

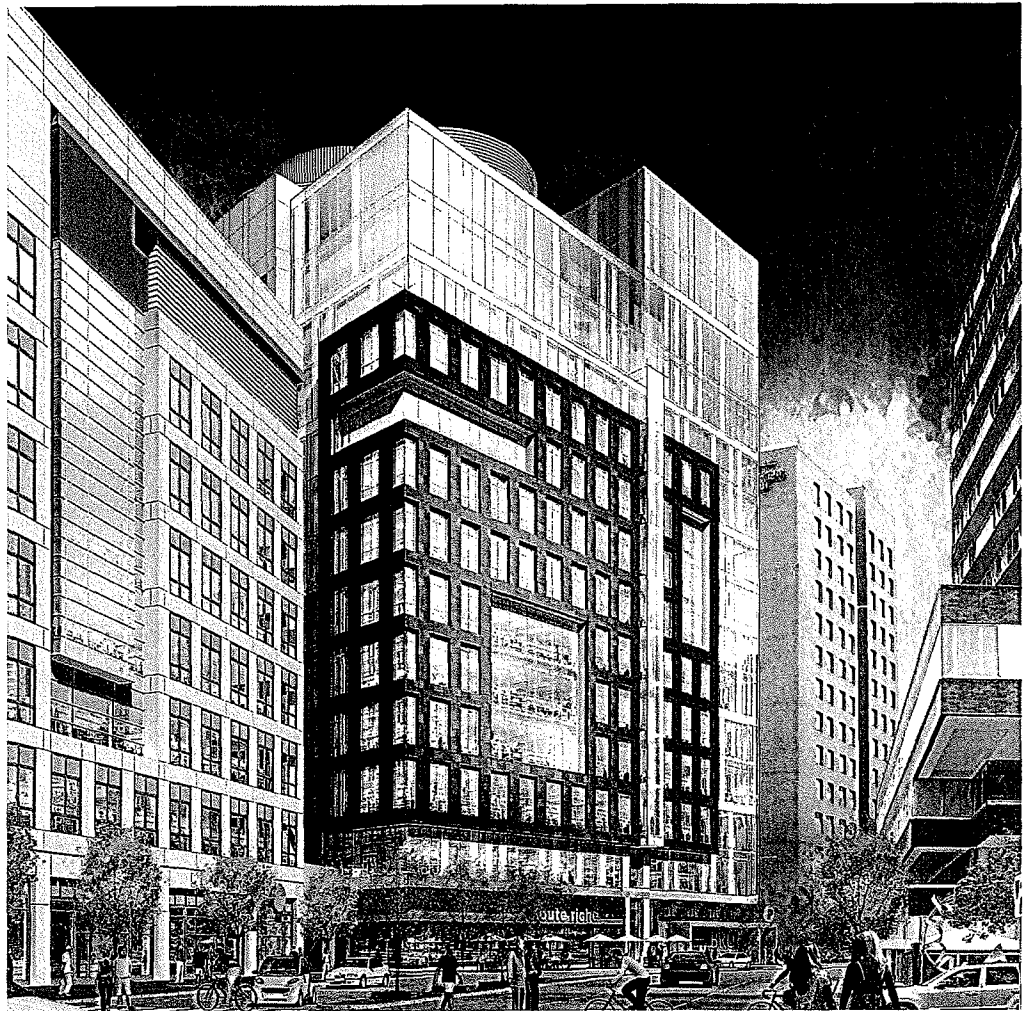
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**The Broad Institute  
75 Ames Street Cambridge**

Project Review Special Permit Application PB# \_\_\_\_\_

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**Volume 1 / Written Materials**



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**ELKUS MANFREDI ARCHITECTS**

9 February 2011

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**1. OWNERSHIP CERTIFICATE** Planning Board Special Permit

This form is to be completed by the OWNER, signed, and returned to the Office of the Planning Board:

I hereby authorize: Boston Properties Limited Partnership  
(Petitioner)

Address 800 Boylston Street City or Town Boston, Massachusetts

to apply for a special permit for an office and biomedical research development with ground floor retail/restaurant  
(Type of Development)

located at: Broadway (between Six and Eight Cambridge Center) Map 43 Lot 74 Cambridge  
(Street and Number) (Assessor Plat and Lot Number(s)) (City)

for which the record title stands in the name of: Boston Properties Limited Partnership whose address is:

800 Boylston Street, Suite 1900 Boston MA  
(Street and Number) (City) (State)

by a deed duly recorded in the \_\_\_\_\_ Middlesex South District \_\_\_\_\_ County Registry of Deeds

in Book 28297 Pages 291; or Registry District of the Land Court, Certificate

No's NA Book NA Page NA.

Signature of Land Owner (If authorized Trustee, Officer or Agent so identify) [Signature] Boston Properties Limited Partnership  
By: Boston Properties, Inc., its sole general partner  
By: Michael A. Cantalupa, Senior Vice President

Commonwealth of Massachusetts, County of Suffolk

The above-named Michael A. Cantalupa personally appeared before me, this 10<sup>th</sup>  
(Day)

of FEBRUARY, 2011, and made oath that the above statement is true.  
(Month) (Year)

[Signature] Notary

My Commission expires 4/6/12 (Notary Seal)

**1. OWNERSHIP CERTIFICATE** Planning Board Special Permit

This form is to be completed by the OWNER, signed, and returned to the Office of the Planning Board:

I hereby authorize: Boston Properties Limited Partnership  
(Petitioner)

Address 800 Boylston Street City or Town Boston, Massachusetts

to apply for a special permit for an office and biomedical research development with ground floor retail/restaurant  
(Type of Development)

located at: 75 Ames Street, Map 43, Lot 69 Cambridge  
(Street and Number) (Assessor Plat and Lot Number(s)) (City)

for which the record title stands in the name of: Cambridge Center West Garage LLC whose address is:

