

NEW ECOLOGY



Community-Based Sustainable Development

15 Court Square, Suite 420
Boston, MA 02108

City of Newton – Sustainable Development Design

The Beacon

1114 Beacon St, Newton, MA

February 24, 2020

I. Overview

The 1114 Beacon Street project (the “Proposed Project”) includes the proposed demolition of the existing building, formerly a restaurant, and a replacement with a new residential building. The proposed building will include 27 residential units over a below grade parking garage. The residential structure will include 59,087 square feet of living space. The proposed project also includes 4 surface parking spaces and 46 subsurface parking spaces.

The Proposed Project will be designed and constructed under the guidelines of the U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design for Homes Version 4 (LEED H v4) rating system. The buildings will meet or exceed the requirement of “LEED certifiability” at the Gold level. The following is an outline of the preliminary LEED compliance strategy for this project.

II. LEED Homes v4 Scorecard – The Beacon

New Ecology, Inc. (NEI) has reviewed the preliminary project scope for The Beacon and understands the credit summary presented in Table 1 to be reasonable and achievable – the subsequent narrative identifies the project’s current approach to compliance with all checklist prerequisites and applicable, optional credits. Attached in Appendix A, please find the official preliminary checklists for the Proposed Project.

Table 1: LEED Homes v4 Summary Scorecard

Category	Yes Points	Maybe Points
Integrative Process	2	0
Location and Transportation	12.5	1.5
Sustainable Sites	4	1
Water Efficiency	5	2
Energy and Atmosphere	15	5
Materials and Resources	4.5	1
Indoor Environmental Quality	11.5	1.5
Innovation	3	2
Regional Priority	3	1
Total Points	60.5	15

III. Narrative for LEED Credits – The Beacon

The Projects will fulfill all the prerequisites for all categories.

Note: Only credits that will be pursued by the Project are discussed below; credits that will not be pursued are not included.

A. Integrative Process

IP Integrative Process	2 points
<p>In compliance with credit requirements, the project will complete the following tasks:</p> <ul style="list-style-type: none"> • A preliminary Energy Model: during the schematic design phase, the team will model the project’s design and assess potential strategies associated with the site conditions, the extensive massing and required building orientation, the basic envelope design, lighting levels within the regularly occupied spaces, the thermal comfort ranges of the occupants, the plug and process load needs, and the programmatic and operational parameters of the building. All iterations and results will be documented and shared with the design team prior to final design decisions. • A preliminary Water-Use systems Analysis: also during the schematic design phase, the team will explore methods of reducing potable water loads within the building as well as any potable water required for irrigation of the building site and process water necessary for equipment within the building. • Integrative project team: As part of the design process, the project will assemble and involve a project team to meet three criteria. The team will include members from at least three of the following specialties: architecture, MEP, Building Science or Civil Engineering. The team members will be involved in at least three of these phases: Schematic Design, LEED planning, Preliminary Design, Design Development, Final Design, Construction. The project team will meet at least once a month. • A Design Charrette: The project team as defined above will conduct a one full-day workshop to establish project goals. This meeting will happen no later than the design development phase and preferably during schematic design. 	

B. Location and Transportation

LT Floodplain Avoidance	Required
<p>The project is located in FEMA Zone X an “Area of minimal flood hazard” which meets the LEED prerequisite standard for floodplain avoidance.</p>	
LT Site Selection: Previously Developed	4 yes points
<p>The project is located on a previously developed lot which satisfies the credit conditions.</p>	

LT Site Selection: Infill Development	2 yes points
Since the project is located on Beacon Street where more than 75% of the surrounding land within a ½ mile is already developed (excluding public parks and water bodies), it earns 2 LEED points for infill development.	
LT Site Selection: Open Space	1 yes point
The project is located within a short walk (0.3 miles) of Cold Spring Park, meeting the credit requirement of providing access to ¾ of an acre of open space within a 1/2 mile of the project and earning the project 1 point.	
LT Site Selection: Street Network	1 yes point
The project is located in an area with an extensive street and sidewalk network. Maps for the area show an intersection density of 230 intersections per square mile, exceeding the 90 intersections per mile requirement for this point.	
LT Site Selection: Bicycle Network and Storage	1 maybe point
The project team will include indoor bike storage spaces at a one-to-one ratio with one bicycle space for each unit. The project is also within 200 yards of a bicycle network. The project team will explore counting this point in the “Innovation” category, as the maximum number of points have already been earned for the location and transportation “Site Selection” credit category.	
LT Compact Development	3 yes points
The project team is proposing unit density above 20 dwelling units per acre of land, earning the project 2 points.	
LT Community Resources	1.5 yes points, 0.5 maybe points
The Beacon units are within a ½ mile walking distance of a number of community resources including a supermarket, a library, a pharmacy and a number of outdoor recreation spaces. The number of community resources within a short walk will earn the project 1.5 points, and possibly an additional ½ point.	
LT Access to Transit	1 maybe point
The project site is located next to MBTA bus routes 59 and 52. The 59 bus route has 49 weekday trips and an average of 17 weekend day trips. Bus route 52 has 35 daily weekday trips and no weekend service. The project team will investigate other public transit options with weekend service within 0.5 miles in order to earn 1 point.	

