New York Embodied Carbon Action Plan

July 2026
New York Embodied Carbon Working Group (NYECWG)

Acknowledgments

The New York Embodied Carbon Action Plan serves as a collaboratively developed suite of policy recommendations put forward by the architectural, engineering, and construction industry for the State of New York's consideration. This Action Plan is the result of an industry-led initiative by the New York Embodied Carbon Working Group: a coalition of practitioners and subject matter experts with a deep technical understanding of the built environment and the current gaps in decarbonization policy.

Developed over the course of a year, these recommendations are designed to provide decision-makers with a practical roadmap to reduce embodied carbon across the built environment. The Working Group's subject matter experts have volunteered their time to ensure these strategies are high-impact and grounded in the practicalities of design, procurement, and construction. By leveraging the collective expertise of those responsible for building and maintaining assets across New York, this plan offers a technical foundation to achieve the State's ambitious climate goals, foster innovation, and build healthier, more resilient communities.

The Working Group sincerely acknowledges the contributions of the many individuals involved. Their participation reflects their personal and professional expertise, along with a shared commitment to industry leadership; it does not necessarily represent the official positions of their respective organizations or the State of New York.

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0 Executive Summary

The New York Embodied Carbon Action Plan is a collaboratively developed set of policy recommendations created by a coalition of architects, engineers, contractors, manufacturers, owners, academics, and sustainability experts who make up the New York Embodied Carbon Working Group. This Action Plan provides a practical roadmap for reducing embodied carbon emissions while strengthening New York's economy, supporting regional manufacturing, and advancing community resilience.

Building on the Working Group's inaugural 2025 report on near-term actions, this comprehensive Action Plan details immediate and long-term policy interventions that will position New York as a national leader in low-carbon construction and circular economy practices.

Embodied carbon refers to the greenhouse gas emissions generated by the manufacturing, transportation, installation, maintenance, and disposal of construction materials used in buildings, roads, and other infrastructure. While there is no one-size-fits-all strategy for reducing embodied carbon, the strategies generally fall into four categories:

1. Build less, reuse more: Extend the life of existing buildings via adaptive reuse and material reuse
2. Build lighter: Use less of a given material (or floor area) to do the same work
3. Material and assembly substitution: Replace carbon-intensive materials and assemblies with alternatives
4. Procure low-carbon products: Compare different products and select the lower carbon options

While New York has made substantial progress in reducing operational emissions through building electrification, energy efficiency, and clean energy deployment, the emissions generated today will lock in fiscal and environmental impacts for decades to come. As state, county, and municipal programs make massive strides in reducing operational emissions, which are associated with the day-to-day energy required to heat, cool, and power our buildings, the massive carbon footprint associated with the physical construction and installation of materials themselves has remained largely unaddressed.

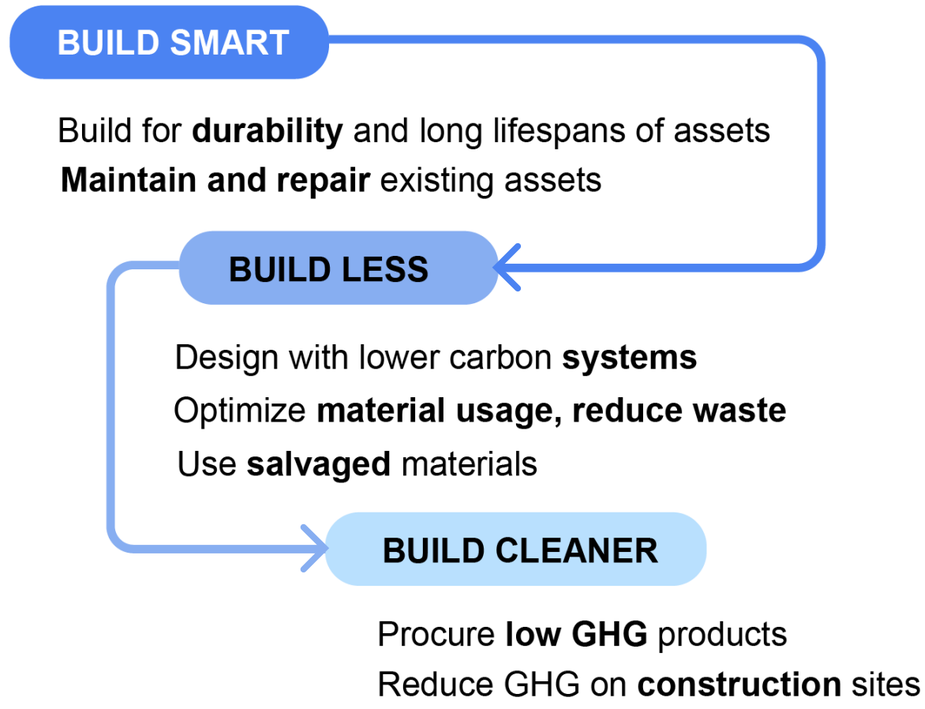


Figure 1. Framework for embodied carbon reduction priorities in the built environment. Inspired by the frameworks from WorldGBC[1] and Just Places Lab[2].

1. World Green Building Council (WGBC). (2019). Bringing embodied carbon upfront (pp. 35–35). https://www.worldgbc.org/sites/default/files/WorldGBC_Bringing_Embodied_Carbon_Upfront.pdf
2. Augustine-Marceil, et al., 2025. Building reuse-to-waste hierarchy. Just Places Lab researchers.: https://www.researchgate.net/figure/Building-reuse-to-waste-hierarchy-Wyeth-Augustine-Marceil-and-additional-Just-Places-Lab_fig1_396742860 [accessed 14 Dec 2025]

0 Executive Summary

Ignoring this part of the carbon narrative undermines New York's broader economic and climate progress. Managing embodied carbon is fundamentally an asset management exercise; by prioritizing the preservation, adaptive reuse, and strategic retrofitting of our built environment, the State can optimize existing capital assets while simultaneously addressing multiple pressing civic challenges. Most notably, scaling adaptive reuse can lower upfront material costs and project timelines, serving as a critical tool to accelerate the delivery of affordable housing across the state. By using a "Best Value" framework that evaluates cost, performance, carbon, and community-wide benefits together, New York can link climate goals to engineering excellence – ensuring these assets support local economic development, reduce long-term maintenance, and protect taxpayer dollars.

Without a clear, actionable path forward, New York faces a far more costly and disruptive future than if we take strategic action today. Through this independent action plan, the individual industry volunteers of the New York Embodied Carbon Working Group have developed a suite of strategies and recommendations for the State of New York to consider. These recommended policies are designed to significantly reduce which could result in a significant reduction in embodied carbon while actively strengthening local manufacturing, reclaiming underutilized facilities, and insulating New York businesses from volatile global supply chains.

These recommendations are not abstract concepts; they represent an actionable framework built for the industry, by the industry. The strategies are rooted in the practical, real-world experiences of the engineering, design, manufacturing, and construction professionals who contributed to this plan. By integrating lessons learned from early moving jurisdictions across New York State and the United States, this framework is designed to support regional viability. To assist state policymakers, these real-world case studies, anticipated agency roles, and resource needs are detailed in the accompanying documentation.

The path to a low-carbon built environment accelerates New York's economic progress, serving as a powerful roadmap for industrial and community resilience. Across the state, legacy industrial corridors and underutilized facilities represent capital assets ripe for revitalization. By modernizing local procurement frameworks and treating our existing building stock as material banks, New York can catalyze job growth across local communities and support the robust network of circular, innovative businesses that already call the Empire State home.

New York has the technical expertise, market demand, and academic talent to pioneer this thriving, circular market. By building the future with the materials we already have, New York can maximize the value of its public assets, keep capital investments local, and protect the domestic supply chains that drive our communities.

0 Policy Framework

This action plan is centered around state-specific considerations required to reduce embodied carbon in New York. The plan provides an overview of terminology and context relevant to reducing embodied carbon in New York, as well as metrics of success.

Embodied carbon reductions can be driven through multiple policy actions. The policy recommendations in this report can be implemented in isolation or combined with each other to more effectively drive reductions at scale. Given the rapid rise and variation in the scope of embodied carbon policies, it is critical to understand the three main policy components: policy type, reduction target, and scale of intervention.

The Delacorte Theater, Central Park. Courtesy of PJ Rountree and Tri-Lox.

Policy Components

Policy approaches can vary significantly, ranging from incentives, voluntary programs, and government commitments that prime the market to broad regulation that facilitates wide adoption. A range of different actors can implement these policy types across numerous categories, as shown in Table 1.

Table 1. Policy Types, Categories, and Actors

Policy type	Policy Category	Key Actors
Incentives	Financial support, expedited permitting, zoning exceptions, density bonuses, or other benefits offered in exchange for reducing embodied carbon	Most often offered by a governmental agency, utility, or quasi-public organization.
Voluntary programs	Owner or firm commitments, certification programs, pilot programs, or other frameworks to that make visible optional efforts to reduce embodied carbon	Used by both private and public parties to show early leadership and proof- of- concept
Government commitments	Policy commitments by local, state, federal, or other agencies to reduce embodied carbon in projects or procurement procedures	Used by the public sector to provide a testing ground for broad regulation and to leverage a large government procurement volume of government
Broad regulation	Regulations requiring embodied carbon reduction in private and public construction through regulatory programs, zoning measures, statutory requirement, building code, or other mandatory mechanisms	Used to scale embodied carbon reductions across the public and private sectors

0 Policy Framework

Another important component of embodied carbon policies is the scale of emissions or actions a policy seeks to effect. Policies can focus on different granularity, such as setting a high-level, economy-wide reduction target (i.e., a top-down approach) or a more granular, project-level reduction target (i.e., a bottom-up approach).

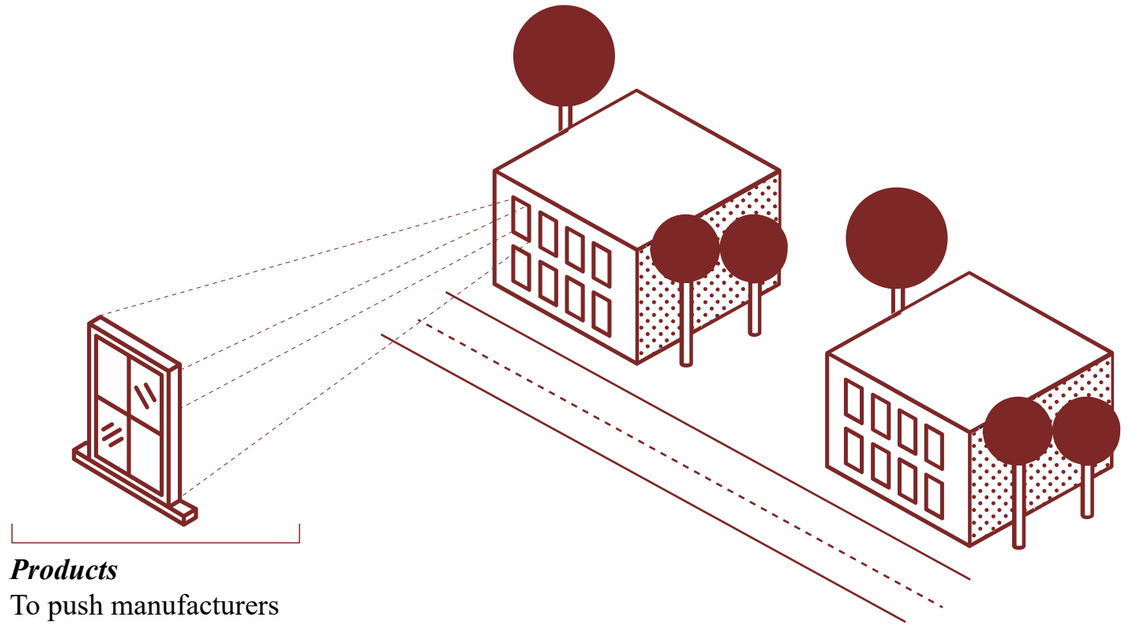
Policies can operate at different scales of intervention based on the desired action or intent of the policy, including those below:

- Products: These policies push manufacturers to invest in clean manufacturing and/or take-back programs and push contractors to procure low-carbon materials

- Projects: These policies push project teams to reduce embodied carbon holistically during design and construction. Two common project scales are for buildings and infrastructure.

  ↳ Buildings policies push designers, developers, and building owners to investigate low-carbon design strategies like reusing and optimizing spaces, using alternative building systems, and specifying low-carbon products

  ↳ Infrastructure policies push agencies to optimize design and material use, provide funding to maintain existing assets, and reduce impacts across construction and asset life cycles.



Products
To push manufacturers to invest in clean manufacturing and/ or take-back programs and push contractors to procure low-carbon materials

Projects
To push project teams to reduce embodied carbon holistically during design and construction

0 Policy Approaches

Using the language introduced previously, Table 2 outlines examples of common policy approaches. These examples—including whole-building lifecycle assessments (WBLCAs) and Commercial Property Assessed Clean Energy (C-PACE) programs—demonstrate the breadth of policy opportunities and are not an exhaustive list.

Table 2. Examples of Policy Types for Reducing Embodied Carbon

Policy type	Scale	Approach	Description / Examples
Incentives	Projects	Whole Building LCA (WBLCA) assistance programs	Providing funds for technical assistance to support projects studying and reducing embodied carbon.
		C-PACE financing	Providing financing for eligible low embodied carbon measures on projects (ie. Adaptive reuse, low carbon materials, WBLCA, etc)
	Products	EPD grant program	Providing funds to manufacturers to produce EPDs
		Capital investment incentives	Providing funds to help manufacturers make upgrades to their facilities to support cleaner production or alternative practices
Voluntary Programs	Projects	Green building certifications	Building projects opting in to measurement and/or reduction of embodied carbon due to a goal of achieving a certification.
		Sustainable infrastructure certifications	Infrastructure projects opting in to measurement and/or reduction of embodied carbon due to a goal of achieving a certification.
Government Commitments	Projects	Project contract requirements	Projects must follow prescribed processes, or meet project-scale targets for embodied carbon reductions.
	Products	Green procurement standards	Products procured on government projects must meet specified performance criteria.
Broad Regulation	Products and Projects	Sectoral targets	The state commits to a high-level reduction target by economic sector, or other organizing logic, to provide a catalyst for further exploration of reduction-focused policies or programs.
	Products	Facility or manufacturer reporting	Manufacturers of applicable materials report facility-scale emissions for specific products and show reductions over time
		Product standards	Manufacturers of applicable materials must meet minimum standards to sell in a specific market
	Projects	Simplified checklist	Projects show compliance with predetermined embodied carbon reduction strategies
		Project reporting	Projects report emissions using project life cycle assessment and show reductions typically by comparing to a baseline building, or meeting an embodied carbon budget (kgCO2e/m2)
		Reuse requirements	Projects show compliance with thresholds for reuse of existing materials, or use of salvaged materials
		Product reporting	Projects show that some set of covered materials comply with maximum embodied carbon intensities (kgCO2e/unit of product) using product- and facility-specific EPDs, typically compared to established baselines (either at the material scale, or for some material subset)

0 New York State Policy Precedents

In addition to the various aspects of embodied carbon policies, examples from New York can provide insight into what policies the state and its municipalities have passed. Each New York policy precedent is explained below using the framework introduced above to characterize current policies.

