

Article 37 - Green Building & Net Zero Carbon **ACEC Presentation 9/17/2025**



TOPICS



- Overview
- Applicability
- Small Project Requirements
- Large Project Requirements
- Embodied Carbon Reporting / LCA
- Carbon Emissions Reporting
- Resources



OVERVIEW

On July 1st, 2025, Boston's amended **Zoning Article 37**, Green Buildings and Net Zero Carbon standards, took effect for projects submitting new **Article 80 Small Project Review Applications (SPRAs)**, **Article 80B Large Project Notification Forms (PNFs)** and some **Notice of Project Changes (NPCs)**.

Article 37 Updates



Key Amendments:

- Adds standards for Net Zero Carbon (NZC) limiting building operational greenhouse gas emissions to zero for most building use types.
- Lowers the applicability threshold for the new NZC standards to include Article 80E Small Projects greater than 20,000 SF or 15 or more residential units.
- Adds standards for Embodied Carbon Life Cycle Analysis (LCA) reporting for Article 80B Large Projects greater than 50,000 SF
- REMOVED the Carbon Neutral Building Assessment requirements in the Design and Construction filing stages

**Subject to
Net Zero
Carbon**



Applicability of Net Zero Carbon

New Buildings 15+ Units / 20k+ SF, Additions 50k+ SF

Does not include:

- Hospital Additions (no SF limit)
- Renovations (no SF limit)
- Changes of Use (no SF limit)
- Additions under 50k Gross SF

Comprehensive
Sustainability



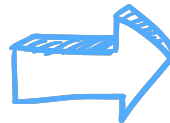
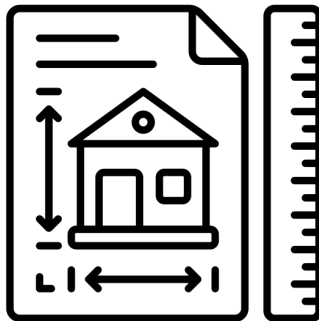
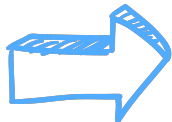
Applicability of LEED Green Buildings

B

New Buildings 50k+ SF / Additions 50k+ SF

Any project subject to or electing to comply with
Article 80 B Large Project Review

- LEED Green Building (*same*)
- Carbon Neutral Bldg Assessment (*discontinued*)
- Net Zero Carbon (*new*)
- Embodied Carbon Life Cycle Assessment (*new*)



Initial Filing

*Included in the
SPRA or PNF documents*

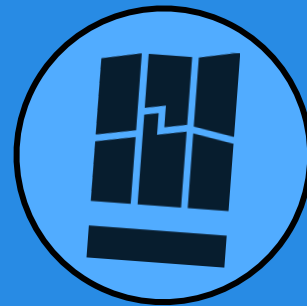
Design Filing

Prior to Building Permit application

Construction Completion Filing

*Prior to Certificate of Occupancy
Permit application*

Both Small and Large Project Article 37 submissions and compliance reviews occur at three project phases.



ARTICLE 37 WEBSITE

New resources and content are now available on the [Article 37 Website](#)

Links to Zoning Language, Guidelines, Resources and Case Studies

Now
Includes
Article 37



Small Project Review Process

- **Prefile** - Process, goals, and best practice guidance, q & a
- **Initial Filing** - SPRA submittal - Preliminary findings
- **Design Filing or “Permit Filing”** - Final design and analysis
- **Construction Completion Filing** - As-built Conditions

Please view our [Small Project Submission Guidelines](#)
for additional information

Q and A



Pre-File Discussions

Project teams meet with a **Article 37 Reviewer** to discuss process, project performance goals, best practices, and answer questions

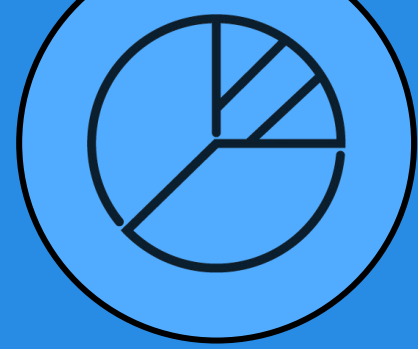
Discussions may include:

Process and submission guidance

Climate Resilience Checklist criteria

Project goals for building performance modeling and analysis

How to access the developer portal



Initial Filing - New Requirements



SPRA

Submission



Small Project Climate Resilience Checklist downloaded from the Developers Portal, Report is included in the SPRA



Preliminary - Building Performance Model Study

Utilizing an appropriate building performance simulation tool or similar study describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.



Net Zero Greenhouse Gas Ready Acknowledgement Letter

(TEMPLATE) The completed Acknowledgement Letter signed by the Proponent or authorized representative.

The Climate Resiliency Checklist and preliminary energy modeling are included in the SPRA filing.

City of Boston
Planning Department

Draft for Implementation

A37 Small Project Climate Resiliency Checklist

Please use the [Developer Portal](#) to complete and submit the Checklist AND include a PDF copy of the completed Checklist Report downloaded from the Portal in the filing document. The Portal allows the project team to iteratively work on the Checklist until submitted. Subsequent updates can be made to the same Checklist and re-submitted. Provide a PDF copy of any updated Checklist Reports to the Planning Department.

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Building Information

Question	Response	Comment
Building Name <i>(auto filed)</i>		
Related Project <i>(auto filed)</i>		
Building Street Address <i>(auto filed)</i>		
Select the type of filing (Initial/SPRA, Design/Building Permit, Construction Completion) *		
Filing Contact Name <i>(auto filed)</i>		
Filing Contact Email <i>(auto filed)</i>		

Team

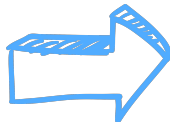
Enter the names of the companies/organizations on the project team.

Question	Response	Comment
Owner/Developer <i>(auto filed)</i>		
Architect *		
Landscape Architect *		
Mechanical Engineer *		
Sustainability		
Building Performance Modeler		
Civil Engineer		
Permitting		
Construction Management		

Proposed Building Design

Question	Response	Comment
Site Area (SF)		
Building Gross Square Feet <i>(auto filed)</i>		
Building Gross Floor Area <i>(auto filed)</i>		
Info Tool Tip - Building Gross Floor Area: sum of all building areas <i>excluding</i> parking garage, basement, attic.		

SP CRC v4 - July 2025



BUILDING INFORMATION

Category:	Residential
Status:	In planning
Building type:	New construction
Year of construction:	
Units:	50
Number of occupants:	194 (Design)
Occupant density:	492.1 ft ² /Person



Boundary conditions

Climate: BOSTON LOGAN INT AIRPT MA

Internal heat gains:	1.3 Btu/hr ft ²
Interior temperature:	68 °F
Overheat temperature:	77 °F

Building geometry

Enclosed volume:	548,254.4 ft ³
Net volume:	416,673.3 ft ³
Total area envelope:	47,596.8 ft ²
Area/Volume Ratio:	0.1 1/ft
Floor area:	41,815 ft ²
Envelope area/CFA:	1.148

PASSIVEHOUSE REQUIREMENTS

Certificate criteria: PHUS+ 2018

Heating demand

specific:	3.73 kBtu/ft ² yr		✓
target:	3.8 kBtu/ft ² yr		
total:	155,925.78 kBtu/yr		

Cooling demand

sensible:	4.39 kBtu/ft ² yr		✓
latent:	0.46 kBtu/ft ² yr		
specific:	4.85 kBtu/ft ² yr		
target:	5.4 kBtu/ft ² yr		
total:	202,980.98 kBtu/yr		

