



NJMC Guidelines for Green Development and Redevelopment

Part 2 – Green Building

**New Jersey Meadowlands Commission
One DeKorte Park Plaza
Lyndhurst, New Jersey**

January, 2009

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SECTION 1: INTRODUCTION

This technical guideline has been developed by New Jersey Meadowlands Commission (NJMC) staff in conjunction with the Center for Architecture and Building Science Research at the New Jersey Institute of Technology under commission to the NJMC (Section 2 of this document). The intent of the guideline is to provide guidance on the most attainable LEED green building credits in the Meadowlands in an effort to promote sustainable green building practices in the District.

At the time that the original NJMC Green Building regulations were promulgated in 2006, the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program was considered to be the predominant industry standard for green building in the United States. The rating system has prerequisites and credits pertaining to the following categories:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design Process

A holistic approach is recommended in order to achieve the greatest amount of points for a given project. This is best accomplished by considering the incorporation of sustainable building and site features during the planning stages of a project. For additional guidance, the complete [Developer's Guide to LEED NC in the Meadowlands](#) is available on the NJMC website at www.njmeadowlands.gov

Per the NJMC District Zoning Regulations, N.J.A.C. 19:4-6.6 regarding green buildings, "Applicants for development are encouraged, but are not required, to comply with LEED criteria." The Commission has incentive zoning which includes partial refunds of zoning certificate application fees upon proof of LEED certification and density bonuses for green building.

Since the promulgation of the NJMC green building regulations, several other green building rating systems have become more widely accepted by the industry. Effective January 2009, the NJMC allows consideration of applications using alternative green building programs determined by the Chief Engineer to be comparable to LEED guidelines as eligible for the refund of fees and the density incentives, on a case-by-case basis.

SECTION 2: LEED CREDITS MOST ATTAINABLE IN THE MEADOWLANDS

This section of the guide provides brief descriptions of the most commonly sought LEED NC credits, based on historical data from the US Green Building Council modified and enhanced through discussions among NJMC personnel. The purpose of the list is to help developers focus on the credits their peers nationwide have found to be the most attainable and beneficial for their developments, along with those credits that might be particularly appropriate for the Meadowlands District.

The list includes the seven prerequisites (which have no point value) and 37 LEED NC credits (which can earn up to 38 points since certain credits can earn multiple points). By meeting the prerequisites and mixing and matching among the 38 points, a development in the Meadowlands District should easily achieve the LEED Certified level (26-32 points). By adding additional points from LEED NC 2.2, Silver, and possibly even Gold, levels should be achievable and cost-effective.

Each credit description in this section of the guide provides the following information:

- **Intent**
This explains the purpose of the credit (taken directly from LEED NC 2.2).
- **Related Code/Zoning/Regulation**
This lists the related code requirements and/or NJMC, State or Federal regulations that might impact the ability to attain this credit. In some cases, requirements in New Jersey and/or the Meadowlands District are already more stringent than those dictated by LEED, and developers can simply gain points for 'business as usual.' In other cases, an existing code or other regulation may be less stringent than LEED requirements, but close enough so that LEED points can be obtained with little additional effort or expense. In all cases, the code or regulation should be cited in any LEED credit application.
- **Comments**
This provides a short narrative discussing the relative difficulty in achieving the credit in question and/or suggested methods for doing so.
- **Location in LEED NC 2.2**
A listing of the page where the credit in question can be found in the October 2005 version of LEED NC 2.2

The overall goal of each credit description is to quickly introduce the core concept of the credit, to point the reader to any relevant code or other regulation that might impact the

credit, and to provide a quick indication of the degree of difficulty in achieving the credit.

The summary table on the following two pages provides an index to all of the LEED credits available. The LEED credits most attainable in the Meadowlands District, described in this section of the guide, are highlighted.

(Note: titles with a “P” indicate a prerequisite; those with a “C” indicate a credit.)

LEED NC 2.2 Point Index

The following table presents a list of all the prerequisites, credits and points available through the LEED NC 2.2 Rating System. The number of points available for each credit is provided, together with a reference to the page where a full description of the credit can be found in LEED NC 2.2. A total of 69 points are available.

The "LEED Credits Most Attainable in the Meadowlands" described in this guide are highlighted in gray as shown in the example below:

SSp1	Construction Activity Pollution Prevention	prerequisite	8
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There are a total of 38 points available for "LEED Credits Most Attainable in the Meadowlands."

