



**City of Somerville**  
Sustainable & Resilient  
Buildings Questionnaire  
Updated December 28, 2021  
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## **INTRODUCTION**

This document outlines Development Review Application requirements in relation to the long-term environmental sustainability and climate resilience of buildings within Somerville. Development proposals that require Site Plan Approval by the Somerville Zoning Ordinance must include a completed Sustainable & Resilient Buildings Questionnaire (Questionnaire) with the required Development Review Application. A Development Review Application is considered incomplete unless a completed questionnaire is submitted with the application. It is strongly recommended that the development team meets with staff from the Office of Sustainability and Environment prior to submitting the Development Review Application.

The purpose of this Questionnaire is to minimize the adverse environmental impacts in the design, construction, and occupancy of buildings in Somerville and to ensure that the impacts of future climate conditions are carefully evaluated.

Please review the following documents before completing the Questionnaire:

- [Somerville Climate Change Vulnerability Assessment](#)
- [Carbon Neutrality Pathway Assessment](#)
- [Somerville Climate Forward](#)
- [High Resolution Flood Vulnerability Maps](#)

## **PROCEDURE:**

A completed Sustainable & Resilient Buildings Questionnaire must be submitted with a Development Review Application for all development proposals that require Site Plan Approval. New construction or alterations to existing structures of 25,000 square feet or more must also submit an updated Questionnaire prior to the issuance of the first Building Permit and prior to the issuance of the first Certificate of Occupancy to identify any design changes made subsequent to Site Plan Approval or additional information determined as the development process unfolds.

## **BACKGROUND: CARBON NEUTRALITY**

Understanding the global imperative to reduce greenhouse gas emissions in order to prevent extreme changes to the climate, Mayor Joseph A. Curtatone set a goal for Somerville to become carbon neutral by the year 2050. Carbon neutrality is defined as the net-zero release of carbon dioxide and other greenhouse gases (GHG) within Somerville's municipal boundary. Reducing greenhouse gas emissions is critical to avoiding the worst impacts of climate change and to protecting the health, safety, and welfare of current and future generations. In 2017, the Somerville Board of Aldermen passed a resolution reaffirming the city's carbon neutrality goal. And In 2018, Somerville released its first community-wide climate action plan, [Somerville Climate Forward](#).



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To achieve carbon neutrality by 2050 and to minimize adverse environmental impacts, Somerville will need to drastically reduce greenhouse gas emissions from electricity, buildings, transportation, and waste disposal. To meet these goals, all buildings within the city will need to pursue net zero emissions. New development should be designed to maximize envelope performance and energy efficiency, produce or procure renewable energy, and phase out fossil fuel use through electrification of building systems. The City of Somerville recognizes that as technology advances, incorporating design elements to mitigate carbon emissions and increase resilience may become more feasible. Applicants are asked to devise strategies that permit building systems to adapt and evolve over time to further reduce GHG emissions and to avoid path dependency that perpetuates reliance on fossil fuels.

## **BACKGROUND: CLIMATE CHANGE VULNERABILITY**

Despite efforts to minimize greenhouse gas emissions, climate change is already impacting Somerville and changes to the climate will continue to intensify. The City of Somerville's Climate Change Vulnerability Assessment analyses vulnerabilities associated with Somerville's key climate stressors: increased precipitation, sea level rise and storm surge, and higher temperatures. The analysis recommends that new development consider these climate impacts and take appropriate measures to address the projected climatic conditions described in the assessment.

Several areas of Somerville are already prone to flooding from intense precipitation. With climate change, precipitation events will become more intense—meaning that a greater volume of rain will fall in a shorter period of time. Somerville is projected to experience more than a 30% increase in rainfall during a 100-year 24-hour event. This increase in precipitation will increase the risk of flooding in areas where the drainage system does not have sufficient capacity.

In addition to flooding from precipitation, sea level rise and storm surge are already potential concerns for areas of East Somerville and by 2035-2040 the Amelia Earhart Dam could be regularly flanked by storms, resulting in flooding for areas of Assembly Square, Ten Hills, and Winter Hill.

As the climate continues to change, average seasonal temperatures are also expected to increase and the number of days above 90 degrees Fahrenheit (historically about 10 a year) could rise to 40 days by 2030, a third of the summer, and 90 days by 2070, nearly the entire summer. In 2018 there were 23 days over 90 degrees. As temperatures increase, Somerville will become more susceptible to the urban heat island effect which causes hotter temperatures due to paved surfaces and waste heat generated by energy use when compared to less developed areas. Increasing average temperatures can have wide-ranging impacts on human life, the built environment, and natural ecosystems. Rising temperatures and more intense heat waves present significant public health concerns and can contribute toward kidney, lung, and heart problems. Vulnerable populations are particularly susceptible to heat-induced illness and mortality. There will also be increasing demand for indoor cooling.

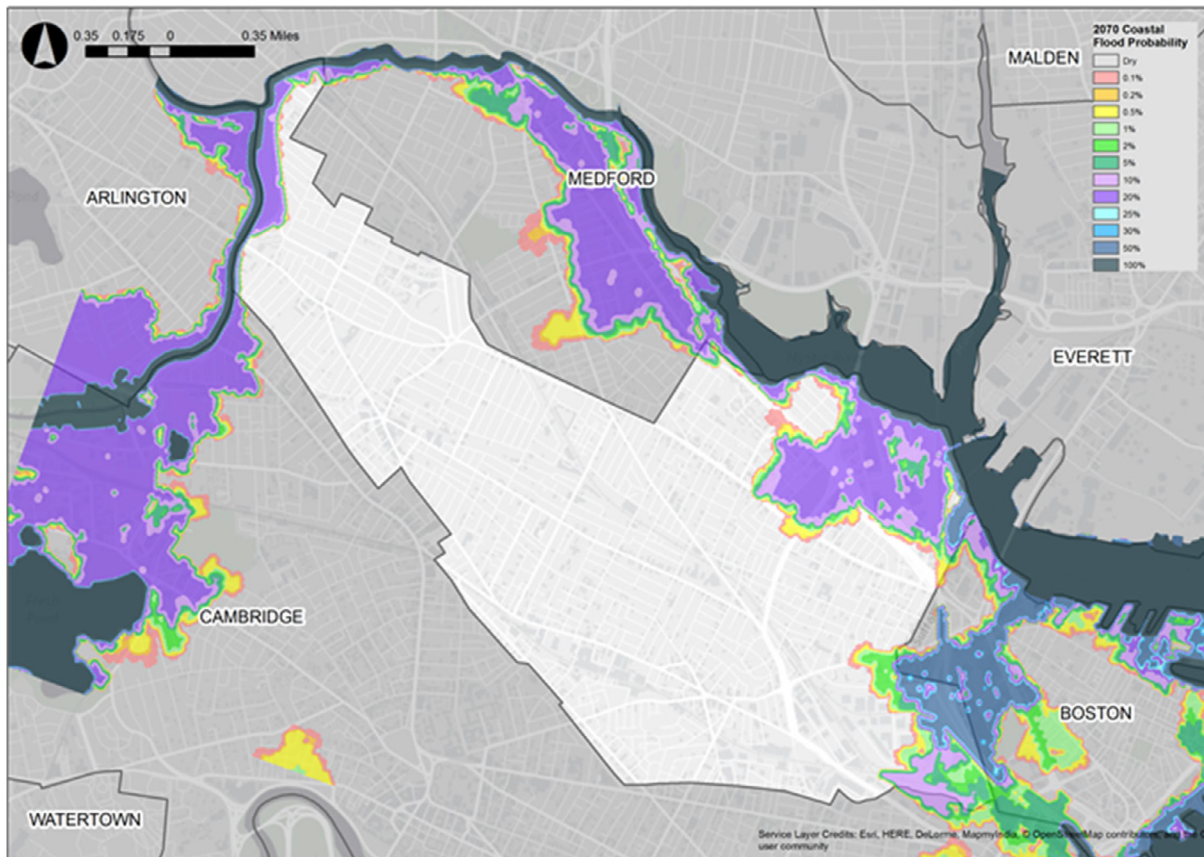
The following maps and figures provide an overview of projected climate exposure. Please review [the Climate Change Vulnerability Assessment](#) for more detailed analysis on Somerville's exposure, vulnerability, and risk