Heating load

specific:	3.53 Btu/hr ft ²		✓
target:	3.7 Btu/hr ft ²		
total:	147,482.63 Btu/hr		

Cooling load

specific:	2.79 Btu/hr ft ²		✓
target:	3 Btu/hr ft ²		
total:	116,681.88 Btu/hr		



Draft for Implementation

Your Letterhead
Sample Net Zero Acknowledgment Letter

Date

Kairos Shen, Director of SPD
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201-3007

Re: *Project Name* - Net Zero Greenhouse Gas Emissions Ready Acknowledgment Letter

Director Shen:

As the owner or authorized representative responsible for operational reporting [*Project Name or Building*], I, [*Your Name*], hereby acknowledge that [*Project Name or Building*] is designed to be Net Zero Greenhouse Gas Emissions Ready and will comply with all applicable Greenhouse Gas Emissions Standards, consistent with the Article 27 and Article 80 zoning approvals and all recommendations made to the Boston Planning & Development Agency Board related to this project. The [*Project Name or Building*] will also comply as required by the Ordinance Amending the City of Boston Code, Ordinances, Building Energy Reporting and Disclosure, Section 7-2.2(i) - Emissions Requirements.

Upon the building's commencement of operations, we accept responsibility for complying with the Building Energy Reporting and Disclosure Ordinance (BEJRO) Regulations, including fulfilling the annual reporting requirements for energy and water usage, and obtaining third-party verification, in accordance with the relevant Building Use Classification outlined in Section 7-2.2 and detailed in Appendix A.

Sincerely,

Signature

Title
Company and address

Checklist

Small Project Climate Resilience
Checklist

70-80 % Complete

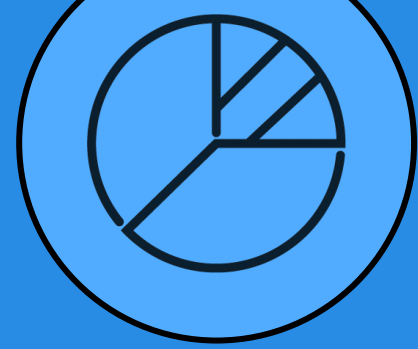
Energy Goals

Building Performance Study
or Model

Net Zero Ready

Net Zero Acknowledgment Letter

Three Article 37 documents to be included in SPRAs



Design Filing (Building Permit)



Design Submission



UPDATED - Small Project Climate Resilience Checklist

Updated Checklist to reflect any new information and/or changes in the design post-board approval. The CRC will capture more details and should be 90% to 100% complete.



UPDATED - Building Performance Model

Same documentation submitted to Inspectional Services to demonstrate Energy Code compliance describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.



Design Affidavit - TEMPLATE provide the completed Affidavit signed by the Massachusetts-licensed architect or engineer of record

Updates reflect design refinements and are based on final Construction Documents

City of Boston
Planning Department

Draft for Implementation

A37 Small Project Climate Resiliency Checklist

Please use the [Developer Portal](#) to complete and submit the Checklist AND include a PDF copy of the completed Checklist Report downloaded from the Portal in the filing document. The Portal allows the project team to iteratively work on the Checklist until submitted. Subsequent updates can be made to the same Checklist and re-submitted. Provide a PDF copy of any updated Checklist Reports to the Planning Department.

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Building Information

Question	Response	Comment
Building Name (auto filled)		
Related Project (auto filled)		
Building Street Address (auto filled)		
Select the type of Filing (Initial/SP/PA, Design/Building Permit, Construction Completion) *		
Filing Contact Name (auto filled)		
Filing Contact Email (auto filled)		

Team

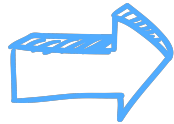
Enter the names of the companies/organizations on the project team.

Question	Response	Comment
Owner/Developer (auto filled)		
Architect *		
Landscape Architect *		
Mechanical Engineer *		
Sustainability		
Building Performance Modeler		
Civil Engineer		
Permitting		
Construction Management		

Proposed Building Design

Question	Response	Comment
Site Area (SF)		
Building Gross Square Feet (auto filled)		
Building Gross Floor Area (auto filled)		
Info Tool Tip - Building Gross Floor Area: sum of all building areas excluding parking garage, basement, attic.		

SP CRC v4 - July 2025



Checklist

Updated Climate Resilience Checklist
(Small Project)
80-90 % Complete

BUILDING INFORMATION

Category:	Residential
Status:	In planning
Building type:	New construction
Year of construction:	
Units:	50
Number of occupants:	104 (Design)
Occupant density:	462.1 #/Person



Boundary conditions

Climate: BOSTON LOGAN INT ARPT MA

Internal heat gains:	1.3 Btu/hr ft²
Interior temperature:	68 °F
Overheat temperature:	77 °F

Building geometry

Enclosed volume:	548,224.4 ft³
Net volume:	416,673.3 ft³
Total area envelope:	47,996.9 ft²
Area/Volume Ratio:	0.1 1/ft
Floor area:	41,815 ft²
Envelope area/CFA:	1.148

PASSIVEHOUSE REQUIREMENTS

Certificate criteria: PHIUS+ 2018

Heating demand

specific:	3.73 kBtu/ft²/yr	0 1 2 3 4 5 6 7 8 9	✓
target:	3.8 kBtu/ft²/yr		
total:	155,925.78 kBtu/yr		

Cooling demand

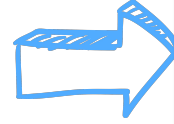
sensible:	4.39 kBtu/ft²/yr	0 1 2 3 4 5 6 7 8 9	✓
latent:	0.46 kBtu/ft²/yr		
specific:	4.85 kBtu/ft²/yr		
target:	5.4 kBtu/ft²/yr		
total:	202,980.98 kBtu/yr		

Heating load

specific:	3.53 Btu/hr ft²	0 1 2 3 4 5 6	✓
target:	3.7 Btu/hr ft²		
total:	147,482.63 Btu/hr		

Cooling load

specific:	2.79 Btu/hr ft²	0 1 2 3 4 5 6	✓
target:	3 Btu/hr ft²		
total:	116,661.86 Btu/hr		



Energy Model

Updated Energy Model

Draft for Implementation July 2025

Your Letterhead Sample SmallProject Design Affidavit

Date

Kaitos Shen, Director
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201-1007

Re: *project name* Design Affidavit

Director Shen:

As the lead *architect and/or engineer* overseeing the planning and design of *project name or building*, I, *your name*, certify that I am knowledgeable of the project's green building and net zero carbon performance strategies, designs, plans and details and to the best of my knowledge this project has been planned and designed so as to meet the building performance approval commitments. We have modeled the proposed building performance and calculated the Building 2035 predicted Carbon Emission Intensity (pCEI) to be *#,## kg CO2e / sf-yr*.

Accompanying this affidavit is the updated Climate Resiliency Checklist (CRC) and Energy Code Compliance Pathway Building Performance Model for the proposed project. A single PDF of these documents, including this affidavit, will be transmitted to the Planning Department.

We understand it is our responsibility to notify the Planning Department of any changes in our green building and net zero carbon strategies and Building 2035 pCEI. Additionally, we understand we are required to provide a Construction Completion Filing including updated CRC, Building Performance Model, and Construction Affidavit prior to application for the final building Certificate of Occupancy.