New York Policy Precedents

New York State Bill A2591/S542, **the Low Embodied Carbon Concrete Leadership Act,** was passed in 2021 to increase the use and innovation of low-carbon concrete on state procurement projects. The law calls for the New York State Office of General Services (OGS) to establish guidelines for procuring low embodied carbon concrete on applicable projects. The state issued the first set of guidelines in 2023. These guidelines require EPDs, set global warming potential (GWP) limits for concrete used on state projects, and set eligibility rules. The guidelines apply to both building and transportation projects for state agency contracts exceeding $1 million that use at least 50 cubic yards of concrete, or New York State Department of Transportation contracts greater than $3 million that include a concrete pay item with an estimated quantity of at least 200 cubic yards. The guidance also specifies exemptions and a process for updating the GWP limits. This policy is an example of combining a *government commitment* that leverages *product reporting.*

New York's Climate Leadership and Community Protection Act (CLCPA) Scoping Plan, adopted in 2022, provides detailed recommendations to achieve the economy-wide reductions called for in the CLCPA, including actions to achieve reduction in greenhouse gas emissions of 40% by 2030 and 85% by 2050 compared to 1990 levels. The scoping plan also includes guidance for reducing embodied carbon in its chapters on buildings and industry. The chapter on buildings focuses on reducing embodied carbon in building construction. Recommendation B.11 includes leading by example on state projects, investing in research and development (R&D) on embodied carbon innovation, setting project-level reduction targets, incorporating embodied carbon reduction budgets into permitting, supporting building reuse, and incorporating low-carbon specifications into existing incentive programs. This policy is an example of combining a *government commitment* with *voluntary programs* that leverage *product reporting* and *project reporting.*

New York City Executive Order 23, issued in September 2022, orders New York City to lead the market development and uptake of low embodied carbon and clean construction strategies. The guidance directs city capital construction agencies to submit EPDs for concrete and steel, make their best efforts to incorporate low-carbon concrete specifications and include low-emission vehicles and equipment into construction projects, and endeavor to achieve credits related to LCA for capital projects complying with green building standards. This policy is an example of combining a *government commitment* with *voluntary programs* that leverage *product reporting* and *project reporting.*

New York State Executive Order 22, also issued in September 2022, directs state agencies to lead by example in their operations. Executive Order 22 states that entities must seek to reduce embodied carbon in all new construction projects or significant renovations. In June 2023, the State issued the first phase of the Embodied Carbon Guidance, developed in response to the executive order. This guidance focuses on disclosing EPDs and material quantities. Project scale guidance is expected to be forthcoming. This policy is an example of a *government commitment* that combines *product reporting* and *project reporting.*

0 Proposed New York Policy Precedents

Legislation introduced in the 2025 session of the New York State Legislature includes the below proposed policies:

- A8456/S7998 establishes a long-term strategy for reducing embodied carbon in all public and private building projects by setting a 15% GWP reduction threshold in the Building Code of New York State with three pathways to comply: adaptive reuse, project limits, and project life cycle assessment. If passed, this policy would be a *broad regulation* that combines *reuse requirements, product reporting* and *project reporting*.

- A8637/S8168 encourages local political subdivisions to adopt local deconstruction ordinances and commit to reporting requirements related to deconstruction. The local jurisdictions would receive a grant for preventing and reducing demolition waste and financing for technical support programs as a result of adopting the local deconstruction ordinance. If passed, this policy would be an example of an *incentive program* for *projects.*

- A6566B/S7648A establishes financial incentives for low-carbon construction materials. If passed, this policy would be an example of an *incentive program* for *product*s.

- A5404C/S1335C expands eligibility criteria for C-PACE to provide financing for low carbon intensity building components. If passed, this policy would be an example of a *voluntary program* for *projects* and *products*.

- A3029A/S2091A establishes standards for reusing salvaged solid-sawn lumber and requires the Secretary of State of New York to develop a program for grading salvaged wood. If passed, this policy would not fit into the categories above; rather, it would function as an enabling mechanism for reuse behaviors that the policies and programs mentioned above would incentivize.

A8456/S7998:
Three Code Pathway

A8637/S8168:
Deconstruction Ordinance

A6566C/S7648C:
Low Carbon Material Incentives

A3029A/S2091A:
Reuse of Salvaged Lumber

0 Summary of Policy Recommendations

1 Establish New York's goal for embodied carbon reductions.

Empower state agencies and industries to address the climate challenge by adopting a statutory reduction requirement statewide.

2 Set embodied carbon reduction requirements for buildings.

Establish a long-term strategy for reducing embodied carbon in public and private building projects by setting three compliance pathways for reducing embodied carbon in building or zoning codes.

3 Establish embodied carbon reduction requirements for state agencies' infrastructure projects.

Leverage the large portfolio of the 12 agencies that oversee construction by requiring them to quantify and track embodied carbon emissions, as well as implementing Envision Certification requirements across relevant state agency projects.

4 Support manufacturers and suppliers develop low-carbon materials.

Foster the innovative low-carbon market by implementing a low-carbon product standard, establishing a test center for low-carbon concrete and asphalt mixtures, creating an embodied carbon reduction challenge at the New York State Energy Research and Development Authority (NYSERDA), and expanding financing and incentives available to manufacturers.

5 Incentivize the use of low-carbon construction materials.

Financially support producers and users of low-carbon construction materials by providing sales tax exemptions for low-carbon materials, establishing an EPD grant program, and expanding eligibility for the R&D Tax Credit, ultimately supporting good-paying New York jobs and making the state's supply chain more resilient to economic shocks outside of the state.

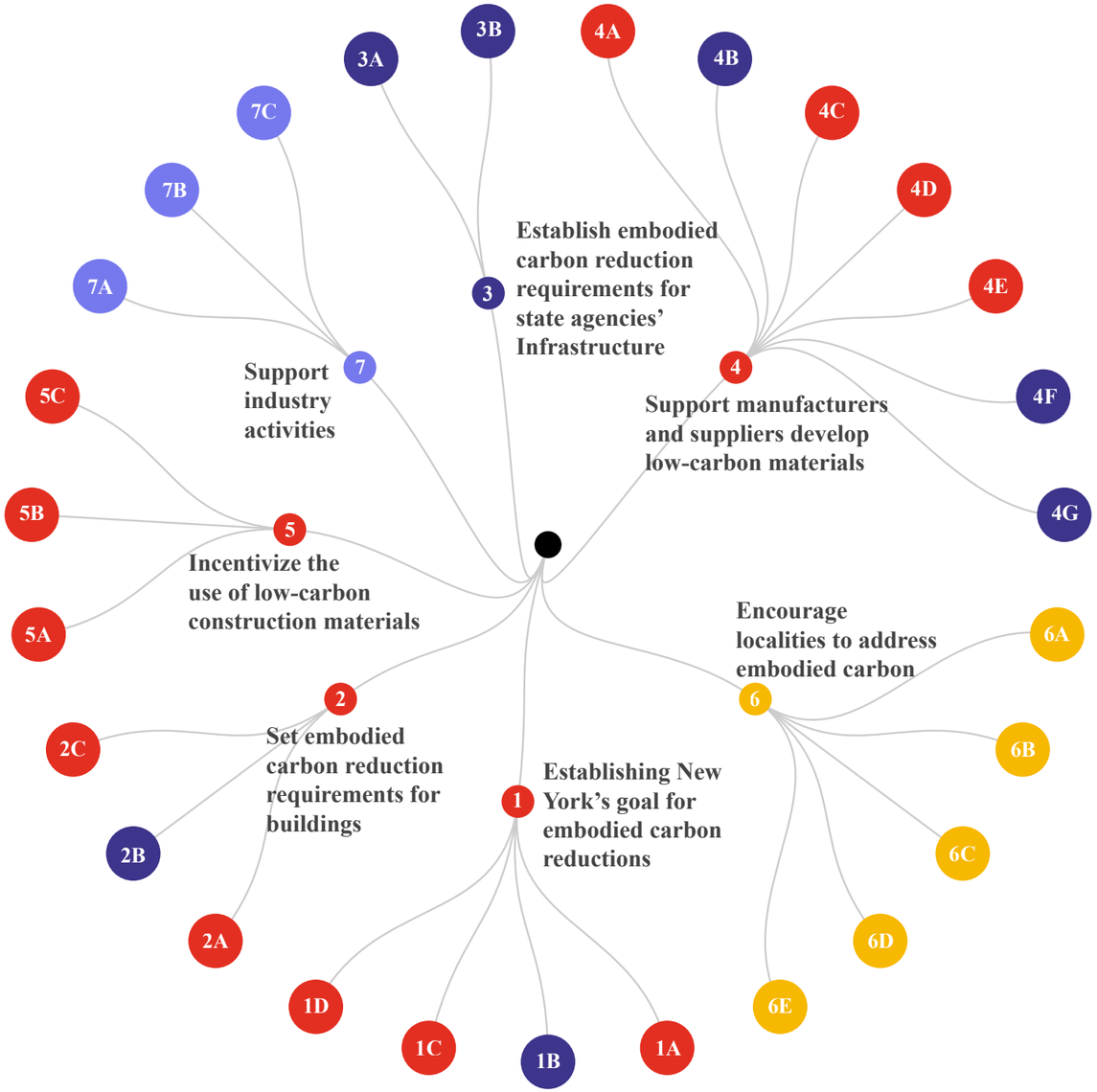
6 Encourage localities to address embodied carbon.

Provide resources and incentives to encourage localities to implement or pilot portions of state agency policies at the municipal or county levels to further the reach of embodied carbon reductions and encourage a uniform approach to addressing embodied carbon.

7 Industry Supporting Activities.

Collaborate with industry stakeholders across New York to help reduce embodied carbon by increasing capacity, addressing cost concerns, and coordinating with other efforts to minimize the duplication of efforts—saving the public money and reducing the time and monetary burden on private enterprise

0 Policy Overview



01 Establish New York's Goal for Embodied Carbon Reductions

- 1A Translate the Statutory Reductions into Interim Absolute Targets to Measure Progress
- 1B Establish a New York State Expert Advisory Group and Create a Roadmap
- 1C Establish a Technical Assistance Program and Provide Funding to Implementing Agencies
- 1D Codify Executive Order 22 to Legislatively Direct Agencies to Adopt a Sustainability and Decarbonization Program

02 Set Embodied Carbon Reduction Requirements for Buildings

- 2A Set Three Compliance Pathways as a Long-Term Strategy to Reduce Embodied Carbon through State Codes
- 2B Implement and Refine Project-Scale Requirements with Agency Input
- 2C Consider Introducing a Collective Compliance Path for Owners or Managers of Multi-Building Portfolios

03 Establish Embodied Carbon Reduction Requirements for Infrastructure

- 3A Agency Scale: Require Emissions Reporting for Construction Materials and Activities
- 3B Project Scale: Integrate Envision Certification into Project Design and Delivery Workflows

04 Support Manufacturers and Suppliers in Scaling the Low Carbon Material Market

- 4A Adopt a Low-Carbon Product Standard
- 4B Sign a Green Public Procurement (GPP) Pledge Commitment for New York
- 4C Support the Testing and Development of Low-Carbon, Innovative Materials
- 4D Establish an Embodied Carbon Reduction Challenge Operated by NYSERDA
- 4E Expand C-PACE Eligibility Criteria to Cover Low-Carbon Building Strategies
- 4F Establish Incentives for WBLCAs for Large Projects Operated by NYSERDA
- 4G Evaluate Environmental Attribute Certificate Models for Low-Carbon Construction Materials.

05 Incentivize the Use of Low-Carbon Construction Materials

- 5A Provide Sales Tax Exemption for Low-Carbon Construction Materials
- 5B Establish Grant Program for Material Manufacturers to Develop EPDs
- 5C Expand Eligibility for the R&D Tax Credit

06 Encourage Localities to Address Embodied Carbon

- 6A Encourage Localities to Adopt Low Carbon Zoning Requirements for Buildings
- 6B Provide Density Bonuses for Exceptional Achievement in Low-Carbon Requirements
- 6C Expand the Erie County Industrial Development Agency's (IDA's) Adaptive Reuse Tax Incentive Program Statewide
- 6D Establish Green Building Incentives to Support Adaptive Reuse Projects
- 6E Establish Incentive Programs for Using Low-Carbon Design Principles in Building or Retrofitting New Housing

07 Industry Supporting Activities

0 Navigating this Document

This is complex topic, however the recommendations aims to simplify and make the recommendations digestible. Thus, each recommendation follows the same layout format and color coding as noted on the right to facilitate easier navigation.

1 Establish New York's Goal for Embodied Carbon Reductions

Set a statewide statutory commitment to reduce embodied carbon emissions from new buildings, renovations, and infrastructure by 25% by 2035 and 40% by 2040. Based on recent research, much of this reduction should be possible by scaling current technology and best practices, with emerging technology taking over after 2040[4]. High-level targets are essential for communicating the magnitude of reduction needed by all players in the material supply chain and construction economy. These targets should be supported by a corresponding framework for achieving reductions, such as the points outlined below. Codifying reductions over the long term enables New York to build on strategies the state is currently using, including government commitments, procurement requirements and specifications, and private sector commitments.

A Translate the Statutory Reductions into Interim Absolute Targets to Measure Progress

The reduction targets include Scope 2 and 3 emissions, many of which occur outside of New York, and are therefore not covered by existing strategies to reduce in-state emissions. The state should translate percent reduction targets into absolute annual reduction targets using the consumption-based emissions inventory for New York that was prepared by EPA in 2024, or a similar inventory[5]. Then, the state should track progress against these absolute targets using bottom-up reporting as part of implementing relevant statewide policies.

B Establish NYS Expert Advisory Group and create a roadmap

Realizing decarbonization and reducing emissions from construction materials across New York will require continuous improvement, stakeholder feedback, and outreach. An expert advisory group should be legislatively mandated and organized by a state agency to ensure long-term viability and adaptability for achieving reduction targets. Serving as a voice to help plan implementation and develop a roadmap, the expert advisory group will comprise state agency, design, construction, deconstruction, manufacturing, testing, material standards, and sustainability professionals who have a unique understanding of on-the-ground feasibility challenges to inform practical implementation strategies. The state should model this advisory group off the existing GreenNY Council and the efforts of Massachusetts' Embodied Carbon Intergovernmental Coordinating Council, established in MA S.2967. One of the group's first actions should be to create a roadmap for reducing embodied carbon, with interim targets for buildings, infrastructure, and products. This roadmap could be built on the recommendations in the New York Scoping Plan for the buildings and industrial sectors, and provide guidance on operationalizing asset reuse and reduction targets into relevant pathways, including codes and standards, in service of achieving the overarching statutory carbon reduction targets for the built environment.

New York can learn from the implementation challenges of early regional frameworks like New Jersey's LECCLA, which highlight how critical clear agency ownership is to long-term momentum. To prevent administrative ambiguity or implementation delays, the roadmap should clearly outline the sequence of legislative actions and subsequent agency actions. Coinciding with the roadmap's deployment, New York should establish a Coordinated Agency Task Force - including OGS, NYSDOT, NYSERDA, and the Department of State - equipped with defined operational timelines to ensure a synchronized mandate and seamless interagency execution.