C. Sustainable Sites

SS Construction Activity Pollution Prevention	Required
The project's construction documents will include a Soil Erosion and Sedimentation Control Plan. A Stormwater Pollution Prevention Plan (SWPPP) will also be developed for the site in accordance with the requirements for the US EPA's Construction General Permit. These documents will be used to demonstrate compliance with this prerequisite.	
SS No Invasive Plants	Required
The project will complete and document an assessment of the planting plan for the project to ensure that no invasive plant species are introduced. The general contractor will also submit documentation to certify that no invasive plants were installed as part of the project.	
SS Heat Island Reduction	1 yes point
The project will utilize high albedo materials for hardscapes onsite, including both nonroof and roof installations. All installed materials will meet LEED requirements for either initial or three-year Solar Reflectance Index values. In addition, trees will be planted in order to shade hardscaped area. The project team will set a goal that more than 50% of the hardscape area is either shaded by trees (after 10 years of growth) or covered in high albedo material earning 1 point.	
SS Rainwater Management	2 yes points
The project team anticipates that retaining and infiltrating stormwater onsite will be possible by using green infrastructure and low-impact development.	
SS Nontoxic pest control	1 yes point, 1 maybe point
The project will make use of nontoxic pest control strategies onsite. Below grade, solid concrete walls will be used which will prevent pest entry. All external penetrations, joints, edges and entry points will be sealed and corrosion proof screens will be installed on all openings greater than 6mm. The project team will investigate opportunities to make further use of nontoxic pest control strategies on the project in order to earn another possible point. In addition, an integrated pest management policy that includes guidance for residents on pesticide use, housekeeping, and prompt reporting of pest problems will be implemented. This policy will be included in the resident/building manager education manual.	

D. Water Efficiency

WE Water Metering	Required
The project will comply with the requirements of this credit by installing a water meter for the building.	
WE Total Water Use	5 yes points, 2 maybe points
<p>The project will reduce demand for potable water at least 30% below the aggregate water consumption baseline through high efficiency fixtures within living spaces– this design will surpass the minimum requirement for 10% reduction with a possible goal of a 40% reduction for an additional 2 points. The design will specify WaterSense labeled fixtures and the following flow rates:</p> <ul style="list-style-type: none"> • Shower: 1.5 GPM, • Bath Lavatory: 0.5 GPM, and • Toilet: 0.8 GPF <p>EPA ENERGY STAR appliances will be used in units with the following consumption rates:</p> <ul style="list-style-type: none"> • Clothes Washer: IWF of 4.3 or less • Dishwasher: 3.5 GPL or less 	

E. Energy and Atmosphere

EA Minimum Energy Performance	Required
<p>The project will meet this prerequisite, as well as the Massachusetts Stretch Energy Code by constructing a HERS energy model that scores 55 or lower on average. The preliminary HERS energy models for the 4 “worst case” units, or the units expected to have the highest energy consumption, show an average HERS score of 55. In addition, the project team will complete the following:</p> <ul style="list-style-type: none"> • Duct leakage testing will be conducted to ensure that ducts are sealed to the required standard. Duct leakage testing will be conducted at the project midpoint and at project closeout based on appropriate sampling protocol. • A commissioning agent will be hired by the owner to carry out fundamental commissioning of the HVAC system. • A thermal enclosure inspection will be conducted and an inspection checklist completed. • An operations and maintenance manual, binder, or CD will be provided to all individuals or organizations responsible for maintenance on the project in the Resident Green Guide. A minimum one-hour walkthrough of the building will be conducted. • The architect for the project will include in the construction drawings air sealing details including methods and materials. An air barrier sheet and a compartmentalization sheet showing the continuity of fire and smoke barriers around each apartment will be included as well. 	
EA Energy Metering	Required

The project will include a building-level energy meter as well as unit level submeters for all energy consumption including electricity.	
EA Education of Building Manager	Required
The project team will provide the building manager and owners with an operations and maintenance manual that includes information about the building's green features.	
EA Annual Energy Use	13 yes points, 5 maybe points
Considering the average HERS rating of 55 and factoring in the Home Size Adjuster (HSA) per LEED requirements the project team expects to earn 13 points for EA Annual Energy Use. The project will also meet the Massachusetts Stretch Energy Code and the team will explore additional strategies in order to reduce energy use further.	
EA Efficient Hot Water Distribution System	2 yes points
The project will include a fully insulated Domestic Hot Water (DHW) system with a minimum insulation level of R-4 on all DHW piping in order to earn 2 points.	

