

**Palm Avenue Parking Garage & Retail
City of Sarasota**

LEED Certification Analysis

LEED: Leadership in Energy and Environmental Design

04-30-09

Compiled by: Fleischman Garcia Architecture

Introduction

The items listed below as "Assumed Obtainable LEED Points" are summarized from "LEED for New Construction & Major Renovations." Credit identifications (for example, SS Credit 4.1) correlate with how the items are identified in the LEED document. Decisions for which items have been included are based on assumptions by FleischmanGarcia Architecture for which items could be feasibly implemented into a parking garage and retail structure, as studied by FleischmanGarcia in April 2009. Many of the items listed below, if implemented, would increase the construction and/or design costs of the project, when compared to a similar parking/retail structure that would not be LEED certified. Summaries of items listed herein are intended to present general ideas of what would be required for LEED certification. Details and exact steps necessary to obtain the LEED points and certification have been omitted for clarity.

At the conclusion of the analysis, other potential LEED points are listed for consideration. These items could potentially replace items in the "assumed" list, depending on which are deemed more cost effective or desirable. Alternatively, if all items were incorporated, higher LEED certification could be obtained.

Required Points for LEED Certification:

Certified: 26-43 points

Silver: 33-38 points

Gold: 39-51 points

Platinum: 52-69 points

Assumed Obtainable LEED Points

Sustainable Sites

Construction Activity Pollution Prevention (**Required**): Create and implement an Erosion and Sedimentation Control Plan for all construction activities associated with the project that meets appropriate standards and minimum requirements.

SS Credit 4.1. Alternative Transportation, Public Transportation Access (**1 pt**): Locate project within ¼ mile of one or more stops for two or more public or campus bus lines usable by building occupants.

SS Credit 4.3. Alternative Transportation, Low Emitting & Fuel Efficient Vehicles (**1 pt**): Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site OR install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site.

SS Credit 7.1. Heat Island Effect, Non-Roof (1 pt): Place a minimum of 50% of parking spaces under cover. Any roof used to shade or cover parking must have an SRI (solar reflectance index) of at least 29.

SS Credit 7.2. Heat Island Effect, Roof (1 pt): Use roofing materials having an SRI equal to or greater than 78 for a minimum of 75% of the roof surface.

SS Credit 8. Light Pollution Reduction (1 pt):

For interior lighting: The angle of maximum candela from each interior luminary as located in the building shall intersect opaque building interior surfaces and not exit out through the windows or all non-emergency interior lighting shall be automatically controlled to turn off during non-business hours with manual override capability for after hours use.

For exterior lighting: Only light areas as required for safety and comfort. Do not exceed 80% of the lighting power densities for exterior areas and 50% for building facades and landscape features as defined in appropriate test standards. Follow requirements of appropriate zone as defined by test standards.

Subtotal from Sustainable Sites: 5 points

Water Efficiency

WE Credit 1.1. Water Efficient Landscaping, Reduce by 50% (1 pt): Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case through the use of plant species factors, irrigation efficiency, use of captured rain-water, recycled wastewater, and/or use of water treated and conveyed by a public agency for non-potable uses.

WE Credit 1.2. Water Efficient Landscaping, No Potable Use or No Irrigation (1 pt in addition to previous point): Eliminate the use of potable water used for landscape irrigation through the use of the methods listed in the previous item.

WE Credit 2. Innovative Wastewater Technologies (1 pt): Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures or non-potable water.

WE Credit 3.1. Water Use Reduction, 20% Reduction (1 pt): Employ various strategies that allow use of 20% less water than the water use baseline calculated for the building, based on occupant usage for water closets, urinals, lavatories, showers, and sinks.

WE Credit 3.2. Water Use Reduction, 30% Reduction (1 pt in addition to previous point): Employ various strategies that allow use of 30% less water than the water use baseline calculated for the building, based on occupant usage for water closets, urinals, lavatories, showers, and sinks.

Subtotal from Water Efficiency: 5 points

Energy & Atmosphere

Fundamental Commissioning of the Building Energy Systems (**Required**): Designate a commissioning team and Commissioning Authority (CxA). CxA shall lead, review, and oversee the completion of the commissioning process activities, including review and reporting on construction documents and installation and performance of building HVAC, lighting, plumbing, and energy systems.

Minimum Energy Performance (**Required**): Design the building project to comply with appropriate test standards for energy efficiency.

Fundamental Refrigerant Management (**Required**): Zero use of CFC-based refrigerants in HVAC systems.

EA Credit 1. Optimize Energy Performance (**1-10 pts**): Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per proper test standards. Meet minimum energy cost savings percentage for applicable point threshold. Example (assumed) – 24.5% energy cost savings will result in **5 points**.

EA Credit 2. On-Site Renewable Energy (**1-3 pts**): Use on-site renewable energy systems to offset building energy cost. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building annual energy cost. Example (assumed) – 7.5% renewable energy will result in **2 points**.

