

---

# Comparison of LEED Rating Systems

---



# Comparison of LEED Rating Systems

## Introduction

Since its inception in 1998, LEED has emerged as the preeminent ruling body among green building standards organizations. It has been the leader in incorporating and accurately representing emerging green building technologies, and LEED certification is widely considered the highest form of accreditation. This paper addresses LEED rating systems, and discusses which rating system is appropriate for various project types.

The goal of the paper is to provide you with a better understanding of the LEED rating systems. We'll provide an overview of each system and outline the major differences among the various systems, which should help you in choosing the correct rating system according to your project type. We'll describe the aspects of each of the systems that make them unique, and we'll discuss the distribution of credits across rating systems.

## LEED Fundamentals

### What does "LEED" stand for?

If you've ever tried to find out exactly what the letters are short for, you might be surprised at the amount of effort it takes to find the full name spelled out. So let's take care of that, because it is, in fact, helpful to know just why everyone seems to want LEED certification: LEED is an acronym for Leadership in Energy and Environmental Design.

There. Kinda helps explain why it's the hot thing, doesn't it?

### Okay, but what exactly is LEED?

Well, if you ask the United States Green Building Council (USGBC) by going to their website and clicking on LEED, the introduction states,

*LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.*

But that's not all. If you dig a little deeper and go to the "LEED Rating Systems" page, you'll find a restated but slightly more specific explanation:

*LEED is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.*

### Where did all this come from?

The USGBC – a non-profit trade organization that champions sustainability in the way buildings are designed, built, and operated – was founded in 1993 by a committee of thought and industry leaders.

The original LEED committee was headed by Robert K. Watson, former Director of the Green Building and International Energy Programs at the Natural Resources Defense Council – a New York-based non-profit, non-partisan international environmental advocacy group. As Founding Chairman of the LEED Steering Committee, a position he held until 2006, Watson oversaw a "broad-based consensus process that included non-profit organizations, government agencies, architects, engineers, developers, builders, product manufacturers and other industry leaders."

The founding members quickly saw the need for a system that would define and measure exactly what constituted "green building." They began researching existing green building metrics and rating systems and launched the first LEED pilot project program in 1998 (LEED v 1.0).

After extensive modifications to that pilot program, LEED version 2.0 was launched in 2000, under the new name of LEED Green Building Rating System for New Commercial Construction and Major Renovations (LEED NC).

Between 2000 and 2009, rating systems were developed and pilot programs were launched for LEED Commercial Interiors (CI), LEED for Schools (S), LEED for Core & Shell (CS), LEED Retail (R), LEED for Existing Buildings (EB), LEED for Homes (H), LEED for Neighborhood Development (ND), and LEED for Healthcare (HC).

## Contents

Introduction . . . . .	1
LEED Fundamentals. . . . .	1
LEED Credits . . . . .	2
Outline of LEED Rating Systems . . . . .	2
Which Rating System Should You Use? . . . . .	2
Unique Aspects of Rating Systems . . . . .	7
Distribution of Credits across Rating Systems . . . . .	10
Conclusion . . . . .	11

In 2006, all LEED documentation went online – replacing a system that initially required architects and other professionals to submit two three-ring binders of documents to achieve LEED certification (and engendered innumerable complaints about all the paperwork).

LEED v 3.0 went live in 2009. Among the major changes was the development of the Green Building Certification Institute (GBCI) – a third-party organization charged with handling the review of all LEED documentation. The various rating tracks remained in place, but many of the reference guides were condensed.

## LEED Credits

### That’s Heavy

The current credit system was established in LEED v 3.0, which established the practice of weighting credits. The allocation of points between credits is based on the potential environmental impacts and human benefits of each credit, with the USGBC using National Institute of Standards and Technology (NIST) and the US Environmental Protection Agency’s TRACI (Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts) environmental impact categories as the basis for weighting each credit. Overall, the changes increase the relative emphasis on the reduction of energy consumption and greenhouse gas emissions.

The USGBC website talks about how the credits are weighted in great detail. It’s a very complicated system, so a closer look is in order if you’re planning a project.

In addition, as of LEED 3.0, all credits are worth a minimum of 1 point. All LEED credits are positive, whole numbers; there are no fractions or negative values. All LEED rating systems have 100 base points.

### But wait! If you call right now...

Innovation in Design and Regional Priority credits provide opportunities for up to 10 bonus points – meaning there is a total of 110 points in all the rating systems. Regional Priority credits have also been introduced to address geographically specific environmental issues. Each regional priority credit is worth one additional point, for a maximum total of 4 additional credits.

## Outline of LEED Rating Systems

Figure 1 gives you a brief overview of each of the nine current LEED rating system tracks. Some of them, such as LEED for Retail, LEED for Healthcare, and LEED for Existing Schools, are still in pilot and have not yet released official reference manuals.