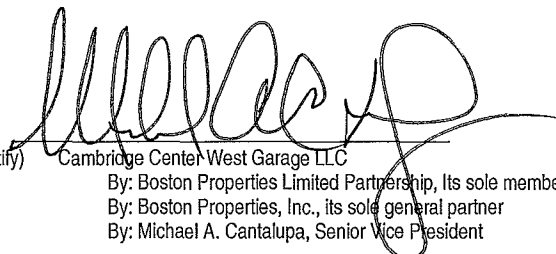
800 Boylston Street, Suite 1900 Boston MA  
(Street and Number) (City) (State)

by a deed duly recorded in the Middlesex South District County Registry of Deeds

in Book 45013 Pages 121; or Registry District of the Land Court, Certificate

No's 233617 Book 1299 Page 13

Signature of Land Owner (If authorized Trustee, Officer or Agent so identify)

  
Cambridge Center West Garage LLC  
By: Boston Properties Limited Partnership, Its sole member  
By: Boston Properties, Inc., its sole general partner  
By: Michael A. Cantalupa, Senior Vice President

Commonwealth of Massachusetts, County of Suffolk

The above-named Michael A. Cantalupa personally appeared before me, this 18<sup>th</sup>  
(Day)

of February, 2011, and made oath that the above statement is true.  
(Month) (Year)

Cherie Treckman Notary

My Commission expires 4/6/12 (Notary Seal)

**a. SPECIAL PERMIT APPLICATION** Cover Sheet

To the Planning Board of the City of Cambridge:

The undersigned hereby petitions the Planning Board for one or more Special Permits in accordance with the requirements of the following Sections of the Zoning Ordinance:

1. Article 19.20 Project Review Special Permit (Excluding Article 19.21.1)

**Applicant:** Cambridge Center West Garage LLC

**Address:** 800 Boylston Street, Suite 1900  
Boston Massachusetts

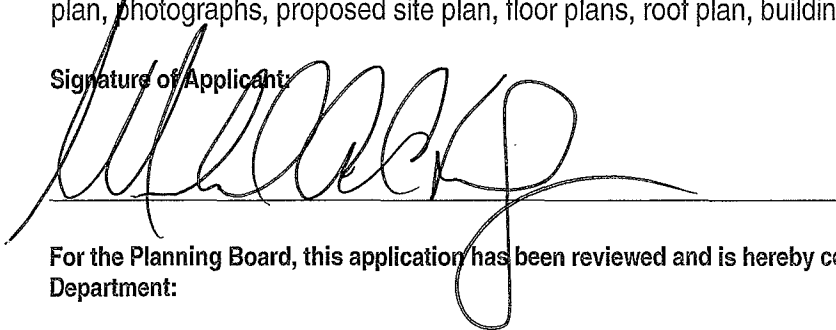
**Telephone:** (617) 236-3300 **FAX:** (617) 536-4233

**Location of Premises:** 75 Ames Street

**Zoning District:** Mixed Use Development District: Cambridge Center (Article 14 of the Cambridge Zoning Ordinance)

**Submitted Materials:** Application form, ownership certificates, dimensional form, project narrative, existing conditions plan, photographs, proposed site plan, floor plans, roof plan, building elevations, building perspectives

**Signature of Applicant:**



A handwritten signature in black ink, appearing to read 'M. Wang', is written over a horizontal line. The signature is fluid and cursive.

For the Planning Board, this application has been reviewed and is hereby certified complete by the Community Development Department:

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**b. SPECIAL PERMIT APPLICATION / Summary of Application**

**Project Name:** The Broad Institute  
**Address of Site:** 75 Ames Street  
**Applicant:** Cambridge Center West Garage LLC  
**Planning Board Project Number:** (CDD)

**Hearing Timeline** (CDD)

Application Date: \_\_\_\_\_

Planning Board 1<sup>st</sup> Hearing Date: \_\_\_\_\_ \*

*(PUD Development Proposal, other special permit)*

Planning Board Preliminary Determination: \_\_\_\_\_ \*

*(PUD Development Proposal)*

Second Submission Date: \_\_\_\_\_ \*

*(PUD Final Development Plan)*

Planning Board 2<sup>nd</sup> Hearing Date: \_\_\_\_\_ \*

*(PUD Final Development Plan)*

Final Planning Board Action Date: \_\_\_\_\_ \*

*(PUD Final Development Plan, other special permit)*

Deadline for Filing Decision: \_\_\_\_\_ \*

*\*Subject to extension by mutual agreement of the Applicant and the Planning Board*

**Requested Relief:**

Project Review Special Permit for office and biotechnology manufacturing use within the Ames Street District under Article 14.32.4 and 19.20 with the exception of Section 19.21.1, which is not applicable in the MXD District.

**Project Description**

**Brief Narrative:**

Petitioner seeks Special Permit to construct 12-story office and biomedical research facility with retail/restaurant space at the ground level.

**Project Size:**

- Total GFA: 250,000 sf total GFA
- Site Area (acres and SF): 1.53 acres/66,599 sf
- # of Parking Spaces: No new parking spaces are being constructed as part of this project

**Proposed Uses:**

- Office and Biotechnology Manufacturing use: 246,000 sf GFA
- Retail/Restaurant use: 4,000 sf GFA
- Open Space: 18,058 sf

**Proposed Dimensions:**

- Height: 189 ft (Penthouse not included)
- FAR: 3.76

### 3. INTRODUCTION

This is an application for a Project Review Special Permit for a proposed new building for The Broad Institute at 75 Ames Street. The proposed research and office facility, 250,000 square feet of Gross Floor Area (GFA), which includes grade level retail/restaurant space has been designed to complete the block between Main Street and Broadway.