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to climate change. **For higher resolution maps and GIS files, please click the link to visit [www.somervillema.gov/floodready](http://www.somervillema.gov/floodready) or contact the Office of Sustainability & Environmental staff at [ose@somervillema.gov](mailto:ose@somervillema.gov).**

### 2070 Coastal Flood Probability

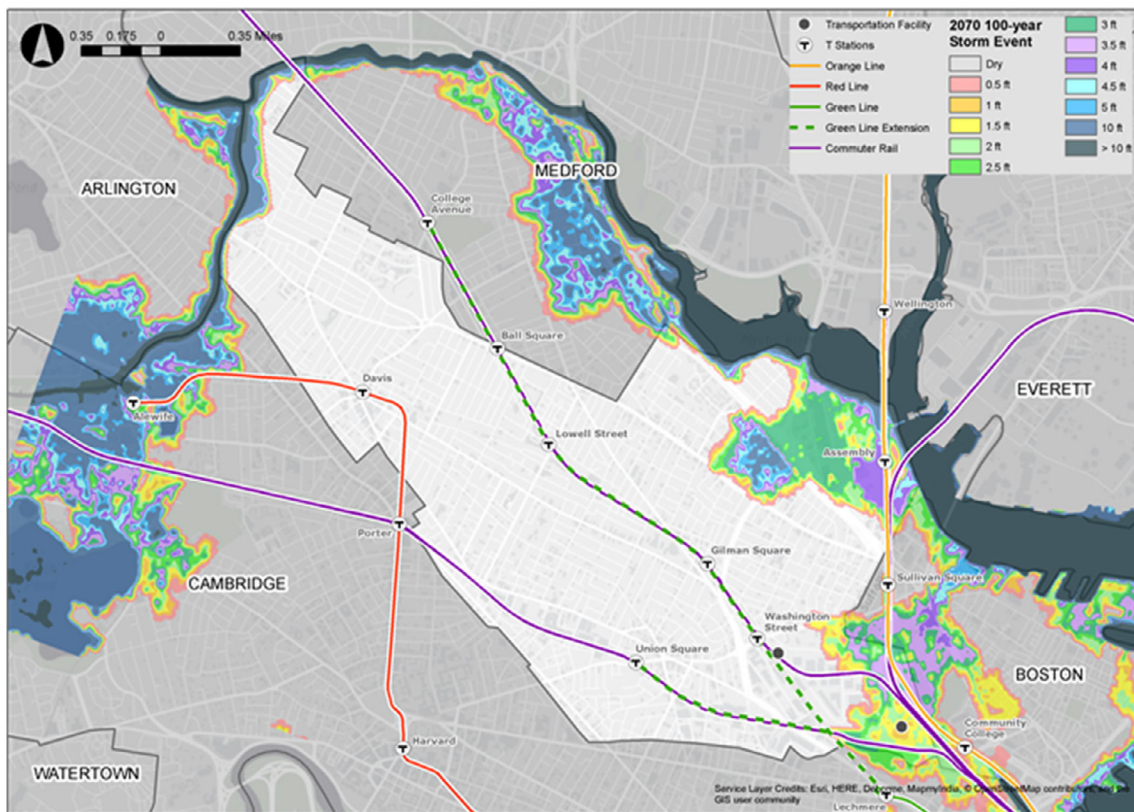


This map shows the annual chance of flooding from coastal storm events and sea level rise in 2070. A 100% chance of flooding means that there is a nearly certain chance that the area will flood at least once in a given year, while a 50% chance means that there is an equal chance that it may or may not flood in a given year. A 1% chance of flooding corresponds with a 100-year event. A 0.1% chance corresponds with a 1000-year event. This map does not account for drainage (Somerville Climate Change Vulnerability Assessment, 2017)



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### 2070 Coastal Flood Depth from 2070 100-year Storm Event



This map shows the projected flood depths of a 100-year coastal storm event in 2070 along with public transportation infrastructure assets. This map does not account for drainage (Somerville Climate Change Vulnerability Assessment, 2017).





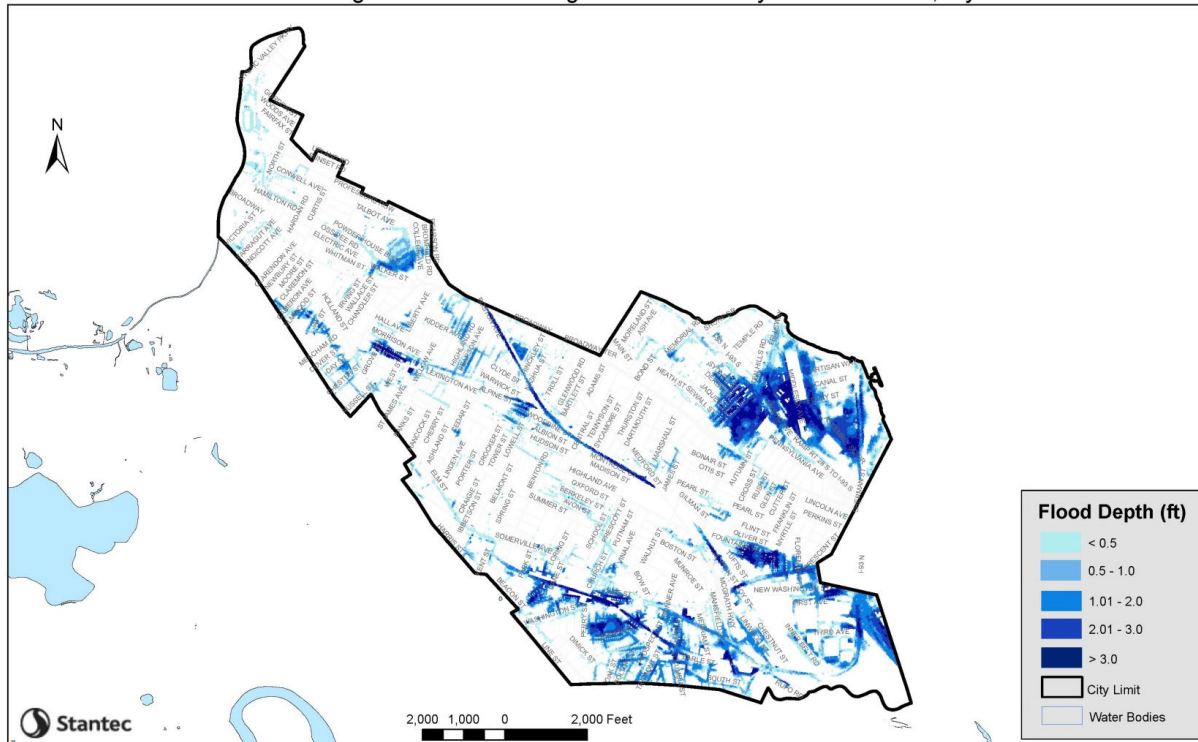
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### Precipitation Projections

