

**THE RESIDENCES AT
50 CAMBRIDGEPARK DRIVE**

32/34/36 CAMBRIDGEPARK DRIVE
CAMBRIDGE, MASSACHUSETTS
(MIDDLESEX COUNTY)

PROPOSED AVAILABLE FLOOD
STORAGE PLAN BELOW
FLOOD ELEVATION 18.44

FEBRUARY 7, 2018
REVISED: MAY 17, 2018

PREPARED FOR:



2 SEAPORT LANE
BOSTON, MA 02210



805 Summer Street
Boston, Massachusetts
02127
617.896.4300

Job No.: 23175-20 Date: 4/17/2018
Scale: AS SHOWN Reviewed:
Dwg No.: File:



FLOOD VOLUME CALCULATION NOTE:

- GRID NUMBERS REPRESENT DEPTH OF FLOOD WATERS AT THAT LOCATION FOR THE GIVEN AVAILABLE CUMULATIVE FLOOD STORAGE CALCULATION. THESE DEPTHS WERE USED IN DETERMINING THE AVAILABLE CUMULATIVE FLOOD VOLUME USING A 10'X10' GRID.
- LIMIT OF CALCULATIONS REPRESENTS THE LIMITS OF THE PROPOSED STUDY AREA FOR THE FLOOD STUDY. REFER TO THE FOLLOWING PAGES FOR ADDITIONAL AREAS WITHIN THE STUDY.

PLAN ELEVATION NOTE:

ELEVATIONS SHOWN HEREIN ARE BASED ON THE CITY OF CAMBRIDGE BASE (COB), FEMA FLOOD ELEVATION 6.8 NAVD 1988 + 11.64' = 18.44 CCB

CUMULATIVE AVAILABLE FLOOD STORAGE TO EL. 18.44	3,553 CY	1 FOOT INCREMENTAL FLOOD STORAGE	902 CY
FLOOD WATER ELEVATION FLOOD STORAGE TO EL. 18.44	18.44	AVAILABLE FLOOD STORAGE	18.44

**THE RESIDENCES AT
50 CAMBRIDGE PARK
DRIVE**

32/34/36 CAMBRIDGE PARK DRIVE
CAMBRIDGE, MASSACHUSETTS
(MIDDLESEX COUNTY)

PROPOSED AVAILABLE FLOOD
STORAGE PLAN BELOW
FLOOD ELEVATION 19.0

FEBRUARY 7, 2018
REVISED: MAY 17, 2018

PREPARED FOR:



2 SEAPORT LANE
BOSTON, MA 02210



805 Summer Street
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PLAN ELEVATION NOTE:

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FLOOD WATER ELEVATION FLOOD STORAGE TO EL. 19.0	CUMULATIVE AVAILABLE FLOOD STORAGE TO EL. 19.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 18.44 TO EL. 19.0	4,687 CY	1,334 CY

**THE RESIDENCES AT
50 CAMBRIDGEPARK
DRIVE**

32/34/36 CAMBRIDGEPARK DRIVE
CAMBRIDGE, MASSACHUSETTS
(MIDDLESEX COUNTY)

PROPOSED AVAILABLE FLOOD
STORAGE PLAN BELOW
FLOOD ELEVATION 19.75

FEBRUARY 7, 2018
REVISED: MAY 17, 2018

PREPARED FOR:



2 SEAPORT LANE
BOSTON, MA 02210



805 Summer Street
Boston, Massachusetts
02127
617.896.4300

Job No.: 23175-20 Date: 4/17/2018
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PLAN ELEVATION NOTE:

ELEVATIONS SHOWN HEREIN ARE BASED ON THE CITY OF CAMBRIDGE BASE (COB), FEMA FLOOD ELEVATION 6.8 NAVD 1988 + 11.64' = 18.44 COB

FLOOD WATER ELEVATION FLOOD STORAGE TO EL. 19.75	CUMULATIVE AVAILABLE FLOOD STORAGE TO EL. 19.75	1 FOOT INCREMENTAL FLOOD STORAGE
EL. 19.0 TO EL. 19.75	6,936 CY	2,249 CY

Sustainable Design and Development

Introduction

In compliance with Section 22.23 of the Cambridge Zoning Ordinance, the following chapter outlines the LEED certification goals for the Project and describes the strategies employed to meet the targeted LEED requirements and credits based on this stage of design development. The current LEED Scorecard is presented as Figure 4.1 Attachment 3 includes an affidavit by the project LEED Accredited Professional.

The Project will register under the LEED v4 BD+C Multifamily Midrise program. It is tracking Gold level certification (65+ points). The following is a summary of points per category:

Integrative Process	[2 points]	
Location and Transportation	[15 points]	
Sustainable Sites	[3.5 points]	[3 possible points]
Water Efficiency	[5 points]	[2 possible points]
Energy and Atmosphere	[18.5 points]	[5 possible points]
Materials and Resources	[3.5 points]	[3.5 possible points]
Indoor Environmental Quality	[8 points]	[3 possible points]
Innovation	[4 points]	
Regional Priority	[3 points]	
Total Points	[62.5 points]	[16.5 possible points]

Conformance with Article 22.23



Integrative Process

The Project is currently targeting 2 points total in the Integrative Process (IP) category and 1 point for exemplary performance.

IP Credit Integrative Process

Option 1. Integrative Project Team (1 point)

This credit will be earned with the experienced project team's capabilities and involvement throughout the design and construction process as well as at regularly held project team meetings. In addition to the Developer, the project team includes the Architect, Mechanical Engineer, Civil Engineer, Landscape Architect, Energy Modeler, Sustainability Consultant, and Structural Engineer. All of these team members will work together from design through construction with the goal of achieving a durable, energy efficient, sustainable and healthy project.

Option 2. Design Charrette (1 point)

Building upon the Integrative Project Team Credit above, a full day charrette was held in April 2018. In addition to the Developer, the Charrette was attended by the Architect, Mechanical Engineer, Civil Engineer, Landscape Architect, Energy Modeler, Sustainability Consultant, and Structural Engineer.

Option 3. Trades Training (1 point)

In addition to the Charrette during the design phase, eight hours of training on the green aspects of the project will be conducted in the beginning of construction for the trades. The training will focus on how the trades can contribute to achieving each LEED for Homes prerequisite and attempted credit.

Location and Transportation

The Project is currently targeting 15 points in the Location and Transportation (LT) category and 1 point for exemplary performance.

LT Prerequisite Floodplain Avoidance (Required)

50 CambridgePark is located on a previously developed urban site in Cambridge, MA. It is located within the flood hazard area, but because it is being developed on a previously existing site, and will comply with required local flood provisions the project will comply with this prerequisite.

LT Credit Site Selection

Option 1. Sensitive Land Protection

Path 1. Previously Developed (4 points)

The Project Site is located on a previously disturbed lot . It is a 100% previously developed urban site in Cambridge, MA and therefore complies with the requirement of this credit.

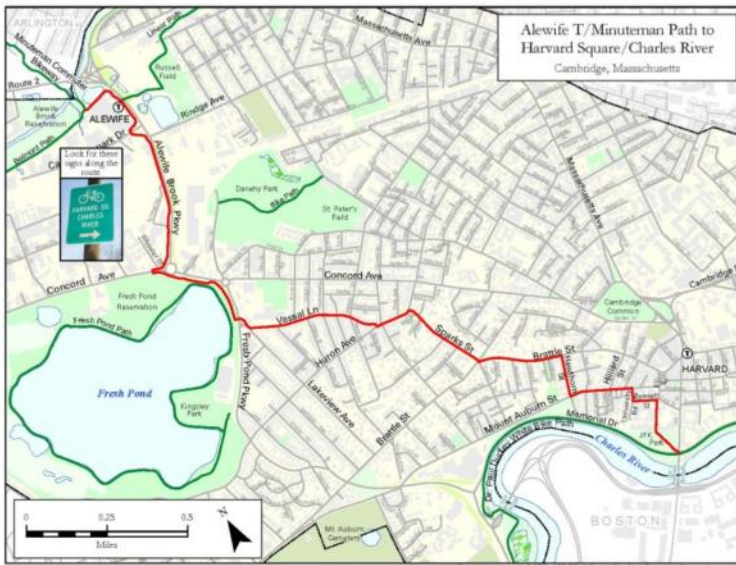


Option 2. Infill Development (2 points)

The project is sited in an urban location and is considered an infill site with development on all sides of its boundaries, complying with the requirements for this credit.