Subtotal from Energy & Atmosphere: 7 points

Materials & Resources

Storage & Collection of Recyclables (**Required**): Provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics, and metals.

MR Credit 5.1. Regional Materials, 10% Extracted, Processed, & Manufactured Regionally (**1 pt**): Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value, not including mechanical, electrical, plumbing, and specialty components.

MR Credit 5.2. Regional Materials, 20% Extracted, Processed, & Manufactured Regionally (**1 pt** in addition to previous point): Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 20% (based on cost) of the total materials value.

Subtotal from Materials & Resources: 2 points

Indoor Environmental Quality

Minimum IAQ Performance (**Required**): Meet the minimum requirements of appropriate test standards for mechanical ventilation and natural ventilation.

Environmental Tobacco Smoke Control (**Required**): Prohibit smoking in the building and locate any exterior designated smoking areas at least 25 feet away from entries, outdoor air intakes, and operable windows.

EQ Credit 1. Outdoor Air Delivery Monitoring (**1 pt**):

For mechanically ventilated spaces:

Monitor carbon dioxide concentrations within all densely occupied spaces (such as retail). For non-densely occupied spaces (such as retail storage), provide direct outdoor airflow measurement device capable of measuring the minimum outdoor airflow rate meeting minimum test standards.

For naturally ventilated spaces:

Monitor carbon dioxide concentrations.

EQ Credit 2. Increased Ventilation (**1 pt**):

For mechanically ventilated spaces:

Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by appropriate test standards.

For naturally ventilated spaces:

Use macroscopic, multi-zone, analytical model to predict that room-by-room airflows will effectively naturally ventilate, defined as providing the minimum ventilation rates required by appropriate test standards, for at least 90% of occupied spaces.

EQ Credit 4.1. Low-Emitting Materials, Adhesives & Sealants (**1 pt**): All adhesives and sealants used on the interior of the building (retail and other enclosed spaces) shall comply with requirement of the appropriate test standards for VOC limit.

EQ Credit 4.2. Low-Emitting Materials, Paints & Coatings (**1 pt**): All paints and coatings used on the interior of the building (retail and other enclosed spaces) shall comply with requirement of the appropriate test standards for VOC limit.

EQ Credit 7.1. Thermal Comfort: Design (**1 pt**): Design HVAC systems and the building envelope to meet appropriate test standards.

EQ Credit 7.2. Thermal Comfort: Verification (**1 pt**): Implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. Develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building.

EQ Credit 8.2. Daylight & Views, Views for 90% of Spaces (**1 pt**): Achieve direct line of sight to the outdoor environment via vision glazing for building occupants in 90% of all regularly occupied areas.

Subtotal from Indoor Environmental Quality: 7 points.

Innovation & Design Process

ID Credit 2. LEED Accredited Professional (**1 pt**): At least one principal participant of the project team shall be a LEED Accredited Professional.

Subtotal from Innovation & Design: 1 point

Total of assumed LEED points: 27 points

Resulting classification of project: "Certified"

Other LEED Points for Consideration

SS Credit 4.2. Alternative Transportation, Bicycle Storage & Changing Rooms (1 pt): Provide secure bicycle racks for 5% of more of all building users and provide shower and changing facilities in the building for 0.5% of full-time equivalent occupants.

EA Credit 3. Enhanced Commissioning (1 pt): Implement additional commissioning process activities in addition to requirements of Energy & Atmosphere requirement listed above, including additional reviews of design documents, review of contractor submittals related to building systems, development of a systems manual for building staff, training of operating personnel, review building operation within 10 months of substantial completion, resolve outstanding commissioning issues, etc.

EA Credit 5. Measurement & Verification (1 pt): Implement a plan that meets appropriate standards for measurement and verification of building energy consumption covering a period of at least one year of post-construction occupancy.

EA Credit 6. Green Power (1 pt): Provide at least 35% of the building's electricity from renewable sources by engaging in at least a two year renewable energy contract, with renewable sources meeting appropriate standards.

MR Credit 2.1. Construction Waste Management: Divert 50% From Disposal (1 pt): Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris, not including excavated soil and land-clearing debris.

EQ Credit 3.1. Construction IAQ Management Plan: During Construction (1 pt): Implement an indoor air quality management plan for the construction and pre-occupancy phases of the building, including maintaining indoor air quality that meets minimum test standards, protection of absorptive materials from moisture, and meeting minimum filtration standards on any permanently installed air handlers used during construction.

EQ Credit 3.2. Construction IAQ Management Plan: Before Occupancy (1 pt): Implement an indoor air quality management plan for the pre-occupancy phase, including performing tests of IAQ (after construction ends and prior to occupancy) that meet appropriate test standards to demonstrate that the contaminant concentrations fall below designated maximums.

Potential additional LEED points: 7 points

Resulting classification if all items are included (34 points): "Silver"