Sincerely,

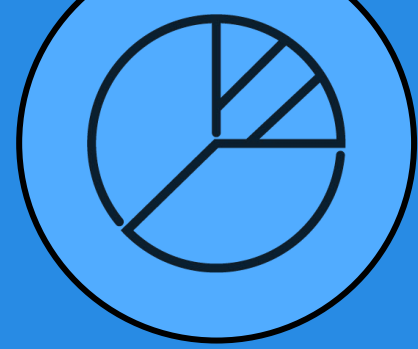
Signature

Project architect
Company and address
Massachusetts Architect License #: 12345

CC: *Name of Article 37 Reviewer*
Name of Planning Department Project Review Manager

Design Affidavit

NEW Article 37 Documents - Design Filing



Construction Filing (CoO Permit)



Construction Submission



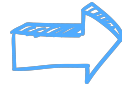
UPDATED - Small Project Climate Resilience Checklist

Updated Checklist to reflect any new information and/or changes in the design post-board approval. The CRC will capture more details and should be 90% complete



UPDATED- As-Built Performance Model

Same documentation submitted to Inspectional Services to demonstrate code compliance describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.



Construction Affidavit (TEMPLATE) -provide the completed Affidavit signed by the Massachusetts-licensed architect or engineer of record

Updates reflect any construction changes and are based on built conditions including commissioning

City of Boston
Planning Department

Draft for Implementation

A37 Small Project Climate Resiliency Checklist

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Building Information

Question	Response	Comment
Building Name (auto filed)		
Related Project (auto filed)		
Building Street Address (auto filed)		
Select the type of filing (Info/ASRA, Design/Building Permit, Construction Completion) *		
Filing Contact Name (auto filed)		
Filing Contact Email (auto filed)		

Team

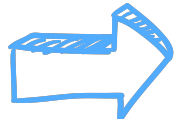
Enter the names of the companies/organizations on the project team.

Question	Response	Comment
Owner/Developer (auto filed)		
Architect *		
Landscape Architect *		
Mechanical Engineer *		
Sustainability		
Building Performance Modeler		
Civil Engineer		
Permitting		
Construction Management		

Proposed Building Design

Question	Response	Comment
Site Area (SF)		
Building Gross Square Feet (auto filed)		
Building Gross Floor Area (auto filed)		
Info Tool Tip - Building Gross Floor Area: sum of all building areas excluding parking garage, basement, attic.		

SP CRC v4 - July 2025



BUILDING INFORMATION

Category:	Residential
Status:	In planning
Building type:	New construction
Year of construction:	
Units:	50
Number of occupants:	194 (Design)
Occupant density:	492.1 sf/Person



Boundary conditions

Climate: BOSTON LOGAN INT ARPT MA

Internal heat gains:	1.3 Btu/hr ft²
Interior temperature:	68 °F
Overheat temperature:	77 °F

Building geometry

Enclosed volume:	548,254.4 ft³
Net volume:	416,673.3 ft³
Total area envelope:	47,996.9 ft²
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PASSIVEHOUSE REQUIREMENTS

Certification criteria: PHUS+ 2018

Heating demand

specific:	3.73 kBtu/ft²·yr	
target:	3.4 kBtu/ft²·yr	
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Cooling demand

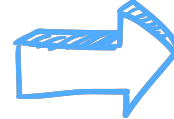
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Cooling load

specific:	2.79 Btu/hr ft²	
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total:	116,661.88 Btu/hr	



Draft for Implementation July 2025

Your Letterhead
Sample Small Project Construction Affidavit

Date

Kainos Shun, Director
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201-1007

Re: *project name* Construction Affidavit

Director Shen:

As the builder, architect for the project name or building, I, *your name* certify that I am knowledgeable of the project's green building and net zero carbon strategies, design, plans and construction and to the best of my knowledge, this project has been planned, designed and constructed so as to meet the building performance approval commitments. Additionally, we have updated the Building Performance Model to reflect both conditions and re-calculated the Building 2035 predicted Carbon Emission Intensity (pCEI) to be 8.89 kg CO2e / sf-yr.

Accompanying this affidavit are the updated Climate Resiliency Checklist (CRC) Report and Building Performance Model reflecting both conditions. A single PDF of these documents, including this affidavit, will be transmitted to the Planning Department.

Since the Design Filing approval, there have been no changes to our proposed green building and net zero carbon strategies and Building 2035 pCEI.

OR

Since Design Filing approval, we have made the following change(s) to our green building and net zero carbon strategy(ies) which are reflected in the updated Building 2035 pCEI, and CRC: *[List all construction phase changes and dates if any Planning Department approvals.]*

-
-

Sincerely,

Signature

Project architect or engineer
Company and address
Massachusetts Architect License #: 12345

CC: *Name of Article 37 Reviewer*
Name of Planning Department Project Manager

Checklist

Updated Small Project Climate
Resilience Checklist
80-90 % Complete

Energy Model

Updated Energy Model

Construction Affidavit

NEW Article 37 Documents - Design Filing

Now
Includes
Embodied
Carbon
Reporting



Large Project Review Process

- **Prefile** - Process, goals, and best practice guidance, q & a
- **Initial Filing** - PNF submittal - Preliminary findings
- **Design Filing or “Permit Filing”** - Final design and Embodied Carbon Report
- **Construction Completion Filing** - As-built Conditions

Please view our [Large Project Submission Guidelines](#) for additional information

Q and A



Project teams meet with an **Article 37 Reviewer** to discuss process, project performance goals, best practices, and answer questions

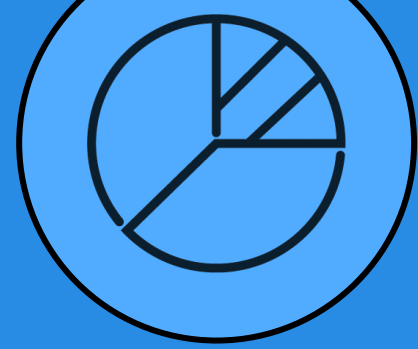
Discussions may include:

Process and submission guidance

Climate Resilience Checklist criteria

Project goals for building performance modeling and analysis

Low-Carbon material strategies



Initial Filing - Requirements



“PNF” submittal



Green Building Report: 1) *Report Summary*: provide a brief narrative of the project's sustainability, green building, net zero carbon, embodied carbon reduction, and climate resilience goals including the proposed Leadership in Energy and Environmental Design (LEED) rating system and point score; 2) *Key Strategies*: briefly describe how key LEED credits will be achieved. 3) *LEED Scorecard*



A **Large Project Climate Resilience Checklist** downloaded from the Developers Portal will be included in the PNF



“PNF” submittal



Preliminary - Building Performance Model Study

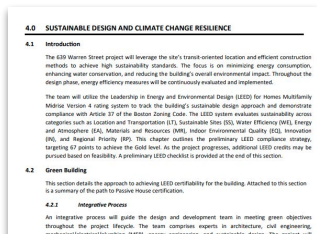
Utilizing an appropriate building performance simulation tool or similar study describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.



NEW! Net Zero Greenhouse Gas Ready Acknowledgement

Letter (TEMPLATE) The completed Acknowledgement Letter signed by the Proponent or authorized representative.

*Green Building, Climate Resiliency Checklist, Energy modeling
are based on the current design.*



4.2 Green Building

This section details the approach to achieving LEED certification for the building. Attached to this section is a summary of the path to Passive House certification.

4.2.1 Integrative Process

An integrative process will guide the design and development team in meeting green objectives throughout the project lifecycle. The team comprises experts in architecture, cost engineering, mechanical/electrical/plumbing (MEP), energy engineering, and sustainable design. The project will involve Passive House consultants ensure a comprehensive approach design meetings will ensure to training, inspections, and testing.

