

4.0 SUSTAINABLE DESIGN AND CLIMATE CHANGE RESILIENCY

4.1 Sustainable Design

To measure the results of their sustainability initiatives and to comply with Article 37, the Proponent intends to use the framework of the Leadership in Energy and Environmental Design (LEED) rating system promulgated by the US Green Building Council (USGBC). The Project will use LEED for New Construction (LEED v4 for BD+C) as the rating system to demonstrate compliance with Article 37. The LEED rating system tracks the sustainable features of a project by achieving points in the following categories: Location and Transportation, Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation and Design Process, and Regional Priority Credits.

A LEED checklist for the new building is included at the end of this section, and details the credits the Project anticipates achieving. The checklist will be updated regularly as the design develops and engineering assumptions are substantiated. At present, 54 points have been targeted. Additional credits, identified as “Maybe” on the checklist, will be evaluated as the design progresses.

The Proponent’s approach to each of the credit categories is described below.

Integrative Process

Beginning in pre-design and continuing throughout the design phases, the Project team will identify and use opportunities to achieve synergies across disciplines and building systems. The analyses will inform the Proponent’s Project requirements, basis of design, design documents, and construction documents.

Location and Transportation

The Project site is located in a developed area with existing infrastructure and many nearby basic services. The Project site is just a short walk from several nearby MBTA subway stations, including the Symphony Station (Green Line) within one half block, and the Massachusetts Avenue Station (Orange Line), two blocks away. Several bus routes are also nearby. Secure bicycle storage for residents will be included in the building. All parking associated with the Project will be within the building, and 5% of parking spaces will be designated as preferred parking for green vehicles.

Sustainable Sites

To reduce pollution from construction activities, the construction manager will implement a project-specific, EPA-compliant Erosion and Sedimentation Control (ESC) plan. Soil erosion, waterway and stormwater system sedimentation, and airborne dust will be controlled during site preparation, demolition of existing conditions, and the construction of the new development.

A site survey will be completed to evaluate sustainable options and inform site design decisions. Highly reflective roof materials will be used to reduce the heat island effect.

Water Efficiency

To maximize water efficiency, the Project will include low-flow bathroom fixtures and faucets. The Project is targeting a minimum 30% indoor water use reduction from the baseline. The Project will install permanent water meters that measure the total potable water use for the building and associated grounds in addition to water meters for two or more of the following water subsystems, as applicable to the Project. Metering data will be compiled into monthly and annual summaries; and the resulting whole-project water usage data will be shared with USGBC.

Energy and Atmosphere

The Project will be constructed based on the building and energy codes in effect at the time of the building permit application. Energy reduction measures are expected to result in energy cost reductions of approximately 20% when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007.

The Project will install new or use existing building-level energy meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc).

To reduce stratospheric ozone depletion, the buildings design team will select building heating, ventilating, air conditioning and refrigeration (HVAC&R) systems that use no chlorofluorocarbon (CFC) based refrigerants. Project engineers are expected to perform the calculations and implement protocols to verify compliance with the Enhanced Refrigerant Management credit.

To verify that the Project's energy-related systems are installed and calibrated to perform according to the owner's Project requirements, basis of design, and construction documents, the Project is expected to perform enhanced commissioning activities.

Materials and Resources

It is anticipated that a construction and demolition waste management plan will be developed to reduce construction and demolition waste disposed of in landfills and incineration facilities. The waste management plan will describe materials separation strategies and whether the materials will be sorted on-site. The waste management plan is anticipated to direct 75% of all waste and debris to be recycled.

The completed Project will provide dedicated areas for the collection and storage of recyclable materials for all building occupants. Collection and storage areas will be readily accessible and adequately sized based on the building square footage and usage. Materials collected for recycling will include: mixed paper, corrugated cardboard, glass, plastics, and metals.

Careful material selection will be performed for the Project. Where possible the Project hopes to integrate products that have Environmental Product Declarations (EPD), sourcing of raw materials and corporate sustainability reporting, and Material Ingredients disclosures.