Precipitation-based flooding is projected to increase in Somerville and is currently more of an immediate and widespread threat than sea level rise and storm surge. The intensification of both the frequency and intensity of rainfall events is likely to cause increased risk of flooding during rain events.

Storm Type	Present-day Rainfall	2030 Rainfall	2070 Rainfall
10-year (10% annual chance), 24-hour	4.9 in	5.6 in	6.4 in
100-year (1% annual chance), 24-hour	8.9 in	10.2 in	11.7 in

InfoWorks ICM Integrated Model Existing Conditions: 100 year 2030 Storm, 1 year 2030 SLR

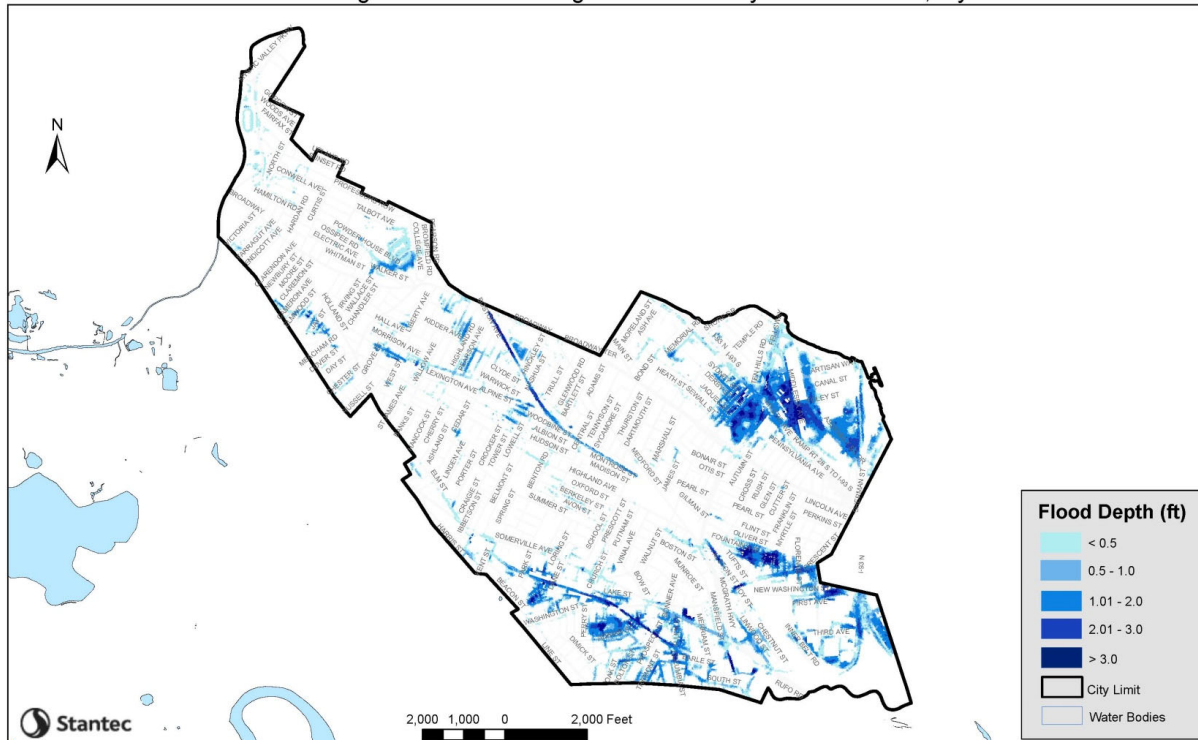


This map shows the impact of both precipitation-based flooding and sea level rise and storm surge. This map shows the modeled flood depths of a 100-year, 24-hour Design Storm with 1-year storm surge and sea level rise projections in 2030. Unlike the maps above, this includes modeling of the drainage system, which takes into account how water will be conveyed out of the city. The model is based on how the system is designed to function, so actual areas of flooding and depth of flooding could vary (Stantec, 2019).



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InfoWorks ICM Integrated Model Existing Conditions: 10 year 2070 Storm, 1 year 2070 SLR