To achieve a LEED rating, all seven prerequisites must be met. The number of points earned determines whether a project receives a rating of:

- Certified (26-32 points)
- Silver (33-38 points)
- Gold (39-51 points)
- Platinum (52-69 points)

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SUSTAINABLE SITES (SS)			
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	21% New Buildings or 14% Existing Building Renovations	4	33
	24.5% New Buildings or 17.5% Existing Building Renovations	5	33
	28% New Buildings or 21% Existing Building Renovations	6	33
	31.5% New Buildings or 24.5% Existing Building Renovations	7	33
	35% New Buildings or 28% Existing Building Renovations	8	33
	38.5% New Buildings or 31.5% Existing Building Renovations	9	33
	42% New Buildings or 35% Existing Building Renovations	10	33
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LEED NC 2.2 Point Index		LEED Points	Page No. in LEED NC 2.2
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IDc1.4	Innovation in Design	1	77
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SUSTAINABLE SITES

SS P1: Construction Activity Pollution Prevention

Intent

Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

Related Code/Zoning/Regulation

New Jersey Soil Erosion and Sediment Control Act, Chapter 251, P. L. 1975 N.J.S.A. 4:24-39

Comments

Compliance with the New Jersey Soil Erosion and Sediment Control Act fulfills the requirements of this prerequisite.

Location in LEED NC 2.2

Page 8

SS C3: Brownfield Redevelopment

Intent

Rehabilitate damaged sites where development is complicated by environmental contamination, which reduces pressure on undeveloped land.

Related Code/Zoning/Regulation

NJDEP Site Remediation Program for Brownfields:

<http://www.state.nj.us/dep/srp/brownfields>

Comments

There are numerous brownfield redevelopment opportunities within the Meadowlands District, including the 232-acre Paterson Plank Road Redevelopment Area and other locations. Contact the NJMC for more information.

New Jersey also offers resources to assist with the brownfield redevelopment process through the *Brownfields Redevelopment Interagency Team (BRIT)*. BRIT's mission is to streamline and coordinate the brownfields redevelopment process for interested parties, guided by New Jersey's Smart Growth policies and practices. BRIT is a brownfields resource group including representatives from more than 20 state agencies and programs. Redevelopment projects are individually reviewed by BRIT in an informal, problem-solving atmosphere. Incentives are bundled and tailored to each unique project. Brownfields programs and practices are improved upon through this partnering process,

which can shave years off the traditional development timeline. BRIT also serves as the state partner with the NJ Brownfields Redevelopment Task Force on brownfields policy issues.

<http://www.njsitemart.com/sitemart/cwp/view.asp?a=325&Q=208449&sitemartNav=|>

Location in LEED NC 2.2

Page 11

SS C4.1: Alternative Transportation: Public Transportation Access

Intent

Reduce pollution and land development impacts from automobile use.

Related Code/Zoning/Regulation

District Transportation Plan Regulations, N.J.A.C. 19:7-5.3(c) 4i, Transit oriented development.

Comments:

The Meadowlands District is currently served by commuter rail, regional bus, local bus, and circulators/shuttles with service to NYC, within the District, and to and from the District. Several opportunities are presented by the Meadowlands District Transportation Plan and Regulations. Residential, lodging, retail, and office land uses are eligible for a credit from the Transportation Plan development fee. Development must meet guidelines that include specified distances of various frequencies of both train and bus service, or be located within an NJMC designated transit oriented development. Additionally, several shuttle bus routes are planned throughout the District. The routes are specifically designed to connect areas of dense development with access to public transit.

Location in LEED NC 2.2

Page 12

SS C4.2: Alternative Transportation: Bicycle Storage and Changing Rooms

Intent

Reduce pollution and land development impacts from automobile use.

Related Code/Zoning/Regulation

District Transportation Plan Regulations, N.J.A.C. 19:7-5.3(b) 4, Transit related improvements.

Comments

Providing bicycle racks, covered storage facilities and/or showering/changing facilities within a new development can have a relatively small impact on overall project costs and provide a useful amenity to building end-users. The construction of improvements, which are consistent with land use goals to reduce automobile dependency, makes a project eligible for a credit from the transportation development fee. The improvements must result in a reduction in automobile trips and are subject to a credit memorandum of agreement.

