tax Credits for EPD's, or for surpassing minimum target reduction

Identify and include project support mechanisms

Collaborate with potential state and muni partners to establish support programs

**Goal:** Rapidly advance specific practices and expand local expertise

**Action (Immediate):** Update Article 37 to require specific LEED Credit achievement

### Precedents:

- [Somerville Zoning Ordinance](#)
- Newton Lower embodied carbon options for multifamily buildings
- City of Seattle [Priority Green Expedited and Green Building](#) incentive programs
- [Vancouver Green Building Rezoning Requirements](#)
- French [Énergie Positive et Réduction Carbone \(E+C-\)](#) pilot program

# Recommendation - Practices

## 8. Establish Professional Expert Advisory Group

### Goals:

- Support ongoing City / BPDA embodied carbon policy and program development
- Ensure Boston policy development is actionable and implementable for the region
- Ensure that Boston's DEI goals are represented on committee and integrated into purpose, and in engagement and work plan.

**Action (Immediate / Near-term):** Work with local partners to establish a Professional Expert Advisory body with defined purpose, engagement and work plan, and schedule.

### Precedents:

- Article 80B Project Impact Advisory Group
- Boston Civic Design Commission
- Green Ribbon Commission

# Recommendations - Practice Discussion

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# Recommendations - Practice Discussion

## Meeting Notes

- Who would be doing the Pilot Programs and Demo projects? Where does the funding for the incentives come from?
  - There is funding through US Forest Service for a MassTimber Technical Assistance Program - intervening early on to build CLT practices, it is a federally funded program.
  - MassCEC is another funding partnership.
  - There's synergy with DOER, state, municipalities for potential to fund piloting practice & demonstration projects.
- The city has a high priority on affordable housing.
  - ie PLAN JP/ROX offers an affordable housing density bonus which additional sustainability requirements (LEED Gold, solar PV).
- There's potential for expedited permitting, which would have broad interest.

## Chat Notes

- John Dalzell: There are synergies in using LEED credits including nationally developed standards and market value for LEED Certified buildings.
- Dan Whittet: I am interested in ways to incentivize reuse and optimization of existing buildings.
- Christopher Stanely: This point may be too technical and big for this discussion, but developers of housing might be interested in net zero carbon tax credits as an incentive. Similar to LIHTC, an investor would be given a tax break if they invest in affordable housing that is net zero. Some issues of double dipping on affordable housing. Tax credit financing is an enormously successful tool, and it might be applied to the issue of net zero buildings. Heavy lift - needs state and federal approval.

# Recommendations - Awareness Discussion

## 9. Recognize Best / New Practices and Projects

**Goal:** Raise awareness of local case studies and best practices

**Goal:** Incentivize continued leadership and innovation

**Action (Immediate / Near and Long-term):** Identify partners and resources to identify recognition programs

### **Precedents:**

- BE+ Green Building Showcase
- [NYSERDA Buildings of Excellence Competition](#)
- AIA COTE Top 10 Awards

# Recommendations - Awareness Discussion

## 10. City Capacity and Expertise - training, staffing, management

**Goal:** Increase city staff capacity to efficiently and professionally advance critical practices and manage review project processes.

**Action (Immediate):** Include in ZNC Building Zoning recommendations

### Precedents:

- Carbon Free Boston Report

# Recommendations - Awareness Discussion

## 11. Workforce Development

**Goal:** Increase local workforce capacity to respond to new practices, work, and business opportunities to reduce embodied carbon in the built environment.

**Action (Immediate / Near-term):** Assess workforce capacity, opportunities, and needs

**Action (Immediate / Near-term):** Identify resources and partners to provide / support workforce training programs.

### Precedents:

- MassCEC
- Office of Workforce Development within BPDA.



# Recommendations - Awareness Discussion

## 12. AEC Industry Resources

**Goal:** Increase resources to AEC industry to ensure consistency and ease.

**Action (Immediate / Near-term):** Identify resource needs and partner organizations to provide/support resource creation and management.

### **Precedents:**

- CLF Hub
- BSA
- BE+
- Green Ribbon Commission

# Recommendations - Awareness Discussion

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# Recommendations - Awareness Discussion

## Meeting Notes

- It's important to talk about the economic benefit of doing this work. Improving the built environment and community are good investments, not expense. It's important to raise awareness of the benefits before we include them in updated policy.
- Are we planning to leverage the programs that exist already?
  - Get more firms to join and engage SE2050, AIA2030, MEP2040...
- The best role for BPDA / City maybe to help connect practitioners and raise general awareness of low carbon materials / practices.
- What level of awareness is needed? There is a need for an advocacy campaign to get embodied carbon in to the general vocabulary. This is also needed for policy makers.
- How to get Embodied Carbon built in affordable housing - raising awareness of embodied carbon among the affordable housing different.
- There is a unique opportunity to expand affordable housing production via taller wood buildings using MassTimber / CLT construction.
- Consider the affordable housing QAP process; this is how Passive House became part of affordable housing process, let's look at roadmap to get Embodied Carbon similarly valued in the affordable housing QAP process.
- How to raise awareness with manufacturers? LEED helped move the dial with manufacturer on EPD's, mostly on finishes. Data lacking on the structural aspect of building materials (ie. steel, concrete, wood).

## Chat Notes

- Dan Whittet: As workforce develops is there opportunity for economic growth associated with it? I mean, it creates jobs right?

# Recommendations - What's Missing Discussion?

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# Recommendations - What's Missing Discussion

## Meeting Notes

- Economics: conversation around investment and is worthy cause. How do we develop the data to support this? Or at what point is investment in low carbon materials a reasonable expense?
- Is there awareness of carbon emissions as a pollution?
- Need to prepare documents, guides, and information on best practices as people seek information:
  - e.g. Zero Energy design guideline
- Impacts of Construction should be made visible - it is so “out of sight, out of mind”
  - We need to make it relatable; carbon is so ambiguous, nebulous
- The new BERDO emissions performance standard includes an alternative compliance payment; can we make a relationship with embodied carbon (ie, keeping a building vs tearing one down)

# Recommendations - What's Most Important?

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# Recommendations - What's Most Important

## Meeting Notes

- The results of the “What’s most important” poll:
  - #1. 30% tie at CAP and Pilot programs;
  - #2. Whole-building LCA in zoning / permitting;
  - #3 tie for Building reuse & deconstruction, and Municipal & State collaborations.

## Chat Notes

- Julie Janiski: Thanks all for your input and the discussion! Please go to the survey at the following link and submit a ranking of the recommendations. John will also send this out in an email; we would appreciate having your thoughts this week while it's fresh in your mind! <https://forms.gle/vfQKfaShjwWYfmqw5>

# Next Steps

Today's Presentation and Discussion notes will be posted by Friday

UPDATED TAG Recommendations will be sent to TAG Members for comments

## ZNC Building Zoning Initiative

- Public engagement opportunities (ongoing)
- Public Meeting #2 - Fall (Date TBD)
- Recommendations Report will follow
- Regulatory zoning process will follow



# Thank You!

Your ongoing work, advocacy, and contributions to Boston's ZNC Building Zoning policy development is greatly appreciated!  
THANK YOU!

And once again, a special shout out to the EC Working Group!  
Their advocacy and many contributions have allowed us to have this discussion!  
THANK YOU!