4.2.2 Location and Form

The building will be developed infrastructure, offering easy transportation options. It is a short distance to the MBTA Commuter neighborhood also provides easy public transit.

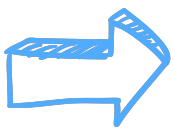
4.2.3 Sustainable Sites

Low-impact development and green landscaping will include native plants and materials to reduce the heat island effect and further reduce the building's carbon footprint.

A37 Warren Street Scorecard

LEED v4.1 for Multifamily High-Rise

Category	Requirement	Points Available	Points Earned	Notes
Sustainable Sites (S1)	S1-1: Location and Transportation	4	4	On track
	S1-2: Sustainable Sites	4	4	On track
	S1-3: Water Efficiency	4	4	On track
	S1-4: Energy and Atmosphere	4	4	On track
Water Efficiency (WE1)	WE1-1: Water Efficiency	4	4	On track
	WE1-2: Water Efficiency	4	4	On track
	WE1-3: Water Efficiency	4	4	On track
	WE1-4: Water Efficiency	4	4	On track
Energy and Atmosphere (EA1)	EA1-1: Energy Efficiency	4	4	On track
	EA1-2: Energy Efficiency	4	4	On track
	EA1-3: Energy Efficiency	4	4	On track
	EA1-4: Energy Efficiency	4	4	On track



City of Boston
Planning Department

Draft for Implementation

A37 Large Project Climate Resiliency Checklist

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Building Information

Question	Response	Comment
Building Name (auto filled)		
Related Project (auto filled)		
Building Street Address (auto filled)		
Select the type of Filing (Initial/NPC, Design/Building Permit, Construction Completion) *		
Filing Contact Name (auto filled)		
Filing Contact Email (auto filled)		

Team

Enter the names of the companies/organizations on the project team.

Question	Response	Comment
Owner/Developer (auto filled)		
Architect *		
Landscape Architect *		
Mechanical Engineer *		
Sustainability / LEED *		
Building Performance Modeler *		
Civil Engineer *		
Permitting		
Construction Management		
Consultant for Advanced Energy Feasibility Assessment		

Proposed Building Design

Question	Response	Comment
Site Area (SF)		
Building Gross Square Feet (auto filled)		

LP CHK v4 - July 2025

Green Building Report

LEED Checklist and Sustainability Strategies

Checklist

Climate Resilience Checklist
70-80 % Complete

Article 37 Documents in the PNF

PHIUS 2021 VERIFICATION 1

BUILDING INFORMATION

Category:	Residential	
Status:	In planning	
Building type:	New construction	
Year of construction:	2023	
Number of occupants:	179 (Design)	
Occupant density:	421.6 1/Pers.ft ²	

Boundary conditions

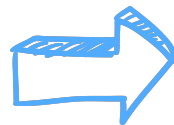
Climate:	BOSTON LOGAN INT ARPT MA	Building geometry	Envelop volume:	1,043,555.6 ft ³
Internal heat gains:	1.5 Btu/hr ft ²	Net volume:	1,000,866.9 ft ³	
Internal temperature:	65 °F	Total area envelope:	87,289.2 ft ²	
Overhead temperature:	77 °F	Area/Volume Ratio:	8.1 1/ft	
		Floor area:	72,289 ft ²	
		Envelope area/CA:	1.127	

PASSIVEHOUSE REQUIREMENTS

Certificate criteria: **PHIUS CORE 2021**

Heating demand		
specific:	4.87 kBtu/ft ² yr	
target:	4.8 kBtu/ft ² yr	
total:	360,705.26 kBtu/yr	
Cooling demand		
specific:	4.58 kBtu/ft ² yr	
target:	5.2 kBtu/ft ² yr	
total:	405,096.35 kBtu/yr	
Heating load		
specific:	2.84 Btu/hr ft ²	
target:	3.3 Btu/hr ft ²	
total:	256,399.75 Btu/hr	
Cooling load		
specific:	2.84 Btu/hr ft ²	
target:	2.8 Btu/hr ft ²	
total:	219,032.4 Btu/hr	

PHIUS Performance 3.0.0.1 Digital Energy Ltd/Client Page 1



Draft For Implementation

Your Letterhead
Sample Net Zero Acknowledgement Letter

Date:

Kaaron Sherr, Director of BPDA
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201-1007

Re: **Project Name** - Net Zero Greenhouse Gas Emissions Ready Acknowledgement Letter

Director Sherr:

As the owner or authorized representative responsible for operational reporting (**Project Name or Building**), I, (**Your Name**), hereby acknowledge that (**Project Name or Building**) is designed to be Net Zero Greenhouse Gas Emissions Ready and will comply with all applicable Greenhouse Gas Emissions Standards, consistent with the Article 37 and Article 80 zoning approvals and all recommendations made to the Boston Planning & Development Agency Board related to this project. The (**Project Name or Building**) will also comply as required by the Ordinance Amending the City of Boston Code, Ordinances, Building Energy Reporting and Disclosure, Section 7-2.2(i) - Emissions Requirements.

Upon the building's commencement of operations, we accept responsibility for complying with the Building Energy Reporting and Disclosure Ordinance (BERDO) Regulations, including fulfilling the annual reporting requirements for energy and water usage, and obtaining third-party verification, in accordance with the relevant Building Use Classification outlined in Section 7-2.2 and detailed in Appendix A.

Sincerely,

Signature

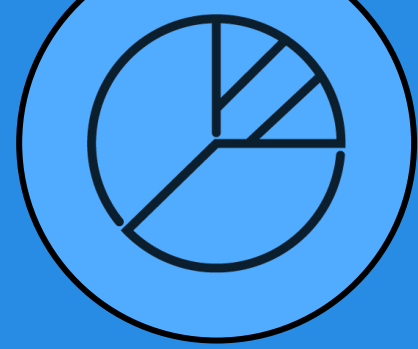
Title

Company and address

Energy Goals
Performance Study

NEW! Net Zero Ready
Net Zero Acknowledge Letter

Article 37 Documents in the PNF



Design Filing - Submission Guide



Design submittal



UPDATED - Large Project Climate Resilience Checklist

Updated Checklist to reflect any new information and/or changes in the design post-board approval. The CRC will capture more details and should be 90% complete



UPDATED- Green Building Report: 1) *Report Summary*: provide a brief narrative of the project's sustainability, green building, net zero carbon, embodied carbon reduction, and climate resilience goals including the proposed Leadership in Energy and Environmental Design (LEED) rating system and point score; 2) *Key Strategies*: briefly describe how key LEED credits will be achieved. 3) *LEED Scorecard*

Updates reflect design refinements and are based on final Construction Documents



Design submittal



UPDATED- Building Performance Model Study

Utilizing an appropriate building performance simulation tool or similar study describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.



Design Affidavit (TEMPLATE) -provide the completed Affidavit signed by the Massachusetts-licensed architect or engineer of record

Updated Green Building, Climate Resiliency Checklist, Energy modeling are based on design permit filing .

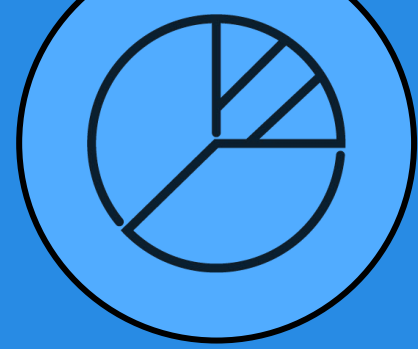


NEW! Embodied Carbon Life Cycle Assessment (LCA) Report::

1) Structure and Enclosure LCA Report: utilizing this Embodied Carbon LCA Microsoft Excel (.xlsx) Template, provide the completed Report and data as xlsx files AND include a PDF copy of the Report; and 2) Optional Additional Reporting: e.g. Whole Building LCAs, specific product and material feasibility studies

Design submittal

Embodied Carbon Life cycle assessment is an report based on structure and enclosure materials only.



