SUSTAINABLE DESIGN GUIDELINES IMPLEMENTATION MATRIX
WORLD TRADE CENTER REDEVELOPMENT PROJECTS
PANYNJ, LMDC and NYSERDA

Note: All requirements herein that are tied to the U.S. Green Building Council's LEED™ "Certified" building standard are to be consistent with the requirements of NY State's Executive Order 111, which mandates that projects are to be **"equivalent"** to this standard but are not required to achieve formal certification by the U.S. Green Building Council. All project teams are, however, encouraged to achieve formal certification at the "Certified", "Silver" or higher levels at their own discretion. Guidelines indicated as “Required” are mandatory and flow directly from the objectives of EO-111, LEED™ certified level requirements and the larger requirements of the PANYNJ and LMDC. The LEED™ “Silver Roadmap” creates a pathway for moving toward even higher performance. Flexibility is provided through an “Equivalency Option” which allows designers to propose an “equivalent option” for a guideline which is part of the LEED™ Calculation, as long as the number of LEED™ points remains the same or better. Guidelines indicated as “Recommended” are provided to support efforts by teams seeking additional opportunities to improve environmental performance.

● Action on Guideline **Required**

◉ LEED™ **Equivalency Option** allowed

○ Action on Guideline **Recommended**

Ⓔ **Exemplar** model to be built to provide example for commercial office and retail

Prq **Prerequisite** (under LEED™) required to meet EO-111 LEED™ Certification objectives

URBAN ENVIRONMENTAL QUALITY											LEED™ Point Potentials		
No.	**Quality**	**Purpose**	**Transportation Hub**	**Site/ Parcel**	**Commercial Office**	**Commercial Retail**		**Memorial**	**Cultural**		**Certified Roadmap**	**Silver Roadmap**	**Maximum Possible**
UEQ-1	Support Urban Development	Support development in existing urban areas and fully utilize and support existing infrastructure.	●	●	●	●		●	●		**1**	**1**	**1**
UEQ-2	Expanded Public Transit and Bicycle Access	Encourage the development of public transportation, address opportunities to connect/cross-connect systems and support and increase bicycle access.	●	●	●	●		●	●		**1**	**1**	**2**
UEQ-3	Regional Mass Transit	To promote regional mass transit systems.	●	●	○	○			○				
UEQ-4	Pedestrian Movement	Support neighborhood, community, visitor and commuter pedestrian pathways and facilitate pedestrian access to and through the site.	●	●	●	●		●	●				
UEQ-5	Green Infrastructure	Support the development of green infrastructure by developing and linking vegetated site areas with existing neighborhood green spaces.		●	●	●		●	●				
UEQ-6	Outdoor Environmental Comfort	To facilitate site development that supports outdoor environmental comfort.		●	●	●		●	●				
UEQ-7	Wayfinding	To facilitate both neighborhood and site-user orientation and site readability.		●	●	●		●	●				
UEQ-8	Vehicular Emissions	Reduce back-up of traffic into neighboring streets in order to minimize vehicle emissions and improve neighborhood air quality from pre 9/11 base. Minimize potential idling time for all vehicles.	●	●	●	●	Ⓔ		●				
SITE ENVIRONMENTAL QUALITY													
SEQ-1	Site Resource Optimization	Draft and implement the requirements of the Comprehensive Resource Management Plan.	●	●	●	●		●	●				
SEQ-2	Storm Water Use	To capture and utilize site storm water flows, thereby reducing storm water volume and surges through the system.	●	◉	◉	◉	Ⓔ	◉	◉		**2**	**2**	**2**
SEQ-3	Heat Island Effect Mitigation	Reduce site development contributions to “heat island” effects in Lower Manhattan. Seek to maximize areas of landscape planting (green infrastructure) coupled with high albedo surfaces at other areas to mitigate thermal loading of site surfaces and building roofs.	●	◉	◉	◉	Ⓔ	◉	◉		**2**	**2**	**2**
SEQ-4	Light Pollution Reduction	To reduce light pollution and glare to surrounding sites and night sky.	●	◉	◉	◉	Ⓔ	◉	◉		**1**	**1**	**1**
SEQ-5	Construction Environment	To reduce pollution, noise and vibration from construction activities and vehicles.	●	●	●	●	Ⓔ	●	◉				
SEQ-6	Const Storm Water Runoff and Pollution Prevention	Control site erosion and reduce negative impacts on hydrological and atmospheric systems produced by construction activities.	●	●	●	●		●	●		**Prq**	**Prq**	**Prq**
SEQ-7	Use Existing Site Structures	Encourage the re-use of existing site structures to conserve resources.	●	●	●	●		●	●				**3**
SEQ-8	Plant Selection	Use indigenous or acclimatized plants to reduce irrigation and maintenance requirements.		●	●	●		●	●				
SEQ-9	Daylight Exterior Public Spaces	Design buildings and site structures to consider available daylight for public open spaces and green areas (within the context of the established massing guidelines).		●	●	●		●	●				
SEQ-10	Solar Access	To optimize solar access for utilization of solar energy.		●	●	●		●	●				
SEQ-11	Recovery of Resources	To optimize utilization of site material resources and to facilitate the reduction of waste generated by building occupants that would otherwise be hauled to and disposed of in landfills and/or incinerators.	●	●	●	●	○	●	●				
SEQ-12	Use of Undeveloped Parcels	Utilize inactive and undeveloped site parcels to provide a positive contribution to site environmental qualities.		●	●	●							
SEQ-13	Natural History	Make tangible elements of site natural history (ie. geology) to educate and inform site users.	○	○	○	○		○	○				
WATER ENVIRONMENTAL QUALITY													
WEQ-1	Water Management	To optimize utilization of site water resources.	●	●	●	●	Ⓔ	●	●				
WEQ-2	Wastewater Re-use	To minimize site wastewater outflows.	●	○	○	○		○	○				**1**
WEQ-3	Water Use Efficiency	To maximize water efficiency within buildings and reduce the burden on municipal water systems.	●	◉	◉	◉	Ⓔ	◉	◉		**2**	**2**	**2**
WEQ-4	Landscape Hydrology	To maximize utilization of site water for landscape requirements.	●	◉	◉	◉	Ⓔ	◉	◉		**1**	**1**	**2**