Figure 2 reflects the USGBC’s efforts to simplify and condense some of the reference manuals, using color-coding to show which reference guides are associated with specific rating systems. Note that all of the “orange” systems – New Construction, Core & Shell, Schools, Healthcare, and Retail – are all contained in the Green Building Design & Construction Reference Guide.

## Minimum Program Requirements

In 2009, LEED instituted Minimum Program Requirements (MPRs) for each of its rating systems. A project is a viable candidate for a LEED certification if it can meet all the prerequisites for – and achieve the minimum points required for – a given rating system. While many projects qualify for only one rating system, others may be eligible for multiple rating systems.

See Figure 3 for a quick reference guide pertaining to MPRs:

Not all systems released updated manuals in 2009 – specifically, LEED for Homes and LEED for Healthcare – but the Minimum Program Requirements are virtually identical across the board for the three newest manuals. Thus, it is likely that the MPRs will be similar – if not identical – for the remaining rating systems. LEED for Homes has not yet formally adopted these Minimum Program Requirements, but it is expected that will happen in the near future.

It should also be noted that LEED for Neighborhood Design does not have to comply with the MPRs.

## Which Rating System Should You Use?

Now that we’ve gone over the rating systems, knowing just which one to choose is a no-brainer, right?

Nope. You may already have had an inkling – in light of the fact that we’ve written a whole paper on the topic – that when choosing a rating system, sometimes the devil is in the details. And you may recall our statement that while some projects qualify for only one rating system, others may qualify for more than one. So – how to choose?

Time to read the fine print. We’ll start with the granddaddy of them all, the rating system that laid the foundation for all those that followed – LEED for New Construction and Major Renovations.

### LEED for New Construction and Major Renovations (NC)

LEED for New Construction and Major Renovations was designed primarily for new commercial office buildings, but it can be applied to many various project types. All commercial buildings, as defined by standard codes, are eligible. This includes offices, institutional buildings (libraries, museums, churches, etc.), hotels, and residential buildings of four or more habitable stories.

In this instance, a Major Renovation constitutes major HVAC renovation, significant envelope modifications, and major interior rehabilitation.

What quantifiably constitutes a major renovation? Well, if we take a peek ahead at the LEED for Existing Building (EB) rating system, we find that it provides a defined scale of renovations that ranges from minor repairs to major overhauls. It becomes clear when you are looking at LEED EB that a major renovation is defined as an alteration that affects more than 50 percent of the total building floor area, and/or causes the relocation of more than 50 percent of the building’s regular occupants. This also includes building additions that increase the total building floor area by more than 50 percent. So, it starts becoming evident that we’re often looking at 50 percent as a

# LEED Rating System

- NC New Construction**  
LEED for New Construction and Major Renovations is designed to guide and distinguish high-performance commercial and institutional projects.

**EB Existing Buildings: Operations & Maintenance**  
LEED for Existing Buildings: Operations & Maintenance provides a benchmark for building owners and operators to measure operations, improvements and maintenance.

**CI Commercial Interiors**  
LEED for Commercial Interiors is a benchmark for the tenant improvement market that gives the power to make sustainable choices to tenants and designers.

**CS Core & Shell**  
LEED for Core & Shell aids designers, builders, developers and new building owners in implementing sustainable design for new core and shell construction.
- S Schools**  
LEED for schools recognizes the unique nature of the design and construction of K-12 schools and addresses the specific needs of school spaces.

**R Retail**  
LEED for Retail recognizes the unique nature of retail design and construction projects and addresses the specific needs of retail spaces.

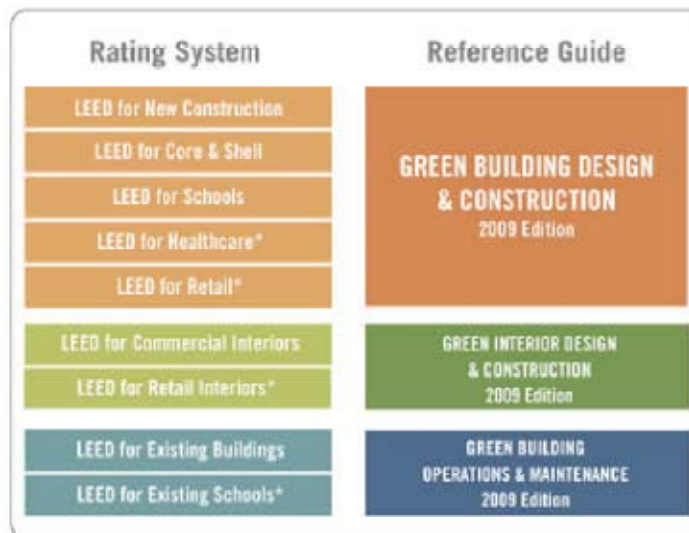
**H-C Healthcare**  
LEED for Healthcare promotes sustainable planning, design and construction for high-performance healthcare facilities.