LT Credit Bicycle Network and Storage (1 point)

The project has bicycle storage within 200 yards of a bicycle network that connects to more than ten community resources, including an employment center, and MBTA bus and Red Line transit stops via the Greenway Bike Path, Fitchburg Cutoff Bikepath, Minuteman Commuter Bikeway and the Alewife Hubway bike sharing station at the Alewife T Station. There will be 326 long term bike spaces and a minimum of 28 short term spaces for the 687 occupants.



LT Credit Compact Development (3 points)

The project proposes 299 units and 166 units per acre which well exceeds the 35 units per acre threshold for this credit.

LT Credit Community Resources (2 points + 1 point for exemplary performance)

Located within ½ mile walking distance to 16 community resources earns the project an extra point in exemplary performance.

50 CambridgePark Dr. Cambridge, MA			
Category		Name of establishment	Dist from project (mi)
Family Entertainment Venue (Theatre, Sports)	1	Apples Cinema	0.5
Bank	1	Eastern Bank	0.4
	1	Wainwright Bank & Trust	0.4
Community or Civic Center	1	Arthur Murray Dance Center	338 ft
	1	Francis J. McCrehan Pool	0.3
Convenience Store	1	Alewife T Station News	0.2
	1	Quick Bite	0.2
Daycare Center	1	Panda Bilingual Daycare	36 ft
	1	Cambridge Kinder Care	0.1
Hair Care			
Fitness Center or Gym	1	CorePower Yoga	0.4
Laundry or Dry Cleaner	1	Laundry Town	0.3
	1	Rigazio's Dry Cleaners	0.4
Library			
Public Park	1	Alewife Brook Reservation	0.2
Social Services Center			
Pharmacy			
Police Station	1	Alewife Station Transit Police	0.2
Post Office			
Place of Worship	1	Light of Life Church	0.2
	1	Church in Cambridge	262 ft
Restaurant	1	Bertucci's of Alewife	292 ft
	1	Summer Shack	338 ft
School	1	Sunrise Learning Academy	135 ft
Supermarket	1	Trader Joes	0.5
	1	Whole Foods	0.5
Other Neighborhood-serving Retail	1	Modell's Sporting Goods	0.4
	1	T.J. Maxx	0.5
Other Office Building or Major Employment Center	1	Dicerna Pharmaceuticals	0.1
	1	BitSite Tech	0.1
25		TOTAL Community Resources	

LT Credit Access to Transit (2 points)

Located on an urban site in Cambridge, MA, the project site is in close proximity to many options of public transportation. It is within a mere 200 hundred feet from the Alewife T Red line and ¼ mile of several bus routes with a combined weekday trips and 2weekend day trips exceeding 125 rides, qualifying for 2 points under this credit.

Sustainable Sites

The Project is currently targeting 3.5 points total in the Sustainable Sites (SS) category.

SS Prerequisite Construction Activity Pollution Prevention (Required)

The Construction Manager (CM) will provide and shall implement an Erosion and Sedimentation Control (ESC) Plan and for construction activities related to the demolition of existing site elements and construction of the new building. The ESC Plan shall conform to the erosion and sedimentation control requirements of the 2012 EPA Construction General Permit (ESC) and specific municipal requirements for the City of Cambridge.

SS Prerequisite No Invasive Plants (Required)

The project team is specifying plantings for the project that are identified by the local extension services as either native or non-invasive. While the LHMR program requires avoidance of invasive plantings and awards projects installing drought tolerant species, the project team has set a more rigorous goal by including strategies from the USGBC's Sustainable Sites Initiative (SITES®). While areas designated for outdoor seating, dining, recreation, and socializing are integral to the design, the landscape will support local fauna and limit reliance on irrigation.

SS Credit Heat Island Reduction

Option 1. Shading (2 points)

The project has designed for reduced heat island effects on the site through the use of Energy Star qualified high solar reflective and green roof spaces. Hardscapes will be shaded where possible such that approximately 85% of the project is either shaded or non-absorptive material.

SS Credit Nontoxic Pest Control (2 points)

The project will integrate design strategies to mitigate pest control, such as excluding wood siding, sealing external cracks and joints with caulking and installing pest-proof screens. The Developer implements a thorough Integrated Pest Management Plan (IPM) throughout their buildings which includes an educational and awareness component for residents and building managers.

Water Efficiency

The Project is currently targeting 5 points total in the Water Efficiency (WE) category.

WE Prerequisite Water Metering

Case 2. Multifamily (Required)

The project will install a water meter for the entire building, meeting the requirement of this prerequisite. Hanover is exploring additional metering options to monitor, track, and record water usage for competition amongst its dorms (similar to its energy savings competitions).

Prescriptive Path

WE Credit Indoor Water Use

Case 2. Multifamily and Midrise (5 points)

The design of the plumbing systems will include the use of low flow fixtures to reduce the water use of the building. In residential units, low flow WaterSense™ labeled shower heads with less than 1.5 gallons per minute flow rate will significantly reduce residential water use. Additionally, residential WaterSense labeled lavatory faucets which will operate at 0.5 gallons per minute or less will be installed further improving water efficiency. The project will also install WaterSense labeled toilets with a flush rate of 1.28 gallons per flush or less.

WE Credit Outdoor Water Use (3 points)

The project will not include any turf and the vegetated areas both at the street level and on building roofs will be planted with native and/or adapted vegetation. Irrigation will be installed with high efficiency features such as: rain sensors, zone controls, high-efficiency nozzles, pressure regulating devices, and drip irrigation in beds. LEED points for the WE section will most likely be tallied using the overall water reduction calculator, which allows the university to utilize a baseline target for performance goals.



Energy and Atmosphere

The Project is currently targeting 18.5 points total under the LEED v4 Multifamily Midrise, Energy and Atmosphere (EA) category. The Rating System offers two pathways for compliance with the prerequisite and credits. The pathways are compliance through demonstrated performance (ASHRAE 90.1 modeling) or compliance through prescriptive measures. This project will comply with EA prerequisites and credits by demonstrating performance with a whole building, ASHRAE 90.1 energy model.

EA Prerequisite Minimum Energy Performance (Required)

The project is exceeding requirements of ASHRAE 90.1-2010 Sections 5.4, 6.4, 7.4, 8.4, 9.4 & 10.4.

EA Commissioning

Option 2. Commissioning with using Prescriptive Path (Required)

This project will comply with the Option 2 Cx using Prescriptive Path by doing all of the following:

a) Air sealing, air barrier, compartmentalization details/bid sheets

- b) *L-H Thermal Enclosure Inspection Checklist (ESv3r2 Sec. 2,3,5)*
- "c) *Cx of central systems - meet LEED NC performance testing & ongoing maintenance for central commercial HVAC & DHW"*
- d) *Total duct leakage <8cfm25/100sf enclosure*
- e) *Duct leakage to outside <4cfm25/100sf enclosure (6cfm <1200sf)*

EA Prerequisite Energy Metering

Case 2. Multifamily (Required)

The project will install a whole-building gas meter and an electric sub-meter in residential and common areas complying with the requirement of this credit.

EA Prerequisite Education of Homeowner, Tenant, or Building Manager (Required)

The key to a successful project is that the building manager be the center of operations. The project team will assemble an operations and training manual for the building manager, and will coordinate an orientation with appropriate system vendors. In collaboration with the project design team, the Developer will also develop a tenant operations and training manual to be provided to residents during orientation.

EA Credit Annual Energy Use (18.5 points)

A primary project goal is to design and build an exemplary structure with extremely low energy consumption and low life cycle costs. The building is designed to meet multiple energy codes and standards, including those set by the City of Cambridge and ASHRAE Standard 90.1. Energy efficiency strategies will include:

1. High performance envelope
2. Reduced Lighting Power Density in common areas, corridors, and dorms
3. Lighting Controls beyond that required by code
4. Unitized apartment ventilation meeting ASHRAE 62.2
5. Reduced fan power, high performance heating and cooling units and distribution controls
6. Low-flow plumbing fixtures
7. Energy Star certified appliances where applicable.