Construction Filing (CoO)



Construction submittal



UPDATED - Large Project Climate Resilience Checklist

Updated Checklist to reflect any new information and/or changes in the design post-board approval. The CRC will capture more details and should be 99.99% complete



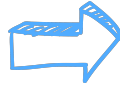
UPDATED- As-built Performance Model Study

Same documentation submitted to Inspectional Services to demonstrate code compliance describing: 1) Model Inputs, 2) Model Results, and 3) NZC Compliance.

*Updated Climate Resiliency Checklist and energy modeling
based on refinements to design.*



Construction submittal



Green Building Report: 1) *Report Summary*: provide a brief narrative of the project's sustainability, green building, net zero carbon, embodied carbon reduction, and climate resilience goals including the proposed Leadership in Energy and Environmental Design (LEED) rating system and point score; 2) *Key Strategies*: briefly describe how key LEED credits were achieved. 3) *LEED Scorecard*



Construction Affidavit (TEMPLATE) -provide the completed Affidavit signed by the Massachusetts-licensed architect or engineer of record

Updates reflect any construction changes and are based on built conditions including commissioning

City of Boston
Planning Department

Draft for Implementation

A37 Small Project Climate Resiliency Checklist

Please use the [Developer Portal](#) to complete and submit the Checklist AND include a PDF copy of the completed Checklist Report downloaded from the Portal in the filing document. The Portal allows the project team to iteratively work on the Checklist until submitted. Subsequent updates can be made to the same Checklist and re-submitted. Provide a PDF copy of any updated Checklist Reports to the Planning Department.

This version is for informational use only and is NOT FOR FILING

Building Information

Question	Response	Comment
Building Name <i>(auto filed)</i>		
Related Project <i>(auto filed)</i>		
Building Street Address <i>(auto filed)</i>		
Select the type of filing (Initial/SRIA, Design/Building Permit, Construction Completion) *		
Filing Contact Name <i>(auto filed)</i>		
Filing Contact Email <i>(auto filed)</i>		

Team

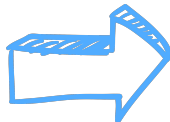
Enter the names of the companies/organizations on the project team.

Question	Response	Comment
Owner/Developer <i>(auto filed)</i>		
Architect *		
Landscape Architect *		
Mechanical Engineer *		
Sustainability		
Building Performance Modeler		
Civil Engineer		
Permitting		
Construction Management		

Proposed Building Design

Question	Response	Comment
Site Area (SF)		
Building Gross Square Feet <i>(auto filed)</i>		
Building Gross Floor Area <i>(auto filed)</i>		
Info Tool Tip - Building Gross Floor Area: sum of all building areas <i>excluding</i> parking garage, basement, attic.		

SP CRC v4 - July 2025



BUILDING INFORMATION

Category:	Residential
Status:	In planning
Building type:	New construction
Year of construction:	
Units:	50
Number of occupants:	194 (Design)
Occupant density:	492.1 ft ² /Person



Boundary conditions

Climate: BOSTON LOGAN INT AIRPT MA

Internal heat gains:	1.3 Btu/hr ft ²
Interior temperature:	68 °F
Overheat temperature:	77 °F

Building geometry

Enclosed volume:	548,254.4 ft ³
Net volume:	416,673.3 ft ³
Total area envelope:	47,596.8 ft ²
Area/Volume Ratio:	0.1 1/ft
Floor area:	41,815 ft ²
Envelope area/GFA:	1.148

PASSIVEHOUSE REQUIREMENTS

Certificate criteria: PHUS+ 2018

Heating demand

specific:	3.73 kBtu/ft ² yr		✓
target:	3.4 kBtu/ft ² yr		
total:	155,925.78 kBtu/yr		

Cooling demand

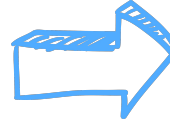
sensible:	4.39 kBtu/ft ² yr		✓
latent:	0.46 kBtu/ft ² yr		
specific:	4.85 kBtu/ft ² yr		
target:	5.4 kBtu/ft ² yr		
total:	202,980.98 kBtu/yr		

Heating load

specific:	3.53 Btu/hr ft ²		✓
target:	3.7 Btu/hr ft ²		
total:	147,482.63 Btu/hr		

Cooling load

specific:	2.79 Btu/hr ft ²		✓
target:	3 Btu/hr ft ²		
total:	116,681.88 Btu/hr		



Draft for Implementation

Your Letterhead
Sample Net Zero Acknowledgement Letter

Date

Kairos Shen, Director of BPDA
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201-3007

Re: *Project Name* - Net Zero Greenhouse Gas Emissions Ready Acknowledgement Letter

Director Shen:

As the owner or authorized representative responsible for operational reporting [*Project Name or Building*], I, [*Your Name*], hereby acknowledge that [*Project Name or Building*] is designed to be Net Zero Greenhouse Gas Emissions Ready and will comply with all applicable Greenhouse Gas Emissions Standards, consistent with the Article 37 and Article 80 zoning approvals and all recommendations made to the Boston Planning & Development Agency Board related to this project. The [*Project Name or Building*] will also comply as required by the Ordinance Amending the City of Boston Code, Ordinances, Building Energy Reporting and Disclosure, Section 7-2.2(i) - Emissions Requirements.

Upon the building's commencement of operations, we accept responsibility for complying with the Building Energy Reporting and Disclosure Ordinance (BE3200) Regulations, including fulfilling the annual reporting requirements for energy and water usage, and obtaining third-party verification, in accordance with the relevant Building Use Classification outlined in Section 7-2.2 and detailed in Appendix A.

Sincerely,

Signature

Title
Company and address

Checklist

Updated Climate Resilience Checklist
(Large Project)
99.99 % Complete

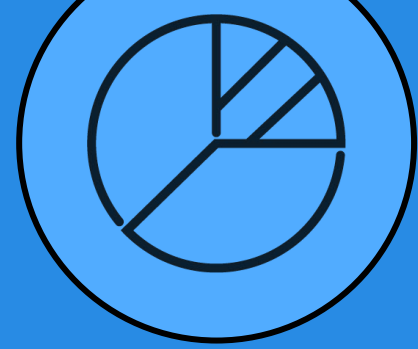
Energy Model

As-built Energy Model

Construction

Affidavit

Article 37 Documents - Construction Filing



EMBODIED CARBON REPORTING

Why Embodied Carbon?



Embodied Carbon: Greenhouse Gas Emissions associated with stages of products' lifespan — extraction, production, transport, and manufacturing. Embodied Carbon accounts for almost half of a building's total GHG emissions over its lifetime.

Building Emissions: Greenhouse Gas Emissions associated with a building's operations.