F. Materials and Resources

MR Certified Tropical Wood	Required
The project team is committed to designing and building the units with wood that is either nontropical, reused or reclaimed, or certified by the Forest Stewardship Council.	
MR Durability Management Verification	1 yes point
The Green Rater from the project team will inspect and verify each measure listed in the ENERGY STAR for Homes, Version 3, water management system builder checklist.	
MR Environmentally Preferable Products	1.5 yes point, 1 maybe point
The project will include locally sourced materials where possible. Locally sourced aggregate for concrete for the foundation is generally available in the project area, earning ½ a point. The project team will also incorporate recycled or reclaimed materials which will earn the project an additional 1 point. The project team will explore the possibility of incorporating additional recycled materials in order to earn an additional point.	
MR Construction and Demolition Waste Management	2 yes points
The team is committed to reducing construction waste through at least 75% diversion including four material streams. The project team will document the means of meeting this diversion target and the details of the end use of recycled materials through the Construction and Demolition Waste Management Plan.	

G. Indoor Environmental Quality

EQ Ventilation	Required
The project team is committed to reducing occupant exposure to indoor air pollutants by exhausting air to outside and providing ample ventilation with outdoor air. The project	

will ensure that all ventilation systems meet the LEED requirements by complying with Sections 4 through 7 of the ASHRAE 62.1-2010 standard for Acceptable Indoor Air Quality in all indoor spaces.	
EQ Combustion Venting	Required
<p>The project team is committed to reducing the use of combustion where possible, and will take the following steps to improve indoor air quality:</p> <ul style="list-style-type: none"> • Domestic Hot Water (DHW) systems will be designed and installed with closed combustion, • Carbon Monoxide (CO) detectors will be installed on each floor and hard wired, with a battery backup. • The project will not include any fireplaces or woodstoves inside the building. 	
EQ Garage Pollutant Protection	Required
<p>The project will be designed to include the following strategies to reduce occupants' exposure to air pollutants from the parking garage:</p> <ul style="list-style-type: none"> • All air-handling equipment will be placed outside the fire-rated envelope of the garage, • Carbon Monoxide (CO) detectors will be installed in all rooms adjacent to a garage, and all adjoining doors weatherstripped, and penetrations sealed, • All floor penetrations above garages will be sealed, 	
EQ Radon-Resistant Construction	Required
<p>The project is in radon zone 1, therefore the project team will include radon-resistant construction techniques as prescribed by the American Association of Radon Scientists and Technologists (AARST) in order to comply with this prerequisite.</p>	
EQ Air Filtering	Required
<p>Air handling systems used on this project will be equipped with filters meeting or exceeding the MERV 8 requirement on all recirculating space conditioning systems. All ductwork 10 feet or more in length supplying outdoor air will be filtered by a MERV 6 filter or higher.</p>	
EQ Environmental Tobacco Smoke	Required
<p>In order to limit occupant exposure to tobacco smoke, smoking will be prohibited in all common areas of the building. Outdoor smoking areas will be at least 25 feet away from any doors, windows or air intakes in order to further limit tobacco smoke exposure; these prohibitions will be indicated in all leasing agreements and will be displayed via onsite signage.</p>	
EQ Compartmentalization	Required
<p>The project team is committed to limiting occupants' exposure to indoor air pollutants by minimizing the air transfer between units. All units will be sealed to meet or exceed the compartmentalization requirements set out by the USGBC and effective sealing will be demonstrated by a blower door test.</p>	