All mechanical, electrical, and plumbing (MEP) equipment shall be of the highest quality to minimize maintenance while providing long useful life and high operating efficiencies. The HVAC systems will be "right-sized" to match the heating and cooling loads, with no oversizing, and distribution systems will be compact without compromising occupant comfort. To ensure efficient operations and comfort, comprehensive commissioning of the central HVAC systems, domestic water heaters, lighting control and electrical systems will be conducted. Thermal insulation levels will ultimately be selected based on energy model outputs and whole-building performance metrics.

LEED v4 MFMR calculates energy cost savings as compared to ASHRAE 90.1 -2010; the project is tracking to obtain a minimum of 15%-20% below a baseline building based on ASHRAE 2010. However, the minimum building energy standard that serves as the baseline for this project will be ASHRAE 90.1 Energy Standard for Buildings, Except Low-Rise Residential Buildings, 2013 Edition. Project team goals and decisions are based upon this more rigorous energy modeling assessment. The project will also follow the International Energy Code 2015 with amendments based on Massachusetts Stretch Energy Code. The City of Cambridge has adopted the MA Energy Stretch Code (Appendix AA to 780 CMR: State Board of Building Regulations and Standards). The MA Energy Stretch Code requires new buildings over 100,000 SF to demonstrate an energy cost reduction of a minimum 10% in comparison to ASHRAE 90.1 2013.

Hanover intends to exceed this minimum target with 12% to 15% energy cost

reduction in comparison to ASHRAE 90.1 2013 by constructing a high performing, air tight envelope with high efficacy lighting, appliances and equipment. LEED v4 MFMR credits projects with high occupancy per square foot. In addition to the 13 points earned with the ASHRAE savings, the project earns 7.5 addition points through the homes size adjustment calculation.



Materials and Resources

The Project is targeting 3.5 points total in the Materials and Resources (MR) category.

MR Prerequisite Certified Tropical Wood (Required)

The project specifications will outline a preference for non-tropical, reused or reclaimed, or Forest Stewardship Council (FSC) or USGBC-approved equivalent products and will require submittals for all wood products to indicate the country of origin of the wood. If a tropical wood is specified, appropriate documentation and chain of custody will be required.

MR Prerequisite Durability Management (Required)

The project team will demonstrate that all minimum durability planning strategies mandated by regulatory agencies and LEED will be designed and implemented effectively. Building durability goals will be met through enhanced building enclosure, component systems, and material selection. Resource efficiency will be met by specifying and installing materials of recycled content and local sourcing when available.

MR Credit Durability Management Verification (1 point)

The owner has retained a LEED Green Rater to assist the contractor in ensuring the delivery of a durable building and verify the ENERGY STAR for Homes version 3 water management system builder checklist items executed.

MR Credit Environmentally Preferable Products (2 points)

The project specifications will require primary materials, such as concrete and drywall, to be extracted, harvested and manufactured within a 100-mile radius of the project site. High recycled content, minimum 25% postconsumer and/or 50% postindustrial waste recycled content, will also be pursued for materials, including concrete, insulation, counters and flooring. The project team is utilizing resources such as The Cradle to Cradle Products Program and The Health Product Declaration Collaborative to assess materials and finishes. Cabinets will be supplied by an Extended Producer Responsibility designated manufacturer.

MR Credit Construction Waste Management (1 point)

The construction management company has provided a demolition management plan including strategies for removing debris from the site. Prior to the onset of construction, the CM will prepare a Construction Waste Management plan, and provide monthly logs to the Applicant and the sustainability consultant. While the LEED v4 workbook calculates points for waste reduction as compared to a baseline allowance, a recent Credit Interpretation Request (CIR) allows multifamily building to use diversion reports to show compliance. This project will maximize construction debris that will be diverted from landfills and incinerators. In addition, the waste management logs will sort by material and show a minimum of four materials being

diverted throughout construction.

Indoor Environmental Quality

The Project is currently targeting 8 points total in the Indoor Environmental Quality (IEQ) category.

EQ Prerequisite Ventilation (Required)

Local Exhaust

Each apartment and dorm room must be provided with adequate exhaust for local points of contaminants, such as bathrooms and kitchens, as required by ASRHAE 62.2-2010. The project will provide adequate exhaust with high efficacy fans. All local exhaust systems will be ducted directly to the outside.

Whole Unit Mechanical Ventilation (Required)

Each apartment must be provided with sufficient outdoor air as required by ASHRAE 62.2-2010. The project will provide sufficient outdoor air as required to each apartment with a continuous unitized exhaust fan.

Non Unit Spaces

The project is designed to meet the minimum requirements of ASHRAE Standard 62.1 – 2010 Sections 4 through 7 for all non-unit spaces.

EQ Prerequisite Combustion Venting (Required)

The project will provide sufficient exhaust for combusting appliances such as kitchen ranges, and water heaters. In addition, carbon monoxide sensors will be provided to each apartment and sleeping areas.

EQ Prerequisite Garage Pollutant Protection (Required)

The project will have an enclosed garage that will be designed to meet the following:

- a) All air handling equipment serving conditioned space located outside fire-rated envelope of the garage
- b) Tightly seal shared surfaces between the garage and conditioned spaces, bases of walls, including interstitial space, penetrations, and weather-stripped doors
- c) Install CO monitors in conditioned spaces with access to garage.

EQ Prerequisite Radon-Resistant Construction (Required)

Cambridge, MA is located in a high risk area for Radon according to the US EPA. The project team will incorporate radon mitigation measures into design in construction which include these five components: 1) a gas-permeable layer; 2) heavy-gauge plastic sheeting; 3) sealing and caulking of all penetrations through the concrete slab; 4) vent pipe that exhausts gases to the outside through side wall or roof; and 5) electrical outlet near vent piping.

EQ Prerequisite Air Filtering - Good Filters (Required)

Minimum MERV 8 filters will be provided on all recirculating space conditioning systems, and MERV 6 filters will be provided on all mechanically

supplied outdoor air systems with 10 feet or more of ductwork supplying apartments and dorm rooms.

EQ Prerequisite Environmental Tobacco Smoke (Required)

Smoking will be prohibited in all areas of the building and outside the building except in designated smoking areas located at least 25 feet from all entries, outdoor air intakes and operable windows.

EQ Prerequisite Compartmentalization (Required)

Each residential apartment will be compartmentalized to minimize leakage between units. Uncontrolled pathways for indoor air pollutants between units will be reduced by sealing penetrations in walls, ceilings, and floors and by sealing vertical chases adjacent to the units.

Acceptable sealing of residential units will be demonstrated by blower door testing. The procedure described by RESNET will be used to demonstrate compliance with an allowable maximum leakage of 0.23 cfm₅₀ per square foot (0.07 cmm₅₀ per square meter) of enclosure (i.e., all surfaces enclosing the apartment, including exterior and party walls, floors, and ceiling). The owner has retained a RESNET accredited provider and rater to perform these air infiltration tests.

EQ Credit Contaminant Control for multifamily projects (1 point)

To reduce the spread of dirt and related contaminants into the building, exterior entryways to common areas will have a permanent walk off mat at least 10 feet long. (0.5 points)

Ducts and vents will be sealed to minimize contamination from construction debris. The third party Green Rater will verify this strategy during all phases of construction. Prior to occupancy the building will undergo a 48 hour flush out with windows open (in accordance with weather and safety) and fans running continuously. Filters will be replaced after this process which is intended to expedite off gassing of building materials and finishes for enhanced indoor air quality. (0.5 points)

EQ Credit Balancing of Heating and Cooling Distribution Systems

Case 1. Forced-Air Systems

Option 1 & 2 (2 points)

This project earns 1 point as a multifamily building with average sized units under 1,200 sf. Additionally, the supply air flow rates will be tested by a third party balancing contractor to demonstrate $\pm 20\%$ (or $\pm 25\text{CFM}$) of the calculated values from the ACCA Manual J room by room load sizing.

EQ Credit Combustion Venting (2 points)

A sealed, direct vented fireplace is planned for the Clubhouse , which will comply with the requirements of this credit.

EQ Credit Enhanced Garage Pollutant Protection

Option 1. Exhaust Fan in Garage (1 point)

The project will meet ASHRAE 62.1-2010, use appropriate controls, and test pressure differential to meet the credit.