**H Homes**  
LEED for Homes promotes the design and construction of high-performance green homes.

**ND Neighborhood Development**  
LEED for Neighborhood Development integrates the principles of smart growth, urbanism and green building into the first national program for neighborhood design.

Figure 1. LEED Rating System

# LEED Rating System



\* These rating systems are under development or in pilot. Once they are available supplements will be sold for the new LEED 2009 Reference Guides.

Figure 2. LEED Rating System

## Meeting Program Requirements

1. Project must comply with **Environmental Laws**.
2. Project must be a **Complete, Permanent Building or Space**. All LEED projects must be designed for, constructed on, and operated on a permanent location on already existing land. No building or space that is designed to move at any point in its lifetime may pursue LEED certification.
3. Project must use a **Reasonable Site Boundary**.
4. Project must comply with **Minimum Floor Area Requirements**. The project must include a minimum of 1,000 SF of gross floor area (250 SF if using LEED CI).
5. Project must comply with **Minimum Occupancy Rates**. The project must serve 1 or more full time equivalent occupants. If the project serves less than 1 annual FTE occupant, credits from the Indoor Environmental Quality category may not be earned.
6. Project must commit to **Sharing Whole-Building Energy and Water Usage Data**.
7. Must comply to a **Minimum Building Area to Site Area Ratio**. The gross floor area of the project must be no less than 2% of the gross land area within the project boundary.

Note: No. 6 must be carried out for a minimum of 5 years – must carry forward if the building or project changes ownership.

Figure 3. Meeting Program Requirements

baseline when it comes to determining what constitutes a major renovation.

Projects designed and constructed to be partially occupied by the owner or developer, and partially occupied by other tenants may also qualify under LEED for New Construction and Major Renovation. In these cases the owner or tenant must occupy more than 50 percent of the building's leasable square footage. So note that again, 50 percent comes up as a main goal.

### LEED for Existing Buildings: Operations and Maintenance (EB:OM)

LEED for Existing Buildings was designed to certify the sustainability of ongoing operations of existing commercial and institutional buildings. All such buildings as defined by code are eligible for LEED EB. This includes but is not limited to: offices, retail and service establishments, institutional buildings such as libraries, schools, museums, churches, hotels and residential buildings of four or more habitable stories.

Note that this definition is quite similar to the LEED for New construction definition. What differentiates them is if the project scope of any renovation focuses **more on operations and maintenance** activities than on design and construction activities, then **LEED EB** is the appropriate rating system.

This rating system is also applicable to buildings new to LEED certification or those previously certified under LEED NC, LEED for Schools or LEED for C+S. These can be either ground up or new construction or existing buildings having undergone major renovations.

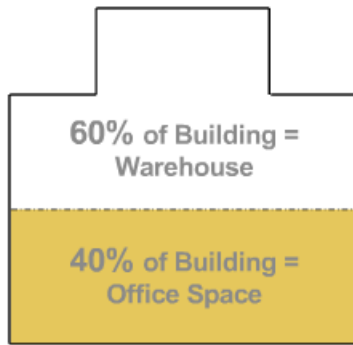
Although LEED EB focuses mainly on sustainable ongoing operations, it also embraces sustainable alterations and new additions. So, alterations and additions have a definition slightly different from general parlance when it comes to LEED EB. Specifically, the term refers to changes that affect usable space in the building. As we progress, you will see that usable space is a key term here.

At Minimum: Alterations must include construction activity by more than one trade specialty, make substantial changes to at least one entire room, and require isolation of the work site from occupants for the duration of construction. Additions must increase the total building floor area by 5 percent or more.

At Maximum: Alterations should affect no more than 50 percent of the total building floor area or cause relocation of no more than 50 percent of regular building occupants.

If you fall between minimum or max requirements, you qualify for LEED EB. If you exceed the maximum requirement, you must use the LEED NC credential. LEED EB applies only to whole buildings. Multi-tenant buildings and single buildings that contain floor area under the ownership of more than one entity must meet a specific set of requirements – the main one being that the scope of the project must involve at least 90 percent of the gross floor area.

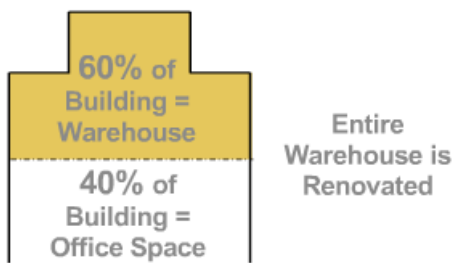
LEED EB applies only to usable space – mechanical, electrical and plumbing upgrades that require no alteration to the usable space do not qualify for LEED EB certification. An example:



If you have a building used as outlined above, and the entire office space is being renovated, what rating system should you use?