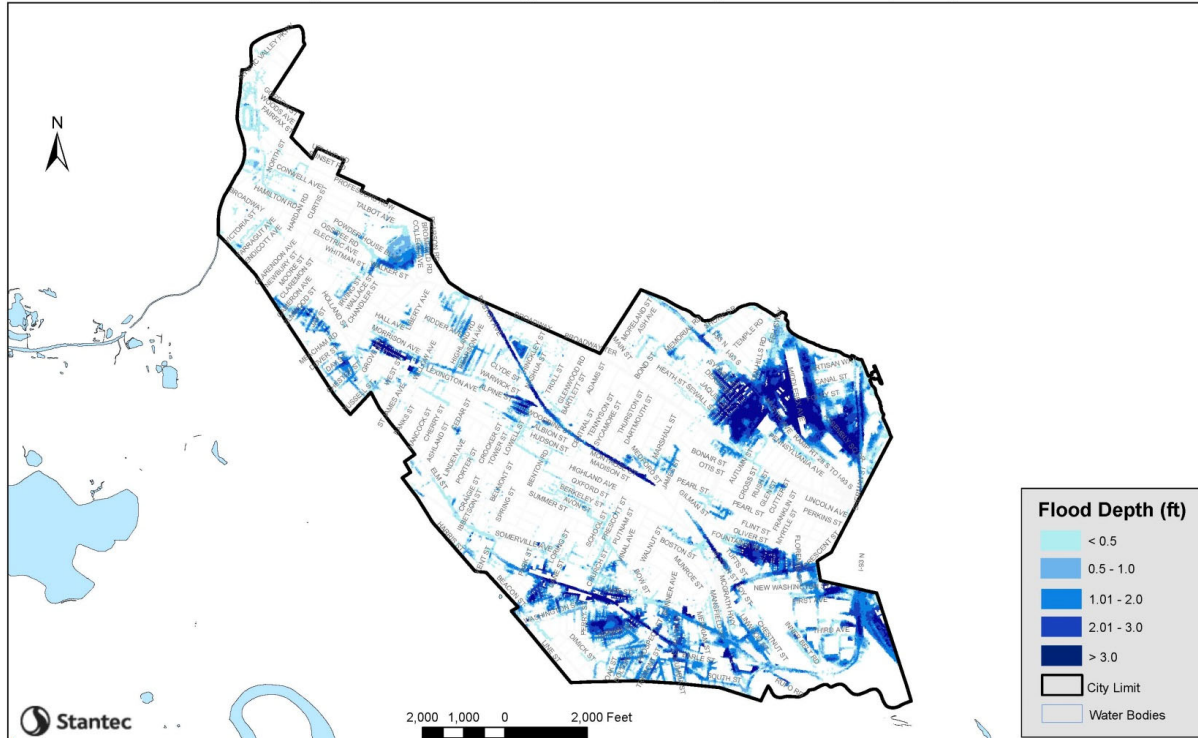


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InfoWorks ICM Integrated Model Existing Conditions: 100 year 2070 Storm, 100 year 2070 SLR

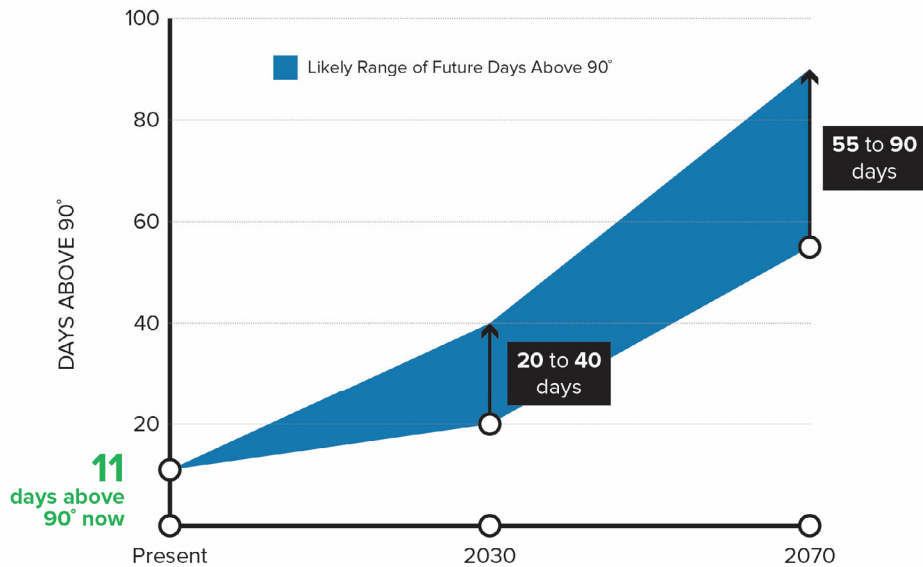


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## Temperature Projections



(Somerville Climate Change Vulnerability Assessment 2017)

Temperature	1971-2000 (average)	(low)	2030 Avg.	(high)	(low)	2070 Avg.	(high)
Annual	50.0° F	53.3° F	53.5° F	55.8° F	58.7° F		
Summer	70.6° F	74.5° F	74.8° F	77.4° F	80.6° F		
Winter	29.8° F	32.2° F	33.0° F	34.6° F	38.0° F		

## RESOURCES:

For information on net-zero and resilient building and site design, please review the following resources:

- [Passive House Principles](#)
- [Architecture 2030 Palette \(Net-zero design tools\)](#)
- [Zero Energy Buildings in Massachusetts: Saving Money from the Start](#)
- [Building Resilience in Boston](#)
- [Enhancing Resilience in Boston](#)
- [A Better City's Resiliency Toolkit](#)
- [Ready to Respond: Strategies for Multifamily Building Resilience](#)





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For additional information visit [www.somervillema.gov/sustainaville](http://www.somervillema.gov/sustainaville)

## **SUSTAINABLE & RESILIENT BUILDINGS QUESTIONNAIRE**

### **Section 1: Proposal Information**

Proposal Name	Davis Square Lab
Address	231-249 Elm Street 6-8 & 12 Grove Street
Developer	Scape Davis Square, LLC
Business Address	88 Black Falcon Pier, Suite 301
Designated Contact	Steven Ng, Vice President Design and Construction
Telephone Number	978-423-7317
Contact's Email Address	Steven.Ng@scape.com
Date Submitted	4/12/2022
Filing Type (Development review application, Building Permit, or CoA)	Development Review Application
Is this a revised Questionnaire?	No
Is MEPA Approval Required?	Yes/No; Why? No – The project does not meet any MEPA thresholds.

### **Section 2: Building & Site Details**

#### **2.1 Building Information**

Building Uses	Laboratory, Research & Development, Office, Retail, Garage
Gross Floor Area	184,799, inclusive of the commercial uses, parking garage, and mechanical spaces/penthouse
Expected Life of Building	50 years
Please describe the following	
Building heating plant and distribution System	Air-to-water heat pumps, heat recovery chiller and gas fired boiler. Distributed to tenant spaces for VAV terminal units.
Building cooling plant and distribution system	Water cooled chillers and heat recovery chiller. Distributed to tenant spaces for VAV terminal units.
Ventilation system	A Konvekta heat recovery system will be used to maximize the energy recovered from the exhaust air system.
Domestic hot water system	Electric heat pump



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## 2.2. Green Building

Green Building Professional(s):  
Name(s) and contact information

Professional Credentials: Green  
Building Program Certification(s)  
Building LEED Rating  
Building LEED Point Score

Will you pursue LEED  
certification through the USGBC?

Are any other green building  
certifications being pursued?  
(Passive House, Enterprise Green  
Communities, etc.). Please  
describe.

The Green Engineer 23 Bradford Street Concord, MA 01742 Contact: Sarah Michelman
LEED AP BD+C, WELL AP, Fitwel Ambassador
Platinum
82
Yes, the project anticipates pursuing LEED certification.
None. LEED Core and Shell is the most appropriate rating system for this building type. The proponent may support tenants using other green building certifications as part of the building fit-out.