EQ Credit Low-Emitting Products (1.5 points)

Interior finish materials such as paintings and coatings, adhesives and sealants, and flooring will be verified for low VOC content that will meet requirements of CA Section 01350.

EQ Credit No Environmental Tobacco Smoke (1 point)

Smoking will be prohibited in all areas of the building. The prohibition will be communicated to residents through the building agreement and training session.



Innovation

The Project is currently targeting 4 points total in the Innovation (IN) category.

IN Prerequisite Preliminary Rating (Required)

LEED for Homes Midrise Multifamily requires project teams to take the essential first step to sustainability planning with a Preliminary Rating during the design phase. The first rating was conducted at a sustainability kick off meeting on March 16, 2018 with subsequent updates to present date.

IN Credit Innovation

Option 3. Exemplary Performance (3 points)

Exemplary performance in Integrative Process (IP) by achieving all three strategies (1 point).

Exemplary performance in LT Access to Transit (1 point)

Exemplary performance with access to 20+ LT community resources (1 point).

IN Credit LEED Accredited professional (1 point)

At least one principal participant of the project team will provide their LEED Accredited Professional (AP) Homes certificate to facilitate team integration through the certification process.



Regional Priority

The Project is currently targeting 3 points in Regional Priority (RP) category.

RP Credit Regional Priority (3 points)

The project can target a number of Regional Priority credits. The project team will be evaluating the options to determine which one best fits the sustainability goals for the project currently the following credits are anticipated:

Annual Energy Use exceed 15 point threshold in Climate Zone 5 (1 point)

Balance Heating & Cooling Systems (1 point)

Access to Transit (1 point)

Heat Island Reduction exceed 2 point threshold (1 point)



LEEDv4 Multifamily Midrise Project Checklist



50 CambridgePark
 50 CambridgePark Drive Cambridge, MA 02139
 5/7/2018
 Updated by Lauren Hildebrand, SWA

Multifamily Midrise

IP: INTEGRATIVE PROCESS

Y	?	N	Final	Max		Notes:	Responsible Party:	3/16/17 Meeting Comments
2	0	0		2*	IP. Integrative Process			
1				1	Option 1. Integrative Project Team 3 skill sets; involved in 3 phases; + monthly meetings	Meeting #1: 3/16/18 Meeting #2: 4/13/18 Provide design meeting minutes; ongoing	Hanover; Cube3	
					<i>and/or</i>			
1				1	Option 2. Design Charrette 1 full-day or 2 half-days; 3 skill sets; no later than DD	Can count 3/16/18 as first part. Meeting #2 4/13/18	Hanover	
					<i>and/or</i>			
		n/a		1	Option 3. Trades Training 8+ hrs total w/ Plumber; HVAC; Insulator; Framers; Air Sealer	To be Completed on Site; ID point	SWA	
2	0	0		2	SUBTOTAL			

LT: LOCATION AND TRANSPORTATION

T	F	NA	Final	Prereq		Notes:	Responsible Party:	Plan Review Comments:
FALSE					LT-F. Floodplain Avoidance (meet one)			
TRUE					a) Project is not built on land within a flood hazard area; <i>or</i>	NA		
TRUE					b) If in flood hazard area, site is previously developed; <i>or</i>	Previously developed		
					c) If in flood hazard area, built per flood provisions	Confirm flood provisions	BSC	

Y	?	N	Final	Max		Notes:	Responsible Party:	Plan Review Comments:
0	0	0		15	LT-ND. LEED for Neighborhood Development			
		n/a		15	ND v3 Stage 2 or 3 or ND v4 Certified Plan or Certified Project			
					<i>or</i>			
8	0	0		8*	LT-SS. Site Selection			
4				4	Option 1. Sensitive Land Protection (meet one Path)			
				4	Path 1. Previously Developed 75% of buildable site is previously developed	100% of total site buildable land area (1.82 acres) previously developed		
		n/a			<i>or</i>			
				3	Path 2. Avoidance of Sensitive Land (meet all of these)			
					a) Not prime or unique farmland			
					b) Not public parkland prior to acquisition			
					c) Not in a flood hazard area			
					d) Not on land identified as habitat for endangered species			
					e) Not within 50ft of wetlands (or more stringent local reqm't)			
					f) Not within 100 ft of water bodies			
					<i>and/or</i>			
2				2	Option 2. Infill Development 75% of land within 0.5mi of site is previously developed; water/public parks exempt from calc. Exception available if population<20k	100% of project boundary previously developed	SWA	
					<i>and/or</i>			
1				1	Option 3. Open Space Within 0.5mi of public open space at least 0.75 acres; or create public open space onsite. 1 larger park or 2 smaller OK	Alewife Brook Parkway .06mi	SWA	
					<i>and/or</i>			
0	0	n/a		1	Option 4. Street Network Intersection density of 90 intersections per sq mile (street/sidewalk)	Earned on 130 Cambridge (barely) - should earn here	SWA	
					<i>and/or</i>			
1				1	Option 5. Bicycle Network and Storage			
TRUE					a) Within 200yd of network connecting to any of: 10 uses; school; employment center; rail, ferry, or bus rapid transit; <i>and</i>	Confirm bike lanes; connection to Minuteman/Greenway/Fitchburg/Hubway bikeways; site plan shows bike path	SWA	
TRUE					b) Provide long-term storage for 30% of occupants; <i>and</i>	Provide 206 long-term spaces; 326 in plans	Cube3/Hanover	
TRUE					c) Provide short-term bike storage for 2.5% of occupants (min 4)	Provide 18 short-term spaces; site plan shows 28?	Cube3/Hanover	

3	0	0	3	LT-CD. Compact Development	Notes:	Responsible Party:	Plan Review Comments:
3			3*	Lowrise: Achieve 7 (1pt), 12 (2pt), or 20 (3pt) dwelling units/acre Midrise: Achieve 30 (1pt), 55 (2pt), or 80 (3pt) dwelling units/acre	299 units per 1.8 acres buildable land area (confirm total acreage) = 166 DU/acre	SWA	
2.0	0.0	0	2	LT-CR. Community Resources	Notes:	Responsible Party:	Plan Review Comments:
2.0			2*	Within 0.5mi of 4-7 (1pt), 8-11 (1.5pt), or 12+ (2pt) resources	12+ community resources w/in .5 miles	SWA	
2.0	0.0	0	2	LT-T. Access to Transit	Notes:	Responsible Party:	Plan Review Comments:
2.0			2*	Within 0.25mi walk of bus or 0.5mi of ferry/rail/BRT; see Comment	300ft from Red line; various bus .2mi (confirm 360 weekday/216 weekend min daily transit trips)	SWA	
15.0	0.0	0.0	15	SUBTOTAL			

SS: Sustainable Sites

T	F	NA	Final		SS-P. Construction Activity Pollution Prevention	Notes:	Responsible Party:	Plan Review Comments:
TRUE			Prereq		a) Stockpiled and protected soil	Provide SWPPP reports	BSC	
TRUE				b) Controlled runoff path and velocity	Provide Plan/Div 1 Spec	BSC		
TRUE				c) Protected on-site storm sewers	Provide Plan/Div 1 Spec	BSC		
TRUE				d) Provided swales for hillsides or slopes	Provide Plan/Div 1 Spec	BSC		
TRUE				e) Used tiers, blankets, filter socks, berms etc. for slopes >15%	Provide Plan/Div 1 Spec	BSC		
TRUE				f) Prevent air pollution from dust and particulates	Provide Plan/Div 1 Spec	BSC		
TRUE				g) Construction sites >1 acre meet 2012 EPA Construction General Permit or local equivalent, whichever is more stringent	Provide Plan/Div 1 Spec	BSC		

T	F	NA	Final		SS-I. No Invasive Plants	Notes:	Responsible Party:	Plan Review Comments:
TRUE			Prereq		No invasive plants	Provide schedule/L plans; Add non invasive label or link to resource	Hanover - Brett Montague	

Y	?	N	Max		SS-HI. Heat Island Reduction	Notes:	Responsible Party:	Plan Review Comments:
2	0	0	2		Option 1. Shading Locate trees to shade 50% (1pt) or 75% (2pt) of hardscapes			
		n/a			and/or			
2			2		Option 2. Nonabsorptive Materials 50 / 75% of hardscapes are light colored, high albedo, or vegetated	Provide ENERGY STAR roof product spec, 100% of roof ES* product	Cube3	