The site is located in Kendall Square and abuts The Broad Institute's existing Main Street facility at Seven Cambridge Center and the Cambridge Center West Garage. The proposed new facility for the Broad Institute includes retail/restaurant space at ground level, and research and office uses over the remaining 11 floors. The project will include a new lobby providing pedestrian access to the existing Cambridge Center West Garage from Ames Street.

The project as submitted conforms to the Citywide Urban Design Objectives of Article 19.30, the Sustainable Design and Development requirements of Article 22.23, and satisfies all other requirements necessary for the issuance of the requested Project Review Special Permit.

**Table 3.1: Site / Area Analysis**

Item	Site Area	GFA	FAR
1. Proposed	66,599 sf	250,000 sf	3.76

4. **DIMENSIONAL FORM** Total Development Parcel

	<b>EXISTING</b>	<b>ALLOWED/ REQUIRED</b>	<b>PROPOSED</b>	<b>GRANTED</b>
FLOOR AREA RATIO	0	8.0	3.76	
(Total Gross Floor Area)	0 sf	See Zoning	250,000 sf	
(Lot Size)	66,599 sf	NA	66,599 sf	
MAXIMUM HEIGHT	69'-11"	250'	189'	
MAXIMUM ANGLE ABOVE CORNICE LINE	NA	NA	NA	
MINIMUM LOT SIZE	NA	NA	NA	
MINIMUM LOT WIDTH	NA	NA	NA	
MINIMUM YARD SETBACKS				
Front	None	None	X	
Side - L	None	None	X	
Side - R	None	None	X	
Rear	None	None	X	
TOTAL OPEN SPACE (SF)	31,526 sf	12,557 sf	18,058 sf **	
OFF-STREET PARKING	632*	125	125	
Minimum Number Spaces	NA	125	125	
Maximum Number Spaces	NA	NA	NA	
HANDICAPPED SPACES	16	NA	NA	
BICYCLE SPACES	168	NA	0	
NUMBER LOADING BAYS	NA	3	3	

\* Cambridge Center West Garage

\*\* MXD District



## 5. PROJECT DESCRIPTION

### Overall Description:

Cambridge Center West Garage LLC, an affiliate of Boston Properties, is proposing to construct a new facility for The Broad Institute, consisting of 250,000 sf on 12 floors on the site bounded by Six Cambridge Center, Seven Cambridge Center and the Cambridge Center West Garage. In addition to its primary research and office uses, the building has been designed to accommodate approximately 4,000 sf of ground level retail/restaurant space to continue the activation of the streetscape along Ames Street. All required parking will be accommodated in the existing Cambridge Center West Garage with no expansion of the garage parking capacity required. Vehicular access to the parking remains unchanged through the existing West Garage while pedestrian access will be provided at a new ground floor entrance on Ames Street. Three loading docks will be provided in addition to an adjacent shared loading dock at Seven Cambridge Center.

### Architectural Design:

The Broad Institute expansion at 75 Ames Street is one of the last phases of Boston Properties' masterplanned Cambridge Center development. The proposed building, situated along Ames Street between Seven Cambridge Center and The Residence Inn, will complete the Ames Street frontage between Main Street and Broadway. The building massing, its interaction with the street along the public realm and the proposed materials palette along the retail and lobby frontage will be an engaging addition to the Kendall Square community. A new pedestrian entrance to the Cambridge Center West Garage on Ames Street will add further activation and connectivity to the interior of the site.

The proposed building sits 30 feet north of the existing Broad Institute at Seven Cambridge Center and 36 feet south of The Residence Inn at Six Cambridge Center. The existing service road to its northern boundary provides vehicular access to the Cambridge Center West Garage and service access to Six Cambridge Center and Eight Cambridge Center. It also joins Ames Street to the Western Connector.

The design concept for the new facility starts by considering the existing Broad Institute at Seven Cambridge Center and the proposed new facility at 75 Ames Street as a single campus, serving one institution. The building is distinctive in character from its adjacent buildings while maintaining reference to its urban context in its massing. The massing of the building is articulated into four components to reinforce the existing street wall and distinguish between the Ames Street façade and those facades which focus in to the interior of the site. These components are articulated with the use of material and color; incorporating masonry, curtain wall and precast concrete into the façade treatment.

The Ames Street façade is massed and articulated to reinforce the existing streetwall with a eight story masonry expression projecting beyond a curtain wall background. This masonry wall is punctured with areas of transparency to emphasize the views from the public realm into the research facility, as much

as the views out from the facility on to the activity in and around the Kendall Square vicinity. The Ames Street and service road corner is massed to express the height of the building as it is viewed from Broadway, in a lightweight curtain wall expression. This lightweight expression is carried onto a bridge connection at the southeast corner between the two Broad Institute buildings and emphasizes the collaborative nature of this research facility. The facades that focus into the interior of the site are massed uniformly and give views towards Harvard Square and beyond.

The streetscape is articulated to express a diverse and rich sidewalk experience. The variety of materials used to enhance The Broad Institute entrance, the retail façade and the Cambridge Center West Garage entrance, will reinforce a vibrant street expression along Ames Street.

Longer sight lines to the building occur along Vassar Street looking north east towards the existing Broad Institute at Seven Cambridge Center. The proposed mechanical penthouse at 75 Ames Street is massed to act as a marker to the buildings presence alongside Seven Cambridge Center as it is viewed along Vassar Street.