Embodied Carbon Reporting - Goals and Timing

Education and Awareness

GOAL #1

Advance low Embodied Carbon building practices by supporting professional education, awareness and promoting best practice strategies

Data Collection

GOAL #2

Gather Embodied Carbon building data including key performance metrics, material / product information. Further develop incentives, and resources for implementation

JULY 1, 2025

Begins for New Filings

LCA Report Due at Design / Bldg Permit Filing

... so Mid 2026

Embodied Carbon Reporting – Large Projects ONLY

New Requirement	
Report Building Structure and Enclosure Embodied Carbon by submitting an Life Cycle Analysis Report prior to Certificate of Completion (with Design / Bldg Permit Filing). Practice leaders and many projects already include low Embodied Carbon building solutions. Successful practices rely on early design phase analysis and integrated planning to realize solutions. Examples: low carbon concrete, Mass Timber / MT hybrid structure, Glavel, insulation options, etc).	Initial Filing (PNF): Identify and describe potential low embodied carbon strategies to be considered or included in the project. Optional -Share any supporting analysis, cost-benefit determinations, and best practices. Design / Building Permit Filing: Submit a Structure and Enclosure Carbon LCA Report. Optional - additional LCA reporting (e.g. Whole Building LCA)

- Submitted with Design / Building Permit Filing - *post building design*

Embodied Carbon Life Cycle Submission Requirements

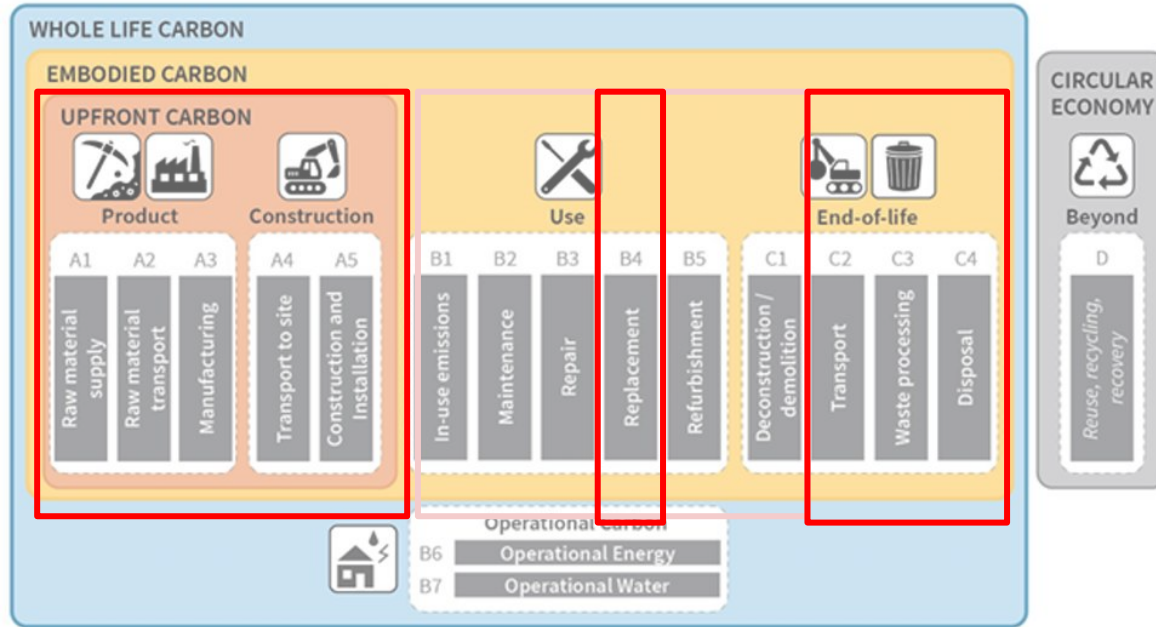
- Embodied Carbon LCA Excel Reporting Template
- Raw results from your LCA software tool
- Any manual calculations

- List of covered building Structure and Enclosure elements

OmniClass * Number	Element Category	Required	Exclude	Service Life
21-01 00 00	Substructure	X		Life of building
21-01 10	Foundation	X		Life of building
21-01 10 10	- Standard Foundations	X		Life of building
21-01 10 20	- Special Foundations	X		Life of building
21-01 20	Subgrade Enclosure	X		Life of building
21-01 20 10	- Walls for Subgrade Enclosure	X		Life of building
21-01 40	Slabs-on-grade	X		Life of building
21-01 40 10	- Standard Slabs-on-grade	X		Life of

Embodied Carbon Reporting - LCA System Boundaries

- Lifecycle stages (A1-A5, B1-B5, C1-C4) and study period of 60 yrs



Minimums

Embodied Carbon Guidance

Embodied Carbon LCA Guidance for Large Project Review

Pathway	Applicable Projects	Compliance Procedure
Primary Pathway	Available to all projects subject to the LCA Guidance	Applicable projects are permitted to submit a life cycle assessment using a tool that covers all key life cycle stages covered by the guidance (minimum A1-A3, B4, C2-C4). These projects must provide manual calculations (as described in the Life Cycle Stages section) for A4 and A5 if missing from the LCA tool selected.
Residential Pathway (Simplified)	Available only to Multifamily Residential projects of Type V Construction under 100,000 SF	Applicable projects are permitted to submit a life cycle assessment using a tool that covers only a subset of key life cycle stages covered by the guidance (A1-A3 or A1-A5) and use the “additional stage estimation method” to report B and C stage impacts. These projects must provide manual calculations (as described in the Life Cycle Stages section) for A4 and A5 if missing from the tool selected.

Embodied Carbon Resources

The Embodied Carbon LCA Excel Reporting template, for Large Project Review

- Captures LCA model assumptions and results
- Required (Structure and Enclosure) Scope
- Opt-in (Other Building components) Scope
- Biogenic Carbon is accounted separately

	Upfront Carbon			Use Phase	End of Life	Total
	A1-A3	A4	A5	B1-B5	C1-4	All
Proposed Structure GWP (kgCO ₂ e):						0.00
Proposed Enclosure GWP (kgCO ₂ e):						0.00
Mandatory Scope GWP (kgCO ₂ e):	0.00	0.00	0.00	0.00	0.00	0.00

Mandatory Scope Total:		Total Global Warming Potential	
		0.00	kgCO ₂ e
		Total Embodied Carbon Intensity	
		#DIV/0!	kgCO ₂ e/m ²

- Embodied Carbon LCA Reporting Instructions for Developer Teams
- Detailed Reference Guide for architects and consultants with
 - step-by-step compliance instructions including manual
 - LCA “Tool Stack” - *what tools to use and when*
 - Preliminary - Pathfinder, C.Scale, CARE, Kaleidoscope
 - Analysis & Reporting - Tally, One Click LCA, Athena
 - Granular Analysis - BEAM tool (builder friendly)

Embodied Carbon LCA Reporting Template



Embodied Carbon LCA Reporting Instructions

Important Links:
LCA Reporting Guidance Link
Embodied Carbon Practitioner's Toolkit
Article 37 Submittal Requirements



Editable fields

Select from dropdown

Results

Enter Building Name Here, Boston

This section captures data on the proposed building, team, and modelling tools and assumptions.