					SS-R. Rainwater Management	Notes:	Responsible Party:	Plan Review Comments:
0	2	0	3		Case 1. Low Impact Development > 50% (1pt), 65% (2pt), or 80% (3pt) of site is permeable/infiltrated	Raingarden like at 130?		
	2		3*		or			

					SS-PC. Nontoxic Pest Control	Notes:	Responsible Party:	Plan Review Comments:
1.5	1.0	0	2*					
			1	a) Install steel mesh barrier termite control				
			1	b) Install physical termite barrier				
0.5			0.5	c) Solid foundation walls				
			0.5	d) Install post-tension slabs				
			0.5	e) Treat all cellulosic structure with borate termite pesticide				
			0.5	f) Use all non-cellulosic structural materials				
	0.5		0.5	g) Install ports or openings for all slab penetrations (plumbing)				
			0.5	h) Install a registered termite bait system				
			0.5	i) >6-inch space between landscape grade and nonmasonry siding				
0.5			0.5	j) Seal all external cracks, joints, penetrations, edges, and entry points & install rodent-proof screens on openings >0.25 in.	Add Air Sealing Details to Sections	Cube3		
0.5			0.5	k) Design discharge points for rain gutters, condensate lines, steam vent lines, etc. >24 in. from foundation	Provide stormwater plan	BSC		
	0.5		0.5	l) Design landscape features to provide >18 in. space between exterior wall and plantings				
TRUE			Prereq	<i>Multifamily:</i> Develop integrated pest management policy that includes guidance for residents & add to Green Resident Manual	Provide spec. SWA can assist for additional scope			

3.5 3.0 0.5 7 SUBTOTAL

WE: Water Efficiency

T	F	NA	Final	Prereq	WE-M. Water Metering	Notes:	Responsible Party:	Plan Review Comments:
TRUE					Water meter or submeter is installed for each unit, or entire building	Whole building	WBA	

Y	?	N	Max	12	WE-T. Total Water Use	Notes:	Responsible Party:	Plan Review Comments:
5	2	0		12*	Use Water Reduction Calculator to show savings for indoor and outdoor uses. Earn 1pt per 5% increment, starting 10% up to 65%	Provide schedule		

0	0	0	6	WE-I. Indoor Water Use	Notes:	Responsible Party:	Plan Review Comments:
		n/a	2	a) Lavatory faucets WaterSense and 1.5gpm (1pt) or 1.0gpm (2pt)		Cube3	
		n/a	2	b) Showerheads WaterSense and 1.75gpm (1pt) or 1.5gpm (2pt)			
		n/a	1	c) Toilets WaterSense and average 1.1gpf (1pt)			
		n/a	1	d) All washers are ENERGY STAR			

0	0	0	4	WE-O. Outdoor Water Use	Notes:	Responsible Party:	Plan Review Comments:
0	0		4	Reduce turf grass and increase native/adapted plants: T<60%,N>25% (1pt); T<40%,N>50% (2pt); T<20%,N>75% (3pt); T<5%,N>75% (4pt)	Complete Water Reduction Tab Target <5% turf & >75% native/adapted plants; provide plant list and site plan with calcs	Landscape	

5 2 5 12 SUBTOTAL

EA: Energy and Atmosphere

T	F	NA	Prereq	EA-P. Minimum Energy Performance (Mid/Highrise)	Notes:	Responsible Party:	Plan Review Comments:
TRUE				Whole Building Energy Simulation	Target 15% savings over baseline; SWA modeling?	SWA	
TRUE				a) Achieve 5% energy cost savings over ASHRAE 90.1-2010; and b) Meet mandatory provisions of ASHRAE 90.1		SWA	

N/A	Prereq	Option 1. Cx using ENERGY STAR MFHR T&V Protocols	Notes:	Responsible Party:	Plan Review Comments:
		Option 2. Cx using Prescriptive Path (do all of the following)			
TRUE		a) Air sealing, air barrier, compartmentalization details/bid sheets	Provide air barrier / compartmentalization sheet	Cube3	
TRUE		b) L-H Thermal Enclosure Inspection Checklist (ESv3r2 Sec. 2,3,5)	Incorporate items into Arch/MEP plans & specs	Cube3	
TRUE		c) Cx of central systems - meet LEED NC performance testing & ongoing maintenance for central commercial HVAC & DHW	Incorporate items into MEP HVAC plans & specs	Cx Agent	
TRUE		d) Total duct leakage <8cfm25/100sf enclosure	Incorporate items into MEP HVAC plans & specs	WBA	
TRUE		e) Duct leakg to outside <4cfm25/100sf enclosure (6cfm <1200sf)	Incorporate items into MEP HVAC plans & specs	WBA	

T	F	NA	Prereq	EA-M. Energy Metering	Notes:	Responsible Party:	Plan Review Comments:
TRUE				Install building gas meter and unit-level electric meters/submeters	whole-building	WBA	

T	F	NA	Prereq	EA-ED. Education of Homeowner/Tenant/Building Manager	Notes:	Responsible Party:	Plan Review Comments:
TRUE				a) O&M manual, binder, or CD provided to all individuals or organizations responsible for maintenance of home; and b) Minimum 1hr walkthrough with the occupants and managers	Provide manual Provide date/time & attendees	Hanover	

Y	?	N	Max	30	EA-AU. Annual Energy Use (Max 29pt Lowrise, 30pt Midrise)	Notes:	Responsible Party:	Plan Review Comments:
18.5	2	0		30*	Savings from energy model	16% current target	SWA	
7.5				20	Home size adjustment	HSA tab completed	SWA	

0	1	0	5	EA-HW. Efficient Hot Water Distribution System	Notes:	Responsible Party:	Plan Review Comments:
		n/a	2	Option 1. Efficient Hot Water Distribution Path 1. Maximum Allowable Pipe Length Limit pipe length from DHW source to supply (see table) or Path 2. Maximum Allowable Pipe Volume <64oz DHW stored between source and end use, or			

		n/a	3	Option 2. Performance Test Case 1. No Circulation Loop or MF w/ Central Circ. Loop <0.5gal DHW stored in piping between source and fixture. and or Case 2. Circulation Serves Single Unit, or Heat Trace Follow WaterSense test to show <0.25gal stored in branch			
		n/a					
	1		2	Option 3. Pipe Insulation Install at least R-4 on all DHW piping, including elbows and tees	Specify DHW R value		
0	2	0	2*	EA-UT. Advanced Utility Tracking	Notes:	Responsible Party:	Plan Review Comments:
0	1		1	Option 1. Electric and Water Permanent energy monitor w/ remote data access, or submeter to monitor irrigation systems (min. 1,000 SF irrigated landscape)	Provide irrigation monitor specs	Hanover - Brett?	
		n/a	1	Option 2. Third party utility reporting Path 1. Whole Building Master Meter Owner shares all applicable utility data w/ USGBC via 3rd party or Path 2. Individual Meters >50% of unit owners/occupants share data via 3rd party			
	1						
0	0	0	0	EA-SR. Active Solar-Ready Design (Lowrise only)	Notes:	Responsible Party:	Plan Review Comments:
		n/a	1	Option 1. Photovoltaic-Ready Design Meet EPA's Solar PV specs for a renewable energy ready home and/or Option 2. Solar Direct Hot Water-Ready Design Meet EPA's solar water heating specs for renewable-ready home			
		n/a	1				
0	0	0	0	EA-C. HVAC Start-up Credentialing (Lowrise only)	Notes:	Responsible	Plan Review Comments:
		n/a	1	All HVAC systems commissioned by a credentialed technician			
18.5	5	14	37	SUBTOTAL			