## 2.3. Electric Vehicle Parking

The number of electric vehicles (EVs) in Somerville is expected to increase significantly over the next decade with more electric vehicles coming to market than ever before. Conservative estimates based on historical trends alone suggest 20% of personal vehicles in Somerville will be electric by 2040. Installing capacity for EV supply equipment (EVSE) has been shown to be more feasible and cost effective during construction than when retrofitting parking areas to support the installation of EVSE in the future<sup>1</sup>. Providing EVSE can increase the property value, become a future revenue source, and provide an amenity that more tenants and commuters will be looking for. It is recommended that parking facilities be designed to allow for the most flexibility to adapt to future needs of electric vehicles and changing mobility needs. **The City of Somerville recommends 25% of spaces have installed charging access and up to 100% of spaces be “EV Ready” (everything but the station installed).** Eversource currently has a program to pay the associated infrastructure costs of EV charging, including

<sup>1</sup> <http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf>;  
[https://www.richmond.ca/\\_shared/assets/Residential\\_EV\\_Charging\\_Local\\_Government\\_Guide51732.pdf](https://www.richmond.ca/_shared/assets/Residential_EV_Charging_Local_Government_Guide51732.pdf)



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Total # of Parking Spaces  
EVSE Plugs (number and voltage/  
level of plugs)  
EV Ready Spaces (everything but  
station is installed)  
Please share any other information  
on your EV strategy. Have you  
spoken with Eversource? Are you  
talking with EVSE providers? Have  
you considered EVSE needs in  
conjunction with your parking and  
mobility management plans?

infrastructure needed to be “EV ready.” Please consult with Eversource to  
determine if any installation costs could be covered through their [Make  
Ready Program](#).

#77
#20 / 277V
#57
The project team has coordinated with Eversource to verify electrical capacity for the EV charger requirements. The Owner has started to coordinate with Eversource on rebates and incentives for EV chargers. EV chargers have been assigned preferred locations to incentivize EV use. EV chargers have been included in the parking and mobility management plans.

## 2.4 Energy Input Form

Required for projects over 25,000 SF, optional for all other projects

Download a copy of the Somerville Low Load Building Energy Input Form and follow the instructions included in the spreadsheet.

### Pre-Submittal Phase

- Complete the ‘PRE-SUBMITTAL INFO’ tab of the Energy Input Form and submit to the Office of Sustainability and Environment ([ose@somervillema.gov](mailto:ose@somervillema.gov)) 1 week prior to your pre-submittal meeting with OSE.

### Development Review Phase

- Complete the ‘DEVELOPMENT REVIEW INFO’ tab of the Energy Input Form and submit to the Office of Sustainability and Environment ([ose@somervillema.gov](mailto:ose@somervillema.gov)) at least 3 weeks prior to your application submittal for Board review.
- Projects pursuing Passive House certification from PHIUS or PHI do not have to complete the Development Review Info tab.

*Continue onto next page.*



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## 2.5 Net Zero Carbon Building Compliance

The City of Somerville encourages projects to eliminate the incorporation of fossil fuels in their building operations. Please explain the proposed building's electric heating system capacity and confirm it is consistent with Row 24 in 'Energy Input Form – Pre-submittal Dashboard Tab' or Row 28 if the project is a laboratory building. If the project intends to incorporate fossil fuels, please provide a rationale below and explain provisions that your project is taking to electrify base building systems in the future.

Air source heat pumps provide the majority of the building's heating system capacity. Gas boilers will only be used during peak heat hours during the year, where the air source heat pumps aren't able to generate enough heat. Overall, on-site fossil fuel emissions will be reduced by 95%. A Konvekta heat recovery system will be used to maximize the energy recovered from the exhaust air system. The combination of heat recovery chillers, water cooled centrifugal chillers, and air source heat pumps will make for a very efficient building.

The building uses modular mechanical systems and will be ready to change to all-electric heating in the future as heat pump technology improves for efficient operation during very cold weather.

**2.6 Describe any and all incentives, rebates, grants provided by utilities, government organizations, and other organizations being pursued to maximize building efficiency and to reduce emissions.** Description must include any incentives that were considered but are not being pursued, including reasoning for each decision.

The project team has signed a Memorandum of Understanding with Massave to participate in the Whole Building EUI Reduction Program. The team will also explore the Verification Incentive offered as part of the program. Additionally, the project team will work with Eversource on available EV charger incentives subject to funding availability. Building-level energy metering will share data with USGBC and the team will review smart metering options as the tenant mix becomes clarified.

**2.7 Evaluate feasibility of on-site renewable generation.** Please describe your analysis and findings. Analysis should consider incentives available. Will any renewable energy generation be incorporated into the project? If so, please describe (system type and capacity). If no, could it be added in the future? And will any off-site renewable energy be purchased?

On-site photovoltaic panels are proposed at the roof to offset 1% of the building's energy costs. The project will purchase green power and/or carbon offsets for a 5-year period to offset 100% of the building's energy use with renewable sources.





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## **Section 4: Climate Change Risk and Vulnerability**

### **4.1 Climate Vulnerability**

#### **Exposure**

(check all that apply)

- ☐ Sea Level Rise & Storm Surge
- ☐ Precipitation Induced Flooding
- ☐ Heat
- ☐ Other(s):

### **4.2 How is your site vulnerable to projected climate change impacts?**

The site is vulnerable to the generalized increased risk of extreme weather events due to climate change but is not projected to be subject to flooding, sea level rise or storm surge.

The next two sections ask specific questions about how the project is designed to manage climate-related risks from heat, coastal and inland flooding.

## **Section 5: Managing Heat Risks**

### **5.1 Describe all building features that will keep building occupants safe and comfortable during extreme heat, including mechanical systems and non-mechanical design elements to cool building (orientation, envelope, operable windows, etc.).**

The low window-wall ratio will moderate heat gain in the building during extreme heat events. Heating and cooling systems employ a modular design to allow future equipment to be installed without major disruptions to the continuous operation of the building. Critical tenant systems will have backup generator power in case of power supply disruptions during extreme heat events.

### **5.2 How has increased demand for indoor cooling been factored into the building design and energy management strategy?**

The low window-wall ratio, high r-value continuous exterior wall and roof insulation and high performance windows manage heat gain and reduce demand for indoor cooling.

### **5.3 List any indoor spaces without cooling and their uses.**

The underground garage, ground floor loading dock, and rooftop penthouse will not be cooled.



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**5.4 What design features will be implemented on site to minimize the site's contribution to the urban heat island effect?** Please describe any and all design elements. Strategies could include, but are not be limited to, the following:

- High albedo pavement or roof materials
- Passive cooling or increased ventilation capacity
- Green roofs or walls
- Heat resistant trees and plants
- Additional landscaped areas

The proposed roof design includes approximately 8,500sf of vegetated and/or occupiable roof deck. The remaining roof surfaces will be covered with high albedo roof membrane. Paved areas at the ground level inside the property boundary are limited and follow the City's guidelines for sidewalk materials.

## **Section 6: Managing Flood Risks**

**6.1 Is the site susceptible to flooding from sea level rise and storm surge and/or rain events now or during the building's expected lifetime?** Please refer to the Somerville Climate Change Vulnerability Assessment and the updated stormwater flooding maps provided in the Background section of this Questionnaire. Additional maps and data are available at [www.somervillema.gov/floodready](http://www.somervillema.gov/floodready) or by request (email [ose@somervillema.gov](mailto:ose@somervillema.gov)).