EQ Enhanced Ventilation	3 yes points
The project will include balanced, whole-house ventilation systems including supply and exhaust. In order to maximize energy savings, Energy Recovery Ventilation (ERV) systems will be used throughout the project and a continuously operating bath fan will be included.	
EQ Contaminant Control	0.5 yes points, 0.5 maybe points
In order to ensure that the indoor spaces are contaminant free, the project will include walk off mats at common entryways and primary unit entryways. In addition, the team will protect all ductwork after installation, and will explore the feasibility of conducting a 48 hour full building flush in order to earn an additional ½ point.	
EQ Balancing of Heating and Cooling Distribution Systems	2 yes points
The project team will ensure that supply air flow rates will be within (+/-20%) of calculated values from ACCA Manual J. In addition, the project team expects to achieve Option 3. Pressure Balancing. This path requires a minimal air pressure differential between all bedrooms when the air handler is operating at its highest speed. Pressure balancing is worth an additional one point.	
EQ Enhanced Compartmentalization	1 yes point
In order to minimize the exposure of building occupants to indoor air pollutants, the project team will minimize the transfer of air between units to a level at or below 0.15cfm @ 50 pascals of pressure. The project team will verify the air leakage level with a blower door test.	
EQ Enhanced Combustion Venting	2 yes points
In order to improve indoor air quality and reduce energy use, the project does not include any fireplaces or wood stoves inside the building envelope.	
EQ Enhanced Garage Pollutant Protection	1 yes point
The project team is committed to reducing exposure to pollutants wherever possible. Ventilation in the garage space will be sufficient to create a negative pressure compared to the adjacent spaces in order to make sure that vehicle emissions are exhausted from the garage space. Self-closing doors will be installed and exhaust fans will either be operated continuously, or connected to a CO monitor which will trigger the fan.	
EQ Low Emitting Products	2 yes points, 1 maybe point
The project team will specify paints, coatings, adhesives, sealants, and composite wood that comply with California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, and meet all applicable VOC content requirements. The team will target at least 2 LEED points and may seek an additional LEED point by meeting the requirements for all four product categories listed above.	

H. Innovation

IN Innovation	2 yes points, 2 maybe points
The project will seek to achieve at least 2 out of 4 applicable Innovation points, with 2 additional points possible. Targeted points include: Green Vehicles (as the EV charging station standard for this point will be exceeded by meeting the City of Newton charging station requirements) and Site Selection. Possible points include Construction Waste Management and Acoustic Comfort.	
IN LEED Accredited Professional	1 yes point
Francis Stone, LEED AP, is coordinating the compliance process and LEED certification for this project.	

I. Regional Priority

RP Regional Priority	3 yes points, 1 maybe point
<p>The project will likely meet the threshold for 3 Regional Priority credits:</p> <ul style="list-style-type: none"> • LT Compact Development; • SS Rainwater Management; • Total Water Use. <p>In addition it may be eligible for at least 1 additional Regional Priority credit point:</p> <ul style="list-style-type: none"> • EA Annual Energy Use. 	

APPENDIX A: LEED Homes v4 Checklist

The Beacon Scorecard (ID:)

Project Address 1114 Beacon Street, Newton, Mass 02446, USA

Note: The information on this tab is READ-ONLY. To edit this information, see the Credit Category tabs.

	Integrative Process	Preliminary	Y	2 of 2	M	0	Verified	0
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IPc	Integrative Process			2 of 2		0		
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	Location and Transportation	Preliminary	Y	12.5 of 15	M	1.5	Verified	8.5
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LTP	Floodplain Avoidance			Required				Not Verified
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Performance Path

LTc	LEED for Neighborhood Development			0 of 15		0		
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Prescriptive Path

LTc	Site Selection			8 of 8		0		4
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LTc	Compact Development			3 of 3		0		3
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LTc	Community Resources			1.5 of 2		0.5		1.5
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LTc	Access to Transit			0 of 2		1		
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	Sustainable Sites	Preliminary	Y	4 of 7	M	1	Verified	0
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SSp	Construction Activity Pollution Prevention			Required				Not Verified
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SSp	No Invasive Plants			Required				Not Verified
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SSc	Heat Island Reduction			1 of 2		0		
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SSc	Rainwater Management			2 of 3		0		
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SSc	Nontoxic Pest Control			1 of 2		1		
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	Water Efficiency	Preliminary	Y	5 of 12	M	2	Verified	5
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WEp	Water Metering			Required				Not Verified
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Performance Path

WEc	Total Water Use			5 of 12		2		5
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Prescriptive Path

WEc	Indoor Water Use			0 of 6		0		
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WEc	Outdoor Water Use			0 of 4		0		
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	Energy and Atmosphere	Preliminary	Y	15 of 38	M	5	Verified	13
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EAp	Minimum Energy Performance			Required				Not Verified
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EAp	Energy Metering			Required				Not Verified
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EAp	Education of the Homeowner, Tenant or Building Manager			Required				Not Verified
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Performance Path

EAc	Annual Energy Use			13 of 29		5		13
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Performance and Prescriptive Paths

EAc	Efficient Hot Water Distribution System			2 of 5		0		
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EAc	Advanced Utility Tracking			0 of 2		0		
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EAc	Active Solar-Ready Design			0 of 1		0		
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EAc	HVAC Start-Up Credentialing			0 of 1		0		
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Prescriptive Path