MR: Materials and Resources

T	F	NA	Final	Prereq	MR-TW. Certified Tropical Wood	Notes:	Responsible Party:	Plan Review Comments:
TRUE					All wood in the building is nontropical, reused or reclaimed, or FSC	Provide letter of confirmation	Hanover	
T	F	NA	Final	Prereq	MR-DM. Durability Management (meet all of the following)	Notes:	Responsible Party:	Plan Review Comments:
TRUE					a) Meet ESv3 Water Management System Builder Checklist	Builder to sign checklist, see hyperlink	Hanover	Water Management System Builder Checklist
TRUE					b) Nonpaper-faced backer board around shower, or ASTM D3273	Provide Submittal	Cube3	
TRUE					c) Water-resistant flooring in kitchen, baths, laundry, spa areas or within 3' of exterior entry	Provide Submittals	Cube3	
TRUE					d) Drain pan+drain or automatic shut-off or floor drain+sloped floor for tank water heaters & clothes washers in/over living space	Provide Submittals Laundry Rooms	Cube3	
TRUE					e) Conventional clothes dryers exhausted directly to outside		WBA	
Y	?	N	Final	Max	MR-DV. Durability Management Verification	Notes:	Responsible Party:	Plan Review Comments:
1	0	0			1 Green rater verifies all measures in ENERGY STAR Homes v3 water management system builder checklist via field inspection/photos	Builder to sign, SWA verify	Hanover Cube3	
2.0	3.0	0			5 MR-EP. Environmentally Preferable Products (LR 4pt/MR 5pt)	Notes:	Responsible Party:	Plan Review Comments:
		n/a			1.5 Option 1. Local (extraction + processing within 100mi)			
0.5					0.5 a) >50% locally produced Framing	Provide product specs/origin	Hanover	
0.5					0.5 b) >50% locally produced Aggregate for concrete and foundation	Provide product specs/origin	Hanover	
					0.5 c) >50% locally produced Gypsum Board / Interior Sheathing		Hanover	
					4* Option 2. Environmentally Preferable Products			
1					2 a) No Floor Covering (base only, i.e. sealed concrete)			
	1				1 b) 90% Floor Covering EPP	Provide Submittals	Hanover	
					1 c) 90% Insulation EPP (exclude HVAC and pipe insulation)	Provide Submittals	Hanover	
					1 d) 90% Sheathing EPP			
					1 e) 90% Framing EPP			
					1 f) 90% Drywall EPP			
	1				1 g) 90% Concrete contains 30%+ flyash/slag as cement replacement & 50% RC aggregate; or 90% RC aggregate	Provide Submittals	Hanover	
					1 h) 90% Roofing EPP			
					1 i) 90% Siding EPP			
	1				1 j) 90% - Install at least 3: Doors, Cabinets, Counters, Interior Trim, Decking/Patio, or Windows	Provide Submittals	Hanover	

0.5	0.5	0	3	MR-CW. Construction Waste Management	Notes:	Responsible Party:	Plan Review Comments:
0.5	0.5		3*	Reduce total construction waste. See Rating System for points.	Provide WMP & final calcs	Hanover	
0.0	0.0	0	0	Material Efficient Framing (Lowrise only)	Notes:	Responsible Party:	Plan Review Comments:
		n/a	1	Select one of the following for exterior & common walls:			
		n/a		a) No more than one horizontal 2x top plate on walls			
		n/a		b) Window and door headers were placed in the rim joist			
		n/a		c) Raised single ply headers <2" thick in 2x4 / <4" in 2x6 wall			
		n/a		d) Structural insulated panels for walls			
		n/a		Select at least 2 of the following for interior & exterior walls:			
		n/a		e) Headers were sized for loads.			
		n/a		f) Ladder blocking or drywall clips used.			
		n/a		g) Two-stud corners or California corners were used.			
		n/a		Select all that apply (90%+ of component)			
		n/a	h) Interior wall studs were spaced greater than 16 inches o.c.				
		n/a	0.5 i) Floor joists spaced greater than 16 inches o.c.				
		n/a	0.5 j) Roof rafters spaced greater than 16 inches o.c.				
3.5	3.5	2.0	9	SUBTOTAL			

EQ: Indoor Environmental Quality							
T	F	NA	Final		Notes:	Responsible Party:	Plan Review Comments:
			Prereq	EQ-V. Ventilation (meet all of the following)			
TRUE				Local Exhaust	Provide 62.2 calcs for apartments, 62.1 common	WBA	
TRUE				a) Meet ASHRAE 62.2-2010 Sections 5 & 7 in baths & kitchens		WBA	
TRUE				b) Exhaust directly to the outdoors		WBA	
			Prereq	Whole Unit Mechanical Ventilation	Provide 62.2 calcs for apartments, 62.1	WBA	
TRUE				a) Project meets ASHRAE 62.2-2010 sections 4 and 7		WBA	
TRUE				b) Do not rely on transfer air from adjacent spaces incl. corridors		WBA	
TRUE				c) Continuous fans <1.0 sone (Section 7.2.1) or remote mounted	Provide system plan design, product specs, vent calcs	WBA	
			Prereq	Non-Unit Spaces	Provide v4 Min IAQ Perf Calcs for GBCI review	WBA	Minimum IAQ Performance Calculator
TRUE				a) Meet ASHRAE 62.1-2010 sections 4 and 7			
			Prereq	EQ-CV. Combustion Venting (meet all of the following)			
TRUE				b) Vent all combustion appliances (except ovens and range)	NA	WBA	
TRUE				c) CO monitor on each floor of each unit, hard-wired w/ battery backup or 10-yr battery model	Provide plan w/ locations, system/product specs, SWA to verify in field	WBA	
N/A				d) Fireplaces & stoves have closing doors or solid glass enclosure	Clubhouse fireplace will comply	WBA	
N/A				e) Fireplaces and stoves are closed combustion or power vented, or pass BPI/RESNET combustion safety test to ensure depressurization of combustion appliance zone <5Pa	Clubhouse fireplace will comply	WBA	
TRUE			f) Combustion space and water heating equipment is closed combustion, power vented, or remote located	Clubhouse fireplace will comply	WBA		
			Prereq	EQ-G. Garage Pollutant Prevention (meet all of the following)			
TRUE				a) All air handling equipment serving conditioned space located outside fire-rated envelope of the garage	Provide schedule/plan	WBA	
TRUE				b) Tightly seal shared surfaces between the garage and conditioned spaces, bases of walls, including interstitial space, penetrations, and weather-stripped doors	Provide schedule/plan	WBA	
TRUE				c) Install CO monitors in conditioned spaces with access to garage	Provide schedule/plan	WBA	
			Prereq*	EQ-R. Radon-Resistant Construction			
TRUE				Case 1. New Construction in EPA Radon Zone 1 (meet all below:)	Provide radon mitigation plans	Cube3/WBA	
TRUE				a) Capillary break per Indoor airPLUS	Provide radon mitigation plans	Cube3/WBA	
TRUE				b) Electric outlet near vent piping in attic for future fan install	Provide radon mitigation plans	Cube3/WBA	
TRUE				c) Gas-tight vent pipe from below capillary break to 12" above roof	Provide radon mitigation plans	Cube3/WBA	