No. The site is not susceptible to flooding according to the City's maps published in 2019. The adjacent intersection of Elm and Grove Streets is shown with a less than 0.5 ft flood depth on the 100 year 2070 Storm, 100 year 2070 SLR map.  
Roof drains will direct harvested rain water to a cistern in the basement to be used as gray water for toilet flushing.  
Critical building systems will be located above the 100-year storm 2070 sea level rise flood elevation.

**If you answered YES to the previous question, please complete the remainder of Section 6.** Otherwise, you have completed the Questionnaire. Thank you.

## **6.2 Flooding Design Considerations**

Proposed Site Elevation -  
Low

(ft)

Proposed Site Elevation -  
High

(ft)



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Lowest elevation of life-  
safety systems  
Nearest flood elevation  
for the 2070 10-year  
storm

	(ft)

Proposed First Floor  
Elevation  
Nearest flood elevation  
for the 2070 100-year  
storm

	(ft)

**6.3 What are the first floor uses of the building? Are there any below ground stories of the building? If so, what uses are located below ground?**

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**6.4 Are there any flood-sensitive assets, utilities, mechanical equipment, or life-safety systems located in areas of the building that are at risk of flooding?** What measures will protect building systems during a flood or severe storm? These might include, but may not be limited to, the following:

- Elevation of utilities and mechanical systems
- Water tight utility conduits
- Waste water back flow prevention
- Storm water back flow prevention
- Systems located above the ground floor
- Securing objects at risk of becoming dislodged

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**6.5. Residential and commercial buildings should be designed to maintain regular operations during a 10-year storm in 2070. Describe how the site and building have been designed to maintain regular operations--meaning all systems will remain operational and all occupied spaces are protected from flooding--during the 2070 10-year storm.** Please refer to both the 2070 coastal flood probability map and the 2070 10-year storm and 1-year sea level rise scenario (pages 3 and 6). Resilience measures might include, but may not be limited to, the following:

- Elevation of the site
- Structural elevation of the building
- Non-structural elevation of the ground floor



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- Energy storage and backup generation
- Wet flood-proofing (allowing water to flow through building envelope)
- Dry flood-proofing (preventing water from entering building)

**6.6** Residential buildings should be designed to allow occupants to shelter in place during a catastrophic storm (100-year event) today and in the future, this means all life-safety systems should be above the 2070 100-year flood elevation. **How will your site and building be impacted by the 2070 100-year, 24-hour storm and how will your site and building be designed to protect against those impacts?** Please evaluate impact based on both the 2070 coastal flood depth model for the 100-year storm and the 2070 100-year, 100-year sea level rise model (pages 4 and 7). Summarize anticipated pre- and post-event policies, strategies, and actions necessary to facilitate post-flood recovery.

**6.7** Will hazardous or toxic material be stored on site? Where will it be stored? How will you protect hazardous or toxic material from flooding?

**6.8** Will the site be accessible by a typical vehicle during a 10-year event (up to 6 inches of water) and by emergency vehicles (up to 12 inches of water) during a 100-year event?



## Davis Square Labs

231-249 Elm Street  
Somerville, MA 02144

Development Review Filing  
Sustainable Design



Photo by: Utile

Utile  
Davis Square Labs



April 11, 2022

## Sustainable Design

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1. Sustainable Design Narrative
2. LEED-CS v4 Project Scorecard



**Basis of Design**  
**Sustainable Design**

## EXECUTIVE SUMMARY

This Section includes an overview of the Davis Square Lab Development approach to Sustainable Design. The project has established a goal to target LEED-CS v4 Platinum Certification and demonstrate compliance with applicable portions of the Somerville Zoning Code. Additionally, the project will meet the requirements of the new Massachusetts State Energy Code.

The below narrative describes the project approach, using the USGBC LEED for Building Design and Construction rating system for Core and Shell projects as guidance.

## INTEGRATIVE PROCESS

The credit requires the team to identify and use opportunities to achieve synergies across disciplines and energy-related and water-related building systems. Preliminary energy modeling and water budgeting will be completed during the building schematic design phase and energy and water use targets will be set. These analyses will inform the owner's project requirements (OPR), be incorporated into the building basis of design, (BOD), design documents, and as appropriate into the construction documents.

## LOCATION AND TRANSPORTATION

This category encourages project teams to take advantage of the infrastructure elements in existing communities that provide environmental and human health benefits. The location of the project in the heart of Davis Square, Somerville on a previously developed parcel provides the development opportunities to take advantage of existing and new infrastructure and neighborhood amenities. Below is a list of LEED credits the building projects will target.

**Sensitive Land Protection:** The development is located on a previously developed site and therefore meets the credit requirements.

**High Priority Site:** The project is located in a Difficult Development Area and therefore complies with Option 2: Priority Designation, achieving 2 credit points.

**Surrounding Density and Diverse Uses:** The project is located in a neighborhood with an average density greater than 35,000 square feet per acre and is located within ½-mile walking distance of more than eight diverse uses and therefore achieves all 6 points for meeting the credit requirements for both Option 1 and Option 2.

**Access to Quality Transit:** The project is within ¼ mile walking distance from the Davis Square MBTA Red Line station which provides access to the subway as well as MBTA bus routes 87, 88, 89, 90, 94 and 96. Collectively, the access to public transportation provides a total of 371 weekday trips and 242 weekend trips. Per the credit requirements, the number of rides per day achieves 6 credit points.

**Bicycle Facilities:** The project will provide long-term bike storage for at least 5% of all regular building occupants and short-term bike storage for 2.5% of all peak visitors for each building. Shower facilities and changing rooms will also be provided.

**Reduced Parking Footprint:** The project is planning an underground parking garage that will provide 77 parking spaces, resulting in an 82% parking footprint reduction.



**Basis of Design**  
**Sustainable Design**

**Electric Vehicles:** The project is targeting to provide 20 EV charging stations on day one; the remaining 75% will be EV ready.

**SUSTAINABLE SITES**

The Proponent and Project team have carefully studied the features of the Site and the surrounding context to develop a project that is sustainable and environmentally sensitive.

**Prerequisite – Construction Activity Pollution Prevention:** The project will create and implement a compliant ESC plan for construction activities associated with the project.

**Site Assessment:** The team assessed opportunities for the development during the conceptual design phase. The previously developed site is in a dense urban area; it has existing constraints that provide limited opportunities. The team has maximized the site by infilling an existing parking lot with building square footage and an extensive green roof.

**Site Development – Protect and Restore Habitat:** Through the design of an extensive green roof, the project will restore at least 15% of the total site area with native and adaptive vegetation.

**Open Space:** The development project will provide open space through the roof terrace. In total the open space will be equal to or greater than 30% of the total site area and 25% or more of the outdoor space will be vegetated.

**Rainwater Management:** An extensive rainwater catchment system through low-impact design and green infrastructure strategies to manage at least the 80<sup>th</sup> percentile of rainfall events within the zero lot line. The captured rainwater will be reused for flushing throughout the building.