4. Ashtiani, M., Jungclaus, M., Habchi, R., Jensen, A., Rempher, A., Esau, R., & Lewis, M. (2025). Embodied carbon pathways to 2050 for the United States. Carbon Leadership Forum. https://carbonleadershipforum.org/embodied-carbon-pathways-to-2050-for-the-united-states/

5. Ingwersen, W. W., & Young, B. (2024). Consumption-based greenhouse gas inventories for Northeastern states [EP-A/600/R-23/319]. U.S. Environmental Protection Agency. https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntry-Id=363340&Lab=CESER

1 Establish New York's Goal for Embodied Carbon Reductions

OGS EO22 Embodied Carbon Guidance Document, NYS Office of General Services

Updated Jan 2025

EO 22 Embodied Carbon Guidance

a. Background

On September 20, 2022, New York State issued Executive Order 22: Leading by Example (EO22) to streamline the administration of the State's lead-by-example sustainability and climate directives, and set new goals for the environmental performance of State agencies and authorities.

Under EO22 the GreenNY Council is directed to issue guidance on reducing embodied carbon from common construction materials. Specifically, subsection D calls for the following:

> *"D. The Council shall issue Operational Directives and guidance for common construction materials to reduce the amount of embodied carbon in such materials. Starting January 1, 2023, Affected Entities shall seek to reduce the embodied carbon in all new construction or construction projects consisting of adaptive reuse or significant renovations that cost greater than 50% of the cost of new construction, submitted for permitting by Affected Entities, by taking the following actions:*
>
> *1. Design teams shall calculate the total embodied carbon that will result from the project, including shipping, transportation, and construction equipment requirements.*
> *2. Bidders shall be required to submit environmental product declarations when available, that include the amount of embodied carbon in given building materials."* (Executive Order 22 – Leading by Example)

In line with the ethos of Leading by Example, New York State is one of the early adopters across the country in requiring State agencies to account for embodied carbon in its procurement, following the federal government's *Buy Clean Initiative* - which requires contractors and designers to procure lower embodied carbon materials, and submit environmental product declarations (EPDs). New York is also one of an initial group of states who have joined the

C Establish a Technical Assistance Program and Provide Funding to Implementing Agencies

To support state agencies tasked with implementing embodied carbon policies and New York stakeholders impacted by these policies, the state should establish a fund to provide NYSERDA with the capability to create an Embodied Carbon Implementation Program. This program would support New York businesses by providing technical assistance (e.g., EPD grants, educational materials, benchmarking funds), while also providing a central agency to coordinate state actions, track state agency progress, convene recurring opportunities for stakeholder engagement, and conduct interagency coordination and collaboration.

D Codify Executive Order 22 to Legislatively Direct Agencies to Adopt a Sustainability and Decarbonization Program

The state should codify Executive Order 22 into a statutory requirement and support agencies that report to OGS in collecting product-level data and measuring and reducing embodied carbon at the project-scale. To ensure the carbon reduction strategies consider the material life cycles, the program must evaluate long-term durability and structural performance. The state should dedicate additional funding and staff to help implement the sustainability and decarbonization program, achieve legislative requirements, and improve the program over time.

2 Set Embodied Carbon Reduction Requirements for Buildings

The embodied carbon of new and existing buildings in New York State from residential and commercial construction is projected to add 900 MMT CO2e to the economy over the 2025–2050 period[6]. Buildings form the basis for local businesses, communities, and industry, and present an unparalleled opportunity to leverage innovation for community benefit. In alignment with the state's carbon reduction goals, establishing embodied carbon reduction requirements for buildings is a key opportunity for policymakers.

A Set Three Compliance Pathways as a Long-Term Strategy to Reduce Embodied Carbon through State Codes

To establish a long-term strategy for reducing embodied carbon in all building projects, New York State should set statutory reduction targets for new buildings to support the state's sectoral targets, making these reductions mandatory by 2030. Ideally, the New York State Legislature should direct the New York Department of State to incorporate embodied carbon into the state building code or stretch code[7] by 2028 through a code revision process. This would follow the process of establishing California's CALGreen embodied carbon requirements[8]. In lieu of revising the state building code, New York could achieve an aligned result through revising local and zoning codes in specific municipalities. See Section 6 for details on how municipalities can support this direction.

Requirement Framework:
Establish a three-pathway method for new building projects.

New York State should require all new construction and major renovation projects to reduce life cycle embodied carbon impacts. Similar to the CALGreen provisions in California, three options for compliance can provide flexibility for doing so:

1. Building LCA pathway. Require a reduction over time in embodied carbon intensity or compared to a baseline and/or embodied carbon budget (measured in kgCO2e/m^2) at the project scale. This pathway aligns with the Reduce Embodied Carbon credit in the Leadership in Energy and Environmental Design (LEED) v5 Material and Resources category and the associated prerequisites.
2. Product pathway. Require project teams to submit product- and facility-specific EPDs to sum the total embodied carbon of a subset of covered products at the project level to achieve a reduction at the project budget level or product level.
3. Reuse pathway. Establish automatic compliance for teams that document they reused more than 40% of the structure and envelope of a building.

The flexibility of these three pathways makes it possible for all projects to comply while gradually creating a guide toward decarbonization using all possible means of reduction, including adaptive reuse, building design, construction, and material choice.

6. Chafart, M., Jensen, A., Benke, B., & Lewis, M. (2026). CLF embodied carbon policy reduction calculator (Version 1.0). Carbon Leadership Forum. https://ec-policy-reduction-calculator.carbonleadershipforum.org
7. NBI: A stretch code is a locally mandated code or alternative compliance path that is more aggressive than base code, resulting in buildings that achieve higher energy savings.
8. AIA California. (2026). CALGreen mandatory measures for embodied carbon reduction. https://aiacalifornia.org/news/calgreen-mandatory-measures-for-embodied-carbon-reduction

2 Set Embodied Carbon Reduction Requirements for Buildings

B Implement and Refine Project-Scale Requirements with Agency Input

After New York issues the project LCA guidance associated with Executive Order 22, OGS should gather input every two years to refine and update their project LCA reporting guidelines.

C Consider Introducing a Collective Compliance Path for Owners or Managers of Multi-Building Portfolios

This measure would introduce an emissions trading mechanism between individual properties within multi-building portfolios, such as commercial real estate, academic or medical institutions, large-scale retail owners, and publicly supported housing. The measure would help building portfolio owners or managers meet emission reduction targets collectively throughout a portfolio. Local Law 97 of 2019 in New York City has demonstrated a viable mechanism to implement a trading mechanism within building portfolios.

The Geneva, Courtesy of Handel Architects

3 Establish Embodied Carbon Reduction Requirements for Infrastructure

New York State public agencies are responsible for over $28 billion in total construction per year[9]. This large-scale public investment powers the state's economy by physically connecting New Yorkers to one another, their jobs, the country's economy, and the rest of the world. As these agencies directly oversee project requirements and construction efforts, this investment provides a unique ability for the New York State Legislature and the governor to direct agencies to quantify and reduce embodied carbon emissions with immediate effect. To support the alignment of New York's emissions reduction goals, embodied carbon reduction requirements can be established for capital delivery agencies.

All agencies should track their average agency-wide emissions intensity annually to track embodied carbon reduction progress and identify when additional agency actions may be required to meet New York's climate goals. Agencies should track their reduction progress at the agency and project scales.

9. Reflective of 2024 totals from AGC: https://www.agc.org/sites/default/files/users/user21902/NY-US%2520construction%2520fact%2520sheet_2025_V2.pdf&sa=D&source=docs&ust=1771892015800987&usg=AOvVaw2Ai49E975DWfC8PfPx-7m7h

A Agency Scale: Require Emissions Reporting for Construction Materials and Activities

Agencies should be required to quantify and report their agency-level emissions from construction materials and activities across new construction, state of good repair, and maintenance projects, covering LCA modules A1–A5. Tracking these modules is critical to establishing annual environmental impacts across all capital delivery agencies.

1. Construction Materials: Annualized Total and Median Emissions Intensity. Using EPDs, agencies should calculate both the total annualized emissions and the median emissions intensity of key construction materials. Key materials should be identified on an agency-by-agency basis according to procurement spend and historical usage, establishing broad material classifications similar to Product Category Rules (PCRs).
2. Construction Activities: Annualized Total and Median Emissions Intensity. Using existing common reporting metrics (such as contractor fuel consumption), agencies should track and sum the total emissions associated with site activities and the transportation of key construction materials to project sites.
3. Contractual Frameworks and Financial Incentives: Agencies should implement sustainability policies directly within contract bid documents to level-set the bidding process for prospective general contractors, incorporating a financial incentive/disincentive structure to reward teams that achieve project goals:

    - Project Emission Budgets: During pre-construction, project teams should identify key construction material emissions limits for each material category. This method is modeled after the approach within American Concrete Institute's Code-323-24 for producing a concrete budget, which establishes a maximum allowable carbon footprint for the project's concrete mix designs.
    - Salvaged Materials: Teams should also establish specific targets for salvaged materials, calculated as a percentage of the total material cost.
    - Construction Tracking: Project teams must actively track contractors' progress toward meeting these established project goals throughout the construction phase.

3 Establish Embodied Carbon Reduction Requirements for Infrastructure

Envision Framework v3, Institute for Sustainable Infrastructure

CLIMATE AND RESILIENCE: EMISSIONS

CR1.1 Reduce Net Embodied Carbon

20 POINTS	INTENT	METRIC
	Reduce the impacts of material extraction, refinement/manufacture, and transport over the project life.	Percentage of reduction in net embodied carbon of materials.

LEVELS OF ACHIEVEMENT

IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
A + B + C	A + B + C	A + B + C	A + B + C	Not Available
(5) At Least 5% Reduction	(10) At Least 15% Reduction	(15) At Least 30% Reduction	(20) At Least 50% Reduction	
(A) The project team identifies primary materials to be used on the project during construction and operation. The team determines which materials are the primary contributors to net embodied carbon (collectively >80%).				
(B) Embodied carbon is calculated, or acquired by a validated source, for the primary materials identified in criterion A. Calculations include: • Embodied carbon of production, including raw material extraction, refinement, and manufacture. • Embodied carbon of transporting materials to the project site. • The replacement, repair, or refurbishment of materials over the life of the project.				
(C) The project team demonstrates at least a 5% reduction in total embodied carbon of materials over the life of the project compared to the baseline. Calculations should be in tons CO_2.	**(C)** The project team demonstrates at least a 15% reduction in total embodied carbon of materials over the life of the project compared to the baseline. Calculations should be in tons CO_2.	**(C)** The project team demonstrates at least a 30% reduction in total embodied carbon of materials over the life of the project compared to the baseline. Calculations should be in tons CO_2.	**(C)** The project team demonstrates at least a 50% reduction in total embodied carbon of materials over the life of the project compared to the baseline. Calculations should be in tons CO_2.	

B Project Scale: Integrate Envision Certification into Project Design and Delivery Workflows

The Envision Sustainable Infrastructure Framework (Envision) is a project assessment tool that helps project teams evaluate their infrastructure projects across a series of sustainability indicators, ultimately supporting higher infrastructure performance from planning through construction. All public infrastructure projects in the state should be required to integrate Envision Certification in their project design and delivery workflows. The framework allows state planners to assess a project's impacts on the environment and communities, both directly and indirectly.

1. Project-scale LCA with Envision Credit CR1.1: Reduce Net Embodied Carbon. During design, agencies should conduct whole-project LCAs to optimize material efficiency and life cycle impacts over the life of the project being constructed, aiming to achieve the requirements of Credit CR1.1 within Envision. Agencies should report on how many projects that move into construction in any given year have an associated whole-project LCA conducted during design. They should also report on the reduction in embodied carbon emissions associated with project delivery. Ideally, the state would provide guidance to define LCA requirements beyond what is provided by Envision to ensure consistency.

4 Support Manufacturers and Suppliers in Scaling the Low Carbon Material Market

Championing innovative New York manufacturers and suppliers will spur additional jobs and investments within New York. However, these new jobs will require clear market signals to investors that New York is truly doubling down in purchasing low-carbon construction materials for public projects, as well as supporting private developers who use these products. Through a series of public commitments, investments, testing centers, and expanded eligibility programs, New York can send a clear, unambiguous message that both public and private businesses will purchase low-carbon construction materials in the state.

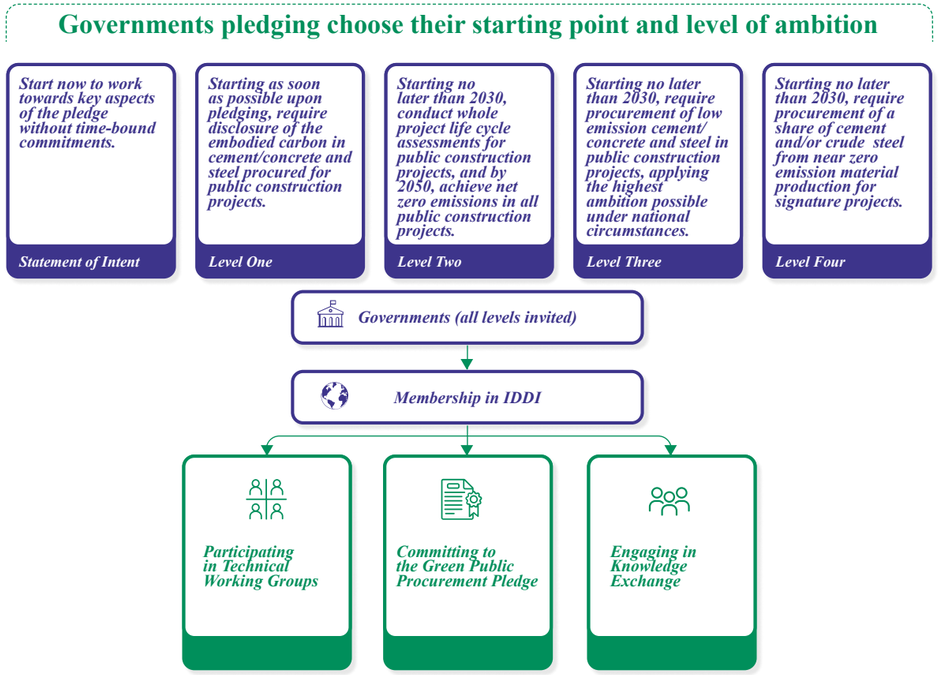
A Adopt a Low-Carbon Product Standard

Establish a low-carbon product standard to set an emissions threshold for products sold in the state. Similar to the state's refrigerant phase-out program, which restricts use of high-GWP refrigerants, this standard would limit the sale of high-emitting construction products and materials, creating an emissions ceiling to restrict selling the highest emitting products. The standard would provide product category emissions thresholds, which would support and incentivize increased emissions reductions to align with the state's emission reduction targets. EPDs would be used to determine emissions intensity, and can be supplemented with additional information as needed. The program could be implemented via a market-based credit-trading system—modeled on the Low Carbon Fuel Standard in California, Oregon, and Washington—to incentivize producers to use and produce low-carbon alternatives, with credits available for producers of higher intensity products to purchase from those producing lower intensity products. As smaller building projects may not have the resources to complete a WBLCA to reduce embodied carbon emissions, a low carbon product standard would facilitate some level of emissions reductions.