N/A			Case 2. Building Renovation in EPA Radon Zone 1 Active ventilation system installed if radon test results > 4 pCi/L			
T	F	NA	Prereq EQ-F. Air Filtering (meet all of the following)	Notes:	Responsible Party:	Plan Review Comments:
TRUE			a) MERV 8 or higher filters on recirculating forced air systems	Provide filter specs, SWA to verify in field	WBA	
TRUE			b) MERV 6 or higher filters on mechanically supplied outdoor air	Provide filter specs, SWA to verify in field	WBA	
T	F	NA	Prereq EQ-TS. Environmental Tobacco Smoke	Notes:	Responsible Party:	Plan Review Comments:
TRUE			Prohibit smoking in common areas; locate any outdoor designated smoking areas >25ft from entries, outdoor air intakes, and operable windows; install signs to show restrictions	Provide smoking policy in manual, signage	Hanover	
T	F	NA	Prereq EQ-C. Compartmentalization (meet all of the following)	Notes:	Responsible Party:	Plan Review Comments:
TRUE			a) Seal each unit including penetrations through walls, ceilings, floors, & vertical chases adjacent to units	All apartments compartmentalized, air sealing details	Cube3/WBA	
TRUE			b) Weather-strip all unit doors leading to common hallways		Cube3	
TRUE			c) Weather-strip all exterior doors and operable windows		Cube3	
TRUE			d) Dwelling unit leakage with blower door test <0.23cfm50 per SF enclosure (0.30 if average unit size <1200 SF)	Add requirement to specs	Cube3	
Y	?	N	Max			
1	0	0	3 EQ-EV. Enhanced Ventilation	Notes:	Responsible Party:	Plan Review Comments:
1		n/a	1 Option 1. Enhanced Local Exhaust Bathroom exhaust fan control in every bathroom	Confirm bathroom exhaust strategy	WBA	
0		n/a	2 Option 2. Enhanced Whole-House Ventilation Design & install balanced whole-house ventilation system to meet ASHRAE 62.2-2010; within 100-110% of ASHRAE flows			
0.5	0.5	0	2* EQ-CC. Contaminant Control	Notes:	Responsible Party:	Plan Review Comments:
0.5			0.5 Option 1. Walk-Off Mats Permanent walk-off mats >4ft (dwelling unit) or 10ft (common entry)	Provide in flooring plans	Cube3	
		n/a	0.5 Option 2. Shoe Removal Shoe removal and storage spaced near primary entryway			
	0.5	n/a	0.5 Option 3. Preoccupancy Flush Protect ducts; Flush >48hrs after construction but before occupancy	Provide strategy and dates/times	Hanover	
		n/a	1 Option 4. Air Testing Test for IAQ after construction but before occupancy			
2	1	0	3 EQ-B. Balancing of Heating & Cooling Distribution Systems	Notes:	Responsible Party:	Plan Review Comments:
		n/a	3 Case 1. Forced-Air System			
1			1 Option 1. Multiple Zones a) 2+ zones w/ independent thermostat controls; or b) Automatic for SF homes <800 SF & MF avg unit <1200 SF	Avg. unit <1200sf		
1			1 Option 2. Supply Air-Flow Testing Supply air flow tested within 80-120% of Manual J calc	Hire TAB contractor/add to specs	WBA	
	1		1 Option 3. Pressure Balancing Pressure differential between bedroom and rest of home <3 Pa			
		n/a	3 Case 2. Radiative Systems			
		n/a	1 Option 1. Multiple Zones a) 2+ zones w/ independent thermostat controlling separate loop/pump per zone (radiators see Option 2); or b) Automatic for SF homes <800 SF & MF avg unit <1200 SF			
		n/a	2 Option 2. Room-by-room Controls			
0	0	0	3 EQ-EC. Enhanced Compartmentalization (LR 1pt / MR 3pt)	Notes:	Responsible Party:	Plan Review Comments:
		n/a	3 Dwelling unit leakage with blower door test <0.15 CFM50/sf	TBD pending final testing	SWA	
1	0	0	2 EQ-ECV. Combustion Venting	Notes:	Responsible Party:	Plan Review Comments:
0		n/a	2 Option 1. No Fireplace or Wood Stove			
		n/a	a) EPA certified wood/pellet-burning stove with direct/power vent			

		n/a	1	b) EPA qualified wood burning fireplace with direct/power vent c) Natural gas/propane/alcohol stove listed by approved safety testing facility, with power/direct vent, permanent fixed glass front or gasketed door. and electronic pilot	Clubhouse will comply		
1		n/a					
1	0	0	1	EQ-EG. Enhanced Garage Pollutant Protection (LR 2pt/MR 1pt)	Notes:	Responsible Party:	Plan Review Comments:
1			1	Option 1. Exhaust Fan in Garage Meet ASHRAE 62.1-2010 (or 75 CFM & ENERGY STAR in SF) and use appropriate controls; test pressure differential (MF only)	Provide MEP Garage design	WBA	
0		n/a	1	Option 2. Detached Garage or No Garage or Carport			
1.5	1.5	0	3	EQ-EP. Low-Emitting Products	Notes:	Responsible Party:	Plan Review Comments:
0.5			0.5	a) Site-applied interior paints and coatings meet CA Section 01350	Provide Submittals	Cube3	
0.5	0.0		0.5	b) Flooring is Floorscore, CRI Green Label Plus, or CA 01350	Provide Submittals	Cube3	
0.0	0.5		0.5	c) Insulation is Greenguard Gold, CHPS, or meets CA 01350	Provide Submittals	Cube3	
0.5			0.5	d) Site-applied adhesives and sealants meet CA Section 01350	Provide Submittals	Cube3	
0	1		1	e) Composite wood products meets CARB ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde resins	Provide Submittals	Cube3	
1	0	0	1	EQ-NS. No Environmental Tobacco Smoke (Midrise only)	Notes:	Responsible Party:	Plan Review Comments:
1			1	Prohibit smoking throughout the building, including within units	Provide smoking policy in manual, signage	Hanover	
8.0	3.0	7.0	18	SUBTOTAL			

IN: Innovation

T	F	NA	Final	IN-PR. Preliminary Rating	Notes:	Responsible Party:	Plan Review Comments:
TRUE			Prereq	Conduct a preliminary LEED meeting and create an action plan, with the participation of the principal members of the verification and project teams	3/16/18 Kickoff; 4/13/18 pt.2 follow up	SWA	
Y	?	N	Max	IN-IN. Innovation	Notes:	Responsible Party:	Plan Review Comments:
3.0	0.0	0	5	Option 1. Innovation Choose from Innovation Catalog or submit idea for approval			Design for Accessibility
		n/a	1	Option 2. Pilot Credit Choose from Pilot Credit Library			Design for Active Occupants
		n/a	1	Option 3. Exemplary Performance See items with (*) by Max Points for Exemplary opportunities	ID Trades Training LT Access to Transit LT Community Resources (20)	SWA	
3.0	0.0		3				
1	0	0	1	IN-AP. LEED Accredited Professional	Notes:	Responsible Party:	Plan Review Comments:
1	0		1	LEED AP serves as principal participant of the project team by SD	Provide project team member certification	Design Team	
4.0	0.0	2.0	6	SUBTOTAL			

RP: Regional Priority

Y	?	N	Max	RP. Regional Priority	Notes:	Responsible Party:	Plan Review Comments:
3	0	0	4	RP. Regional Priority	Annual Energy Use (need min 15pts) Balancing Heating & Cooling (need 3pts) Access to Transit (need 2pts) Heat Island Reduction (need 2pt) Non Toxic Pest (need 2pt)?	SWA	
3	0		4	Earn 1pt bonus point each for credits identified as local priorities			

LEED-H Summary Certified: 40-49 points, Silver: 50-59 points, Gold: 60-79 points, Platinum: 80+ points							
62.5	16.5	31.0	110	Project Totals			



GREEN BUSINESS CERTIFICATION INC. CERTIFIES THAT

Lauren Hildebrand

HAS ATTAINED THE DESIGNATION OF

**LEED AP[®] Building Design +
Construction**

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

10061260-AP-BD+C

CREDENTIAL ID

03 SEP 2009

ISSUED

01 SEP 2019

VALID THROUGH

A handwritten signature in black ink that reads "Mahesh Ramanujan".

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

GREEN BUSINESS CERTIFICATION INC. CERTIFIES THAT

Lauren Hildebrand

HAS ATTAINED THE DESIGNATION OF

LEED® FOR HOMES GREEN RATER

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



10061260-GR

CREDENTIAL ID

07 MAY 2013

ISSUED

06 MAY 2020

VALID THROUGH

A handwritten signature in black ink that reads "Mahesh Ramanujan".

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

June 5, 2018



Tom Denney
Vice President
The Hanover Company
2 Seaport Lane – 11th Floor
Boston, MA 02210

Re: Acoustical Narrative
50 CambridgePark Drive
Cambridge, Massachusetts

ACOUSTICAL NARRATIVE

This acoustical narrative addresses the acoustical design elements of the proposed 50 CambridgePark Drive project for The Hanover Company in Cambridge, Massachusetts. The project site needs to comply with the City of Cambridge noise regulations as well as the Massachusetts state regulation.

APPLICABLE NOISE REGULATIONS

Massachusetts

The Massachusetts Department of Environmental Noise Policy, DEP 310 CMR 7.10, states that:

The DEP has established a Noise Level Policy for implementing this regulation. The policy specifies that the ambient sound level, measured at the property line of the facility or at the nearest inhabited buildings, shall not be increased by more than 10 decibels weighted for the "A" scale [dB(A)] due to the sound from the facility during its operating hours.