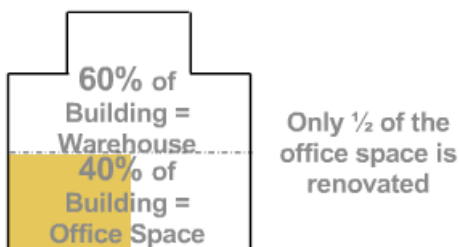
It actually qualified for LEED NC, since approximately 95 percent of occupants would be displaced – which exceeds the maximum of 50 percent allowed by LEED EB.

But if you were renovating the warehouse space, it would likely not qualify for any LEED rating system – since the occupants wouldn't be displaced during renovation and you are not really affecting the usable space.



### NO LEED RATING SYSTEM

If, on the other hand, you were renovating half the office space, you would qualify for LEED EB – because you're renovating 50 percent of the office space and displacing 50 percent of the occupants, which meets the requirement.



### LEED EB

### LEED for Commercial Interiors (CI)

LEED CI addresses the specifics of tenant spaces primarily in office, retail, and institutional buildings. LEED CI was designed to work hand-in-hand with the LEED for Core + Shell, which is used by developers to certify the core and shell of a project and prepares the building for environmentally conscious tenants.

Note: In the original reference guide for Commercial Interiors, tenants that leased part or all of a building were formerly excluded from using CI in the original reference guide, but this verbiage has been removed.

### LEED for Core + Shell (CS)

LEED for Core + Shell recognizes the limited level of influence a developer can exert in a speculatively developed building.

LEED for Core + Shell can be used for projects in which the developer controls the design and construction of the entire core and shell base building – all mechanical, electrical, plumbing, and fire protection systems – but has no control over the design and construction of the tenant fit-out. Examples include commercial office buildings, medical office buildings, a retail center, warehouses, or even a lab facility.

If a project is designed and constructed to be partially occupied by the owner or developer, the owner must occupy 50 percent or less of the building's leasable square footage.

Keep in mind that if the owner occupies more than 50 percent of the building's leasable square footage, the project must use the LEED NC rating system.

### LEED for Schools (S)

LEED for Schools addresses design and construction activities for both new school buildings and major renovations of existing school buildings.

LEED for Schools must be used for the construction or major renovation of an academic building on K-12 school grounds.

Does this mean there is some way you can use LEED NC or any other rating system if need be?

Teacher says: No!

While there are some non-academic buildings that might be able to use another rating system, all academic buildings must use LEED S and LEED S only.

### LEED for Retail: Commercial Interiors (CI)

### LEED for Retail: New Construction (NC)

The third pilot draft was released in 2009 and LEED for Retail is currently in ballot.

The rating system is intended solely for retail spaces. It is divided to cover LEED for Retail: Commercial Interiors and LEED for Retail: New Construction.

Both systems recognize the unique nature of the retail environment and address the different types of spaces retailers require for their distinctive product lines.

### LEED for Healthcare (HC)

LEED for Healthcare was developed to meet the needs of the healthcare market, including inpatient care facilities, licensed outpatient care facilities, and licensed long-term care facilities.

This rating system may also be used for medical offices, assisted living facilities and medical education and research centers.

The first public comment period for this track is currently closed. A second public comment period will begin shortly. Any projects wishing to pursue LEED for Healthcare may be included in the pilot program.

The USGBC partnered with the Green Guide for Healthcare, an already-established organization, to develop the LEED for Healthcare tracking system, and the two entities are working together to develop the LEED reference manual for this rating system.

## LEED for Homes (H)

To qualify to participate in LEED for Homes the building must be defined as a 'dwelling unit' by all applicable codes.

This includes but is not limited to the International Residential Code stipulation that a dwelling unit must include "permanent provisions for living, sleeping, eating, cooking, and sanitation." This has been interpreted by LEED for Homes to mean that participating homes must have a cooking area and a bathroom. The cooking area should be at the very least a kitchenette including a sink, cooking appliance (such as a stove, oven, and/or microwave) and preparation space.

There are other significant stipulations that apply to LEED for Homes. For instance,

- LEED for Homes certification must be granted to an individual building:
  - » A building cannot be partially certified
  - » Each unit in a multi-family building must reach the same certification level. You can't certify a group of buildings even if they all follow the same protocol – each one must be certified independently. A ground-floor unit has to have the same certification level as a higher level – you can't, say, have the ground floors in a multi-tenant building certified LEED Gold and the next floor certified LEED Silver – though it would be quite the catchy marketing gimmick!
  - » Separate buildings must be certified separately – you can't have one LEED Gold-certified building in your mythical four-building apartment complex and advertise that all your properties are LEED Gold certified – even if they were built to the same specifications.

## What's the Story?

A "story" in LEED for Homes includes any floor with living or commercial space. However, a floor that is 80 percent or more garage space is not considered a story for the purposes of LEED. That said, here are the different types of dwellings that are eligible for LEED certification:

- **Detached Single-family Homes.**
- **Attached Single-family Homes** – single-family homes that share one or more vertical parti walls with other homes, those are eligible. This category also includes row houses and townhomes, but does not include stacked duplexes or triplexes.