B Sign a Green Public Procurement (GPP) Pledge Commitment for New York

Send clear market signals of New York's commitment to greening public procurement and supporting low-carbon construction materials used in public assets by joining and/or committing to the GPP Pledge of the Clean Energy Ministerial's Industrial Deep Decarbonization Initiative (IDDI) hosted by the United Nations Industrial Development Organization. By joining IDDI, New York can demonstrate its continued leadership within the United States and send market signals by committing to the GPP Pledge—putting New York in front of all other states and on a similar footing as leading national governments such as Canada, Germany, the United Kingdom, the United Arab Emirates, Japan, Brazil, and Austria.

To ensure these market signals are strong enough to drive local manufacturing, the State can go beyond this pledge framework by incorporating requirements into procurement mechanisms. Drawing a parallel to how the Clean Energy Standard (CES) used binding law rather than soft preferences to build out the renewable energy sector, New York can act as an anchor buyer to de-risk the financing of new local production and fabrication facilities. Through agencies like OGS and DOT, the State can act as a Guarantor of Demand by establishing Advanced Market Commitments (AMCs): long-term contracts committing to guaranteed purchase volumes at set prices if a manufacturer's material meets specified performance and carbon standards. This turns a symbolic pledge into the market signal necessary for innovators to secure construction loans for new New York facilities.



4 Support Manufacturers and Suppliers in Scaling the Low Carbon Material Market

C Support the Testing and Development of Low-Carbon, Innovative Materials

Support production and use of new and innovative materials in New York by establishing a series of state-supported testing and proving grounds and field-scale pilot deployments to evaluate real-world constructability. Overseen by NYSERDA and/or OGS, these initiatives can leverage partnerships with the State University of New York (SUNY) system and Rochester Institute of Technology's Center of Excellence in Advanced & Sustainable Manufacturing. Accelerating the transition from laboratory testing to final state agency specification approval will speed up the process of getting lower-carbon, performance-based materials such as cementitious materials or asphalt mixtures to market, building the familiarity and engineering data needed to more effectively integrate novel materials and reduce perceived installation risks for state agencies and contractors alike. This model has proven highly successful in New Jersey with Rutgers University, and in California with the University of California (UC) Pavement Research Center at UC Davis and UC Berkeley. State-supported testing can build credibility for new, lower carbon products, enabling New York to become a hub of material innovation while bolstering the state's construction and industrial sectors.

NYSDOT deployment of concrete with Pozzotive® ground-glass pozzolan, Courtesy of Bryan Concrete and Supply

4 Support Manufacturers and Suppliers in Scaling the Low Carbon Material Market

D Establish an Embodied Carbon Reduction Challenge Operated by NYSERDA

A program to provide demonstration projects to push the market and design industry forward, showing innovative opportunities for significant embodied carbon reduction, similar to NYSERDA's Building of Excellence Program. Modeled off of the Massachusetts Clean Energy Center's first-in-the-nation Embodied Carbon Reduction Challenge, the program would be a yearlong competition where design professionals submit new construction or major renovation building projects that demonstrate low-cost, high-impact strategies to reduce embodied carbon.

E Expand C-PACE Eligibility Criteria to Cover Low-Carbon Building Strategies

C-PACE financing provides low-cost, long-term capital for property owners to fund green building improvements, repaid through property tax bills. Expanding eligibility would allow key measures that reduce whole-life embodied carbon—such as material efficiency, lower carbon material selection, or circularity strategies like building preservation and adaptive reuse—to qualify for financing. This financing[10] would cover materials, labor, and related soft costs, delivering clear benefits to owners while accelerating the transition

10. In NYC, adaptive reuse projects are eligible for C-PACE financing. https://www.nuveen.com/greencapital/news-and-blog/reimagining-historic-buildings-using-c-pace

C-PACE Guidance Document, NYS Energy Research and Development Authority (NYSERDA)

4 Support Manufacturers and Suppliers in Scaling the Low Carbon Material Market

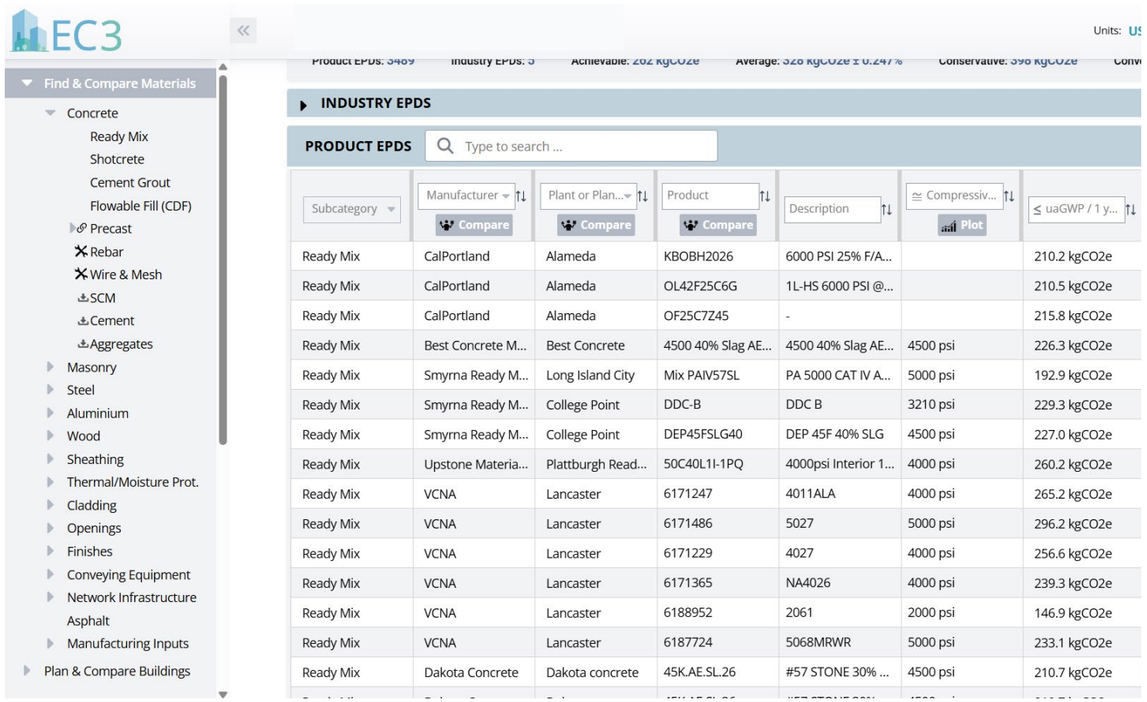
F Establish Incentives for WBLCAs for Large Projects Operated by NYSERDA

Similar to programs for energy monitoring and energy efficiency assessments, establish a pilot program providing grants to offset the soft costs of WBLCA[11] analysis for building project developers and designers. Incentivizing project teams to perform WBLCAs on large projects will help identify, measure, and reduce a building's total emissions. This should be done in advance of implementing embodied carbon budget pathways, which can yield a 28% reduction in soft-costs associated with project impact calculation (see Appendix) while helping the industry measure and manage the carbon footprint of projects.

G Evaluate Environmental Attribute Certificate Models for Low-Carbon Construction Materials

Evaluate the potential for environmental attribute certificate or "book-and-claim" models for low-carbon construction materials, informed by emerging examples such as the Microsoft–Sublime Systems low-carbon cement agreement in Massachusetts[12]. Such models could provide early, bankable demand for innovative manufacturers while allowing buyers to support embodied carbon reductions where physical supply is not yet available. This assessment could explore public-private co-investment frameworks where state procurement agencies act as physical anchor buyers for innovative materials at standard baseline prices, while private capital purchases the corresponding digital environmental attribute certificates to cover the premium. New York could assess whether these high-integrity environmental attribute certificate approaches could complement direct procurement while helping accelerate market entry and scaling up of low-carbon materials statewide.

EC3 Tool Dashboard from Building Transparency



11. An RMI survey conducted for AIA California found that for the California market, the median cost for WBLCA at approximately $25,000 per project among survey participants.
12. https://sublime-systems.com/microsoft-signals-intent-to-purchase-environmental-attributes-of-low-carbon-cement-developed-by-sublime-systems/

5 Incentivize the Use of Low-Carbon Construction Materials

Incentivizing and rewarding in-state producers of low-carbon construction materials will help spur the growth of good-paying jobs for New Yorkers. However, incentivizing the use of low-carbon construction materials requires the ability to establish a statewide baseline to compare against a reported emissions intensity. Providing support for more product- and facility-specific EPDs will yield a more representative data set and enable reward mechanisms for private and public projects.

UN Pozzotive Paving with recycled facade glass, courtesy of Unilock and Urban Mining Industries

A Provide Sales Tax Exemption for Low-Carbon Construction Materials

Incentivize the construction industry to use low-carbon materials by making them more cost-competitive. Between March 2023 and February 2024, the construction industry contributed 2.7% of total taxable sales in New York. Low-carbon construction materials make up a small fraction of taxable sales in New York; therefore, a sales tax exemption is projected to have minimal fiscal impact while helping to keep material costs affordable. Exemption should apply to low-carbon construction materials that meet a minimum 15% reduction in GWP from industry-wide baselines, verified through a product- and facility-specific EPD. Qualifying materials could include concrete, steel, engineered wood products, insulation, and various finishes (e.g., carpeting, ceiling tiles).

B Establish Grant Program for Material Manufacturers to Develop EPDs

To support local material manufacturers, promote market innovation, and foster competition, a pilot program providing grants to manufacturers to develop EPDs would be a key incentive to help manufacturers offset the costs of measuring the emissions of their material production. Other states, such as Massachusetts and Oregon, have successfully launched EPD grant programs. A grant program would ensure smaller manufacturers are not overly burdened by demand-driven EPD requirements and support the competitiveness of local manufacturers in a moment of uncertainty with tariffs and other looming federal budget cuts and regulations.

5 Incentivize Utilization of Low-Carbon Construction Materials

Courtesy of Byram Concrete and Supply

C Expand Eligibility for the R&D Tax Credit

New York should broaden the definition of qualified research expenditures (QREs) for green projects to include WBLCA, EPD development, material testing, and other research related to adaptive reuse, material reuse, and the development and use of low-carbon construction materials. The R&D Tax Credit is a federal program to incentivize businesses to invest in R&D within the United States, which is also offered in New York as an expanded incentive to encourage additional R&D within the state. New York's program allows taxpayers to claim up to 50% of their federal R&D credits that were conducted within the state. The credit is capped at 6% of QREs or 8% for qualified green projects.

D Establish a Dual-Track Capital Fund for Supplier Industrial Transformation

To support New York manufacturers and material suppliers in reducing their facility-level and supply chain (upstream) emissions, the State should establish a dual-track Capital Expenditure Fund providing financial support for industrial upgrades and material certification. This fund should support two distinct programs:

1. Circular Material Handling & Certification Grants: A program to help salvage yards and deconstruction contractors purchase specialized horizontal handling equipment and invest in non-destructive testing (NDT) tools required to offload, load, and certify heavy salvaged items for reuse.
2. Low-Carbon Industrial Plant Transition Fund: A program to fund industrial decarbonization initiatives, such as equipment modernization and energy efficiency upgrades, to optimize system operations. This targeted funding would prioritize high-impact opportunities that offer a high cost-benefit ratio for emissions reduction.

6 Encourage Localities to Address Embodied Carbon

Local stretch codes, zoning policy, and ordinances are an important and fundamental pathway that allow jurisdictions and municipalities to meet statewide and regional goals in a manner conducive with their fiscal resources, general interest, support of embodied carbon, and level of preparedness to meet the goals. Local stretch codes and ordinances can help drive adoption of statewide building standards and drive market transformation.

A Encourage Localities to Adopt Low Carbon Zoning Requirements for Buildings

As an interim step toward statewide code revisions, individual jurisdictions—starting with New York City—should incorporate embodied carbon reduction requirements into local permitting processes using zoning code or local laws by 2026. Municipal policy can help prepare the state for wider code changes. This program should be modeled off the city of Boston's Net Zero Carbon Zoning Initiative, which requires WBLCA reporting for buildings of a certain size. Furthermore, individual jurisdictions and non-state transportation agencies should incorporate embodied carbon requirements into transit-oriented development permitting to amplify the environmental benefit from mass transit to include lower embodied carbon construction materials and practices.

B Provide Density Bonuses for Exceptional Achievement in Low-Carbon Requirements

Provide incentives for high-performing construction and renovation projects. Building on New York City's City of Yes for Carbon Neutrality framework and the city of Seattle's Director's Rule, leverage zoning incentives (e.g., New York City's Ultra Low Energy Building Bonus) by offering density or floor area ratio bonuses for projects that demonstrate embodied carbon reductions through WBLCAs. These incentives could be modeled off the FRESH program, which successfully combined tax incentives with zoning benefits to expand access to healthy food across New York City.

C Expand the Erie County Industrial Development Agency's (IDA's) Adaptive Reuse Tax Incentive Program Statewide

Encourage the IDA to establish a program modeled off the Erie County IDA's Adaptive Reuse Tax Incentive Program, which offers abatements of sales tax and mortgage recording tax. The Erie County IDA's program has been incredibly successful, supporting 53 projects between 2008 to 2016 with an estimated total leverage private investment of $632 million to create 1,141 housing units and 1.5 million square feet of commercial space, of which 4% of total project investments were from ECIDA incentives[13]. The program provides three types of tax incentives:

- Property tax abatement based on expected increased assessed value of project on terms of 5, 7, or 10 years;
- 8.75% savings on sales tax for construction materials; and
- 0.75% savings on the 1% mortgage recording fee.