Location in LEED NC 2.2

Page 13

SS C4.3: Alternative Transportation: Low Emitting and Fuel Efficient Vehicles**Intent**

Reduce pollution and land development impacts from automobile use.

Related Code/Zoning/Regulation

District Transportation Plan Regulations, N.J.A.C. 19:7-5.3(c) 4vi, Preferential parking.

Comments

Achieving this credit in the Meadowlands is a relatively easy option by providing preferential parking for low emitting and fuel efficient vehicles (LEFEV) consisting of 5 percent of the total parking capacity. Additionally, residential, retail, and lodging land uses are eligible for a credit of 1 percent of the transportation development fee for each percentage of the total parking spaces, up to a total of 5 percent allocated for LEFEV, carpooling, vanpooling, and carsharing. The credit is subject to a credit memorandum of agreement.

Location in LEED NC 2.2

Page 14

SS C4.4: Alternative Transportation, Parking Capacity**Intent**

Reduce pollution and land development impacts from single occupancy vehicle use.

Related Code/Zoning/Regulation

NJMC parking requirements vary according to use. Providing preferred parking for carpools or vanpools (part of this credit's requirements) is not required.

District Transportation Plan Regulations, N.J.A.C. 19:7-5.3(c) 4vi, Preferential parking.

Comments

Under Options 1 and 3, meeting NJMC's parking requirement should not impact project costs. Designating 5 percent as preferred parking for carpools and or vanpools and/or providing shared vehicle usage are both no/low cost options. Developments are eligible for a credit of 1 percent of the transportation development fee, up to a total of 5 percent, for each percentage of the total parking spaces allocated to carpooling, vanpooling, carsharing, and LEFEV. The credit is subject to a credit memorandum of agreement.

Location in LEED NC 2.2

Page 15

SS C5.2: Site Development, Maximize Open Space**Intent**

Provide a high ratio of open space to development footprint to promote biodiversity.

Related Code/Zoning/Regulation

The minimum open space requirements vary among the defined zones within the District, ranging from 15 percent to 40 percent open space.

Comments

While this credit may not be commonly pursued in the Meadowlands District, for very large parcels, or parcels with significant areas of wetlands or lands that are under water, it may be possible and/or reasonable for developers to exceed the NJMC open space requirements by as much as 25 percent.

Location in LEED NC 2.2

Page 17

SS C6.2: Stormwater Design, Quality Control**Intent**

Limit disruption and pollution of natural water flows by managing stormwater runoff.

Related Code/Zoning/Regulation

NJDEP Stormwater Management Rule N.J.A.C. 7:8.

Pursuant to its landscape and open space design guidelines, NJMC recommends that a minimum of one tree and five shrubs be planted for each 100 linear feet of stormwater management edge area.

Comments

Compliance with the NJDEP Stormwater Management Rules (N.J.A.C. 7:8) will meet this credit's criteria for total suspended solids (TSS), but not necessarily the requirement to reduce impervious cover. The requirement may or may not be feasible depending on a site's size and constraints.

Location in LEED NC 2.2

Page 19

SS C7.1: Heat Island Effect, Non-Roof**Intent**

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Related Code/Zoning/Regulation

N.J.A.C. 19:4-8.9(d) 3: "A minimum of one shade tree shall be provided for every 10 parking spaces or every 3,000 square feet of vehicular use area, whichever is greater, which shall be distributed evenly within the vehicular use area." Other NJMC landscaping requirements may also relate to achieving this credit.

Comments

The regulation noted above can contribute to the shading needed for this credit, although significant additional shading is required. If structured parking is planned, it may be advantageous to pursue this credit.

Location in LEED NC 2.2

Page 20

SS C7.2: Heat Island Effect, Roof**Intent**

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Related Code/Zoning/Regulation

None

Comments

Using a roofing material with the ability to reject solar heat (with an appropriate Solar Reflectance Index or SRI) is the more cost effective strategy for obtaining this credit. If a vegetated roof is used, it can be designed as an amenity to building users. Both strategies can decrease a project's cooling loads.

Location in LEED NC 2.2

Page 21

SS C8: Light Pollution Reduction**Intent**

Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.

Related Code/Zoning/Regulation

N.J.A.C. 19:4-7.7 sets limits for glare in a residential area or zone, Environmental Conservation zone, or Park and Recreation zones, and designates the maximum allowable intensity for light sources.