ENERGY ENVIRONMENTAL QUALITY											LEED™ Point Potentials		
No.	Quality	Purpose	Transportation Hub	Site/ Parcel	Commercial Office	Commercial Retail		Memorial	Cultural		Certified Roadmap	Silver Roadmap	Maximum Possible
EEQ-1	Energy Management	To conserve and optimize building energy use and minimize air emissions, including greenhouse gases, associated with energy consumption at the site.	●	●	●	●	Ⓔ	●	●				
EEQ-2	Building Commissioning	To implement a Building Commissioning Plan.	●	●	●	●	Ⓔ	●	●		1	1	1
EEQ-3	Optimize Energy Performance	To optimize the performance of building energy systems.	●	●	●	●	Ⓔ	●	●		2	3	10
EEQ-4	Ozone Layer Protection	To reduce emission of ozone depleting chemicals.	●	●	●	●		●	●		Prq	Prq	Prq
EEQ-5	Renewable Energy	To meet a portion of site energy requirements with on site and/or purchased renewable energy sources and institute a plan for transition as renewables become more cost-effective.	●	●	●	●		●	●		1	1	4
EEQ-6	Energy Systems Control and Maintenance	To provide for ongoing verification of initial operation and energy utilization of building energy systems.	●	●	●	●	Ⓔ	●	●		1	1	1
EEQ-7	End-use metering	To maximize tenant incentives to conserve energy.		●	●	●		●					
EEQ-8	Thermal Energy Storage	To maximize opportunities for storage of thermal energy to balance large shifts in demand.	○	○	○	○		○					
MATERIAL ENVIRONMENTAL QUALITY													
MEQ-1	Material Management	To optimize utilization of site material resources and to facilitate the reduction of waste generated by building occupants that would otherwise be hauled to and disposed of in landfills and/or incinerators.	●	●	●	●	Ⓔ	●	●		Prq	Prq	Prq
MEQ-2	Construction Waste Management	To reduce the amount of construction and demolition (C&D) waste going to landfills and/or incinerators and to conserve resources through reuse and recycling	●	◉	◉	◉	Ⓔ	◉	◉		1	1	2
MEQ-3	Resource Reuse	To incorporate previously used building materials and products into new construction.	●	○	○	○	Ⓔ	○	○				2
MEQ-4	Materials with Recycled Content	To incorporate materials with recycled content and increase market demand for building materials and products that incorporate recycled content.	●	◉	◉	◉	Ⓔ	◉	◉		2	2	2
MEQ-5	Material Proximity	To reduce environmental degradation resulting from transportation impacts by increasing the demand for building materials and products that are extracted and/or manufactured in close proximity to the building site.	●	◉	◉	◉	Ⓔ	◉	◉		1	1	2
MEQ-6	Wood Certification	To specify wood which has been harvested according to sustainable forest management principles.	●	○	○	○	Ⓔ	◉	◉			1	1
MEQ-7	Agricultural materials	To encourage the specification of materials which are renewable and that grow in such a way as to support biological diversity and the health of the ecosystem	●	○	○	○	Ⓔ	◉	◉			1	1
INDOOR ENVIRONMENTAL QUALITY													
IEQ-1	IAQ Performance	Establish high indoor air quality (IAQ) for the comfort and well-being of the building's occupants by minimizing the potential for poor air quality, and by establishing minimum IAQ performance and standards.	●		●	●		●	●		Prq	Prq	Prq