13. https://www.ecidany.com/documents/Full%20Report%20Adative%20Reuse%20LOW%20REZpdf.pdf

6 Encourage localities to address embodied carbon

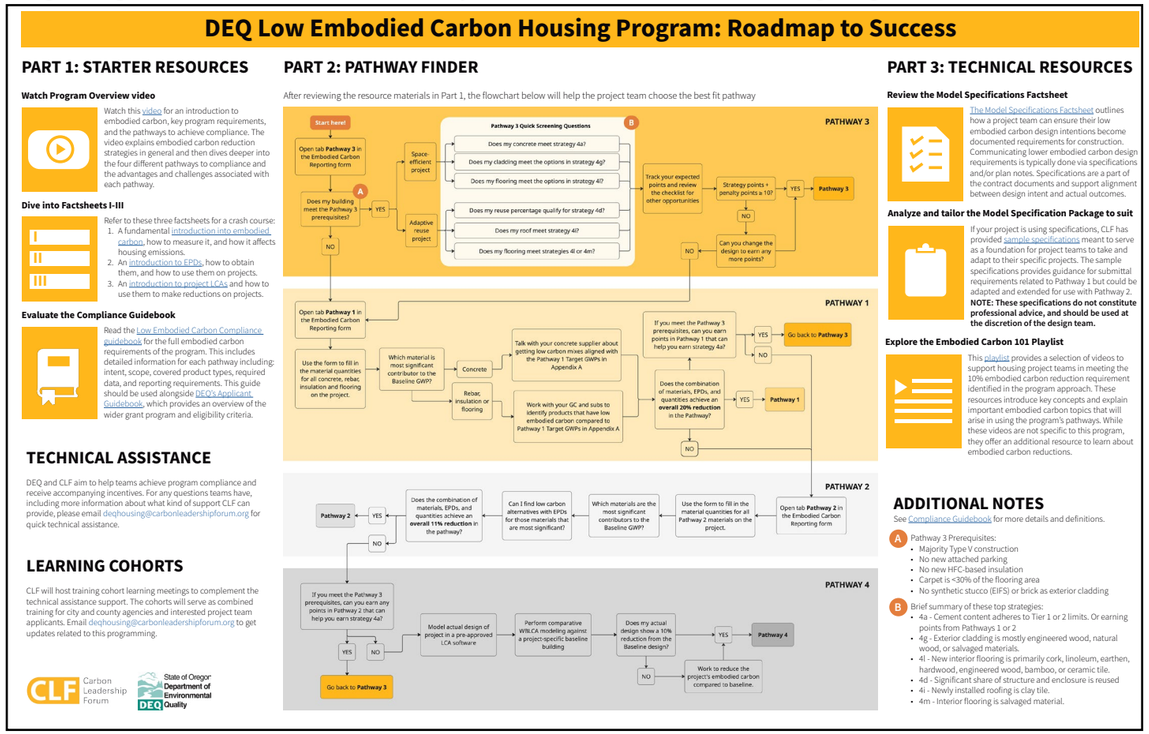
D Establish Green Building Incentives to Support Adaptive Reuse Projects

Rewarding adaptive reuse projects more robustly by offering tax incentives would make building preservation more cost competitive than demolition and redevelopment. Unlike historic tax credits, which rely on landmark status, this credit could incentivize the preservation of the average, non-historic concrete or steel building to prevent unnecessary demolition of carbon-intensive, structurally sound assets. In recent years, the state has established numerous incentive programs for adaptive reuse, including 467-m (Affordable Housing from Commercial Conversions) and J-51 (Exemption and Abatement) programs to encourage building retrofits and reuse at all scales. The 467-m program lowers the tax burden for property owners compared to typical multifamily residential new construction by offering a tax incentive for property converted from commercial space to residential dwellings. J-51 similarly lowers costs for upgrading existing residential buildings, incentivizing capital improvements that extend building lifespans and preserve housing quality. These tax incentives are powerful tools for enabling affordable and immediate low-carbon housing by upgrading existing building stock. To broaden the impacts of such incentives beyond New York City, the state should enable and bolster similar programs with broader criteria to 467-m and J-51 for municipalities to adopt.

E Establish Incentive Programs for Using Low-Carbon Design Principles in Building or Retrofitting New Housing

Leverage the energy to address housing affordability and the housing crisis in New York by offering incentives to builders who convert other uses into housing, or build units with low embodied carbon materials. This incentive could be modeled off the Oregon Department of Environmental Quality's Low-Embodied Carbon Housing Program.

Oregon Department of Environmental Quality's Low-Embodied Carbon Housing Program



Courtesy of Carbon Leadership Forum (CLF)

This incentive could be modeled off the Oregon Department of Environmental Quality's Low-Embodied Carbon Housing Program which is a state program working directly with local government partners to implement.

7 Industry Supporting Activities

While New York agencies can lead the way for implementing best practices and providing technical support or financial resources to stakeholders, industry[14] has a critical role in helping reduce embodied carbon. Through a wide variety of activities that support efforts to pass and sustain embodied carbon policies in New York State, industry stakeholders can build capacity, help address cost concerns or highlight additional considerations, and help coordinate with other efforts locally, regionally, and nationally. Each of these activities is detailed below, with examples of actions different stakeholders can take.

A Building Industry Capacity

To build momentum toward reducing embodied carbon, industry should proactively develop its capacity to help catalyze and advocate for action. Case studies or awards could highlight first movers that are working to reduce embodied carbon in New York, and incentives could reward them where possible (see Policy Recommendations section). Widespread training should seek to initiate new professionals into these topics and help scale norms around measuring embodied carbon and best practices for reducing it.

Capacity building by Stakeholders

Local Volunteer, NGO and Advocacy groups

AIANY, CLF NY, RECLAIM, BE-Ex, NRDC, CLF, UrbanGreen, ULI

+

Private Sector AEC firms

SE 2050, MEP 2040, AIA 2030

+

Agencies

NYSERDA Buildings of Excellence Program

What can different stakeholders do to build capacity?

- Local volunteer groups, nongovernmental organizations (NGOs), and advocacy groups focused on action in this area could help by offering free training, creating slides and curriculum, facilitating learning networks, and supporting agencies directly in implementing existing policies. (e.g., the American Institute of Architects New York, CLF and CLF New York, RECLAIM NYC, the Building Energy Exchange, NRDC, UrbanGreen, Urban Land Institute). A certification or training certificate program could increase consistency and help communicate expertise.

- Agencies can explore ways to include embodied carbon emissions reductions in existing programs (e.g., technical assistance programs), as well as highlighting and incentivizing projects that reduce embodied emissions (e.g., NYSERDA's Buildings of Excellence program). They can also support or sponsor educational sessions on reduction strategies.

- Private sector architecture, engineering, and construction (AEC) firms can support this aim by adopting commitments (e.g., AIA 2030, SE 2050, MEP 2040) to measure and reduce embodied carbon internally; sharing educational content with owners, developers, and other clients; and providing insights and project information through benchmarking efforts, pilot programs, and awards programs. They can also support this work by requesting and/or requiring EPDs and low-carbon products. Generating this market demand is a critical driver for the widespread adoption of sustainable products.

14. CLF, NRDC, NBI, AIA NY, and RMI (2025). State Embodied Carbon Policy Theory of Change - September DRAFT.

7 Industry Supporting Activities

B Addressing Cost Concerns

One of the greatest challenges to implementing embodied carbon reduction strategies is limited information around the costs of the policies at scale to project teams, manufacturers, and industry. Data collection and research to better describe, model and anticipate these costs would demonstrate the financial and environmental value of embodied carbon reductions to owners, developers, and traditional market competitors in other sectors and industries.

Key Stakeholders

- NGOs should lead research and consolidation of existing data on related costs and make them more widely available to policymakers and practitioners.
- Contractors can contribute data on green premiums and related costs to use in characterizing the costs related to actual procurement decisions and timeline considerations
- In collaboration with contractors, design firms can contribute data on the costs of modeling, reporting, and reduction analysis, as well as savings from using less or alternative materials or reducing construction or renovation schedules.
- Agencies can compile and share data on green premiums and related costs for reporting and modeling work.

C Coordination with other efforts

Developing consensus among and between stakeholders involved in embodied carbon policy requires a coordinated effort to keep policies aligned with national progress and best practices, including the way policies are developed and the tools and reporting methods they use. The proposed New York State Expert Advisory Group and other active NGOs can play a key role in linking the emerging embodied carbon work in New York to the national efforts:

- Private AEC firms and NGOs can help ensure consistency in LCA modeling, reporting, and tools – including standards, reporting requirements, and databases – and fill in documentation gaps by connecting New York with other outside efforts. Building off credible work accomplished elsewhere (such as ASHRAE Standard 240P) can reduce the burden on all stakeholders and prevent the reinvention of resources and requirements, thus increasing private sector efficiencies.
- Agencies can adopt existing consensus-based standards wherever relevant, applicable, and feasible to send a clear, consistent message to the industry regarding the technical specifications needed to achieve the state's decarbonization goals. This alignment makes it easier for companies to comply with New York's evolving requirements. While New York has not yet formally codified specific standards or codes, the state has made significant progress toward aligning and ensuring interoperability between embodied carbon quantification efforts. By leveraging established industry standards, regional codes, and technical committees, New York can build on its desire to reduce embodied carbon. Ultimately, this approach increases the rigor of carbon quantification and standardizes calculation and reporting methodologies across the board. New York should actively seek to adopt and align with these established frameworks where possible.
- Utilities interested in reducing emissions can evaluate opportunities to incorporate embodied carbon in existing or new programs to help incentivize the reduction of embodied carbon in buildings. Utility incentive programs that have historically stimulated market demand for energy-efficient products can similarly help prepare jurisdictions and states for future regulatory requirements related to embodied carbon. Additionally, information collected by utility incentive programs is invaluable for providing insights into the market and ensuring policies and requirements reflect market conditions.

Deep Dive of Policy Recommendations

Building Material Reuse

Reusing buildings and materials is an untapped piece of New York State's green economy with great economic potential, pronounced environmental advantages, and numerous co-benefits. The aforementioned policy opportunities are critical pieces in developing the state's green economy and will open the door to enabling low-carbon construction and reuse at scale. Creating the New York State Expert Advisory Group (Strategy 1.b.) and adaptive reuse incentives (Strategies 6.c.–6.e.) identified in the previous sections will kickstart capacity-building for reuse. The following section takes direction from these opportunities and the larger need for reuse-focused policy, highlighting the benefits of reuse and the steps to get there.

Reusing buildings and materials can reduce the industry's need to purchase virgin materials, significantly reducing the emissions associated with material extraction, manufacturing, and transportation processes. Reuse can be implemented at many different scales. Building maintenance and adaptive reuse preserve a building's core and generally result in significant embodied carbon reductions compared to demolition and new construction. However, when it is not possible to adapt a building for a second use, deconstructing the building and reusing the materials is the preferable approach. These circularity principles apply across the entire built environment, including buildings, infrastructure, and public works.

Ultimately, circular construction serves as a critical strategy for state-level economic resilience. By treating New York's building stock as "material banks", the State can decouple infrastructure growth from volatile global supply chains and tariff uncertainties. Realizing this potential requires bridging the physical and financial gaps in the salvaged market. Through strategic land use and bankable offtake commitments - a guaranteed future sale that institutions trust - the State can provide the predictable demand necessary to scale a local circular economy and preserve existing carbon markets.

Building reuse, building deconstruction, and material reuse also have benefits beyond reducing embodied carbon, including:

- Reducing landfilled and/or incinerated waste and associated emissions.
- Conserving natural resources.
- Improving air, water, and soil quality of construction sites when giving preference to deconstruction over demolition.
- Preserving buildings and building materials with cultural and historical significance.
- Increasing supply chain resiliency by keeping local materials local.
- Providing economic benefits associated with:
  - Creating jobs, including jobs for overburdened communities[16].
  - Reducing costs associated with transporting and landfilling waste.
  - Reducing New York State's reliance on volatile global supply chains and tariff uncertainties for new materials.

Please refer to "Appendix: Reuse" for additional context on the strategies in this section, including anticipated resources and relevant state agencies, stakeholders, precedents, and resources.

16. [CR0WD NYS white paper includes an economic analysis (3B impact, 13K jobs)]

0 Summary of Reuse Recommendations

Build Smart

1 Build durable and long-lasting assets.

Maximize the lifespan of New York's new and future building materials and systems, creating local jobs, protecting public health, and minimizing community disruptions.

2 Maintain and repair existing assets.

Preserve existing building assets through proactive maintenance to prevent exponential deterioration and escalating costs caused by deferred maintenance, avoid the lost value of wasted reuse opportunities, and revitalize communities.

Build Less

3 Optimize material use and reduce waste.

Turn the challenge of diminishing landfill capacity and associated emissions into a market opportunity by discouraging unnecessary waste and using triangulated reporting to track, monitor, and improve waste diversion across multiple locations.

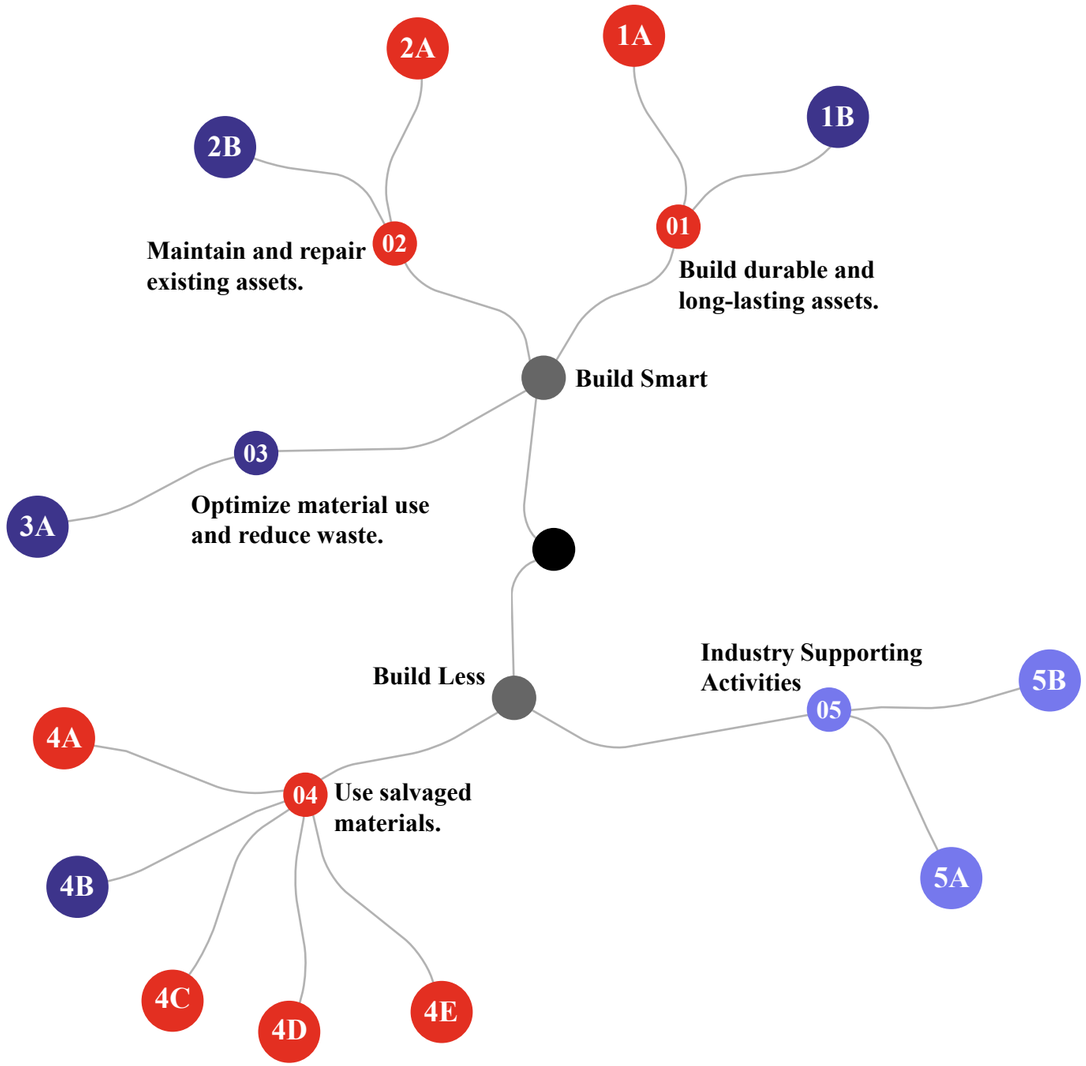
4 Use salvaged materials.