Project Definition		User Input		Assessment	
Project Name		Project Name		Short name to identify project	
Project Address		Project Address		Street address, city, state, postal code	
LCA Compliance Procedure		LCA Compliance Procedure		See "Table 2 LCA compliance procedure" in City of Boston Life Cycle Assessment (LCA) Guidance for Building	
Building Type (CIBC)		Building Type (CIBC)		See the Commercial Building Energy Consumption Survey (CBECS) [1] for more information on building type definitions.	
IBC Primary Construction Type		IBC Primary Construction Type		Select the IBC construction type for the majority of the building gross floor area.	
Building Code Category		Building Code Category		Refer to definitions from ASCE 246.	
Primary Vertical Gravity System		Primary Vertical Gravity System		See descriptions of relevant systems in Appendix A.3 in source [2].	
Primary Lateral System		Primary Lateral System		See descriptions of relevant systems in Appendix A.11 in source [2].	
Foundation Type		Foundation Type		See descriptions of relevant systems in Appendix A.12 in source [2].	
Project Gross Floor Area (ft ²)		Project Gross Floor Area (ft ²)		See descriptions of relevant systems in Appendix A.13 in source [2].	
Project Above-Grade Parking Area (ft ²)		Project Above-Grade Parking Area (ft ²)		Gross floor area consistent with Boston Zoning Code definition.	
Project Adjusted GFA (ft ²)		Project Adjusted GFA (ft ²)		Autocovered from ft ² to m ² .	
Project Adjusted GFA (m ²)		Project Adjusted GFA (m ²)		Area of above-grade parking facilities included in Boston Zoning Code GFA.	
				Autocovered from ft ² to m ² .	
				Gross floor area minus above-grade parking area, to be used for embodied carbon compliance.	
				Autocovered from ft ² to m ² .	

LCA Results		User Input		Person full name, email, and firm name	
LCA Module		LCA Module		Person full name, email, and firm name	
Date of Model Run		Date of Model Run		MM/YYYY	
Project Phase at Model Run		Project Phase at Model Run		Select from dropdown.	
Reference Study Period (years)		Reference Study Period (years)		Assessment must be 60 years to comply	
Software Used		Software Used		Select from dropdown.	
Software (if Other)		Software (if Other)		Please write in if selected "Other" for "Software Used".	
Software Version		Software Version		Please enter version number corresponding with Software used.	
Biogenic Carbon Reported Separately		Biogenic Carbon Reported Separately		Select from dropdown, "Yes" must be selected to comply.	
Embodied Carbon Requirements Passed		Embodied Carbon Requirements Passed		Select from dropdown, if applicable.	
Requirements Passed (if Other)		Requirements Passed (if Other)		Please write in if selected "Other" for "Embodied Carbon Requirements Passed".	

Overall scope included*	
Direct (required)	TRUE
Indirect (required)	TRUE
Intentional (optional)	FALSE
DEF (optional)	FALSE
Handcarried (optional)	FALSE
DEF (optional)	FALSE

*Indicate TRUE for scopes included, FALSE for excluded

Mandatory LCA Reporting Scope

Please break out the following required elements by scope and life cycle in kgCO₂e:

	Upfront Carbon			Use Phase/End of Life			Total
	A1-A3	A4	A5	B1-B5	C1-C4	AB	
Proposed Directness GWP (kgCO ₂ e)							
Proposed Indirectness GWP (kgCO ₂ e)							
Mandatory Scope GWP (kgCO₂e)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Mandatory Scope Total:

Total Global Warming	0.00
Total Embodied Carbon	kgCO ₂ e/m ²
kgCO ₂ e/m ²	kgCO ₂ e/m ²

A1-A3

Requirement: (A1) Raw Material Supply, (A2) Transport to Factory, and (A3) Manufacturing

A4

Requirement: (A4) Transportation to site

A5

Requirement: (A5) Pre-construction Demolition and Deconstruction, (A6-2) Construction & Installation, (A6-1) Post-construction Waste

B1-B5

Requirement: (B1) Replacement, (B2) Maintenance, (B3) Repair, (B4) Replacement, (B5) Repair

C1-C4

Requirement: (C1) Transport to Waste Processing/Disposal, (C2) Waste Processing, (C3) Waste Processing, (C4) Disposal of Waste

Additional Explanations

Please state any optional/excluded elements have been included in the study, or any other relevant notes.

Enter text here.

Biogenic Total:

Biogenic Global Warming	0.00
kgCO ₂ e	kgCO ₂ e

and life cycle in kgCO₂e:

Use Phase/Operation/End of Life Module D	Total
B1-B5	0
B6-B7	0
C1-C4	0
D	0
AB	0
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Total Global Warming

0.00	kgCO ₂ e
------	---------------------

Total Embodied Carbon

kgCO ₂ e/m ²	kgCO ₂ e/m ²
------------------------------------	------------------------------------

Carbonation Global Warming

0.00	kgCO ₂ e
------	---------------------

All of the following are optional.

A1-A3

(A1) Raw Material Supply, (A2) Transport to Factory, and (A3) Manufacturing

A4

(A4) Transportation to site

A5

(A5-1) Pre-construction Demolition and Deconstruction, (A5-2) Construction & Installation, (A5-3) Construction Waste

B1-B5

(B1) Replacement, (B2) Maintenance, (B3) Repair, (B4) Replacement, (B5) Repair

B6-B7

(B6) Operational Energy use, (B7) Operational Energy use

C1-C4

(C1) Deconstruction/Demolition, (C2) Transport to Waste Processing/Disposal, (C3) Waste Processing, (C4) Disposal of Waste

Module D

(D) Biogenic Carbon over the life cycle, i.e. future reuse, recycling energy recovery potential

Concrete Carbonation

Carbonation will vary based on the LCA tool used. Please add notes to describe any assumptions made in the calculation.

Biogenic Carbon

Please add notes to describe any assumptions made, either reflecting biogenic carbon storage ("sequestration of carbon") or biogenic carbon flow ("capture and release of carbon"). Please add notes to describe biogenic carbon sequestration.

Additional Explanations

Note which optional/excluded elements have been included in the values, or any other relevant notes.

Enter text here.

[1] Energy Information Administration (2025). Commercial Building Energy Use Survey - Building Type Definitions. <https://www.eia.gov/consumption/commercial/building-type-definitions.php>

[2] Banks, B., Chafart, M., & Carlisle, S. (2024). CLF VBLCA Benchmark Study (v2) Data Collection User Guide v1.0. Carbon Leadership Forum. <https://digital.liv.ac.uk/online-worksheets/CLF-VBLCA-Benchmark-Study>

Embodied Carbon LCA Reference Guide

Embodied Carbon Practitioner's Toolkit

EMBODIED CARBON LIFE CYCLE ASSESSMENT REFERENCE GUIDE

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1. BACKGROUND

- Ii. Intent
- Iii. Timeline and Requirements

2. BUILDING LCA GUIDANCE

- I. Applicability
- Ii. LCA Compliance Procedures
- Iii. Impact Indicators
- Iv. Covered Project Elements
- V. Life Cycle Stages
- Vi. Reference Study Period
- Vii. LCA Tools
- Viii. Material Quantity Data
- Ix. Embodied Carbon Data
- X. Treatment of Special Topics
- Xi. Reporting Requirements

3. APPENDICES

- Appendix A. Calculating A4 emissions
- Appendix B. Calculating A5 emissions
- Appendix C. Definitions
- Appendix D. Credits

0

1



Planning Department

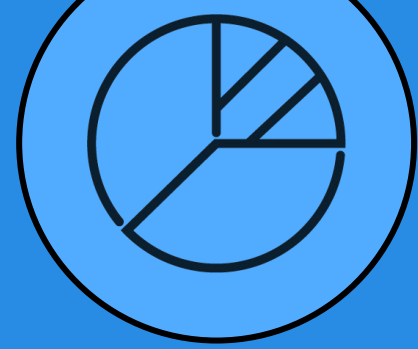
CITY of BOSTON

EMBODIED CARBON PRACTITIONER'S TOOLKIT

EMBODIED CARBON 101

These resources introduce the concept of embodied carbon and highlight the critical importance of reducing it.