#### **Site Planning and Landscape Design:**

The project is designed to emphasize the importance of a diverse, vibrant and activated pedestrian streetscape alongside the expression of a growing institution. The incorporation of a new pedestrian garage entrance on Ames Street and the retail exposure on the east façade will enhance the vitality of the sidewalk expression. This is reinforced by visually removing the loading docks from the pedestrian realm and locating them below the adjacent terrace. At the second floor, the connecting bridge and proposed buildings' south façade overlook the existing landscaped terrace which connects the two research buildings and the existing garage.

#### **Parking, Circulation and Service:**

Required parking will be provided by existing spaces located in the adjacent Cambridge Center West Garage (with no expansion of that garage's parking capacity). Vehicular access to the parking facilities will be along the northern access road between Ames Street and the Western Connector. This is unchanged from the current condition.

Three loading docks are located and accessed by the service drive directly south of the proposed building and north of the Seven Cambridge Center building. Trash generated by both the research and retail programs will be collected within the proposed building and processed for pick-up from the building's loading facilities through the existing loading dock access drive.

A new pedestrian connection to the Cambridge Center West Garage will be provided at the northeast corner of the building and will be provided via a single elevator and stair tower serving the parking, in addition to the existing Cambridge Center West Garage circulation cores. Pedestrian circulation to the research facility will be through entrance doors on Ames Street. Three passenger elevators and two service elevators will serve all levels of the building. Two stair towers, located at the north and south end of the building core, will serve egress requirements. Pedestrian traffic from the southern stair

will egress directly onto Ames Street, while that from the northern stair will egress to the northern access road.

### **Sewer and Water Infrastructure**

The sewer, water and drainage infrastructure for Seven Cambridge Center, the Cambridge Center West Garage and the 75 Ames Street site was master planned as part of the 2004 overall design. Seven Cambridge Center and the Cambridge Center West Garage were constructed following this plan which included infrastructure accommodations for a future building at the 75 Ames Street site. Water, sewer and drainage infrastructure is available to the 75 Ames Street building in Ames Street and the private access road along the north face of the proposed building. Sanitary and water service stubs for 75 Ames Street were established as part of the Cambridge Center West Garage and Seven Cambridge Center construction.

The site drainage system completed as part of Seven Cambridge Center and the Cambridge Center West Garage includes an extensive rainwater detention and infiltration system which services the Seven Cambridge Center, Cambridge Center West Garage and 75 Ames Street sites as a whole. The use of detention and infiltration as part of the site stormwater management system will reduce site peak flows, replenish groundwater and provide quality treatment for building roof runoff. The onsite detention/infiltration system design complies with the City of Cambridge's Low Impact Development Guidelines.

To comply with the Cambridge Sewer design standards, the sewer system for the 75 Ames Street building will include an onsite retention tank to hold up to 4 hours of peak flow, thus protecting the existing sewer infrastructure in the area.

The entire water, sewer and drainage system for the Seven Cambridge Center, Cambridge Center West Garage and Residences at Cambridge (the building previously proposed for the 75 Ames Street site) Center was reviewed and approved by the City of Cambridge Department of Public Works and Cambridge Water Department in June 2004. The current design is consistent with that approved project. Updates to the design will be reviewed by Cambridge Public Works Department and Water Department as necessary.

### **Noise Mitigation**

The primary mechanical facilities for the proposed facility are located on the penthouse of the proposed building, remote from the adjacent buildings. Loading and trash facilities are located within the building but accessed from below Seven Cambridge Center's adjacent terrace, moving these potentially noisy facilities away from the public realm and adjoining buildings.

## **6. CONFORMANCE TO ARTICLE 19.30: Citywide Urban Design Objectives**

### **19.31 New Projects Should Be Responsive To The Existing Or Anticipated Pattern Of Development**

- The building is designed to complete the frontage along Ames Street between Main Street and Broadway, and will complement the existing buildings adjacent to the site, Seven Cambridge Center and Six Cambridge Center, with its building use and design.
- The existing site is surrounded by buildings of varying scales. The massing and proportions of the facility have been designed to take into consideration its immediate environment and street frontage with the introduction of retail space to activate the street, and the strategic introduction of elements of the facades to reduce the scale of the building.
- The proposed building is located thirty feet north of Seven Cambridge Center and thirty-six feet south of Six Cambridge Center. The proposed height is 189'.
- An architecture of modern aesthetic appropriately represents the progressive nature in this district of Cambridge. The proposed materials of the building are primarily pre cast, metal panel and curtain wall above the street level. The use of two stone finishes and curtain wall will articulate the street edge.

### **19.32 Development Should Be Pedestrian and Bicycle-Friendly, With a Positive Relationship To Its Surroundings**

- The sidewalk paving materials and street planting will provide an improved walking environment. The provision of retail spaces, The Broad entrance and a new Cambridge Center West Garage entrance on Ames Street will activate and enliven the pedestrian environment.
- Storage of bicycles will be accommodated within the existing garage on the adjoining Cambridge Center West Garage.
- All curb cut crossings exist and include raised crosswalks to allow pedestrians to cross at the same grade as the sidewalk. These raised crosswalks also function as speed bumps for entering and exiting vehicles.

### **19.33 Building and Site Design Should Mitigate Adverse Environmental Impacts of a Development Upon Its Neighbors**

- The major mechanical equipment for the proposed project will be located on the roof of the proposed building at 75 Ames Street. The mechanical penthouse and screening will be designed to be sympathetic to the urban context and the character of the proposed building.
- The building's mechanical equipment will be specified to meet Cambridge's requirements for mitigating acoustical impacts.
- All loading has been designed to take place off-street.
- Trash will be stored inside the buildings in trash areas designed to prevent any effect on the public way.