Harness the inherent value of end-of-life materials by actively repurposing them and integrating them into a robust, secondary supply chain.

5 Industry Supporting Activities.

Collaborate with industry stakeholders across New York to help reduce embodied carbon by increasing capacity, addressing cost concerns, and coordinating with other efforts to minimize the duplication of efforts—saving the public money and reducing the time and monetary burden on private enterprise

0 Reuse Overview



01 Build durable and long-lasting assets.

- 1A Require State Projects to Consider Circularity
- 1B Publish Design for Adaptability Guidance

02 Maintain and repair existing assets.

- 2A Conduct a Statewide Adaptive Reuse Assessment
- 2B Publish Building Maintenance Guidance

03 Optimize material use and reduce waste.

- 3A Enhance Digitized Construction and Demolition Waste Reporting for All Public Projects

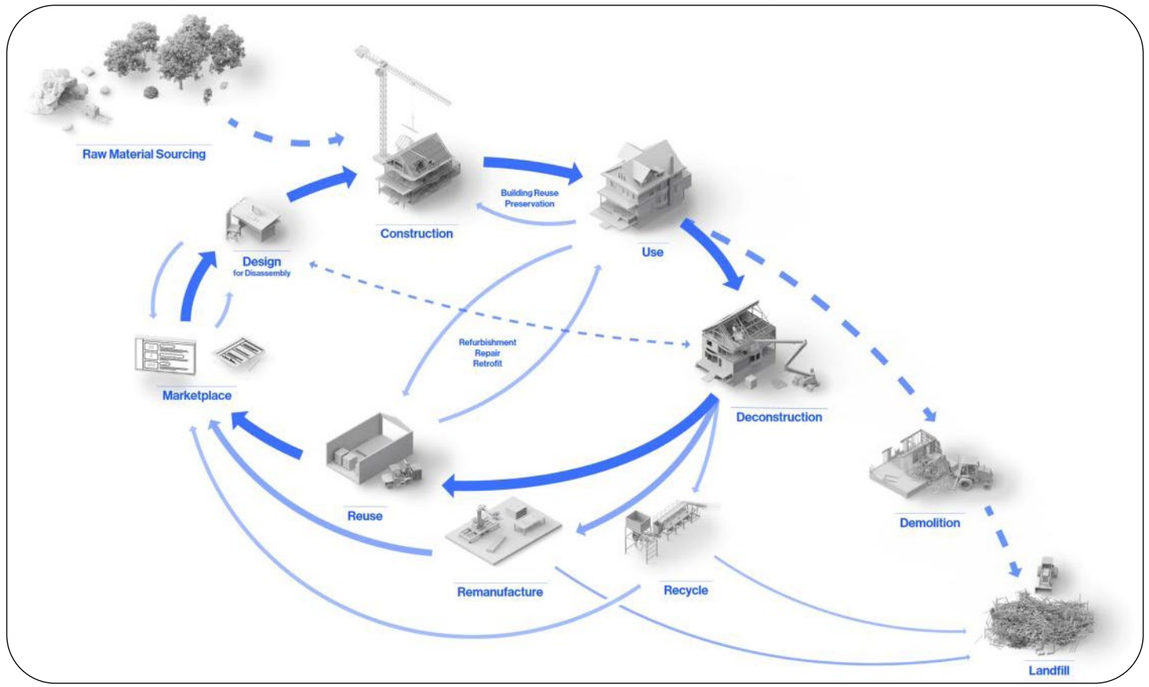
04 Use salvaged materials.

- 4A Update State Building Code to Allow Salvaged Structural Materials
- 4B Conduct Deconstruction Training and Certification
- 4C Fund Deconstruction and Reuse Pilots for State Projects
- 4D Encourage Municipalities to Implement Deconstruction Ordinances
- 4E Conduct Statewide Land Availability Assessment

05 Industry Supporting Activities

1 Build Durable and Long-Lasting Assets

Constructing a Circular Economy in NYS: Deconstruction and Building Material Reuse



Circular Construction Lab | Just Places Lab | ReUse | CROWD

A Require State Projects to Consider Circularity

OGS should develop circular construction guidelines and mandate state agencies to adhere to these guidelines for all new public builds and major retrofits. This action will institutionalize a "buildings as material banks" philosophy, focusing on disassembly, material recovery, and reuse[17]. Adopting these protocols stabilizes long-term resource management across the state's capital portfolio and provides the data necessary to evaluate future reuse potential. These guidelines should be integrated into existing executive order frameworks, focusing on disassembly, material recovery, and reuse.

B Publish Design for Adaptability Guidance

Develop official state guidance for architects and developers on designing for adaptability to ensure new buildings efficiently evolve with shifting market needs[18]. By standardizing flexible structural and spatial planning, the state can avoid unnecessary waste, prevent future buildings from becoming obsolete, and drastically reduce long-term embodied carbon.[19]

17. https://edc.nyc/circular-design-construction-guidelines
18. https://www.aia.org/resource-center/design-adaptability-deconstruction-reuse
19. https://www.westminster.gov.uk/news/westminster-council-launches-retrofit-first-policy-and-boosts-affordable-housing-city-plan-partial

2 Maintain and Repair Existing Assets

A Conduct a Statewide Adaptive Reuse Assessment

NYSERDA, in partnership with ESD, can oversee a comprehensive inventory of New York's building stock to identify prime candidates for adaptive reuse[20] and revitalization. By leveraging geospatial building stock models,[21,22] building layouts can be evaluated more rapidly and at scale, replacing time-consuming manual audits with data-driven screening. Mapping specific asset types—such as underutilized schools, offices, or industrial sites—to their most viable new uses (e.g., housing or life sciences) provides the state with a proactive, data-driven blueprint for revitalizing communities while maximizing capital savings and existing carbon investments.

The SUNY system, as one of the largest property owners in the state, could catalyze this effort by conducting campuswide and systemwide assessments of their built assets. Leadership at the SUNY institutions could leverage the intellectual presence on their campuses by directing their architectural and building engineering students to work on adaptive reuse capstone projects, interrupting the status quo of new design for these projects. These students could collaborate with computer science and software engineering students on their capstone projects to refine and scale adaptive reuse potential models. This collaborative, cross-disciplinary work focused on emerging trends and technology will prepare the students to work in a fast-paced, ever-evolving world.

B Publish Building Maintenance Guidance

Establish a state-led resource hub providing standardized maintenance and preservation guides to extend the useful lifespan of building and infrastructure materials[23] for public and private capital projects. Detailed technical inspection protocols and material-specific maintenance checklists can help protect real estate value while supporting future reuse.

660 Fifth Avenue, courtesy of Claire Dub / KPF

20. https://dos.ny.gov/spurring-adaptive-reuse
21. High-resolution combined building stock and building energy modeling to evaluate whole-life carbon emissions and saving potentials at the building and urban scale
22. https://www.researchgate.net/publication/235287459_Validation_of_the_adaptive_reuse_potential_ARP_model_using_iconCUR
23. https://www.nyc.gov/site/buildings/property-or-business-owner/property-maintenance.page

3 Optimize Material Use and Reduce Waste

A Enhance Digitized Construction and Demolition Waste Reporting for All Public Projects

Standardize ongoing waste management practices for construction and demolition and require digital tracking of end-of-life outcomes for materials on public projects meeting specific thresholds[24]. Using a triangulated reporting model between the source, the hauler, and the destination verifies that debris is diverted from landfills. Linking permit close-out to verified tonnage receipts ensures data-driven compliance and transparency. Better understanding of today's large-scale material streams will inform future decision-making, from projecting landfill capacity to forecasting the availability of salvaged materials for upcoming projects.

NYC School Construction Authority, source: CO Adaptive

24. Construction and Demolition Waste Management

4 Use Salvaged Materials

70 Mulberry Adaptive Reuse and Restoration, courtesy of NYC DDC

A Update State Building Code to Allow Salvaged Structural Materials

Through the New York Department of State's Division of Building Standards and Codes, update the state's building code to explicitly permit the use of salvaged structural materials[25]. With support from the New York State Department of Transportation, OGS, and SUNY, the state can establish salvaged material criteria in coordination with the standards development organizations in Table 3. Industry and academia are advancing the structural, economic, and environmental performance of reused steel.[26,27] By advancing research on broader structural material reuse and updating the Building Code of New York State to explicitly allow salvaged materials, New York's government, academic ecosystem, and private industries have the opportunity to lead material reuse nationally.

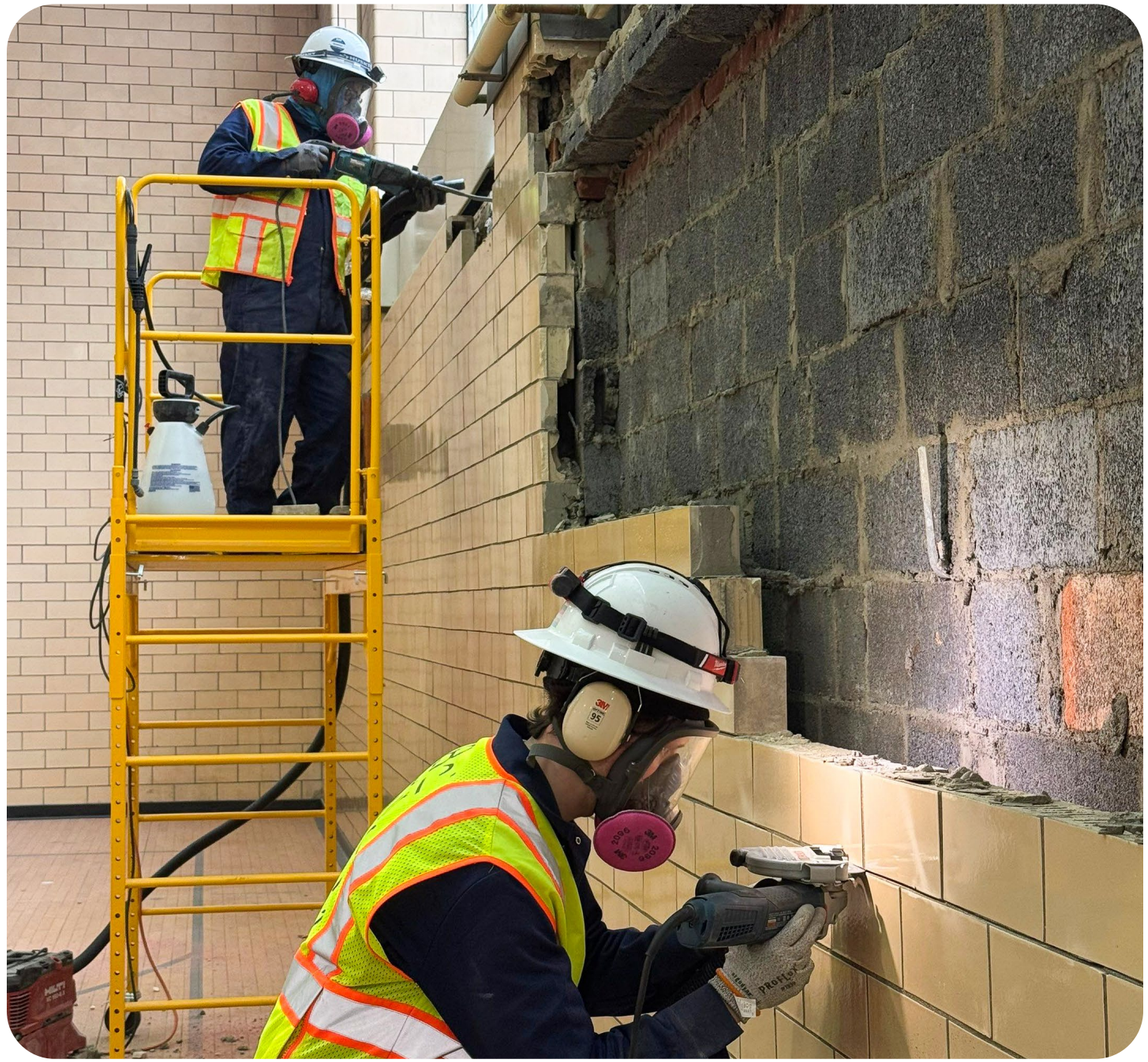
Table 3: State and National Standards Development Organizations

Material	Standards Development Organization
Steel	American Institute of Steel Construction
Concrete	American Concrete Institute
Asphalt	New York State Department of Transportation
Wood	American Wood Council

25. https://app.leg.wa.gov/wac/default.aspx?cite=51-51-0602
26. https://www.aisc.org/news/som-led-team-to-write-forthcoming-aisc-sustainability-design-guide/
27. https://dspace.mit.edu/handle/1721.1/151575

4 Use Salvaged Materials

NYC School Construction Authority, source: CO Adaptive



B Conduct Deconstruction Training and Certification

Integrate deconstruction techniques into state workforce development programs and establish a formal certification for deconstruction contractors.[28,29,30] In coordination with New York State's Workforce Development Boards and Department of Health, training can focus on how to properly disassemble buildings and decrease hazardous materials.[31,32] By training contractors on recovering high-impact materials, the state can build the local expertise necessary to transition from traditional demolition to a circular economy.

C Fund Deconstruction and Reuse Pilots for State Projects

Provide grants[33] to offset the initial cost difference between traditional demolition and high-recovery deconstruction pilot projects where adaptive reuse is infeasible, as well as to offset the initial cost difference between procuring salvaged and new materials. By prioritizing state-owned assets, particularly within the SUNY system (which comprises approximately 40% of state building stock), New York can model circularity at scale. These pilots will generate critical data on labor, cost parity, and material recovery to inform future statewide procurement and carbon policies[34]. The pilots could also act as a phased step toward requirements for deconstruction and for a minimum amount of reuse in new construction.