EAp	Home Size			Required				Not Verified
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EAc	Building Orientation for Passive Solar			0 of 3		0		
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EAc	Air Infiltration			0 of 2		0		
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EAc	Envelope Insulation			0 of 2		0		
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EAc	Windows			0 of 3		0		
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EAc	Space Heating & Cooling Equipment			0 of 4		0		
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EAc	Heating & Cooling Distribution Systems			0 of 3		0		
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EAc	Efficient Domestic Hot Water Equipment			0 of 3		0		
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EAc	Lighting			0 of 2		0		
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EAc	High-Efficiency Appliances			0 of 2		0		
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EAc	Renewable Energy			0 of 4		0		
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Materials and Resources		Preliminary	Y	4.5 of 10	M	1	Verified	0
MRp	Certified Tropical Wood			Required				Not Verified
MRp	Durability Management			Required				Not Verified
MRc	Durability Management Verification			1 of 1		0		
MRc	Environmentally Preferable Products			1.5 of 4		1		
MRc	Construction Waste Management			2 of 3		0		
MRc	Material-Efficient Framing			0 of 2		0		



Indoor Environmental Quality		Preliminary	Y	11.5 of 16	M	1.5	Verified	5.5
EQp	Ventilation			Required				Not Verified
EQp	Combustion Venting			Required				Not Verified
EQp	Garage Pollutant Protection			Required				Not Verified
EQp	Radon-Resistant Construction			Required				Not Verified
EQp	Air Filtering			Required				Not Verified
EQp	Environmental Tobacco Smoke			Required				Not Verified
EQp	Compartmentalization			Required				Not Verified
EQc	Enhanced Ventilation			3 of 3		0		3
EQc	Contaminant Control			0.5 of 2		0.5		0.5
EQc	Balancing of Heating and Cooling Distribution Systems			2 of 3		0		2
EQc	Enhanced Compartmentalization			1 of 1		0		
EQc	Combustion Venting			2 of 2		0		
EQc	Enhanced Garage Pollutant Protection			1 of 2		0		
EQc	Low-Emitting Products			2 of 3		1		



Innovation		Preliminary	Y	3 of 6	M	2	Verified	0
INp	Preliminary Rating			Required				Not Verified
INc	Innovation			2 of 5		2		
INc	LEED Accredited Professional			1 of 1		0		



Regional Priority		Preliminary	Y	3 of 4	M	1	Verified	0
RPc	Regional Priority			3 of 4		1		

Point Floors

The project earned at least 8 points total in Location and Transportation and Energy and Atmosphere	<input type="text" value="Yes"/>
The project earned at least 3 points in Water Efficiency	<input type="text" value="Yes"/>
The project earned at least 3 points in Indoor Environmental Quality	<input type="text" value="Yes"/>

Total	Preliminary	Y	60.5 of 110	M	15	Verified	32
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Certification Thresholds Certified: 40-49, Silver: 50-59, Gold: 60-79, Platinum: 80-110



The Beacon
1114 Beacon Street
1114 Beacon, LLC
Newton Planning & Development
Department
Sustainable Development Design
Affidavit

February 25, 2020

Jennifer Caira
Chief Current Planner
Newton Planning & Development Department
1000 Commonwealth Ave.
Newton Centre, MA 02459

Dear Ms. Caira:

As the environmental consultant of record overseeing the preliminary LEED review for the 1114 Beacon Street Redevelopment project, I, Francis Stone, of New Ecology, Inc., certify that I am knowledgeable of the project's preliminary green building strategies, and basic designs and plans, and to the best of my knowledge this project has been planned and designed at this preliminary stage so as to meet the prerequisites and credits necessary to achieve LEED certifiability at the Gold level. The project includes 27 units in 1 lowrise building. This building demonstrated a Gold level of LEED certifiability using the LEED BD+C for Homes v4 rating systems with 60.5 points.

Accompanying this affidavit is the Sustainable Development Design Report for the project, documenting the point scores and approach for achieving the prerequisites and selected credits. The project will not be seeking USGBC LEED Certification, but will be certifiable in line with their standards.

We understand it is the project team's responsibility to notify the City of Newton of any changes in our green building strategies and LEED point scores. Additionally, we understand that the project team is required to update the submissions to reflect the requirements of 5.12.6.B when applying for a Green Building Permit and when applying for a Certificate of Occupancy.

Sincerely,

A handwritten signature in black ink, appearing to read "Francis Stone".