**19.34 Projects Should Not Overburden City Infrastructure Services, Including Neighborhood Roads, City Water Supply System, and Sewer System**

- The project complies with the City of Cambridge Low Impact Development Guidelines by providing on site retention and infiltration system to reduce storm water runoff to less than existing conditions. The combination retention and infiltration system reduces peak flow rates by approximately 65% for every storm event.
- The proposed sewer system complies with the City of Cambridge Sewer design standards by incorporating a retention tank on the property. This tank is designed to hold 4 hours of peak flow for the entire project to protect the existing sewer infrastructure in the project area.
- The entire water, sewer and drainage system for the Seven Cambridge Center, Cambridge Center West Garage and Residences at Cambridge Center (the building previously proposed for the 75 Ames Street site) was originally reviewed and approved by the City of Cambridge Department of Public Works and Cambridge Water Department in June 2004. Updates for the current 75 Ames Street building will be reviewed by the Cambridge Engineering Department and Water Department as necessary.

**19.35 New Construction Should Reinforce and Enhance the Complex Urban Aspects of Cambridge As It has Developed Historically**

- The project will serve to complete the Ames Street block from Main Street to Broadway screening the Cambridge Center West Garage entirely from view.

**19.36 Enhancement and Expansion Of Open Space Amenities In the City Should Be Incorporated Into New Development**

- The north side of the building has been landscaped to provide pedestrian access to Cambridge Center West Garage and points west. Also, the enhancement of the streetscape along Ames Street with a new entrance to the Cambridge Center West Garage, retail entrance and The Broad entrance alongside new street landscaping will promote the use of the block.

**7. CONFORMANCE TO ARTICLE 10.43: CRITERIA FOR THE ISSUANCE OF SPECIAL PERMITS**

- a. The requirements of the Ordinance can be met.**
- As proposed, the project meets the intent and purpose of Article 19.00 with the exception of Section 19.21.1, which is not applicable in the MXD District.
- b. Traffic generated or patterns of access or egress will not cause congestion, hazard, or substantial change in established neighborhood character.**
- Traffic patterns will not change since the entrances to the existing garage will remain.
- c. The continued operation or development of adjacent uses as permitted in the Zoning Ordinance will not be adversely affected by the nature of the proposed use.**
- The adjacent parcels include office, lab, research, hotel, retail and parking uses. The addition the facility further drives activity and supports the mixed use nature of the area. Also, the addition of retail space will enhance the pedestrian experience along Ames Street.
- d. No nuisance or hazard will be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City.**
- The proposed addition will be designed in conformance with the latest edition of the state building code and operated in compliance with all health and safety regulations of the City of Cambridge.
- e. The proposed use will not impair the integrity of the district or adjoining districts, or otherwise derogate from the intent and purpose of the Ordinance.**
- The proposed use as research lab/office and retail/restaurant is consistent with the intent and purpose of the Ordinance with the Mixed Use Development District.
- f. The building construction is consistent with the Urban Design Objectives set forth in Section 19.30.**
- As proposed, the design of the new building and its integration with Ames Street and the existing buildings between Main Street and Broadway is consistent with the Urban Design Objectives addressed in Section 6 of this application.

**8. CONFORMANCE TO ARTICLE 22.23: *Sustainable Design and Development***

In accordance with the requirements of Article 22.23, the project will be designed to achieve a LEED NC v2009 Silver Certifiable Level. Attached in this section are a LEED scorecard, a corresponding narrative, and an affidavit from our LEED accredited sustainability consultant.



**LEED for New Construction and Major Renovation 2009  
Project Scorecard - Draft**

Project Name: Broad Institute  
Project Address: 75 Ames St, Cambridge, MA

**LEED Rating: Silver**

Yes	?	No						
21	1	4	<b>Sustainable Sites</b>				26	Points

Y			Prereq					
1			1					Required
5			Credit 1					1
1			Credit 2					5
6			Credit 3					1
			Credit 4.1					6
			Credit 4.2					1
			Credit 4.3					3
			Credit 4.4					2
			Credit 5.1					1
			Credit 5.2					1
			Credit 6.1					1
			Credit 6.2					1
			Credit 7.1					1
			Credit 7.2					1
			Credit 8					1

Yes	?	No						
2	2	6	<b>Water Efficiency</b>				10	Points

Y			Prereq					
			1.1					Required
			Credit 1.1					2
			Credit 1.2					2
			Credit 2					2
			Credit 3					2 to 4
								30% Reduction
								35% Reduction
								40% Reduction

Yes	?	No						
9	16	10	<b>Energy &amp; Atmosphere</b>				35	Points

Y			Prereq					
			1					Required
			2					Required
			3					Required
5		14	Credit 1					1 to 19
								12% New Buildings or 8% Existing Building Renovations
								14% New Buildings or 10% Existing Building Renovations
								16% New Buildings or 12% Existing Building Renovations
								18% New Buildings or 14% Existing Building Renovations
								20% New Buildings or 16% Existing Building Renovations
								22% New Buildings or 18% Existing Building Renovations
								24% New Buildings or 20% Existing Building Renovations
								26% New Buildings or 22% Existing Building Renovations
								28% New Buildings or 24% Existing Building Renovations
								30% New Buildings or 26% Existing Building Renovations
								32% New Buildings or 28% Existing Building Renovations
								34% New Buildings or 30% Existing Building Renovations
								36% New Buildings or 32% Existing Building Renovations
								38% New Buildings or 34% Existing Building Renovations
								40% New Buildings or 36% Existing Building Renovations
								42% New Buildings or 38% Existing Building Renovations
								44% New Buildings or 40% Existing Building Renovations
								46% New Buildings or 42% Existing Building Renovations
								48% New Buildings or 44% Existing Building Renovations
			Credit 2					On-Site Renewable Energy
								1% Renewable Energy
								3% Renewable Energy
								5% Renewable Energy
								7% Renewable Energy
								9% Renewable Energy
								11% Renewable Energy
								13% Renewable Energy
			Credit 3					Enhanced Commissioning
			Credit 4					Enhanced Refrigerant Management
			Credit 5					Measurement & Verification
			Credit 6					Green Power

continued...