**Heat Island Reduction:** The team is assessing a green roof system and SRI compliant hardscape materials.

**Light Pollution Reduction:** The site and building lighting will be designed to align with the allowable backlight uplight, or glare (BUG) ratings for exterior lighting as specified in the Somerville Zoning Code.

**Tenant Design and Construction Guidelines:** The project will provide future tenants with Tenant Design and Construction guidelines that outline the sustainable and energy efficiency measures included in the core and shell base building. The guidelines will include recommendations for sustainable strategies, products, services, and general information to help tenants streamline the LEED certification process should they elect to pursue it.

**WATER EFFICIENCY**

In order to improve on-site water efficiency and reduce the burden on municipal water supply and wastewater systems, the development will reduce potable water use for sewage conveyance and process water use. Both whole-building and end-use water metering will be installed in the building project, an air cooled VRF system will be employed to mitigate potable water use for process water. Additionally, the project will specify low flow and high efficiency plumbing fixtures to reduce the amount of potable water used throughout the building. Exterior vegetation will be comprised of regionally appropriate, drought tolerant, indigenous plants.

Preliminary annual water use calculations indicate that a selection of low-flow, high-efficiency fixtures will reduce the potable water demand for the project by at least 35% when compared to EPA baselines.





**Basis of Design  
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**Prerequisite/Credit: Outdoor Water Use Reduction:** There will not be a permanent irrigation system included in the landscape design. The project will pursue the credit by implementing the LEED-CS v4.1 requirements for 3 credit points.

**Prerequisite/Credit: Indoor Water Use Reduction:** The project will exceed the required 20% annual potable water use reduction and will target an annual potable water reduction of 35% or more for 3 points.

**Prerequisite: Whole Building-Level Water Metering:** Permanent whole building water meters will be installed and the data will be made available to the USGBC for a minimum of five years.

**Water Metering:** The credit can be achieved by installing meters for two or more water consuming subsystems. As design progresses, the project team will identify two water consuming systems to be sub-metered.

## **ENERGY AND ATMOSPHERE**

The proposed building systems are designed to optimize energy performance and reduce energy consumption through the selection of high efficiency building equipment. The Project team will engage a building commissioning agent and building envelope commissioning agent to ensure the proper installation and operation of systems.

**Prerequisite/Credit: Fundamental and Enhanced Commissioning and Verification:** The project team will engage a Commissioning Agent (CxA) to review the proposed design and confirm the building systems are installed and function as intended and desired. The project will pursue Enhanced Commissioning and Building Envelope Commissioning to further support the design, construction, and operational requirements for enclosure, energy, water, indoor environmental quality, and durability. The team will continue to consider including monitor-based commissioning

**Prerequisite/Credit: Energy Performance:** As the design progresses, the design team will continue to use whole building energy modeling to assess the annual energy use and cost savings. Early energy analysis results from a preliminary assessment estimate annual energy cost savings of approximately 17% (8 points) for the project, when compared to the LEED v4 baseline - Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2010.

**Prerequisite/Credit: Building-level Energy Metering:** Permanent whole building energy meters for the building will be installed and the data made available to the USGBC for a minimum of five years.

**Prerequisite/Credit: Fundamental Refrigerant Management:** Per the prerequisite requirements, the project will not use CFC-based refrigerants in all newly installed mechanical and refrigeration systems. For the credit requirements, the project will only use refrigerants with a low Global Warming Potential.

**Renewable Energy Performance:** The project is designing a photovoltaic system on a portion of the roof area that may offset at least 1% of the building's total energy use. The design team will continue to assess the design and size of the PV system.

**Green Power and Carbon Offsets:** The developer may elect to purchase green power and/or carbon offsets through a 5-year contract to offset 100% of the building's energy use.

## **MATERIALS AND RESOURCES**



## Basis of Design Sustainable Design

This category focuses on minimizing the embodied energy and other impacts associated with the extraction, processing, transport, maintenance, and disposal of building materials. The requirements are designed to support a life-cycle approach that improves performance and promotes resource efficiency. Each requirement identifies a specific action that fits into the larger context of a life-cycle approach to embodied impact reduction.

**Prerequisite: Storage and Collection of Recyclables:** Recyclables will be collected throughout the building and designated storage for collected recyclables will be provided for future tenants. The building management will contract with a local waste hauler to pick up collected/stored recyclables on a regular basis.

**Prerequisite/Credit: Construction and Demolition Waste Management:** The project manual will include direction for the CM to provide and implement a compliant Construction Waste Management Plan. The construction management team will endeavor to divert demolition debris and construction waste from area landfills to the extent possible. The team will target a minimum diversion rate of 50% overall, using at least two separate material waste streams. The LEED credit will be evaluated based on performance during the construction process.

**Building Life-Cycle Impact Reduction:** The project will pursue this credit via option 4, Whole Building Life Cycle Assessment. A Life-Cycle Analysis will be conducted to assess the building's impact on the environment.

**Building Product Disclosure & Optimization – Raw Materials:** The project manual will include technical specifications that enable the CM to procure and install environmentally responsible products and materials.

**Building Product Disclosure & Optimization – Environmental Product Declarations:** The project manual will include materials and product specifications that enable the CM to procure and install at least 10 different permanently-installed products sourced from at least five different manufacturers with compliant EPD documentation.

**Building Product Disclosure & Optimization – Material Ingredients:** The project manual will include materials and product specification that enable the CM to procure and install least 10 different permanently-installed products sourced from at least five manufacturers that use approved program certification to demonstrate the chemical inventory of the product.

## INDOOR ENVIRONMENTAL QUALITY

The comfort and well-being of the building occupants will be paramount in regard to air quality, access to light, and thermal comfort. An indoor air quality management plan will be implemented during construction to enhance the well-being of construction workers and to promote a better indoor environment for building occupants. Low-emitting materials will be employed throughout the building to reduce the number of indoor air contaminants and promote the comfort and well-being of installers and building occupants.

Construction practices will promote a high level of indoor air quality during construction. Low-emitting materials (low to no Volatile Organic Compounds, or VOCs) will be used throughout the project to promote health and wellness for



**Basis of Design**  
**Sustainable Design**

occupants. Quality views will be provided for occupants. Design strategies will focus on future tenant occupant comfort, controllability, and well-being.

**Prerequisite: Minimum Indoor Air Quality Performance:** The project's mechanical systems will be designed to meet or exceed the requirements of ASHRAE Standards 62.1-2010.

**Prerequisite: Environmental Tobacco Smoke Control:** The project will be smoke-free, and smoking will be prohibited within 25 feet of building entrances, openings, and air intakes. Signage will be posted as required.

**Enhanced Indoor Air Quality Strategies:** The project team is designed to mitigate and control the entry of pollutants into the building and contain chemical use areas by installing entryway systems, preventing interior cross-contamination, and providing proper filtration.