- **Low-rise Multi-family Homes** – homes between 1 and 3 stories high that include two or more dwelling units. This includes stacked attached homes such as condos. Single units are not eligible to participate; the entire building must be registered.
- **Mid-rise Multi-family Buildings** – 4 to 6 stories with at least two dwelling units. These buildings are allowed to participate in the LEED for Homes Mid-rise Pilot (a program that is very similar to LEED for Homes).
- **Substantial Gut/Rehab** – a project of this type must replace most of the systems and components of the building - for instance HVAC system and windows; and they must open up exterior walls to enable a thermal bypass inspection. This doesn't mean all exterior walls must be opened, but you must have sample selections throughout the building.
- **Manufactured and Modular Housing** – The manufacturing plants that produce these units cannot themselves be certified, but the individual homes can earn certification. Such projects generally require the involvement of the plant manager or owner.
- **Mixed-use Buildings** – a minimum of 50 percent of the building's total floor area must be residential, and it is expected that a "green" tenant fit-out guideline will be prepared for the tenants coming in.
- **Dormitories and Assisted Living Facilities** – these projects are identified by the presence of a central kitchen facility and the fact that they fall outside the scope of ASHRAE 62.2. Any building of this type that does not have cooking or bathroom facilities cannot participate in LEED for Homes.
  - » There are 2 separate categories here, for small units and for large units. In talking about LEED for Homes with reference to dormitories, you may recall that this came up for discussion when we were talking about LEED for Schools.
  - » If a dormitory is on a campus, it can use LEED for Schools, LEED for New Construction, or LEED for Homes. It's up to the project team to decide which designation to use.

## A Little Q&A

*I have a summer home in Canada and I want it to be LEED Certified...what should I do?*

There is a separate Canadian version of LEED for those that want to be certified in Canada.

*I have a summer home in every country except the U.S. and Canada – what should I do?*

Let your conscience be your guide! At the moment, projects outside the US – including US territories – are not eligible for LEED certification.

*I live on a military base – how do I get my building LEED certified?*

Sorry – military bases are not allowed to participate in LEED.

## LEED for Neighborhood Development (ND)

LEED ND is designed to certify exemplary development projects that perform well in terms of smart growth, urbanism, and green building. Eligible projects may constitute whole neighborhoods, portions of neighborhoods, or multiple neighborhoods. There is no minimum or maximum size. However, the LEED core committee's research has determined a reasonable minimum size to be at least two habitable buildings. The maximum area that can appropriately be considered a neighborhood by their definition is 320 acres.

Small infill projects that are single use but complement existing neighborhoods, such as new affordable housing infill in an already well-served retail and commercial area, those are also good candidates for certification.

Existing neighborhoods can use this rating system, as can suburban neighborhoods. These project types present additional complexity to using LEED for Neighborhood Design, but it is possible.

LEED for Neighborhood Design was not intended for college dorms, college campuses, or military bases. In the majority of these applications, LEED ND certification is not viable – though in certain very specific situations it could be achieved. Areas such as neighborhoods adjacent to a campus or military base that are intended for use by students or military personnel may qualify.

## Unique Aspects of Rating Systems

Now that you have an overview of the different rating systems, let's discuss some of the unique aspects of each.

### LEED EB

LEED for Existing Buildings: Operations and Maintenance has an initial certification of performance period and then a recertification process.

The LEED EB certification application requires performance data for the building and site over a "performance period." This period must be a continuous, unbroken length of time during which the performance of sustainable operations is being measured. The performance period may not have any gaps (gaps being defined by LEED as any period of time longer than one week).

In this instance, the performance period is the most recent period of operations preceding initial certification – a minimum of three months for all prerequisites and credits except Energy and Atmosphere prerequisite 2 and credit 1 (which have to do with optimizing energy performance). Those have **longer** minimum durations of one year...you didn't think they'd be shorter, did you?

Based on the one-year requirement for initial certification for energy optimization credits, it is critical that project teams stay diligent in recording operations and data for their project – otherwise, the time period will just be continually extended until a year's worth of uninterrupted documentation is available. It should also be noted that if the project team wishes to extend the minimum initial certification period, the USGBC will allow you to extend the initial application up to 24 months.

That extension might be helpful to buildings undergoing major renovations whose systems may need more time to be properly balanced and adjusted. The building may not be hitting its targets in the first few months, but with time, the project team can adjust properly and reach and maintain targeted efficiencies. If you record all of your building performance for one year and you are not hitting the targets you expected, you can extend the initial application a little bit longer and hopefully meet all your targets.

Start times and durations of performance periods all need to start within about a week of one another.