Indoor Environmental Quality

The building mechanical systems will be designed to meet or exceed the requirements of ASHRAE Standard 62.1-2010 and/or applicable building codes. Any naturally ventilated spaces will comply with or exceed the applicable portions of ASHRAE 62.1. Smoking will not be allowed within the common areas of the building nor within the apartments. Designated smoking areas outside of the building will be located at least 25 feet from doorways, operable windows, and outdoor air intakes.

The Project will develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building, meeting or exceeding all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.

Materials will be specified that meet the threshold level of compliance with emissions and content standards. HVAC systems and the building envelope will be designed to meet the requirements of ASHRAE Standard 55-2010 for thermal comfort.

The Project will achieve a direct line of sight to the outdoors for at least 75% of all regularly occupied floor area. Background noise levels will meet ASHRAE standards.

Innovation in Design

In addition to the measures described above, the Project anticipates an additional four LEED points as a result of Innovation and exemplary performance. The Proponent anticipates providing an educational program on the sustainability features of the building for an

Innovation point. Two exemplary performance points will be achieved for Access to Quality Transit and Heat Island Reduction. In addition, at least one principal member of the Project team is LEED AP BD+C accredited.

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, an additional credit is awarded to the Project. It is anticipated that the Project will achieve two regional priority credits.

4.2 Climate Change Resiliency

4.2.1 Introduction

Climate change conditions considered by the Project team include higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, more severe freezing rain and heavy rainfall events, and increased wind gusts.

The expected life of the Project is anticipated to be approximately 50 years. Therefore, the Proponent planned for climate-related conditions projected 50 years into the future. A copy of the completed Checklist is included in Appendix F. Given the preliminary level of design, the responses are also preliminary and may be updated as the Project design progresses.

4.2.2 Extreme Heat Events

The *Climate Ready Boston* report predicts that in Boston, there may be between 25 to 90 days with temperatures over 90 degrees by 2070, compared to an average of 11 days per year over 90 degrees between 1971 to 2000. The Project design will include measures to adapt to these conditions, including installing high performance HVAC equipment, a high-performance building envelope and including operable windows where possible.

4.2.3 Rain Events

As a result of climate change, the Northeast is expected to experience more frequent and intense storms. To mitigate this, the Proponent will take measures to minimize stormwater runoff and protect the Project's mechanical equipment, as necessary. The Project will be designed to reduce the existing peak rates and volumes of stormwater runoff from the site, and to promote runoff recharge to the greatest extent practicable.

4.2.4 Drought Conditions

Although more intense rain storms are predicted, extended periods of drought are also predicted due to climate change. Under the high emissions scenario, the occurrence of

droughts lasting one to three months could go up by as much as 75% over existing conditions by the end of the century. To minimize the Project's susceptibility to drought conditions, the landscape design is anticipated to incorporate native and adaptive plant materials and high efficiency irrigation systems will be installed. Aeration fixtures and appliances will be chosen for water conservation qualities, conserving potable water supplies.



LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: Huntington Residential Tower

Date: 7/13/2017

Y ? N

1			Credit	Integrative Process	1
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15	1	16	Location and Transportation		16
		16	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1	1		Credit	High Priority Site	2
5			Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

3	4	3	Sustainable Sites		10
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
	2		Credit	Site Development - Protect or Restore Habitat	2
	1		Credit	Open Space	1
		3	Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1

3	3	5	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
	2		Credit	Outdoor Water Use Reduction	2
2		4	Credit	Indoor Water Use Reduction	6
	1	1	Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

13	4	16	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
4	2		Credit	Enhanced Commissioning	6
8	1	9	Credit	Optimize Energy Performance	18
		1	Credit	Advanced Energy Metering	1
		2	Credit	Demand Response	2
		3	Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
	1	1	Credit	Green Power and Carbon Offsets	2

5	0	8	Materials and Resources		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
		5	Credit	Building Life-Cycle Impact Reduction	5
1		1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1		1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

8	6	2	Indoor Environmental Quality		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
1		1	Credit	Enhanced Indoor Air Quality Strategies	2
2		1	Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
	2		Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
1	1		Credit	Interior Lighting	2
	3		Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

4	0	0	Innovation		6
3			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

2	2	0	Regional Priority		4
1			Credit	Regional Priority: Specific Credit	1
1			Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1
	1		Credit	Regional Priority: Specific Credit	1

54	20	50	TOTALS	Possible Points: 110
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110