**Low-Emitting Materials:** The project will comply with the LEED v4.1 requirements for Low Emitting Materials. The project manual will include technical specifications to enable the CM to procure and install materials and products that comply with the credit VOC limits and General Emissions evaluation requirements. The project will endeavor to meet the requirements of four of the following optional compliance categories: adhesives/sealants; paints/coatings; flooring, wallboard, ceilings, insulation, composite wood, and exterior applied products.

**Construction Indoor Air Quality Management Plan:** The project manual will provide direction for the CM to develop and implement a compliant 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 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).

**Quality Views:** A direct line of sight to the outdoors via vision glazing must be provided for 75% of all regularly occupied floor area; a clear image must be provided of the exterior. Demonstration of achievement of this credit will be demonstrated through the use of tenant test fit plans.

## **INNOVATION IN DESIGN**

The project can achieve additional points for implementing, new innovative methodologies, at least one pilot credit, and achieve exemplary performance by exceeding the existing prerequisite and credit requirements.

- › **Exemplary Performance:** The project will pursue exemplary performance for MR BPDO – EPDs.
- › **Exemplary Performance:** The project will pursue exemplary performance for SS Heat Island Reduction.
- › **Innovation:** O&M Starter Kit
- › **Innovation:** Sustainable Wastewater Management
- › **Pilot Credit:** Gender-Neutral Restrooms
- › **LEED Accredited Professional:** The design team for the project includes several LEED Accredited Professionals. Therefore, this credit will be achieved.

## **REGIONAL PRIORITY**

Regional Priority Credits (RPCs) 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, an additional credit is awarded to the project for up to four total points.



**Basis of Design**  
**Sustainable Design**

Applicable Regional Priority Credits (RPC) for the Project include:

- › Optimized Energy Performance (17% - 8 points threshold)
- › Building Life-Cycle Impact Reduction (2 points threshold)
- › High Priority Site (2 points threshold)
- › Rainwater Management (2 points threshold)
- › Indoor water Use Reduction (40% - 4 points threshold)
- › Optimize Energy Performance (17% - 8 points threshold)

The project is currently anticipating one point as 'Yes' for the High Priority Site and Rainwater Management Regional Priority Credits. Achievement of these credit and any additional credits will be confirmed during the design process.



April 8, 2022

To Whom it may concern:

As the Green Building Professional working with the Davis Square Labs, (located at 231-249 Elm and 6-8 and 12 Grove Streets), project team, I, ***Sarah Michelman***, certify that I am knowledgeable of the project's green building strategies, designs, plans and details and to the best of my knowledge this project has been planned and designed so as to meet the prerequisites and earn the credits necessary to meet the requirements to be LEED-CS v4 Platinum 'certifiable'.

Sincerely,



*RA; LEED BD+C AP; WELL AP*  
*Principal*  
*The Green Engineer, Inc*  
*23 Bradford Street*  
*Concord, MA 01724*



GREEN BUSINESS CERTIFICATION INC. CERTIFIES THAT

**Sarah Michelman**

HAS ATTAINED THE DESIGNATION OF

**LEED AP<sup>®</sup> Building Design + Construction**

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

87211-AP-BD+C

CREDENTIAL ID

23 SEP 2010

ISSUED

21 SEP 2022

VALID THROUGH

A handwritten signature in black ink.

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



**LEEDv4 BD+C: Core and Shell (LEEDv4 CS)**  
**Project Scorecard - Preliminary**  
Project: Davis Square Lab  
Date: 03.21.2022



Y	?	N	1	0	0	1	1
1	1	0	0	0	0	1	1
<b>INTEGRATIVE PROCESS</b>							
1	1	0	0	0	0	1	1
<b>LOCATION &amp; TRANSPORTATION</b>							
19	0	1	1	1	1	20	20
1	1	1	1	1	1	20	20
2	2	2	2	2	2	2	2
3	3	3	3	3	3	2-3	2-3
4	4	4	4	4	4	1-6	1-6
5	5	5	5	5	5	1-5	1-5
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1	1
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>SUSTAINABLE SITES</b>							
10	0	1	1	1	1	11	11
1	1	1	1	1	1	Required	Required
2	2	2	2	2	2	1	1
3	3	3	3	3	3	1-2	1-2
4	4	4	4	4	4	1	1
5	5	5	5	5	5	1	1
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1	1
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>WATER EFFICIENCY</b>							
10	2	0	0	0	0	11	11
1	1	1	1	1	1	Required	Required
2	2	2	2	2	2	Required	Required
3	3	3	3	3	3	1-3	1-3
4	4	4	4	4	4	1-6	1-6
5	5	5	5	5	5	2	2
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1	1
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>ENERGY &amp; ATMOSPHERE</b>							
17	6	10	10	10	10	33	33
1	1	1	1	1	1	Required	Required
2	2	2	2	2	2	Required	Required
3	3	3	3	3	3	Required	Required
4	4	4	4	4	4	2-6	2-6
5	5	5	5	5	5	1-18	1-18
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1-2	1-2
8	8	8	8	8	8	1-3	1-3
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1-2	1-2

Y	?	N	1	0	0	1	1
1	1	0	0	0	0	1	1
<b>MATERIALS &amp; RESOURCES</b>							
1	1	1	1	1	1	14	14
2	2	2	2	2	2	Required	Required
3	3	3	3	3	3	2-6	2-6
4	4	4	4	4	4	1-2	1-2
5	5	5	5	5	5	1-2	1-2
6	6	6	6	6	6	1-2	1-2
7	7	7	7	7	7	1-2	1-2
8	8	8	8	8	8	1-2	1-2
9	9	9	9	9	9	1-2	1-2
10	10	10	10	10	10	1-2	1-2
<b>INDOOR ENVIRONMENTAL QUALITY</b>							
1	1	1	1	1	1	10	10
2	2	2	2	2	2	Required	Required
3	3	3	3	3	3	Required	Required
4	4	4	4	4	4	2	2
5	5	5	5	5	5	3	3
6	6	6	6	6	6	1	1
7	7	7	7	7	7	3	3
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>INNOVATION</b>							
1	1	1	1	1	1	6	6
2	2	2	2	2	2	1	1
3	3	3	3	3	3	1	1
4	4	4	4	4	4	1	1
5	5	5	5	5	5	1	1
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1	1
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>REGIONAL PRIORITY (underlined)</b>							
1	1	1	1	1	1	4	4
2	2	2	2	2	2	1	1
3	3	3	3	3	3	1	1
4	4	4	4	4	4	1	1
5	5	5	5	5	5	1	1
6	6	6	6	6	6	1	1
7	7	7	7	7	7	1	1
8	8	8	8	8	8	1	1
9	9	9	9	9	9	1	1
10	10	10	10	10	10	1	1
<b>PROJECT TOTALS (Certification Estimates)</b>							
80	12	19	19	19	19	110	110

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

## Low Load Buildings Energy Input Form

PREVIOUSLY PROVIDED UNDER SEPARATE COVER