28. https://www.portland.gov/bps/garbage-recycling/decon/certified-deconstruction-contractors
29. https://www.einpresswire.com/article/860884970/birch-group-deconstruction-academy-launches-minnesota-s-first-deconstruction-specialist-certification-program
30. https://historictrades.org/apprenticeships/
31. https://www.sareuse.com/training
32. https://www.buildreuse.org/training
33. https://www.hennepin.us/deconstruction
34. https://www.seattle.gov/utilities/construction-resources/collection-and-disposal/construction-and-demolition/deconstruction

4 Use Salvaged Materials

Deconstruction in progress, courtesy of Felix Heisel

D Encourage Municipalities to Implement Deconstruction Ordinances

Empower and encourage municipalities to tie deconstruction requirements to the permitting process for removing older or historic structures.[35,36,37] Modeled after successful national precedents, these ordinances ensure valuable building materials are diverted from landfills and returned to the local supply chain. Municipalities may start with a deconstruction resolution to demonstrate commitment before taking steps to pass an ordinance.[38]

E Conduct Statewide Land Availability Assessment

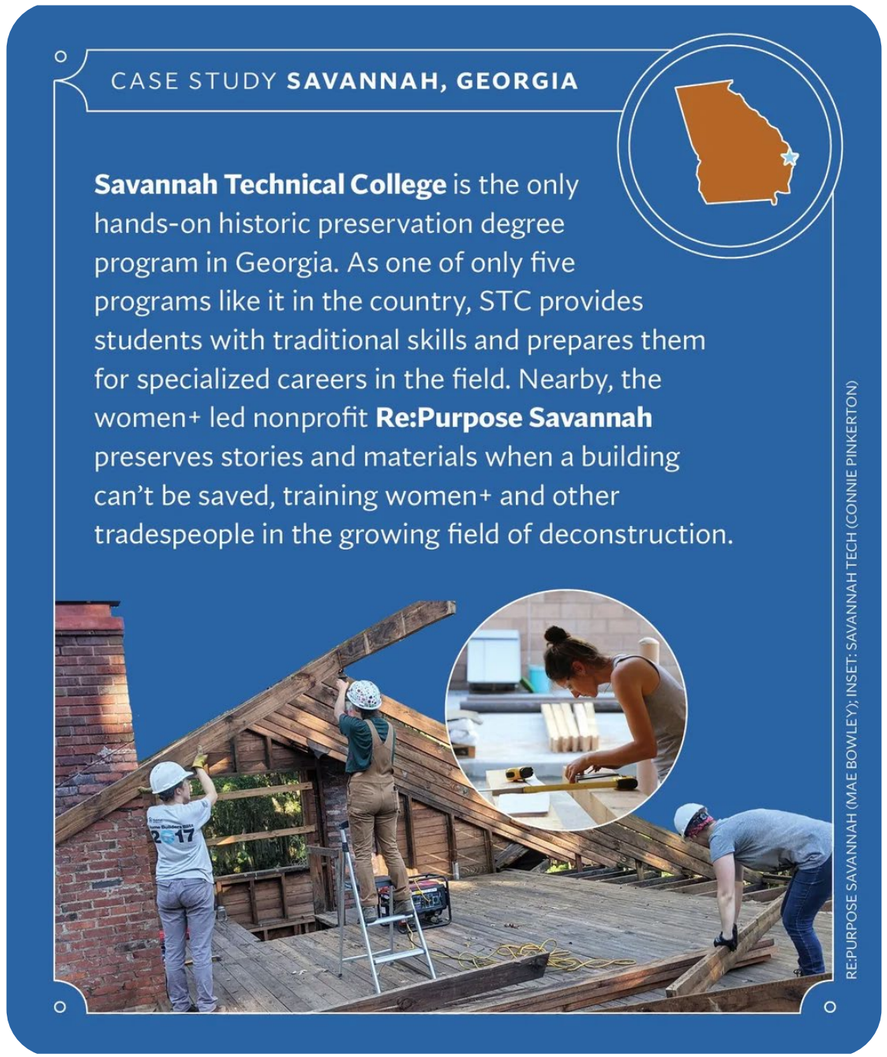
Perform land inventories to identify strategic sites for the temporary storage and staging of salvaged building materials. By leveraging municipal land banks, these agencies solve the "storage gap" that currently challenges the salvaged materials market.[39] This infrastructure network facilitates high material turnover, making it easier for designers to source reclaimed

35. https://www.sa.gov/Directory/Departments/OHP/Deconstruction/Overview
36. https://www.portland.gov/bps/garbage-recycling/decon/deconstruction-requirements
37. https://www.paloalto.gov/Departments/Public-Works/Zero-Waste/Zero-Waste-Requirements-Guidelines/Deconstruction-Ordinance
38. https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/2582544/Council_Resolution__53_of_2024_Supporting_the_Deconstruction_and_Reuse_of_the_Build_Environment_in_the_City_of_Auburn.pdf
39. https://esd.ny.gov/doing-business-ny/new-york-state-land-bank-program
40. https://delta-institute.org/publication/building-material-reuse-warehouse-feasibility-study-for-cook-county/

5 Support Material Reuse though Industry Activities

This section covers how private sector AEC firms can help promote building material reuse in New York State, including by improving industry capacity and sharing results of any pilot projects implemented.

Source: Preservation League of NYS



A Building Industry Capacity

What can firms do to build capacity?

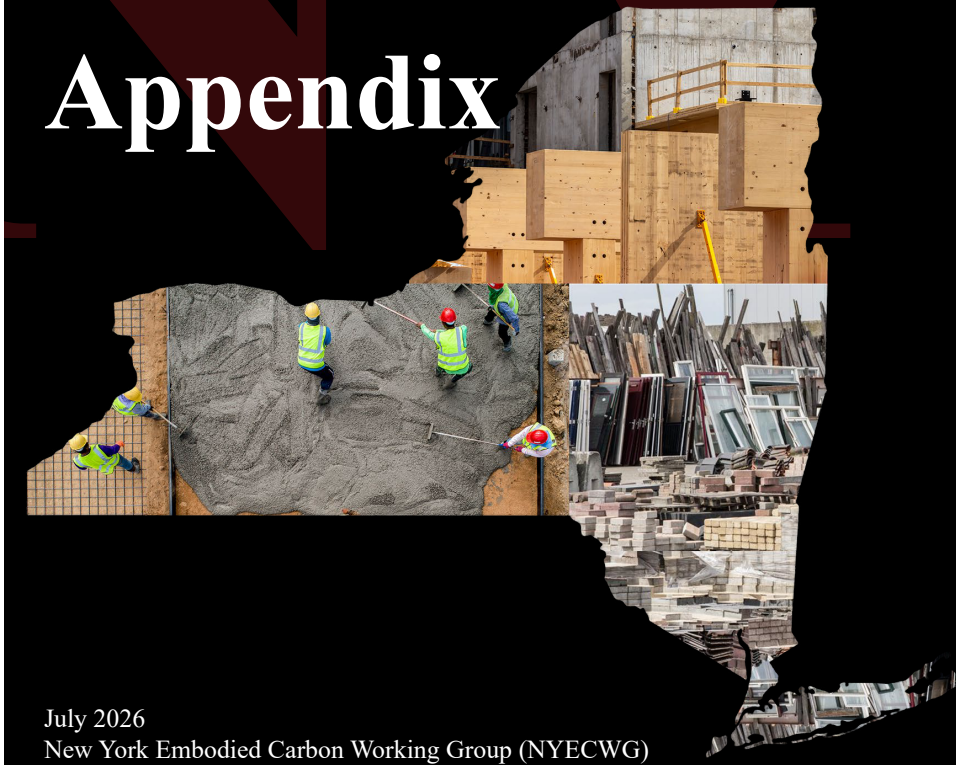
- Review resources for reusing building materials (including guidance and case studies) produced by volunteer, NGO, and advocacy groups, including CR0WD, Circular Construction Lab, the CLF Boston Reuse Working Group, and RECLAIM NYC, as well as other private sector firms that are leading in the circularity space.
- Incorporate practices that make it easier to reuse building materials, including using modeling software specifically developed to prompt reuse in design (e.g., RhinoCircular) and giving procurement preference to manufacturers that incorporate end-of-life considerations into their products.
- Share resources and best practices with clients, including building owners, developers, and project partners.

B Conducting Pilot Projects and Sharing Results

Firms can...

- Support efforts to maintain an up-to-date directory of salvage and reuse businesses.[42]
- Develop standardized processes for deconstruction projects to communicate material quality, bid for materials, and access materials ahead of the deconstruction and salvage period.
- Establish a process for carefully documenting any deconstruction or reuse projects, including tracking of labor hours and project costs.
- Develop assessments identifying nuances of obtaining warranty for and reducing the risk of installing salvaged materials, and develop a database of companies offering warranties for salvaged materials.
- Offer presentations on lessons learned and best practices with clients, including building owners and developers and project partners.

New York Embodied Carbon Action Plan Appendix



July 2026
New York Embodied Carbon Working Group (NYECWG)

Appendix

Case Studies
(Policies, Programs, Projects)

Case Studies: Table of Contents

Policies

- Policy Implementation Challenges: New Jersey LECCLA
- Policy Implementation Success: MA-ECICC
- Policy Implementation Success: City of San Antonio Deconstruction Ordinance
- Policy Implementation Success: Washington State Building Code (Salvaged Lumber)
- Policy Implementation Success: City of Portland Deconstruction Ordinance & Contractor Workforce Development

Programs

- Program Implementation Success: MTA's Clean Construction Program
- Program Implementation Success: The Port Authority's Clean Construction Program
- Program Implementation Success: NYCEDC Circular Design & Construction Guidelines

Projects

- 207 St Yard
- 270 Park Ave (JPMorgan Chase)
- 43rd and 44th floors of 225 Liberty Street (Brookfield Properties)
- 475 High Performance Building Supply HQ
- 660 Fifth Avenue
- Brewster Train Station (MTA)
- Bush Terminal
- Delacorte Theater
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- Terminal Warehouse Renovation (CookFox)
- The Mercury Store
- The Riverie (LendLease)
- The Spiral, 66 Hudson Boulevard

RMI Whole Building Lifecycle Assessment (WBLCA) Design Fee Survey: Preliminary Results

Policy Implementation Challenges: New Jersey LECCLA

In 2021, the New Jersey legislature passed NJ A5223 to establish state purchasing preference for low embodied carbon concrete through the provision of a tax credit for the costs of creating EPDs. This act allows structural and non-structural masonry, and pre-cast and ready-mix concrete building products' manufacturers to be paid back via tax credits simply for producing EPDs. While the act could support the reduction of embodied carbon across the state, no funding was included to the NJ Department of Taxation or the Department of Environment Protection to conduct the analysis required:

Table 1. NJ A5223 Requirements and Implementation Status

NJ A5223 Requirement		**Status as of June 2026**
1.	Submit a report focused on the cost-benefit-analysis of this act within two years of the act passing.	The Low Embodied Carbon Concrete Report was issued by the Low Embodied Carbon Concrete Work Group and approved by the NJDEP Science Advisory Board in March, 2026.
2.	Establish a definition for what qualifies as a low embodied carbon concrete mixture.	Not Completed/Not publicly available.
3.	Establish a uniform process for contractors to certify that concrete meets low embodied carbon concrete requirements.	Tax form 337 for the low embodied carbon tax credit was made available in 2024 by the New Jersey Department of Taxation.
4.	Provide guidance to state agencies that procure concrete to identify which contracts are subject to this act.	Not Completed/Not publicly available.
5.	Provide guidance for training procurement staff to implement the act.	Not Completed/Not publicly available.
6.	Monitor compliance with the act, and establish penalties for non-compliance.	Not Completed/Not publicly available.

Since NJDEP was not allocated funds, the lack of discrete staff time to monitor and oversee this program is likely resulting in delays in its implementation, ultimately holding New Jersey back from having sufficient data to advance embodied carbon reductions by state agencies and private enterprises.

Policy Implementation Success: MA-ECICC

In 2024, the Massachusetts Legislature passed "An Act promoting a clean energy grid, advancing equity and protecting ratepayers," which established the Embodied Carbon Intergovernmental Coordinating Council (ECICC). Formally convened in early 2025, the Council is charged with creating a unified state strategy to reduce embodied carbon across building and transportation sectors, moving beyond isolated pilots to a statewide regulatory framework.

Table 2. ECICC Progress, Results, and Implementation Status

Initiative		Scope of the Initiative
1.	Legislative Mandate (2025)	The Council brings together state agencies (including MassDOT and DCAMM) to coordinate "Buy Clean" style procurement and technical specifications.
2.	Massachusetts Embodied Carbon Reduction Plan (2026)	Released in January 2026, this plan serves as the state's primary roadmap. It provides formal recommendations for integrating embodied carbon limits into state-led building and transportation projects.
3.	GWP Threshold Recommendations (Ongoing)	The Council is tasked with establishing recommendations for establishing a process to determine maximum Global Warming Potential (GWP) values for key materials like concrete, steel, and asphalt using EPDs. The council has recommended that these initial materials-level GWP thresholds apply through a project-averaging approach.
4.	Code & Regulatory Integration (2026-Present)	Exploring the integration of embodied carbon standards into the State Building Code and the Specialized Stretch Code to ensure consistency between municipal and state-level requirements.
5.	Material Reuse & Circularity	Per legislative charge, the Council is developing best practices to incentivize the reuse of building materials and decrease whole-building demolition across the Commonwealth.
6.	MassCEC Embodied Carbon Challenge	Leveraging data from the Massachusetts Clean Energy Center's "Embodied Carbon Reduction Challenge" to provide real-world case studies and LCA (Life Cycle Assessment) data to inform state baseline settings.

The ECICC's progress is driven by a cross-agency collaborative structure managed by the Office of Climate Innovation and Resilience. Unlike voluntary programs, the ECICC is designed to translate technical research into administrative changes for MassDOT and DCAMM specifications, ensuring that state spending aligns with the Commonwealth's 2050 net-zero goals.

Policy Implementation Success: City of San Antonio Deconstruction Ordinance

In 2022, San Antonio became the largest city in North America to pass a comprehensive deconstruction ordinance. Managed by the Office of Historic Preservation (OHP), the policy shifts the city's approach to aging infrastructure from rapid demolition to "material harvesting." By 2025, the program expanded to cover all residential structures citywide built in or before 1945, and those built in or before 1960 within designated historic districts. This policy is unique for its "Circular Economy" infrastructure, which includes a dedicated hub for material storage and community redistribution.

Table 3. San Antonio Progress, Results, and Implementation Status

Initiative		Scope of the Initiative
1.	Deconstruction Ordinance (2022-Present)	Phased legislative mandate requiring the manual disassembly of older structures rather than mechanical demolition. The ordinance covers residential buildings (1-4 units) and was expanded in 2025 to include up to 8 units.
2.	Materials Innovation Center (MIC)	A city-led circular economy hub that serves as a receiving and processing center for salvaged materials. The MIC facilitates the redistribution of architectural salvage to low-income homeowners for affordable repairs.
3.	Certified Deconstruction Contractor Program	To ensure compliance and safety, the city maintains a mandatory certification for contractors. This includes training on lead-safe harvesting and structural stability during disassembly.
4.	Sustainability Impact (2025 Data)	The ordinance targets a 70% material recovery rate. By diverting thousands of tons of debris from the regional landfill, the city estimates a significant reduction in scope 3 emissions related to waste management.
5.	"Living Heritage" Integration	Beyond carbon, the policy is framed as a cultural preservation tool, ensuring that "old-growth" timber and historic masonry (materials no longer commercially available) remain within the local economy.
6.	Affordability Agenda	The policy aims to improve equity of access to high quality, enduring materials for use in affordable housing preservation and production.

While the ordinance mandates deconstruction (the stick), the city provides financial support through the Deconstruction Grant Program, which helps offset the higher labor costs of disassembly compared to traditional demolition. This model demonstrates how municipal policy can successfully link carbon reduction, waste diversion, and housing affordability by keeping high-quality salvaged materials in the local supply chain.

Policy Implementation Success: Washington State Building Code (Salvaged Lumber)

Following the passage of the 2021/2024 State Building Code updates, Washington became the first state to provide a statewide, standardized "recipe" for the structural reuse of building materials. This policy removes the primary legal barrier to circularity: the lack of a standardized quality grading system for reclaimed wood.