### Recertification

Recertification is unique to LEED EB. Any first-time certification application to the rating system is considered an initial LEED EB certification. But to maintain your LEED EB status, projects must recertify within a specific performance period. Buildings can apply for recertification as frequently as each year, but they must file for recertification at least once every five years. If the five-year period lapses, a building must start from scratch and provide a brand new initial certification application.

The advantage to maintaining your certification in this system is that recertification requires a lot less documentation than that first initial certification – and the performance period for credits under recertification is the entire period of time between the previous certification and the current application. Additional credits may be attempted during recertification. If additional credits are attempted, their performance period is as prescribed in the "initial certification" requirements.

You can achieve higher levels of certification (gold from silver, for instance) over time.

### LEED CS

**P**recertification is unique to LEED Core + Shell. Projects may pursue it at their discretion. If achieved, it gives building owners and developers a marketing tool to attract potential tenants and financiers who recognize the benefits of a LEED-certified building.

### A Little Q&A

*How is it achieved?*

Once a project is registered with the USGBC, the LEED Core & Shell Precertification Document must be completed and submitted for review. Documentation for precertification is less rigorous and comprehensive than that of full certification relying on the intent of the project as opposed to actual achievement.

*What does it mean, exactly?*

Well, Precertification is not LEED Certification. It is a commitment to comply with the requirements of full certification. It can be used to attract financing and enhance a building's appeal to a potential tenant, but it is not yet a LEED-certified building.



## LEED H

The certification process for this rating system takes into account the probability of a developer being used or the owner working as General Contractor on the construction of his or her own home.

The U.S. Green Building Council takes into account that an architect and team of engineers may not be used on the project. Because of that, every LEED for Homes project team **must work with a designated LEED for Homes Provider**, who coordinates with a Green Rater. A list of providers can be found at [www.usgbc.org](http://www.usgbc.org).

## Certification Process: The Green Rater – Any Relation to the Green Hornet?

The Provider will prepare the final submittal package for LEED certification and oversee verification services of the Green Rater. The Green Rater will come out to the project site. They will come out once during construction and once following completion of the project to ensure that green measures are actually being installed. They will also oversee all performance testing and verify that the home meets the benchmarks set by LEED.

The project team contracts directly with the LEED for Homes Provider, and the LEED for Homes Provider coordinates with the Green Rater and the USGBC. Thus, the project Team itself (which could be the owner or the developer) is not required to prepare any of the documentation for certification – that honor goes to the Green Rater and the LEED for Homes Provider. This kind of flips the certification process around a little bit, so a third party is preparing all the documentation and doing all the verification.

## The Home Size Adjuster

The home size adjuster (Figure 4) is not a person, thank goodness – it's a table that lets you adjust the rating system according to the footage and size of the home.

# LEED H

## Home Size Adjuster

The number of points required for certified, silver, gold and platinum levels is adjusted based on the size of the home being built. Smaller than average homes are required to attain a fewer number of points to reach the same level of certification as larger than average homes.

According to the home size adjuster the following are considered 'average' sized homes:

- 1 Bedroom = 900 SF
- 2 Bedrooms = 1400 SF
- 3 Bedrooms = 1900 SF
- 4 Bedrooms = 2600 SF
- 5 Bedrooms = 2850 SF

The HSA also provides calculations for multifamily buildings.

Maximum home size (ft <sup>2</sup> ) by number of bedrooms					Adjustment to award thresholds*
≤ 1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms	5 Bedrooms	
610	950	1290	1770	1940	-10
640	990	1340	1840	2010	-9
660	1030	1400	1910	2090	-8
680	1070	1450	1990	2180	-7
710	1110	1500	2060	2260	-6
740	1160	1570	2140	2350	-5
770	1200	1630	2230	2440	-4
800	1250	1690	2320	2540	-3
830	1300	1760	2400	2640	-2
860	1350	1830	2500	2740	-1
<b>900</b>	<b>1400</b>	<b>1900</b>	<b>2600</b>	<b>2850</b>	<b>0 ("neutral")</b>
940	1450	1970	2700	2960	+1
970	1510	2050	2810	3080	+2
1010	1570	2130	2920	3200	+3
1050	1630	2220	3030	3320	+4
1090	1700	2300	3150	3460	+5
1130	1760	2390	3280	3590	+6
1180	1830	2490	3400	3730	+7
1220	1910	2590	3540	3880	+8
1270	1980	2690	3680	4030	+9
1320	2060	2790	3820	4190	+10

For larger homes, or homes with more bedrooms, see below.

*Note: As an example, an Adjustment of -5 means that the threshold for a "Certified" LEED home is 40 points (rather than the 45 points for an averaged sized home). Similarly, Silver would require a minimum of 55 points rather than 60 points; Gold would require a minimum of 70; and Platinum would require a minimum of 85 points.*

Figure 4. Home Size Adjuster

This is a way of creating a “neutral” category, where you don’t have to add or subtract any points from your overall total. If your building is smaller than this – for instance, if a one bedroom is smaller than 900 square feet – you only need to achieve 99 points (instead of 100 points). It’s just a way of adjusting the rating system for larger or smaller homes.