N.J.A.C. 19:4-8.13 (a) 6.i: "All light sources shall be shielded and positioned to prevent glare from becoming a hazard or nuisance or having a negative impact on site users, adjacent properties, or the traveling public."

Comments

This credit can be achieved at a low cost with proper design strategies. Meeting the requirements of this credit will also fulfill those of N.J.A.C. 19:4-8.13 (a) 6i.

Location in LEED NC 2.2

Page 22

WATER EFFICIENCY**WE C1.1: Water Efficient Landscaping, Reduce by 50%****Intent**

Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.

Related Code/Zoning/Regulation

No code requirement. NJMC regulations require that a minimum of 40 percent of all plantings shall be native to New Jersey and the NJMC recommends in its

Landscape and Open Space Design Guidelines (1999) that 60 percent be native species.

Comments

The NJMC requirements and recommendations above are in keeping with this credit's requirements. Using native plantings in combination with efficient irrigation can bring a project in compliance with this credit and save on maintenance costs.

Location in LEED NC 2.2

Page 24

WE C1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation

Intent

Eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.

Related Code/Zoning/Regulation

See WE C1.1.

Comments

This credit should be pursued if all-native plantings are used and the landscaping is designed to require no irrigation, or irrigation will be limited to stormwater and/or graywater recycling. Stormwater and/or graywater reuse would require approval as a Special Engineered System according to the code. Stormwater and/or graywater reuse also would require additional plumbing and may be cost prohibitive. Designing landscaping that requires no irrigation should be done with caution - in the event that even native plantings fail, the cost to replace them should be considered.

Location in LEED NC 2.2

Page 25

WE C2: Innovative Wastewater Technologies

Intent

Reduce generation of wastewater and potable water demand, while increasing the local aquifer recharge.

Related Code/Zoning/Regulation

See WE C3.1 and 3.2

Comments

While this can be a difficult credit to achieve, it is particularly appropriate for the Meadowlands. However, caution should be used in former landfill areas, and certain strategies will not be possible when the seasonal high groundwater table is close to the surface. One option for achieving the credit is to reduce potable water use for the building by 50 percent, which could also meet the requirements to achieve credits WE C3.1 and 3.2.

Location in LEED NC 2.2

Page 26

WE C3.1: Water Use Reduction, 20% Reduction

Intent

Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

Related Code/Zoning/Regulation

The NJ Plumbing Subcode, which follows the National Standard Plumbing Code (2006), has the same flow rate requirements as the federal Energy Policy Act of 1992, and must be exceeded by 20 percent to achieve this credit.

Comments

High efficiency fixtures, such as dual flush toilets, are becoming more commonplace and cost competitive when compared to standard fixtures. Specifying fixtures to comply with this credit will have the added benefit of reducing operating costs.

Location in LEED NC 2.2

Page 27

WE C3.2: Water Use Reduction, 30% Reduction

Intent

Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

Related Code/Zoning/Regulation

The NJ Plumbing Subcode, based on the National Standard Plumbing Code (2006), has the same flow rate requirements as the federal Energy Policy Act of 1992 and must be exceeded by 30 percent to achieve this credit.

Comments

Pursuit of this credit may require very efficient fixtures, such as waterless urinals and/or composting toilets, and graywater reuse. The NJ Plumbing code does allow waterless urinals, but composting toilets are not currently recognized and would require a variance. Stormwater and/or graywater reuse for non-potable uses would require approval as a Special Engineered System under the code. Stormwater and or graywater reuse does require additional plumbing and may be cost prohibitive.

Location in LEED NC 2.2

Page 28

ENERGY & ATMOSPHERE**EA P1: Fundamental Commissioning of the Building Energy Systems****Intent**

Verify that the building's energy related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents. The benefits of commissioning include reduced energy use, lower operating costs, reduced contractor callbacks, better building documentation, improved occupant productivity and verification that the systems perform in accordance with the owner's project requirements.

Related Code/Zoning/Regulation

None

Comments

Commissioning is one of the more cost effective quality control strategies. Compliance with this prerequisite can help reduce the possibility of callbacks and system malfunctions; it will also ensure that the mechanical systems are performing as designed.

Location in LEED NC 2.2

Page 29

EA P2: Minimum Energy Performance**Intent**

Establish the minimum level of energy efficiency for the proposed building and systems.

Related Code/Zoning/Regulation

State commercial energy code. (New Jersey has adopted ASHRAE 90.1 – 2004, referenced by this credit.)