The guideline further states that the facility shall not produce a pure-tone condition at the property line (or at the nearest inhabited buildings). A pure-tone exists if the sound pressure level, at any given octave band center frequency, exceeds the levels of the two adjacent octave bands by three (3) or more decibels.

For this project, we assume that the existing background sound levels are high enough in the project area that meeting the City of Cambridge Noise Regulation will be the more stringent requirement.

City of Cambridge Noise Regulation

The City of Cambridge has separate sound level limits based on zoning type and the time of day. There are both Commercial and Residential Zones adjacent to this project. Therefore, the noise generated by the equipment of this project will be designed to meet the more stringent Residential

Zone noise requirement as noted in the following table which shows the maximum allowable octave band sound pressure levels as given in the City of Cambridge Noise Regulations.

Octave Band Center Frequency of Measurement (Hz)	Residential Area (Daytime) dB	Residential Area (Nighttime) dB	Commercial/Business (All Times) dB
31.5	76	68	79
63	75	67	78
125	69	61	73
250	62	52	68
500	56	46	62
1000	50	40	56
2000	45	33	51
4000	40	28	47
8000	38	26	44
Single Number Equivalent	60 dBA	50 dBA	65 dBA

City of Cambridge Maximum Allowable Octave Band Sound Pressure Levels

Daytime is defined by the City of Cambridge as the period between 7 AM and 6 PM except Sundays and holidays.

PRELIMINARY PROJECT EQUIPMENT ANALYSIS

Our noise analysis for this project is based upon the typical mechanical equipment used on similar Hanover project including nearby projects: 88 CambridgePark Drive, 130 CambridgePark Drive, and 160 CambridgePark Drive. The following is a list of the type of equipment that are anticipated and the sound attenuation measures that will be incorporated into the design.

- Rooftop condensing units (similar to Carrier 24ABB318 used on 88 CambridgePark Drive project): One condensing unit per apartment unit, located on the roof toward the center of the corridors and away from the perimeter.
- Rooftop Air Handling Unit (similar to Carrier 48HCTA06, 48HCED08 used on 88 CambridgePark Drive project): Three units located on the roof, will be positioned to minimize the visual site lines to adjacent properties and to allow for sound barrier attenuation from the roof.
- Garage exhaust fan facing east on Levels 1-2 (similar to Greenheck SBE-2L42-50 used on 88 CambridgePark Drive project): sound attenuators will be incorporated into the design to meet the noise requirements.
- 200 KW emergency generator located on roof (similar to Kohler 200RZX with sound enclosure and muffler): these units will have a sound enclosure to meet 69 dBA sound level at 23 feet. In addition, the generator location will be chosen to maximize the sound barrier attenuation properties of the roof.



SOUND LEVEL PREDICTIONS TO ADJACENT PROPERTY RECEIVERS

Based upon our calculations, the predicted sound levels generated from the 50 CambridgePark Drive property will be as follows at the nearest noise sensitive properties:

Address of Receiver	Distance from 50 Cambridgepark	Zoning	Daytime Sound Level WITH Emergency Generator	Nighttime Sound Level WITHOUT Emergency Generator
30 CambridgePark Drive	80 feet	Residential	47 dBA	45 dBA
35 CambridgePark Drive	95 feet	Commercial	51 dBA	44 dBA
88 CambridgePark Drive	60 feet	Residential	53 dBA	45 dBA
100 CambridgePark Drive	87 feet	Commercial	55 dBA	45 dBA
130 CambridgePark Drive	90 feet	Residential	53 dBA	44 dBA

Tone Evaluation

Based upon the equipment sound data and the predicted sound levels to the closest receivers, we do not anticipate any tonal sounds as defined by the State of Massachusetts.

CONCLUSION

Based upon our analysis, the noise from the mechanical noise sources identified for this project will meet the City of Cambridge Noise Regulations

This concludes this Technical Memorandum. Please call if you have any questions or comments.

Sincerely,
SLR International Corporation



Nicholas A Block, P.E., LEED AP BD+C
Associate Engineer

OCL/NAB/nab

SLR Draft Technical Memo - The Hanover Company - 50 Cambridgepark - Acoustical Narrative 6-5-2018.docx



Community Engagement Meeting April 24, 2018:
Attendee Questions and Development Team Responses

Design and Resiliency

1. Q: Can more green area or gathering spaces be added to the Project Site, especially around the retail frontage?
 - A: A primary design objective is to bring retail frontage directly to Cambridgepark Drive. We hope this spurs additional retail at other parcels on the street, where related greenspace or gathering areas will be more appropriate. The Project does include greenspace and a focal point for gathering at the rear of the Project Site facing the 88 CPD and 100 CPD buildings.
2. Q: How much of the Project Site will permeable and impermeable?
 - A: The Project is currently 2% permeable. The Project will increase this amount to 12% permeable.
3. Q: Is the Developer aware of the petition to amend the zoning ordinance relative to climate change preparedness?
 - A: Yes. We believe that our Project is responsive to many of the concerns raised in the proposed amendment.
4. Q: In courtyards, are we proposing additional landscape or stormwater retention?
 - A: We are investigating that, and we continue to investigate how we can improve those aspects of the Project across the Project Site throughout the site.

Traffic

5. Q: Is the Rindge Avenue / Sherman Street intersection within the scope of intersections studied?
 - A: No, this intersection is not within the scope of the required City traffic study.
6. Q: Is the developer advocating for the City to re-align Rindge Avenue and Cambridgepark Drive to create a four-way intersection at Alewife Book Parkway?
 - A: Others are in a better position to advocate for that kind of action by the City, but we would support such a change if it helped to mitigate traffic congestion in the Triangle.
7. Q: How do we calculate project vehicular trips generated?
 - A: The City requires a specific methodology and we adhere to that. This requires gathering of actual traffic data from neighboring projects.

8. Q: How does actual data gathered compare to what was projected for these neighboring projects? For example, for 160 Cambridgepark Drive?

➤ A: We have not studied that but we can.

Operations

9. Q: We understand that the shared driveway along the western boundary of the project site is a private road. Can you describe how it will be operated and maintained?

➤ A: The shared driveway will look and function like a City street, and will even include on-street parallel parking spaces. Because it is a private road, it will be maintained by the Developer and not the City.

10. Q: Can you describe how loading operations will function at the Project?

➤ A: The Project will have one loading dock sized to accommodate the moving vans typical of apartments of the size proposed in the Project.

11. Q: Will the Project have 24/7 property manager on site?

➤ A: Yes.

Environment

12. Q: Can you elaborate on the Project's noise impacts?

➤ A: Noise impacts will be minimal. Rooftop equipment will be screened and not audible at street level. We will comply with City guidelines with respect to noise.

13. Q: Do you have a plan to deal with the corrosive quality of Cambridge water?

➤ A: Yes, it is being addressed.

14. Q: What environmental investigations have been performed? Can the Developer share those reports with the public?

➤ A: As with other Hanover projects in the Triangle, we performed Phase I and Phase II studies. These indicated that the Project Site contains urban fill typical of sites in this area.

15. Q: Can we share our environmental report?

➤ A: It is typical to consider environmental studies and other project diligence reports as private. The Developer will continue to answer any environmental questions raised throughout the public process for the Project.

Other

16. Q: What public schools will Project residents attend and how will they get there?

➤ A: As with all families in Cambridge who choose to attend Cambridge public schools, families living at the Project will participate in the City's Controlled Choice school lottery. The website of the Cambridge Public School District ("CPSD") indicates that both the Peabody School and the Graham & Parks School are proximity schools for the Project Site. The CPSD school bus network will be available to families residing at the Project.

17. Q: What efforts did the Developer make to notify residents of the Community Engagement Meeting?

➤ A: The Developer provided the notices required by CDD guidelines:

- all abutters and abutters to abutters received direct notice by mail.
- We sent copies of our notice to each of the Fresh Pond Residents Association, the North Cambridge Stabilization Committee and Friends of Alewife, and asked them to invite their members.
- We provided CDD staff with notice of the meeting.
- Residential buildings near the Project site were notified through building management.

We also sent the following additional notifications:

- We sent emails and notices to individuals who attended to Project's Conservation Commission hearing.
- We published notice of the meeting in the Cambridge Chronicle.