Francis Stone
Project Manager
New Ecology, Inc.
15 Court Square
Boston, MA 02108
LEED AP Credential ID #: 11297954-AP-HOMES



ENERGY Simulation Modeling Report

1114 Beacon Street, Newton, MA
1114 Beacon Street, LLC
February 19th, 2020

Summary

New Ecology, Inc. (NEI) created preliminary energy models for 1114 Beacon Street based on the Schematic Drawing set issued by Nunes Trabucco Architects dated October 29, 2019. These models were built to determine whether the current design is on track to meet the energy performance requirements for LEED BD+C for Homes Multifamily v4 certifiability, per the City of Newton Zoning Amendment 5.12 Sustainable Development Design requirements as well as the 2015 Massachusetts Stretch Energy Code as required by the City of Newton, a Massachusetts Green Community.

The model results demonstrate that the building as currently designed achieve HERS index scores that meet both LEED requirements and Stretch Energy Code.

Background

1114 Beacon Street schematic design is on the pathway to achieve the necessary energy-related credits for LEED certifiability through the LEED Homes Multifamily program. The building must demonstrate compliance with LEED energy efficiency requirements via modeling through the Residential Energy Services Network ("RESNET") Home Energy Rating System ("HERS") Index Target. To evaluate the building for this filing, conceptual energy models were developed in Ekotrope to estimate energy consumption. The conceptual models are based on early-stage conceptual design.

In the HERS rating process, individual housing units are modeled representing unique apartment types in the design. The models capture different geometries and envelope characteristics depending on the apartment position within the building. For the 1114 Beacon Street project, the team has modeled four "worst case" units: a three story townhome unit C, a one bedroom corner unit 205, a two bedroom bridge unit 302, and a top floor three bedroom unit 402.

Per Massachusetts Energy Code 9th Ed. (780 CMR Chapter 51, Section 11), low-rise residential projects must demonstrate a HERS index score of 55 or below. At this early stage, the conceptual models show an average HERS score of 55. The worst case units are at Stretch Code requirements and exceed the Energy Star HERS Index Target score required by LEED. A score of 55 (the maximum per the code's performance path) will earn 16 points under LEED credit *Annual Energy Use*. Throughout the design process, the team will update the models as new design decisions are made; these will result in updated HERS index scores.

HERS Modeling Assumptions Table

General Information				
Units modeled	TH-C	205	302	402
Conditioned floor area of units tested (SF)	2,546	1,184	1,529	3,464
Framing	2x6 16" O.C Wood Frame			
Envelope				
R-value of exterior wall insulation	R-28 (R-20 cavity insulation, R-8 continuous insulation)			
R-value of rim joist	R-25 Spray Foam			
R-value of ambient ceiling/floor insulation	R-30 Spray Foam			
R-value of garage ceiling/1 st floor insulation	R-30 Spray Foam			
R-value of roof insulation	R-40 continuous, above roof deck			
Roof Color	High-albedo			
U-value of the windows	0.27			
S.H.G.C of the windows	0.50			
Size of windows	25 sf each			
U-value of the corridor door	0.67 (R-1.5)			
U-value of the exterior door	0.2 (R-5)			
Mechanical				
Heating system HSPF	9.3			
Cooling SEER	20.5			

Blower fan motor	ECM	
Duct leakage	Leakage to outside: <4% @ CFM25 Total leakage: <8% @ CFM25	
Electric Resistance DHW Energy Factor	0.98	
DHW Tank Size	40 gal in Apts	50 gal in Townhouse
Hot Water Pipe Length	Maximum based on plans (L x W of unit)	
Ventilation	Unit based ERV with air flow ranging from 66-134 CFM.	
	Energy Recovery = 80%	
	Efficacy = 0.45 watt/CFM	
Water Fixtures	Low Flow with at least R-3 pipe insulation	
Lighting and appliances	Energy Star Certified	
	100% LED lighting	
	Dishwasher = 270 kWh annual usage	
	Refrigerator = 500 kWh annual usage	
	Washer = 2.92 IMEF	
	Dryer = 3.93 CEF	
Unit infiltration rate (compartmentalization)	3 ACH at 50 Pa	

HERS Modeling Results Report

**Home Energy Rating Certificate
Projected Report**

Rating Date: 2020-02-13
Registry ID: Unregistered
Ekotrope ID: kLZb8N8L

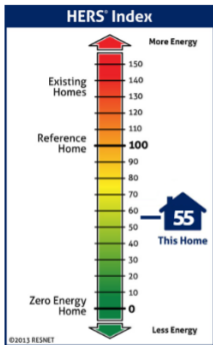
<p>HERS® Index Score: 55 Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit www.hersindex.com</p>	<p>Annual Savings \$5,191 *Relative to an average U.S. home</p>	<p>Home: 1114 Beacon Street Newton, MA 02461 Builder: 1114 Beacon Street, LLC</p>
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Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	11.6	\$821
Cooling	1.3	\$93
Hot Water	8.3	\$590
Lights/Appliances	22.5	\$1,590
Service Charges		\$66
Generation (e.g. Solar)	0.0	\$0
Total:	43.7	\$3,159