## LEED ND

LEED ND focuses on the development of neighborhoods as opposed to the construction of specific buildings. Unlike other LEED rating systems, which offer only a few credits for site selection and design, LEED ND places emphasis on the site selection, design, and construction elements that bring buildings and infrastructure together into a neighborhood, and that relate the neighborhood to its landscape as well as to its local and regional context.

Whereas other LEED rating systems have five environmental categories, LEED ND has only three:

- Smart Location and Linkage
- Neighborhood Pattern and Design
- Green Infrastructure and Buildings

They also provide an Innovation in Design and Regional Priority credit. LEED ND and LEED for Homes are designed to work together, so a lot of their various credits fit hand-in-hand.

LEED for Neighborhood Development attempts to redefine the way that we think about neighborhoods. LEED defines a neighborhood as an area of dwellings, employment, regional and civic places – the immediate environment residents and/or employees identify with in terms of social and economic attitudes, lifestyles, and institutions.

See Figure 5



Figure 5. LEED ND

The neighborhood as laid out in LEED ND is in stark contrast to sprawling development patterns, which create pod-like clusters that are disconnected from surrounding areas. LEED for Neighborhood Development values neighborhoods that meet all of our basic needs - for housing, employment, shopping, civic functions, and more – but which are in formats that are

compact, complete, connected and ultimately more sustainable and diverse.

The metrics of these neighborhoods vary in size, density and demographics but in general they include identifiable centers and edges, connectedness with the surroundings, walkable streets, and sites for civic uses and social interaction.

Size as a defining feature of the neighborhood suggests that appropriate neighborhood sizes are based on a comfortable walking distance from the neighborhood center to its edges (an area of approximately 40 to 160 acres). See Figure 6.



Figure 6. LEED ND

If you’re going for LEED ND, the project area cannot be more than 320 acres. The USGBC worked hand-in-hand with the charter of the new congress for New Urbanism – so a lot of the characteristics of the neighborhoods run parallel to those of the New Urbanism Movement.

## Certification Stages

Since LEED ND has an innately longer construction period, the certification process has been modified and divided into three separate stages to provide conditional approval at an earlier stage.

### Stage 1: Conditional Approval

This stage is optional at any point before the entitlement process begins, or when less than 50 percent of the project’s building square footage has land-use entitlements. An entitlement is defined as the existing or granted right to use property for specific types and quantities of residential and non-residential land uses. If less than 50 percent of the project’s building area has been granted the right to use the property for this, then the entire project can get conditional approval.

The purpose of this stage is to help the developer build a case for entitlement among land-use planning authorities as well as to attract financing and occupant commitments.

## Stage 2: Pre-certified LEED ND Plan

This stage is available once 100 percent of the project's building square footage has been fully entitled. The project can also be under construction or partially completed, as long as construction is less than 75 percent complete.

**Note:** For the first two stages, a certificate will be issued stating the plan will be eligible to achieve LEED ND certification or that it is a pre-certified LEED ND plan. That is not the same as LEED certification! That comes in Stage 3.

## Stage 3: LEED ND Certified

This final step occurs when the project can submit documentation for all prerequisites and attempted credits, and once certificates of occupancy for buildings and acceptance of infrastructure have been issued by the authorities having jurisdiction.

Once this third stage is met, the plaque that the U.S. Green Building Council issues to all certified projects will be issued for public display.

## Distribution of Credits across Rating Systems

Depending upon the project, there will be more or fewer credit points available in each separate aspect of a project. Credits are also weighted differently. For instance, it is only natural that LEED for Existing Buildings doesn't focus on Sustainable Sites (and offer a lot of heavily weighted credits in that category) the way LEED NC or ND would.

Across the board, in all rating systems except LEED ND, the greatest potential for points comes in the Energy & Atmosphere section, where points range from a 33 possible in LEED for Schools to a 38 possible in LEED for Homes. Since certifications require 100 points—that's over 1/3 of all possible points—this tells us that the USGBC is very concerned and is emphasizing green practices relating to energy use and preservation of the atmosphere.

The second most heavily weighted section is Sustainable Sites – except in LEED EB, as we have discussed.

To give you a visual and clarify the concept here, take a look at Figure 7.

The potential for credits is skewed across rating systems. The Green Building Design & Construction system (in various shades of green) has the most potential for points overall, with the least under LEED EB, with only 12 pts possible.

You can see, using the chart, that in LEED for Homes, there is a potential for 32 points within Sustainable Sites – 10 for Location and Linkages issues and 22 for Sustainable Sites. For LEED NC, a lot of emphasis is placed on SS4.1 - Public Transportation Access, with a potential for 6 points within most rating systems.