Yes	?	No				Points
4	3	7	<b>Materials &amp; Resources</b>			14

Yes	?	No	Prereq	Description	Required
Y			Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	Required
		3	Credit 1.1	<b>Building Reuse - Maintain Existing Walls, Floors, and Roof</b>	1 to 3
				Maintain 55% of Existing Walls, Floors & Roof	1
				Maintain 75% of Existing Walls, Floors & Roof	2
				Maintain 95% of Existing Walls, Floors & Roof	3
		1	Credit 1.2	<b>Building Reuse - Maintain 50% of Interior Non-Structural Elements</b>	1
1			Credit 2.1	<b>Construction Waste Management, Divert 50% from Disposal</b>	1
1			Credit 2.2	<b>Construction Waste Management, Divert 75% from Disposal</b>	1
		1	Credit 3.1	<b>Materials Reuse, 5%</b>	1
		1	Credit 3.2	<b>Materials Reuse, 10%</b>	1
1			Credit 4.1	<b>Recycled Content, 10% (post-consumer + ½ pre-consumer)</b>	1
		1	Credit 4.2	<b>Recycled Content, 20% (post-consumer + ½ pre-consumer)</b>	1
1			Credit 5.1	<b>Regional Materials, 10% Extracted, Processed &amp; Manufactured Regionally</b>	1
		1	Credit 5.2	<b>Regional Materials, 20% Extracted, Processed &amp; Manufactured Regionally</b>	1
		1	Credit 6	<b>Rapidly Renewable Materials</b>	1
1			Credit 7	<b>Certified Wood</b>	1

Yes	?	No				Points
10	2	3	<b>Indoor Environmental Quality</b>			15

Yes	?	No	Prereq	Description	Required
Y			Prereq 1	<b>Minimum IAQ Performance</b>	Required
Y			Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required
1			Credit 1	<b>Outdoor Air Delivery Monitoring</b>	1
1			Credit 2	<b>Increased Ventilation</b>	1
1			Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>	1
1			Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	1
1			Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	1
1			Credit 4.2	<b>Low-Emitting Materials, Paints &amp; Coatings</b>	1
1			Credit 4.3	<b>Low-Emitting Materials, Flooring Systems</b>	1
1			Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber Products</b>	1
1			Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	1
1			Credit 6.1	<b>Controllability of Systems, Lighting</b>	1
1			Credit 6.2	<b>Controllability of Systems, Thermal Comfort</b>	1
1			Credit 7.1	<b>Thermal Comfort, Design</b>	1
1			Credit 7.2	<b>Thermal Comfort, Verification</b>	1
1			Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	1
1			Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	1

Yes	?	No				Points
4	2	0	<b>Innovation &amp; Design Process</b>			6

Yes	?	No	Description	Points
1			Credit 1.1 <b>Innovation in Design: Density</b>	1
1			Credit 1.2 <b>Innovation in Design: Exemplary Performance</b>	1
1			Credit 1.3 <b>Innovation in Design: Dispersion Analysis</b>	1
1			Credit 1.4 <b>Innovation in Design: Transit, occasional parking</b>	1
1			Credit 1.5 <b>Innovation in Design: Education</b>	1
1			Credit 2 <b>LEED® Accredited Professional</b>	1

Yes	?	No				Points
2	0	2	<b>Regional Priority Credits</b>			4

Yes	?	No	Description	Points
1			Credit 1.1 <b>Regional Priority Credit: Heat Island</b>	1
1			Credit 1.2 <b>Regional Priority Credit: Brownfield</b>	1
1			Credit 1.3 <b>Regional Priority Credit: Region Defined</b>	1
1			Credit 1.4 <b>Regional Priority Credit: Region Defined</b>	1

Yes	?	No				Points
52	26	32	<b>Project Totals (Certification Estimates)</b>			110

Not Certified      Certified: 40-49 points, Silver: 50-59 points, Gold: 60-79 points, Platinum: 80+ points



# The Green Engineer, LLP

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## Sustainable Design Consulting

### Memorandum

**To:** Christine Milne, Elkus Manfredi  
**From:** Carrie Havey, The Green Engineer  
**Date:** February 2, 2011  
**Re:** Article 19 Review  
**Project:** Broad Institute, 75 Ames Street, Cambridge, MA

The following is a detailed outline of the project team's approach to achieving a LEED NC v2009 Silver Certifiable building at 75 Ames Street in Cambridge, MA. Below please find a credit by credit analysis of how the Silver certification shall be achieved. Please refer to the attached LEED v2009 Project Scorecard for further detail regarding each credit.

The Broad Institute is committed to developing buildings that are sustainably designed, energy efficient, environmentally conscious and healthy for building occupants. The project is anticipating reaching the Silver Certification threshold with 52 credit points. However, there are an additional 26 credits (listed in italics below) that are still being considered.

#### **Sustainable Sites:**

The project site is in a dense urban neighborhood close to several public transportation options. The proposed design is a research building. There is no new parking associated with this development.

#### Prerequisite 1 Construction Activity Pollution Prevention

The Construction Manager shall submit and implement an Erosion and Sedimentation Control (ESC) Plan for construction activities related to the demolition of existing and the construction of the new building specific to this project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Cambridge.

#### Credit 1 Site Selection

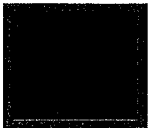
The proposed project site is located on a previously developed urban site in Cambridge, MA.

#### Credit 2 Development Density and Community Connectivity

The proposed project site is in Kendall Square on a previously developed site. The surrounding community is replete with housing, restaurants, shops, and other community amenities. The Massachusetts Institute of Technology is located in this neighborhood. The site is within ½ mile of a residential neighborhood and is in a community with a minimum density of 60,000 s.f. per acre net.