This home meets or exceeds the criteria of the following:

ENERGY STAR v3.1
2012 International Energy Conservation Code
2009 International Energy Conservation Code



Home Feature Summary:

Home Type: Apartment, end unit
Model: Unit 402
Community: N/A
Conditioned Floor Area: 3,464 ft²
Number of Bedrooms: 3
Primary Heating System: Air Source Heat Pump • Electric • 9.3 HSPF
Primary Cooling System: Air Source Heat Pump • Electric • 20.5 SEER
Primary Water Heating: Water Heater • Electric • 0.98 Energy Factor
House Tightness: 3 ACH50
Ventilation: 134 CFM (unmeasured) • 60 Watts
Duct Leakage to Outside: 5 CFM @ 25Pa (0.14 / 100 s.f.)
Above Grade Walls: R-28
Ceiling: Vaulted Roof, R-40
Window Type: U-Value: 0.27, SHGC: 0.5
Foundation Walls: N/A

Rating Completed by:

Energy Rater: Kyle Lunetta
RESNET ID: 5669693

Rating Company: New Ecology
15 Court Sq. Boston, MA 02108
617 557 1700

Rating Provider: Building Efficiency Resources
PO Box 1769 Brevard, NC 28712
800-399-9620



Kyle Lunetta

Kyle Lunetta, Certified Energy Rater
Digitally signed: 2/21/20 at 11:43 AM

Home Energy Rating Certificate
Projected Report

Rating Date: 2020-02-13
Registry ID: Unregistered
Ekotrope ID: YdxjbNb2

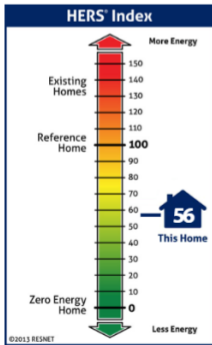
<p>HERS® Index Score:</p> <p>56</p> <p>Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit www.hersindex.com</p>	<p>Annual Savings</p> <p>\$4,746</p> <p>*Relative to an average U.S. home</p>	<p>Home: 1114 Beacon Street Newton, MA 02461</p> <p>Builder: 1114 Beacon Street, LLC</p>
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Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	16.5	\$1,165
Cooling	1.2	\$83
Hot Water	6.9	\$487
Lights/Appliances	17.8	\$1,262
Service Charges		\$66
Generation (e.g. Solar)	0.0	\$0
Total:	42.4	\$3,063

This home meets or exceeds the criteria of the following:

- ENERGY STAR v3
- ENERGY STAR v3.1
- 2012 International Energy Conservation Code
- 2009 International Energy Conservation Code



Home Feature Summary:

- Home Type: Townhouse, end unit
- Model: Townhouse C
- Community: N/A
- Conditioned Floor Area: 2,546 ft²
- Number of Bedrooms: 2
- Primary Heating System: Air Source Heat Pump • Electric • 9.3 HSPF
- Primary Cooling System: Air Source Heat Pump • Electric • 20.5 SEER
- Primary Water Heating: Water Heater • Electric • 0.98 Energy Factor
- House Tightness: 3 ACH50
- Ventilation: 99 CFM (unmeasured) • 44 Watts
- Duct Leakage to Outside: 60 CFM @ 25Pa (2.36 / 100 s.f.)
- Above Grade Walls: R-28
- Ceiling: Vaulted Roof, R-40
- Window Type: U-Value: 0.27, SHGC: 0.5
- Foundation Walls: N/A

Rating Completed by:

Energy Rater: Kyle Lunetta
RESNET ID: 5669693

Rating Company: New Ecology
15 Court Sq, Boston, MA 02108
617 557 1700

Rating Provider: Building Efficiency Resources
PO Box 1769 Brevard, NC 28712
800-399-9620



Kyle Lunetta

Kyle Lunetta, Certified Energy Rater
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Home Energy Rating Certificate
Projected Report

Rating Date: 2020-02-13
Registry ID: Unregistered
Ekotrope ID: ILXWIB82

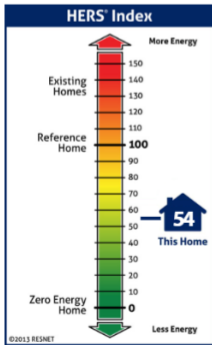
<p>HERS® Index Score:</p> <p>54</p> <p>Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit www.hersindex.com</p>	<p>Annual Savings</p> <p>\$2,364</p> <p>*Relative to an average U.S. home</p>	<p>Home: 1114 Beacon Street Newton, MA 02461</p> <p>Builder: 1114 Beacon Street, LLC</p>
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Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	2.2	\$153
Cooling	0.5	\$34
Hot Water	8.3	\$589
Lights/Appliances	12.8	\$903
Service Charges		\$66
Generation (e.g. Solar)	0.0	\$0
Total:	23.7	\$1,745