Comments

New Jersey already has a higher energy baseline than many other states with the adoption of ASHRAE 90.1-2004. Meeting the state code will also meet the requirements of this prerequisite.

Location in LEED NC 2.2

Page 31

EA P3: Fundamental Refrigerant Management**Intent**

Reduce ozone depletion.

Related Code/Zoning/Regulation

None

Comments

The phase-out of CFC refrigerants started in the 1990's has made CFC-free HVAC equipment readily available.

Location in LEED NC 2.2

Page 32

EA C1: Optimize Energy Performance**Intent**

Achieve increasing levels of energy performance above the baseline prerequisite standard to protect the environment and save money.

Related Code/Zoning/Regulation

State commercial energy code. (New Jersey has adopted ASHRAE 90.1 – 2004, referenced by this credit)

Comments

New Jersey already has a higher energy baseline than many other states with the adoption of ASHRAE 90.1-2004. Exceeding the code by at least 14 percent may have cost impacts, but these can be minimized through an integrated design approach and the choice will result in energy savings and reduced operating costs. Other advice for achieving this credit is available on ASHRAE Advanced Energy Design Guide for Small Office Buildings or the Advanced Buildings Core Performance Guide (with certain restrictions).

Location in LEED NC 2.2

Page 33

EA C4: Enhanced Refrigerant Management

Intent

Reduce ozone depletion and support early compliance with the 2000 Montreal Protocol while minimizing direct contributions to global warming.

Related Code/Zoning/Regulation

None

Comments

Pursuit of this credit requires a more rigorous approach from the mechanical engineer and proper equipment maintenance. As global warming concerns become more pronounced, the products, equipment and refrigerants required to achieve this credit will become more readily available.

Location in LEED NC 2.2

Page 39

MATERIALS & RESOURCES

MR P1: Storage & Collection of Recyclables

Intent

Facilitate the reduction of waste generated by building occupants that is hauled to, and disposed of in, landfills.

Related Code/Zoning/Regulation

Bergen County requires aluminum cans, corrugated cardboard, glass containers, mixed paper and office paper to be recycled in commercial locations. Hudson County requires corrugated cardboard and office paper to be recycled in commercial locations.

Comments

Complying with county recycling rules in commercial locations will help meet these requirements.

Location in LEED NC 2.2

Page 43

MR C2.1: Construction Waste Management: Divert 50% from Disposal

Intent

Divert construction, demolition and land-clearing debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Related Code/Zoning/Regulation

Construction debris that is required to be recycled in Bergen and Hudson Counties includes corrugated cardboard. Bergen County also recycles ferrous scrap and Hudson County recycles asphalt roofing.

N.J.A.C. 19:4-8.15 (f) lists the requirements for recycling and refuse areas.

Comments

Complying with county recycling rules in commercial locations will help achieve this credit. According to the NJDEP, the average cost to recycle asphalt, concrete, rubble, used brick, and block and wood scraps is less than the average disposal cost for these materials. As disposal costs continue to rise, incorporating recycling practices into the construction process will save more money.

Location in LEED NC 2.2

Page 47

MR C2.2: Construction Waste Management: Divert 75% from Disposal

Intent

Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Related Code/Zoning/Regulation

See MR C2.1.

Comments

As with MR C2.1 compliance, following the county recycling rules in commercial locations will help achieve this credit. Achieving a 75 percent diversion from disposal requires more diligent jobsite monitoring and recycling practices.

Location in LEED NC 2.2

Page 48

MR C4.1: Recycled Content: 10 % (post-consumer + 1/2 pre-consumer)

Intent

Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Related Code/Zoning/Regulation

None

Comments

This credit can be readily attained since many commonly used materials are available with recycled content. Steel, acoustic ceiling tiles, gypsum board, carpeting, carpet tile, and ceramic tile are all available with recycled content. Many types of insulation also have recycled content, including cellulose, mineral wool, cotton, fiberglass and polystyrene (a type of rigid insulation).

Location in LEED NC 2.2

Page 51

MR C4.2: Recycled Content, 20% (post-consumer + 1/2 pre-consumer)

Intent

Increase demand for building products that incorporate recycled content materials, thereby reducing the impacts resulting from extraction and processing of virgin materials.