Also on the chart, you'll note that there is an Environmental Site Assessment that is unique to – and required for – LEED for Schools certification. The credit is required for all projects attempting LEED for Schools certification. A phase 1 environmental site assessment must be performed, and if any contamination is suspected, a Phase 2 environmental site assessment must be performed. If contamination is found, the site must be remediated. There will be a huge cost impact to the project if they want to use a site that needs remediation!

# Sustainable Sites

	Green Building Design and Construction				Green Interior Design + Construction		Green Building Q + M	LEED for Homes
	LEED NC	LEED S	LEED G+S	LEED R	LEED CI	LEED RI	LEED EB	LEED H
<b>Sustainable Sites</b>								
SSp1	26	24	25	29	21	25	12	
SSp2	R	R	R	R				
SSc1	1	1	1	1	1-5	1-5		
SSc2	5	4	5	5		4		
SSc3	1	1	1	1			1	
SSc4	1	1	1	1			1	
SSc4.1	5	4	5	5	5	5		
SSc4.2	1	1	2	1	2	1		
SSc4.3	3	2	3	1				
SSc4.4	2	2	2	3		3		
SSc4.5				1		1		
SSc4.6				1		1		
SSc4.7				1	2			
SSc5.1	1	1	1	1			1	
SSc5.2	1	1	1	1			1	
SSc6.1	1	1	1	1			1	
SSc6.2	1	1	1	1			1	
SSc7.1	1	1	1	1	1-2		1	
SSc7.2	1	1	1	1			1	
SSc8	1	1	1	1	2		1	
SSc9			1					
SSc9		1						
SSc10		1						
<b>Location and Linkages</b>								
LLc1								10
LLc2								2
LLc3								1
LLc3.2								2
LLc4								1
LLc5								1-3
LLc6								1
<b>Sustainable Sites</b>								
SSp1								22
SSc1								R
SSc2								1
SSc2								2-6
SSc3								1
SSc4.1								4
SSc4.2								1
SSc4.3								2
SSc5								2
SSc6								2-4

Figure 7. Sustainable Sites

There are interesting credits in the group – for instance, LEED Retail projects (both LEED Retail and LEED Retail Interior Design and Construction) can earn a credit for things like providing a comprehensive incentive program for employees who carpool or use alternative transportation; providing a display board or computer to employees and customers detailing bicycle and public transportation routes; and providing a delivery service for large and bulky purchases that is not cost prohibitive.

In LEED ND, almost half the potential points are available in Neighborhood Pattern and Design, which emphasizes the categories you see here:

Neighborhood Pattern and Design		44
NPDp1	Walkable Streets	R
NPDp2	Compact Development	R
NPDp3	Connected and Open Community	R
NPDc1	Walkable Streets	12
NPDc2	Compact Development	6
NPDc3	Mixed-Use Neighborhood Centers	4
NPDc4	Mixed-Use Diverse Communities	7
NPDc5	Reduced Parking Footprint	1
NPDc6	Street Network	2
NPDc7	Transit Facilities	1
NPDc8	Transportation Demand Management	2
NPDc9	Access to Civic and Public Spaces	1
NPDc10	Access to Recreation Facilities	1
NPDc11	Visitability and Universal Design	1
NPDc12	Community Outreach and Involvement	2
NPDc13	Local Food Production	1
NPDc14	Tree-Lines and Shaded Streets	2
NPDc15	Neighborhood Schools	1

These points are not contained in any other rating system – it is pioneering in its promotion of transportation efficiency, walking, land conservation, transit investment, high levels of internal connectivity in projects, development within existing communities, and even public health (by encouraging daily physical activity).

## Conclusion

LEED rating systems continue to evolve and undergo fine-tuning, and as with any relatively new standards body, there's a learning curve for both the designers of the rating systems and the people who want or need to use the systems. A better understanding of all the LEED rating systems stands to benefit everyone in the design and construction industry as they work to build a more sustainable, greener, cleaner future.

## About the Author

Stacey Wehe of Mackey Mitchell Architects is a LEED-accredited professional. Her work experience on LEED projects includes the Wohl Phase 2 Residence Hall at Washington University (LEED Gold), Student Success Center at Southern Illinois University (LEED Certified), Bick-I Building (LEED Gold), Station #4 for the Monarch Fire Protection District (LEED Certified), and LEED prototype designs of retail facilities for two major national retail chains. Stacey also worked with a team of professionals on a brownfields revitalization, the first proposed LEED ND project in the state of Illinois, that received national recognition from the Illinois EPA. Her 'GRoW Home' design for sustainable, affordable housing won an AIA St. Louis Design Award and first place in the U.S. Green Building Council's Natural Talent Design Competition.

[http://en.wikipedia.org/wiki/Leadership\\_in\\_Energy\\_and\\_Environmental\\_Design](http://en.wikipedia.org/wiki/Leadership_in_Energy_and_Environmental_Design)