IEQ-2	Daylight & Views	Provide building occupants with connections to the outdoors through the introduction of daylight into habitually occupied areas of the building. Provide building occupants with views via direct line of sight to the outdoors from regularly occupied spaces when possible.	●		◉	◉	Ⓔ	◉	◉		1	1	2
IEQ-3	Air Quality Monitoring	To retain high indoor air quality standards by establishing monitoring protocols to assist in maintaining appropriate ventilation rates for the comfort and well-being of building occupants.	●		●	●	Ⓔ	●	●			1	1
IEQ-4	Ventilation Air Quality	To provide outside air to all occupied spaces in the building to support the comfort and well-being of building occupants and as an energy conservation measure.	●		●	●	Ⓔ	●	●			1	1
IEQ-5	Construction IAQ Management	To provide minimum standards for the air quality of building areas upon occupancy.	●		●	●	Ⓔ	●	●		2	2	2
IEQ-6	Reduce Contaminants from Materials	To reduce the density of contaminants that are emitted by common building materials and which affect the comfort and well-being of building occupants	●		●	●	Ⓔ	●	●		3	4	4
IEQ-7	Chemical & Particulate Control	To minimize sources of chemical and particulate air contamination.	●		●	●	Ⓔ	●	●		1	1	1
IEQ-8	Thermal Comfort	To provide building users with a high level of thermal comfort to promote comfort, well-being and enhanced productivity.	●		●	●	Ⓔ	●	◉			1	2
IEQ-9	Pest Control	To mitigate health concerns caused by any unwanted pests, their excrement and the chemicals used to control them.	●	●	●	●	Ⓔ	●	●				
IEQ-10	Personal Control	To provide building occupants with a high level of thermal, ventilation and lighting system control to promote productivity, comfort and well-being	●		●	●	Ⓔ	○	○				2
IEQ-11	Acoustics	Minimize vibration and noise levels in indoor spaces and at exterior environments to achieve appropriate physical comfort and sound isolation for tasks and speech intelligibility, while contributing to human well-being and productivity	●		●	●	Ⓔ	○	○				
IEQ-12	Lighting Quality	To employ enhanced lighting design to maximize quality and efficiency of electric lighting and fully coordinate with daylighting	●		●	●	Ⓔ	○	○				

Notes:

1. The integrated planning and whole systems approach of this high density, mixed-use development contain a significant number of environmental/sustainable dimensions which extend beyond the boundaries of any one project and, where applicable, could be captured under the Innovation Credit category as defined by the USGBC. Although there are a maximum of four potential innovation points, shown these are very challenging points to achieve.

2. While all projects are encouraged to strive for an equivalency to LEED™ "Silver", the "Certified Roadmap" represents the minimum points possible for certification equivalency according to the requirements of EO-111 (26 is the minimum for "Certification" level, 33 is the minimum for "Silver" level and a reasonable allowance should be made for points which would be disallowed if there was an actual submission).

Additional LEED Points available but not required for WTC projects			10
LEED Professional	1	1	1
Innovation[1] (1 of 4 points) (challenging)	1	1	1
Potential LEED Points	28 [2]	35 [2]	69