Related Code/Zoning/Regulation

None

Comments

As with MR C4.1, this credit can be readily attained since many commonly used materials are available with recycled content. Steel, acoustic ceiling tiles, gypsum board, carpeting, carpet tile, and ceramic tile are all available with recycled content. Many types of insulation also have recycled content, including cellulose, mineral wool, cotton, fiberglass and polystyrene (a type of rigid insulation).

Location in LEED NC 2.2

Page 52

MR C5.1: Regional Materials: 10 % Extracted, Processed & Manufactured Regionally

Intent

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Related Code/Zoning/Regulation

None

Comments

Using 10 percent of building materials manufactured within 500 miles of the project site should be fairly easy to accomplish in Northern New Jersey.

Location in LEED NC 2.2

Page 53

MR C5.2: Regional Materials: 20 % Extracted, Processed & Manufactured Regionally

Intent

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Related Code/Zoning/Regulation

None

Comments

Using 20 percent of building materials manufactured within 500 miles of the project site should only be moderately more difficult to achieve if already attempting credit MR C5.1.

Location in LEED NC 2.2

Page 54

INDOOR ENVIRONMENTAL QUALITY

EQ P1: Minimum IAQ Performance

Intent

Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, thus contributing to the comfort and well-being of the occupants.

Related Code/Zoning/Regulation

IBC Section 1202.4 for natural ventilation or International Mechanical Code (IMC) (2006) section 403 for mechanical ventilation.

Comments

This credit references ASHRAE 62.1 to determine the ventilation rate. The IMC does not reference ASHRAE 62.1. As such, the ventilation rate needs to be determined using the IMC.

Location in LEED NC 2.2

Page 57

EQ P2: Environmental Tobacco Smoke (ETS) Control**Intent**

Minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke (ETS).

Related Code/Zoning/Regulation

NJ Smoke Free Air Act.

Comments

This prerequisite is easily achievable. In non-residential buildings, compliance with the NJ Smoke Free Air Act and locating any designated outdoor smoking areas at least 25 feet from entries, outdoor air intakes and operable windows, will meet this prerequisite's requirements.

Location in LEED NC 2.2

Page 58

EQ C1: Outdoor Air Delivery Monitoring**Intent**

Provide capacity for ventilation system monitoring to help sustain occupant comfort and well-being.

Related Code/Zoning/Regulation

None

Comments

The technologies required for this credit are commonly available in commercial construction and are becoming standard practice in certain building types. As such, compliance with this credit's requirements is readily achievable.

Location in LEED NC 2.2

Page 60

EQ C3.1: Construction IAQ Management Plan: During Construction

Intent

Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

Related Code/Zoning/Regulation

None

Comments

The requirements of this credit are in line with good construction practices. Dust and debris that get into air distribution systems during construction are rarely cleaned out. Therefore protecting the system during this time can improve IAQ into the future and help the HVAC system run more effectively.

Location in LEED NC 2.2

Page 62

EQ C3.2: Construction IAQ Management Plan: Before Occupancy

Intent

Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

Related Code/Zoning/Regulation

None

Comments

Pursuing this credit makes the most sense for projects when the timing allows for a building flush-out period prior to occupancy. Building flush-out involves introducing a prescribed amount of outdoor air into the building using fans or the central HVAC system, in an effort to dilute and remove indoor pollutants. For projects where scheduling will not allow time for a flush-out, the required IAQ testing may be cost prohibitive.

Location in LEED NC 2.2

Page 63

EQ C4.1: Low-Emitting Materials, Adhesives & Sealants

Intent

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Related Code/Zoning/Regulation

None

Comments

As with all the low-emitting materials credits that follow, switching to low volatile organic compound (VOC) materials is beneficial and readily doable. An increasing number of low VOC products are on the market, often at the same cost as conventional ones. Project specifications and product verification is required to achieve these credits.

Location in LEED NC 2.2

Page 65

EQ C4.2: Low-Emitting Materials: Paints & Coatings

Intent

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Related Code/Zoning/Regulation

None

Comments

See EQ C4.1

Location in LEED NC 2.2

Page 67

EQ C4.3: Low-Emitting Materials: Carpet Systems

Intent

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Related Code/Zoning/Regulation

None

Comments

See EQ C4.1

Location in LEED NC 2.2

Page 68

EQ C4.4: Low-Emitting Materials: Composite Wood & Agrifiber Products**Intent**

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Related Code/Zoning/Regulation

None

Comments

See EQ C4.1

Location in LEED NC 2.2

Page 69

EQ C5: Indoor Chemical & Pollutant Source Control**Intent**

Minimize exposure of building occupants to potentially hazardous particulates and chemical pollutants.