#### Credit 3 Brownfield Redevelopment

The proposed project site may be classified as a Brownfield Site. There is soil contamination that will be mitigated during construction phase.



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Credit 4.1 Alternative Transportation, Public Transportation Access

The MIT/Kendall Square Red Line is located approximately 0.2 miles from the project site. There are at least three bus routes that are located within 0.1 miles of the project site.

Credit 4.2 Alternative Transportation, Bicycle Storage and Changing Rooms

*Exterior bike racks will be necessary to accommodate the employees. Additionally, showers/changing rooms are required for .05% of the regular full-time employees.*

Credit 4.3 Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles

No new parking will be created. Employees will use parking spaces in the adjacent parking garage. The parking garage shall have designated preferred parking spaces for Low Emitting and Fuel-Efficient Vehicles representing 5% of the total required parking capacity.

Credit 4.4 Alternate Transportation Parking Capacity

There is no parking (existing or new) associated with this project.

Credit 6.2 Stormwater Design, Quality Control

The stormwater will be treated prior to release into the municipal storm sewer system.

Credit 7.1 Heat Island Effect, Non-Roof

100% of all parking spaces will be under cover in the adjacent parking garage. The roof of the building used to cover parking will have an SRI of at least 29.

Credit 7.2 Heat Island Effect, Roof

The roof shall be a high-albedo roof membrane having an SRI equal to or greater to 78 for a low-sloped roof and 29 for a steep-sloped roof for a minimum of 75% of the roof surface.

**Water Efficiency**

The project will specify low-flow and high-efficiency plumbing fixtures to achieve Water Efficiency.

Prerequisite 1 Water Use Reduction, 20% Reduction

Through the use of low-flow and high-efficiency plumbing fixtures, the project shall implement water use reduction strategies that use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

Credit 3 Water Use Reduction

Specified fixtures will include high efficiency toilets and urinals, low-flow lavatory faucets and ultra low-flow showerheads. The project goal is an overall water savings of at least 30% above the calculated baseline.



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## **Energy and Atmosphere**

The building systems shall be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The owner shall engage a Commissioning Agent to confirm the building systems are installed and function as intended and designed.

### **Prerequisite 1 Fundamental Commissioning of the Building Energy Systems**

A third party Commissioning Agent, (CxA) shall be engaged by the owner for purposes of providing both basic and enhanced commissioning services for the building energy related systems including HVAC & R, lighting and domestic hot water systems. The CxA shall verify the building systems are installed, calibrated and perform to the building owners project requirements.

### **Prerequisite 2 Minimum Energy Performance**

The building performance rating shall demonstrate a minimum of a 10% improvement when compared to the baseline building performance when calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. A whole building energy simulation will demonstrate the projected energy savings for the project.

### **Prerequisite 3 Fundamental Refrigerant Management**

The specifications for refrigerants used in the building HVAC & R systems shall NOT permit the use of CFC based refrigerants.

### **Credit 1 Optimize Energy Performance**

The proposed building systems shall target a performance level, which is a minimum of 20% improvement over a baseline building performance rating. The team shall develop a whole building energy model to demonstrate the expected performance rating of the designed building systems. The energy conservation measures (ECMs) will include: energy recovery systems, high efficiency cooling towers, waterside economizer, high efficiency hot water condensing boilers, low pressure drop/low face velocity AHUs, fan wall, low velocity/low pressure duct systems, and low pressure drop hydronic systems. *In addition, the ECMs may include elements such as localized process cooling systems, daylight dimming, and right-size plug loads.*

### **Credit 3 Enhanced Commissioning**

The Commissioning Agent, (CxA), shall be engaged early on in design process. The CxA's role shall include reviewing the owner's project requirements, creating, distributing and implementing a commissioning plan, and performing a design review of the design development and construction documents.

### **Credit 4 Enhanced Refrigerant Management**

Long-life high efficiency mechanical equipment shall be specified for the HVAC systems and the refrigerants specified for the systems shall have low ozone-depletion and global warming potentials.

### **Credit 6 Green Power**

*The Broad Institute may choose to purchase 'green power' via a 2-year renewable energy contract to provide a minimum of 35% of the building's electricity from renewable sources.*



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## **Materials and Resources**

Throughout the construction phase of the project the contractor shall endeavor to divert C&D waste from area landfills and procure materials that have recycled content and/or are manufactured locally.

### **Prerequisite 1 Storage and Collection of Recyclables**

Storage of collected recyclables shall be accommodated throughout the building.

### **Credits 2.1 and 2.2 Construction Waste Management**

Prior to the start of construction the CM shall prepare a Construction Waste Management plan; they shall endeavor to divert as much demolition debris and construction waste from area landfills as possible, with a goal to achieve 75% diversion.

### **Credits 4.1 Recycled Content 10% (post-consumer & 1/2 pre-consumer)**

The project specifications shall require materials to include pre and or post consumer recycled content. During construction, materials submittals shall include a document indicating the percentage of both pre and post consumer recycled content. The CM shall track the recycled content for each material with a project goal to achieve 10% recycled-content materials based on overall project materials costs.

### **Credits 4.2 Recycled Content 20% (post-consumer & 1/2 pre-consumer)**

*During construction, materials submittals shall include a document indicating the percentage of both pre and post consumer recycled content. The CM shall track the recycled content for each material with a project target to achieve 20% recycled-content materials based on overall project materials costs.*

### **Credit 5.1 Regional Materials, 10% Extracted, Processed and Manufactured Regionally**

The project specifications shall indicate materials to be extracted, harvested, recovered and manufactured within a 500-mile radius of the job site. The project team's goal is to specify regional materials for at least 10% of the project's total materials cost. The CM shall track the source location for each material.