This home meets or exceeds the criteria of the following:

ENERGY STAR v3.1
2012 International Energy Conservation Code
2009 International Energy Conservation Code



Home Feature Summary:

Home Type: Apartment, inside unit
Model: Unit 205
Community: N/A
Conditioned Floor Area: 1,184 ft²
Number of Bedrooms: 3
Primary Heating System: Air Source Heat Pump • Electric • 9.3 HSPF
Primary Cooling System: Air Source Heat Pump • Electric • 20.5 SEER
Primary Water Heating: Water Heater • Electric • 0.98 Energy Factor
House Tightness: 3 ACH50
Ventilation: 66 CFM (unmeasured) • 29 Watts
Duct Leakage to Outside: 15 CFM @ 25Pa (1.27 / 100 s.f.)
Above Grade Walls: R-28
Ceiling: Adiabatic, R-0
Window Type: U-Value: 0.27, SHGC: 0.5
Foundation Walls: N/A

Rating Completed by:

Energy Rater: Kyle Lunetta
RESNET ID: 5669693

Rating Company: New Ecology
15 Court Sq, Boston, MA 02108
617 557 1700

Rating Provider: Building Efficiency Resources
PO Box 1769 Brevard, NC 28712
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Kyle Lunetta

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Home Energy Rating Certificate
Projected Report

Rating Date: 2020-02-13
Registry ID: Unregistered
Ekotrope ID: 5dYWzm12

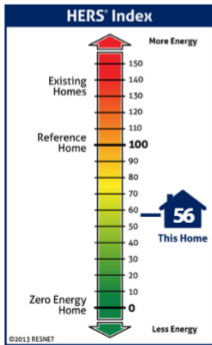
<p>HERS® Index Score:</p> <p>56</p> <p>Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit www.hersindex.com</p>	<p>Annual Savings</p> <p>\$1,328</p> <p>*Relative to an average U.S. home</p>	<p>Home: 1114 Beacon Street Newton, MA 02461</p> <p>Builder: 1114 Beacon Street, LLC</p>
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Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	7.3	\$232
Cooling	0.6	\$19
Hot Water	6.3	\$201
Lights/Appliances	13.5	\$431
Service Charges		\$84
Generation (e.g. Solar)	0.0	\$0
Total:	27.7	\$968

This home meets or exceeds the criteria of the following:

ENERGY STAR v3.1
2012 International Energy Conservation Code
2009 International Energy Conservation Code



Home Feature Summary:

Home Type: Apartment, inside unit
Model: Unit 302
Community: N/A
Conditioned Floor Area: 1,529 ft²
Number of Bedrooms: 2
Primary Heating System: Air Source Heat Pump • Electric • 9.3 HSPF
Primary Cooling System: Air Source Heat Pump • Electric • 20.5 SEER
Primary Water Heating: Water Heater • Electric • 0.98 Energy Factor
House Tightness: 3 ACH50
Ventilation: 69 CFM (unmeasured) • 31 Watts
Duct Leakage to Outside: 15 CFM @ 25Pa (0.98 / 100 s.f.)
Above Grade Walls: R-28
Ceiling: Vaulted Roof, R-40
Window Type: U-Value: 0.27, SHGC: 0.5
Foundation Walls: N/A

Rating Completed by:

Energy Rater: Kyle Lunetta
RESNET ID: 5669693

Rating Company: New Ecology
15 Court Sq, Boston, MA 02108
617 557 1700

Rating Provider: Building Efficiency Resources
PO Box 1769 Brevard, NC 28712
800-399-9620



Kyle Lunetta

Kyle Lunetta, Certified Energy Rater
Digitally signed: 2/21/20 at 11:43 AM



11297954-AP-HOMES

CREDENTIAL ID

17 DEC 2019

ISSUED

16 DEC 2021

VALID THROUGH

GREEN BUSINESS CERTIFICATION INC. CERTIFIES THAT

Francis Stone

HAS ATTAINED THE DESIGNATION OF

LEED AP[®] Homes

by demonstrating the knowledge and understanding of green building practices and principles needed to support the use of the LEED green building program.

A handwritten signature in black ink, reading 'Mahesh Ramanujan', is positioned above a horizontal line.

MAHESH RAMANUJAN
PRESIDENT & CEO, U.S. GREEN BUILDING COUNCIL
PRESIDENT & CEO, GREEN BUSINESS CERTIFICATION INC.