Related Code/Zoning/Regulation

The New Jersey Mechanical Code section 502 requires exhaust systems in areas that “produce or throw off dust or particulates sufficiently light to float in the air or which emit heat, odors, fumes, spray, gas or smoke in such quantities to be irritating or injurious to health or safety.” Section 510 has requirements for hazardous exhaust systems. The code requires air filters on central HVAC systems; a minimum of MERV 13 (as needed for this credit) is not specifically required.

Comments

Much of what it entails to achieve this credit is also required by the code, as shown above. The credit’s required entryway system, which typically uses track off grates or grilles, is not required by code but can improve IAQ and is relatively simple to accommodate. It can also extend the life of floor finishes and reduce maintenance costs.

Location in LEED NC 2.2

Page 70

EQ C7.1: Thermal Comfort: Design

Intent

Provide a comfortable thermal environment that supports the productivity and well-being of building occupants.

Related Code/Zoning/Regulation

IBC 2006 Section 1203.1 - The code requires that, "...space-heating systems capable of maintaining a minimum indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day." The credit requirement exceeds code by insisting that the comfort criterion goes beyond air temperature to also consider radiant temperature, air speed and relative humidity.

Comments

This credit requires the HVAC system to have separate humidity control, which may be problematic for certain designs. If separate humidity control is planned for the system, the other requirements of this credit are close to standard practice for buildings with more sophisticated HVAC systems.

Location in LEED NC 2.2

Page 73

EQ C7.2: Thermal Comfort: Verification

Intent

Provide for the assessment of building thermal comfort over time.

Related Code/Zoning/Regulation

None

Comments

While implementing the requirements of this credit is relatively straightforward, comfort is a subjective concept. As such, it may be difficult to achieve 80 percent satisfaction as required.

Location in LEED NC 2.2

Page 74

EQ C8.1: Daylight & Views: Daylight 75% of Spaces

Intent

Provide a connection between indoor spaces and the outdoors by including daylight and views in commonly occupied spaces.

Related Code/Zoning/Regulation

None

Comments

Since parcels in the Meadowlands are not infill lots and minimum setbacks typically range between 10 feet and 75 feet, exposure to daylight and views may be readily available. Proper daylighting design to avoid glare and/or overheating is critical. For certain building types, designing floor plans that are shallow enough to take advantage of daylight and views will be a challenge.

Location in LEED NC 2.2

Page 75

EQ C8.2: Daylight and Views, Views for 90% of Spaces

Intent

Provide a connection between indoor spaces and the outdoors by including daylight and views in commonly occupied spaces.

Related Code/Zoning/Regulation

None

Comments

See EQ 8.1

Location in LEED NC 2.2

Page 76

INNOVATION & DESIGN PROCESS

Intent

Provides additional points for projects that exceed the LEED-NC Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by this rating system.

Related Code/Zoning/Regulation

None

Comments

USGBC has an Innovation in Design credit catalog at <http://www.usgbc.org/ShowFile.aspx?DocumentID=3569>.

Among the credits listed is:
Green Cleaning

Intent

Reduce exposure of building occupants to contaminants that adversely impact the indoor environment.

Related Code/Zoning/Regulation

None

Comments

As previously awarded, this credit requires a Construction IAQ Management Plan, building flush-out, air filtration and a final building cleanup with green cleaning products. Further description is included in the Innovation in Design Credit catalog noted above.

Location in LEED NC 2.2

Page 7

ID C2: LEED Accredited Professional**Intent**

To support and encourage the design integration required by a LEED for New Construction green building project and to streamline the application and certification process.

Related Code/Zoning/Regulation

None

Comments

Using a LEED AP will simplify the entire LEED process for the project team and will comply with this credit.

Location in LEED NC 2.2

Page 7

SECTION 3: REFERENCES

Evans, Deane and Christine Bruncati, 2008. Developer's Guide to LEED NC in the Meadowlands. New Jersey Institute of Technology Center for Architecture and Building Science Research in cooperation with the New Jersey Meadowlands Commission. Newark, NJ.

LEED-NC 2.2 for New Construction. U.S. Green Building Council. Washington, D.C. 2005.