### **Credits 5.2 Recycled Content 20% Extracted, Processed and Manufactured Regionally**

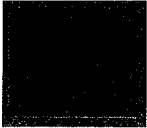
*During construction materials submittals shall include a document indicating the location of the materials procured. The CM shall track the regional materials with a project target to achieve 20% regional materials based on overall project materials costs.*

### **Credit 7 Certified Wood**

*The Broad Institute may use a minimum of 50% FSC certified wood for wood permanently installed inside the building envelope.*

## **Indoor Environmental Quality**

The air quality shall be monitored during the construction phase of the project and likely prior to occupancy. Low emitting materials will be used throughout construction to maintain and improve air quality. The building occupants will be able to maintain a comfortable environment through access to thermal and lighting controls.



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Prerequisite 1 Minimum IAQ Performance

The building mechanical systems shall be designed to meet or exceed the requirements of ASHRAE Standard 61.1-2007, sections 4 through 7 and/or applicable building codes.

Prerequisite 2 Environmental Tobacco Smoke (ETS) Control

The building will be a non-smoking environment.

Credit 1 Outdoor Air Delivery Monitoring

The project shall incorporate permanent CO2 sensors and measuring devices to provide feedback on the performance of the HVAC system. Devices shall be programmed to generate an alarm when the conditions vary by 10% from a set point.

Credit 2 Increased Ventilation

The project will increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2007 as determined by EQ Prerequisite 1.

Credit 3.1 Construction IAQ Management Plan (during construction)

The Construction Manager shall develop an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2<sup>nd</sup> Edition 2007, ANSI/SMACNA 008-2008 (Chapter3). Absorptive materials stored on site shall be protected from moisture damage.

Credit 3.2 Construction IAQ Management Plan (before occupancy)

After the completion of construction and prior to occupancy the Broad Institute may decide to perform a building flush-out by supplying a total air volume of 14,000cu.ft. of outdoor air/sf.

Credits 4.1 Low-Emitting Materials, Adhesives & Sealants

The specifications will include requirements for adhesives and sealants to meet low VOC criteria for adhesives and sealants.

Credits 4.2 Low-Emitting Materials, Paints and Coatings

The specifications will include requirements for paints and coatings to meet low VOC criteria for paints and coatings.

Credits 4.3 Low-Emitting Materials, Flooring Systems

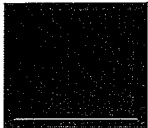
The specifications will include requirements for hard surface flooring materials to be FloorScore certified and carpet systems shall comply with the Carpet Institute Green Label program.

Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products

*The project team shall endeavor to use composite wood and agrifiber products that contain no added urea-formaldehyde.*

Credit 5, Indoor Chemical and Pollutant Source Control

The project team shall design to minimize and control the entry of pollutants into the building and contain chemical use areas.



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Credit 6.2, Controllability of Systems, Thermal Comfort

*The building must provide individual comfort controls for at least 50% of the building occupants to enable adjustments to suit individual task needs and preferences. Operable windows can be used in lieu of comfort controls for occupants of areas that are 20 feet inside of and 10 feet to either side of the operable part of the window. The areas of operable window must meet the requirements of ASHRAE 62.1-2007 paragraph 5.1 Natural Ventilation. The building must provide comfort system controls for all shared multi-occupant spaces to enable adjustments to suit group needs and preferences.*

Credit 7.1 Thermal Comfort Design

The building HVAC design will be in compliance with ASHRAE 55.

**Innovation & Design Processes**

The team has identified several possible ID credits, which are listed below (limited to 5 ID credits total):

Credit 1.1 Exemplary Performance for SSc2 Development Density and Community Connectivity

The project will achieve exemplary performance for development density and community connectivity due to the density of the neighborhood.

Additional ID credits under consideration

ID 1.2, Exemplary Performance

A project goal is to achieve exemplary performance on another credit.

ID 1.3, Dispersion Analysis

The project may do a dispersion analysis to determine if building exhaust or other chemicals are dispersed in the building or in nearby structures.

ID 1.4, Transit - occasional parking, and subsidized T-Passes.

*The project may consider an innovation credit for incentives to encourage employees to use public transit when commuting to work.*

ID 1.5, Building as an Educational Tool

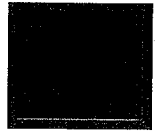
*The project may use the building as an educational tool to teach staff and visitors about the green characteristics of the building.*

Credit 2 LEED Accredited Professional (required ID credit for LEED certification)

A LEED AP shall provide administrative services to oversee the LEED credit documentation process

**Regional Priority Credits**

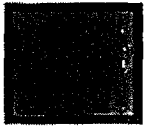
Regional Priority Credits, (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a project team achieves one of the designated RPCs and additional credit is awarded to the project. This project anticipates two



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RPCs: SSc3 Brownfield Redevelopment and SSc7.2 Heat Island Effect, Roof. *Another possible RPC is SSc7.1 Heat Island Effect, Non-Roof.*





The Green Engineer, LLP  
Sustainable Design Consulting

**Memorandum**

**To:** Cambridge Planning  
**From:** Christopher Schaffner, PE, LEED AP  
**Date:** February 9, 2011  
**Re:** Article 22 Requirements  
**Project:** 75 Ames St

To the best of my knowledge, the 75 Ames St project has been designed and will be constructed to achieve the requirements of Section 22.23 of the Cambridge Zoning Ordinance. The project as presently conceived will meet the requirements of LEED for New Construction, Version 2009, at the level of Silver or better.

Christopher Schaffner, PE (MA 37211 Mechanical)  
LEED AP BD&C  
LEED AP ID&C