



## LEED for Core & Shell Development: Current Status

The 77 K Street project is not pursuing LEED accreditation though the idea was considered but not until well into the design and planning process. After conducting a LEED benchmark survey, the design team realized that the building only achieved a 4.8% energy savings compared to a baseline model. This is significantly shy of the 14% minimum LEED prerequisite requirement for *Energy & Atmosphere Credit 1: Optimize Energy Performance*. Because the idea of LEED accreditation was first considered late in the project and significant time and cost implications would be incurred, the project team opted not to pursue accreditation though minor LEED items are being pursued for the sake of sustainability and efficiency.

The overarching theme of my thesis research will be analyzing ways in which the 77 K Street project could begin to take steps towards gaining accreditation. Key areas that will be explored include glazing selection and the incorporation of a green roof. Design changes are merely suggestions that could have been incorporated early in the design process. Estimates of cost implications are based on this assumption that they were incorporated in early design.

The applicable LEED rating system for the 77 K Street project would be LEED for Core & Shell Development, Version 2.0. This rating system contains a total of 61 points as detailed in Figure 2.1. The 61 point system requires a minimum of 23 points for the minimum accreditation level of LEED certified.

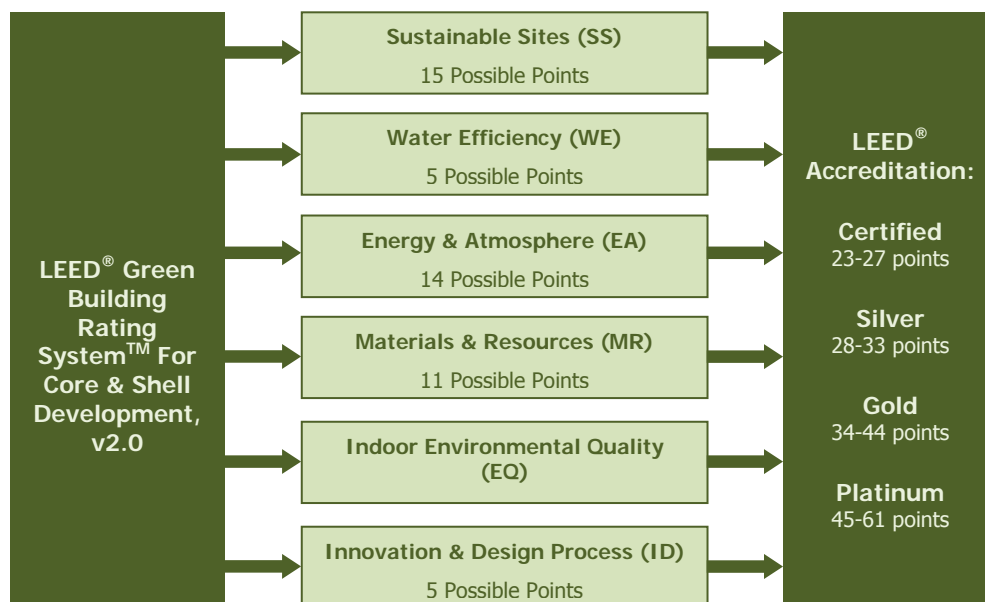


Figure 2.1: LEED for Core and Shell Development

# 77 K STREET

Washington, DC

Todd Povell | Construction Management | Consultant: Dr. John Messner

---



The current building design would obtain four credits in the Sustainable Sites (SS) category and potentially two additional credits in the Indoor Environmental Quality (EQ) category.

## Sustainable Sites Credit 1.0,

*Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.*

The site on which the 77 K project sits abides by all environmental criteria listed within the credit description.

## Sustainable Sites Credit 2.0,

*Channel development to urban areas with existing infrastructure, protect greenfields and preserve habitat and natural resources.*

The building is located on a previous development and within a community exceeding a density of 60,000 square feet per acre. Therefore, the credit is obtained.

## Sustainable Sites Credit 4.1,

*Reduce pollution and land development impacts from automobile use.*

The building is located within a ¼ mile from multiple public bus stops and obtains one credit.

## Sustainable Sites Credit 7.1,

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

This credit is achieved with the use of Portland cement sidewalks which have a surface reflectance index of 0.4 to 0.5 which surpasses the credit requirement of 0.29 SRI.

## Indoor Environment Quality Credit 8.1,

*Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.*

Illumination levels must be modeled to determine whether or not 75% of all occupied spaces achieve a daylight illumination level of 25 footcandles. According to their product data, glass types VE 1-85 and VE 1-2M, the two types of glazing used on 77 K Street, both exceed this requirement.

## Indoor Environment Quality Credit 8.2,

*Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.*

A tenant space layout must be developed to determine whether 90% of occupied spaces have direct lines of sight to the outdoors via vision glass. With an open floor layout, this credit will be achieved.

The two key analysis areas, the incorporation of a green roof and the selection of an alternative glazing system, were chosen for their ability to contribute a significant number of points towards ultimately reaching the minimum accreditation level. It is not suggested that adding these two design changes alone would allow the 77 K Street project to gain accreditation. Additional changes to the current project's scope and design would be required as well.