- [Embodied Carbon 101 Factsheet](#): Understand what embodied carbon is, how it is defined, its significance in the global climate crisis, and why it is an important consideration for practitioners and policymakers.
- [Embodied Carbon Video Training Series](#): Watch this introductory 5-video series to build foundational knowledge on embodied carbon, Life Cycle Assessment (LCA), Environmental Product Declarations (EPDs), and more.
- [AIA-CLF Embodied Carbon Toolkit for Architects](#): Read this three-part resource provides architects with an overview, steps and key strategies to reduce embodied carbon in their projects.



A37 Carbon Emissions Calculator

- Purpose:
 - Assists Project Teams in calculating building operational carbon emissions, includes future emissions through 2050, supports informed design decisions, and calculates renewable energy procurement quantities and options to meet NZC
 - Illustrates each energy source's contribution to building total emissions (e.g. Electricity, fossil fuel, distributed thermal energy, etc)
 - Insures consistent use of BERDO standards, emissions factors, and calculations

Carbon Emissions Intensity Calculator

First Emissions Compliance Year (Yr of Construction completion) **2025** year

PROPOSED BUILDING - USE, ENERGY AND GENERATION DATA

This subtitle provides a brief explanation of the table below.

	Use square Footage (sq. ft.)	Building Use Type (Choose from dropdown)	Annual Grid Electricity Use (kWh)	Annual Natural Gas Use (MMBtu)	District Steam (Vicinity Boston) (MMBtu)	District Steam (Vicinity Longfellow) (MMBtu)	District Steam (MATEP) (MMBtu)	District Chilled Water (MATEP) (MMBtu)	District Electricity (MATEP) (MMBtu)
Largest Primary Building Use	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Second Largest Building Use	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Third Largest Building Use	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
PV annual electricity production (in AC)	0								

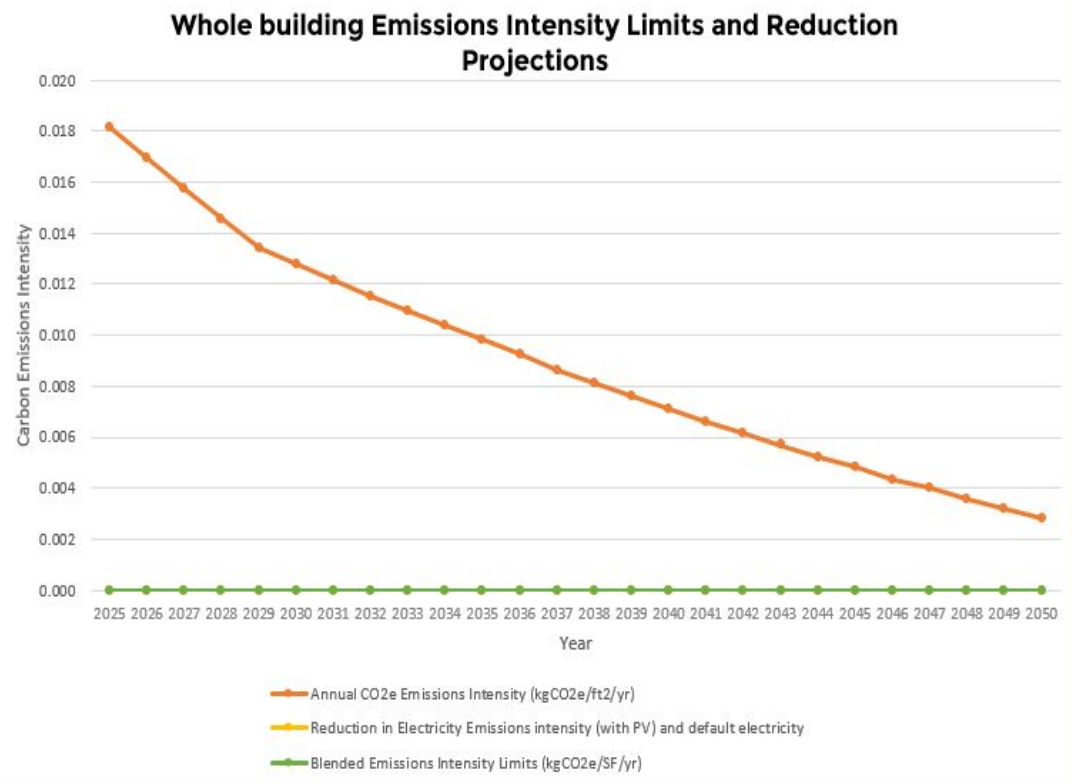
Required inputs:

- Building Uses
- Areas
- Predicted Energy Use
- Solar PV production (optional)

Carbon Emissions Intensity Calculator

Resulting Calculations:

- Predicted Carbon Emissions Intensity until 2050
- Action when non-compliant
- Amount of renewable energy to be purchased
- Amount of fossil emissions to be offset or eliminated



ENERGY SOLUTIONS FOR NZC - ELECTRICAL EMISSIONS only

This subtitle provides a brief explanation of the table below.

Renewable Energy Needed to Mitigate Electricity Emissions Over Limit [kWh]	3650	kWh/yr	2025
Option 1 Utility Plan	Default (RPS Class I)		
AND/ OR Option 2 MassClass 1 RECs / PPAs	0	kWh / yr	
Remainder Renewable Energy Needed to Mitigate Electricity Emissions Over Limit [kWh]	3650	kWh/yr	2025

Note: Negative value signifies a Net energy positive design and the value is equivalent to the amount of avoided carbon (intensity)

Solution Pathways available on tool:

- Reduced Energy Use with more efficient envelope and energy systems
- Increase Solar PV production
- Utility Service Plan
- RECs/ Power Purchase Agreements
- Alternative Compliance Payments for fossil fuel emissions

Available Online for Downloading

Assists Project Teams in calculating:

- Building operational carbon emissions
- Future emissions through 2050
- Supports informed design decisions
- Calculates renewable energy procurement quantities and options for meeting NZC

A37 CARBON EMISSIONS CALCULATOR EXPANDED GUIDANCE

WHAT IS THE CARBON EMISSIONS CALCULATOR

The [Carbon Emission Calculator](#) is designed to help Development Teams and users:

1. Easily and consistently calculate and illustrate a building's carbon emissions, carbon emission intensity, and carbon emission limit based on operational energy uses, including the contribution of each building use and energy source.
2. Assess how potential design strategies might reduce the proposed building's carbon emissions, and
3. Provides insights into clean energy generation (solar PV) and procurement strategies for achieving Net Zero Carbon (NZC) performance.

Note: The calculations generated, analyses, and totals are based on the entered information and are for planning purposes only. Modeled and actual building performance and emissions may be different and, in some cases, significantly different.

WHY USE THE CALCULATOR

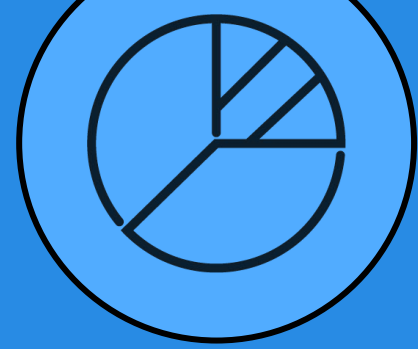
As the building sector advances toward Boston's Carbon Neutral 2050 goals, having a clear understanding of building carbon emissions and efficacy of mitigation strategies is critical. The Article 37 Carbon Emissions Calculator:

- Establishes a Standard Methodology: Standardized calculations help to ensure consistency and improves clarity across Project Teams and building projects.



A37 Carbon **Emissions** **Calculator**

A37 Emissions **Calculator** **Expanded Guidance**



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QUESTIONS / FEEDBACK?

THANK
YOU!

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