Table 4. Washington Progress, Results, and Implementation Status

Initiative		Scope of the Initiative
1.	WAC 51-51-60109 (Appendix Z)	Formally defines Deconstruction vs. Demolition and establishes the statewide framework for systematic disassembly and material recovery.
2.	Presumptive Grading Values for Used Solid-Sawn Lumber	Provides a technical pathway for structural engineers to assume the capacity of salvaged lumber in section 2303.1.1.3 of the Washington State Building Code.
3.	Appendix P & Y (Salvage Assessments)	Allows local jurisdictions (like Seattle or Tacoma) to enable mandatory assessments, requiring owners to identify salvageable materials before a permit is issued.
4.	Material Reuse Hubs	The code updates have spurred the growth of Salvaged Lumber Warehouses, which provide the necessary chain of custody and grade-labeling required by building officials.

The Washington model is specifically designed for technical scalability. By embedding the how-to of material grading directly into the Building Code, Washington has moved circularity from a pilot program to a standard engineering practice.

Policy Implementation Success: City of Portland Deconstruction Ordinance & Contractor Workforce Development

In 2015, Portland launched a multi-phased program to increase deconstruction. The first phase was a voluntary incentive-based grant program for deconstruction projects. In 2016, Portland passed the first deconstruction ordinance in North America, requiring deconstruction and salvage of building materials from houses built in 1916 or earlier. Implementation of the ordinance included contractor training and certification and workforce training. In 2020, the year-built threshold was increased to 1940 or earlier, resulting in two thirds of residential demolition permits subject to the ordinance.

Table 5. Portland Progress, Results, and Implementation Status

Initiative		Scope of the Initiative
1.	Deconstruction Advisory Group (DAG) (2015-2021)	Convening of a broad group of stakeholders (e.g., contractors, deconstructionists, salvage retailers, preservationists, neighborhood, and government agencies) to guide policy and program development.
2.	Deconstruction Grants Pilot Program (2015-2017)	Grants ($2,500-$3,000) for residential deconstruction projects. Requirements for projects to track metrics for cost, duration, crew hours, and salvaged material.
3.	Deconstruction Ordinance (2016-Present)	Phased legislative mandate requiring the manual disassembly of older and/or historic residential structures (1-2 units) rather than mechanical demolition. First phase applied to structures built in 1916 or earlier, then expanded to structures built in 1940 or earlier.
4.	Contractor and Workforce Training (2016-2017)	Multi-government agency (city, region, state) sponsorship and coordination of both training for contractors (owners) and workforce. Workforce training prioritized inclusion of women, people of color, and/or post incarcerated participants.
5.	Certified Deconstruction Contractor Program (2016-present)	To ensure compliance, safety, and maximum salvage, the city maintains a mandatory certification for contractors. This includes ongoing training on proper handling of lead-based paint and procedures for discovery of suspect asbestos.
6.	Sustainability Impact (2019 Data)	The Oregon State Department of Environmental Quality (DEQ) uses Portland deconstruction data to evaluate carbon benefits of the policy compared to mechanical demolition. Major finding from the Deconstruction vs. Demolition Report included an average net carbon benefit of 7.6 metric tonnes of C02e per residential deconstruction.

Over the course of four years, Portland fundamentally transformed how single-dwelling buildings are removed in the city - from approximately 15 whole-house deconstructions per year, to hundreds (a majority). The program has recently begun exploring commercial deconstruction through a new grant program.

Program Implementation Success: MTA's Clean Construction Program

MTA has been on the forefront of sustainable design and construction from its initial ISO 14001 EMS certification in 1999. In 2023, the MTA launched their own Clean Construction Program, which has many similarities to the Port Authority's own program. The MTA's program contains 4 pillars:

Table 6. MTA Progress, Results, and Implementation Status

MTA Initiative		Scope of the initiative and publicly posted resources
1.	Reduce embodied carbon in construction materials	To implement policies and specifications to drive reductions in the embodied carbon of materials that the MTA uses extensively, like concrete, asphalt, steel, and glass. In January 2024, this included the implement of low-carbon concrete specifications in all MTA construction contracts
2.	Reduce impact of construction equipment	Seeks opportunities to pilot the use of zero-emission construction equipment, with a priority for deploying at projects within residential areas. Currently focused on smaller equipment due to construction equipment being largely still under development.
3.	Track and divert construction-related waste	Includes tracking annual waste, achieving a minimum 80% landfill diversion rate for all contracts, and as of 2025, achieving a 93% diversion rate across all materials. for steel, glass, concrete, and aluminum.
4.	Incorporate sustainable design into construction projects	MTA project managers and contractors collect, measure, and manage construction-related data from across the organization. This data will inform future sustainable design principles, allowing us to better evaluate and incorporate new opportunities for low-carbon materials in our construction projects.

All implemented by MTA's Construction Management Division, this progress would not be possible without dedicated internal staff time, teams, and funding to implement, manage, and track reduction progress.

Program Implementation Success: The Port Authority's Clean Construction Program

Since launching their Clean Construction program in 2020, and building from their 2018 commitment to the Paris Climate Agreement, the Port Authority has made significant progress in addressing the impacts from their unique built environment. Through their reporting and documentation, the Port Authority has been able to demonstrate significant embodied carbon reductions, all without a mandate to make reductions given the multi-jurisdicational governance of the bi-state agency.

Table 7. Port Authority Progress, Results, and Implementation Status

Initiative	Scope of the initiative and publicly posted resources
Design Guidelines (2018-Present)	The Port Authority has released various design guidelines focused on ensuring that all Port Authority projects exceed industry best practices for sustainable design for both buildings and infrastructure.
Low Carbon Concrete Pilot Program (2020-Present)	Leveraging internal expertise and by collaborating with Rutgers, NJIT, Princeton, and NYU, the Port Authority has been conducting a pilot program focused on drastically reducing the embodied carbon of sourced concrete. This program has resulted in a series of published technical reports, along with identifying 18 concrete mixtures to reduce emissions by 37% over the Port Authority's existing low-carbon mixes. This includes: Task A: Evaluation of current practice; Task B: Develop/Optimize Low-Carbon Mix Designs; Task C: Test Selected Low-Carbon Mix Designs; and Field Tests of Mixes (ongoing).
Low Carbon Concrete Specification (2023)	In April of 2023, the Port Authority implemented a new low-carbon concrete specification which built off the success of the low carbon concrete pilot program, and included maximum embodied carbon thresholds for concrete procured for agency projects. This specification is impacting all construction contracts.
Embodied Carbon Reporting (2023-Present)	Reporting of embodied carbon emissions from concrete and asphalt in the Port Authority's 2022 GHG inventory using EPDs (see Upstream Emissions, Capital Goods, Section 13.1).
	Ongoing tracking of embodied carbon reduction progress and live impacts through an Embodied Carbon Management platform.
	Reducing construction waste and increasing material use efficiency through a Construction Waste Matching Tool "SCRAPp".

The Port Authority's progress in this space would not be possible without dedicated staff across their Engineering Department), internal funding allocation for pilot programs, and agency staff focused on climate progress transparency.

Program Implementation Success: NYCEDC Circular Design & Construction Guidelines

In 2024, the New York City Economic Development Corporation (NYCEDC) released its Circular Design and Construction Guidelines, marking a shift from voluntary material diversion to a mandatory framework for the city's capital projects. Building on the goals of *PlaNYC: Getting Sustainability Done*, these guidelines require design and construction teams to prioritize the salvage of existing materials and the procurement of low-carbon, circular alternatives for all NYCEDC-managed projects with a construction value exceeding $5 million.

Table 8. NYCEDC Progress, Results, and Implementation Status

Initiative		Scope of the Initiative
1.	Circular Design & Construction Guidelines (2024)	A comprehensive manual providing technical requirements and "Design for Deconstruction" (DfD) strategies. It establishes a tiered compliance system based on project size and type (New Construction vs. Renovation).
2.	Material Diversion Mandates	Requires a minimum of 75% diversion of non-hazardous construction and demolition (C&D) waste. For heavy infrastructure and site work, the threshold increases to 95% for concrete, soil, and land-clearing debris.
3.	Embodied Carbon Requirements	Mandates that at least 25% of a project's materials (by cost) must be documented as "Circular" or "Low-Carbon" via Type III Environmental Product Declarations (EPDs).
4.	SPARC Kips Bay Pilot (2025-Present)	Serving as the flagship pilot for the guidelines, the Science Park and Research Campus (SPARC) at Kips Bay (approx. 2 million sq. ft.) is utilizing circularity protocols to target a reduction of ~26,400 metric tons of CO2e.
5.	Circular Economy Technical Assistance	NYCEDC provides a suite of tools for project managers, including a Circularity Plan template and an Embodied Carbon Calculator to track progress from the schematic design phase through closeout.

The success of NYCEDC's circularity policy is rooted in its integration into the Standard Request for Proposals (RFP) language. By making circularity a scoring component of the procurement process, NYCEDC has incentivized the local Architecture, Engineering, and Construction industry to develop expertise in material salvage and low-carbon design. This progress is supported by internal "Sustainability Champions" within NYCEDC's Asset Management and Capital Program departments, ensuring that circularity is treated as a core project requirement. In addition to NYCEDC success, this work has also supported other NYC efforts, most notably the Mayor's Office of Climate & Environmental Justice's NYC EO 23 Construction and Demolition Material Guidance that was released in February 2026. This guidance covers all NYC EO23 agencies and while voluntary under EO23, it recognized the need by the agencies for uniform guidance on C&D reuse, waste reduction, and more.

Projects in New York state that leverage various embodied carbon reduction strategies

Table 9. Embodied Carbon Projects in New York state

Name	Location	Measures
207 St Yard[1]	NYC	Green asphalt, electric equipment or the cleanest diesel emissions available
270 Park Ave (JPMorgan Chase)	NYC	Low carbon concrete, all electric
43rd and 44th floors of 225 Liberty Street (Brookfield Properties)	NYC	Reuse of major interior elements, including existing concrete flooring
475 High Performance Building Supply HQ	Brooklyn	Adaptive reuse
660 Fifth Avenue	NYC	Deconstruction, Adaptive Reuse
Brewster Train Station (MTA)	Brewster NY	Low carbon concrete
Delacorte Theater	NYC	Reclaimed wood from water towers used on exterior façade used on exterior facade
Hallets Point (Durst)	Queens	Low carbon concrete
LaGuardia Airport Terminal 1 construction (Port Authority of New York and New Jersey)	NYC	Reuse of existing concrete from nearby structure
Lincoln Tunnel Deconstruction Pilot (PANYNJ)	NYC	Deconstruction
Meadow Hill Road Bridge (Thruway Authority)	Newburgh, NY	Low carbon, high performance concrete
One Madison Avenue	NYC	Deconstruction, Adaptive Reuse
One World Trade Center	NYC	Low carbon concrete
Pier 57	NYC	Adaptive reuse
Port Authority Bus Terminal	NYC	Low carbon construction
Randall's Island Ramp Reconstruction	NYC	Low embodied carbon concrete
SPARC Kips Bay (NYCEDC)	NYC	Deconstruction and material reuse
Terminal Warehouse Renovation (CookFox)	NYC	Adaptive reuse, masonry and mass timber
The Mercury Store	Brooklyn	Adaptive Reuse, Material Reuse, Heavy Timber for structural insertions
The Riverie (LendLease)	Brooklyn	Low carbon concrete, Geothermal, all electric
The Spiral, 66 Hudson Boulevard	NYC (Hudson Yards)	Low carbon steel, efficient design

[1] See page 22.

RMI | Energy, Transformed.

RMI Whole Building Lifecycle Assessment (WBLCA) Design Fee Survey: Preliminary Results

Author: Anish Tilak, anishtilak44@gmail.com | Formerly Manager, Buildings, Rocky Mountain Institute (RMI). Currently Associate Director of Building Performance & Sustainability, Eden Housing

RMI Contact: Auri Bukauskas, abukauskas@rmi.org | Manager, Buildings, Rocky Mountain Institute (RMI)

In 2025, the Rocky Mountain Institute (RMI) conducted a survey of design practitioners (architects, engineers, and sustainability consultants) who provide embodied carbon assessment as a professional service, to understand the cost implications of varying whole building lifecycle assessment (WBLCA) scopes of work. Respondents were asked to provide cost estimates for the following WBLCA scopes:

1. LEED v4.1 compliant model, including credit documentation
2. Schematic design (SD) phase modeling, including both baseline and proposed models to demonstrate a percent reduction in embodied emissions from the baseline
3. Schematic design (SD) phase modeling of the proposed design ONLY, in alignment with an embodied carbon budget approach
4. Construction documentation (CD) phase modeling, including both baseline and proposed models to demonstrate a percent reduction in embodied emissions from the baseline
5. Construction documentation (CD) phase modeling of the proposed design ONLY, in alignment with an embodied carbon budget approach

A key finding of this survey relevant to proposed criteria for the CALGreen Embodied Carbon Provision is that **a WBLCA - embodied carbon budget pathway can provide significant cost savings for project teams compared to the existing WBLCA baseline reduction pathway.**

Figure 1 below summarizes the reported design fees for the varying WBLCA scopes described above. A comprehensive LEED v4.1 compliant modeling scope has the highest median fees, while SD phase proposed design modeling has the lowest median fees. This chart also shows the relative reduction in fees achieved by eliminating baseline modeling in SD or CD WBLCA.

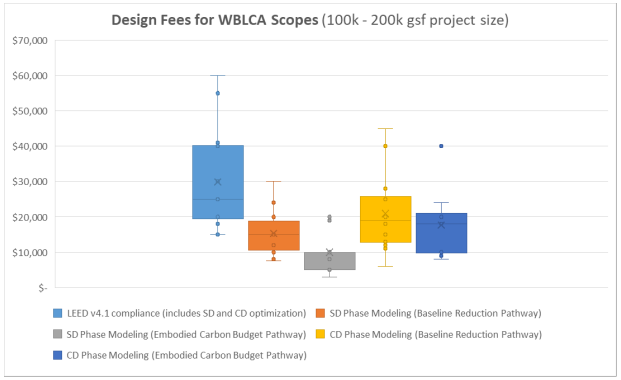

Figure 1 – Design Fees for WBLCA Scopes (100k-200k gsf project size)

Figure 2 below summarizes cost savings achieved by project teams who may choose to pursue the embodied carbon budget pathway, which entails CD phase modeling of a proposed design ONLY, rather than both documentation of baseline and proposed models. **These results demonstrate that the proposed embodied carbon budget pathway can provide median cost savings to WBLCA fees of 28%, reducing the cost of compliance for the CALGreen embodied carbon measure.**

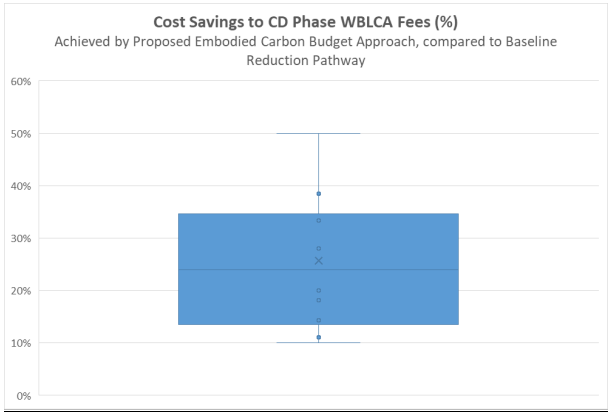

Figure 2 – Cost Savings to CD Phase WBLCA (%)