A Citizen's Guide to LEED for Neighborhood Development:

How to Tell if Development is Smart and Green

Congress for the New Urbanism

U.S. Green Building Council USGBC

NRDC The Earth's Best Defense

LEED for Neighborhood Development was jointly developed by the U.S. Green Building Council, Natural Resources Defense Council, and the Congress for the New Urbanism. It is administered by the U.S. Green Building Council.

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How To Use This Guide

This guide is a plain-English reference aid designed to help you improve your community and neighborhood. It explains a sophisticated and innovative set of environmental standards called LEED for Neighborhood Development (LEED-ND). The name "LEED" stands for Leadership in Energy and Environmental Design, a program administered by the U.S. Green Building Council, a private, non-profit organization. You may know LEED as a program that evaluates and certifies green buildings across the country.

LEED Rating Systems Jeffrey Lovshin/ U.S. Green Building Council

LEED-ND takes the green certification concept beyond individual buildings and applies it to the neighborhood context. In particular, LEED-ND contains a set of measurable standards that collectively identify whether a development or proposed development of two buildings or more can be deemed environmentally superior, considering the development's location and access, its internal pattern and design, and its use of green technology and building techniques. These standards include prerequisites (required as a baseline for sustainable neighborhood development) and credits (additional best practice standards for sustainable neighborhood development). The LEED-ND's standards may be downloaded in their entirety from the U.S. Green Building Council's neighborhoods page at: www.usgbc.org/neighborhoods.

LEED-ND was developed primarily for application in situations where private developers pursuing environmentally sound principles would find it in their interest to obtain a green stamp of approval for their projects. But the system is not *only* a certification system for green projects. It is also a ready-made set of environmental standards for land development. The standards can be useful to anyone interested in better community planning and design, including neighbors, citizens, community organizations and leaders, government officials, and others.

Co-developed by the Natural Resources Defense Council, the Congress for the New Urbanism, and the U.S. Green Building Council, LEED-ND takes a broad approach to neighborhood sustainability, reflecting the most current research and ideas about smart, green, sustainable, and well-designed neighborhoods. When used for formal certification, LEED-ND is rigorous and complex, but the principles behind the system are much simpler. The purpose of this *Citizen's Guide* is to make those principles easier to understand and use in a variety of circumstances. We believe the guide can be useful for citizens with a wide variety of interests, including:

- Smart growth and land use planning
- Transportation
- Sustainable design and livable cities
- Environmental advocacy and natural resource protection
- Housing and affordability
- Climate change and action
- Equity and social justice
- Public health

HOW THE GUIDE IS ORGANIZED

You may wish to read the *Citizen's Guide* section by section in its entirety, or simply use the Table of Contents to find topics of particular interest.

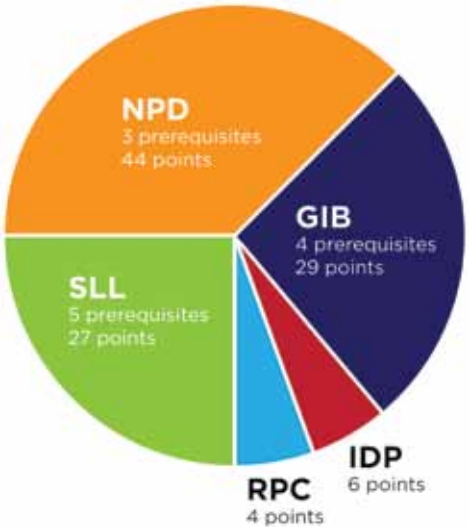
This introductory section is followed by one called "What is a Sustainable Neighborhood?" that establishes a frame for the three that follow, each illuminating a key concept for neighborhood sustainability, referencing the LEED-ND credits and prerequisites that inform each concept.

These are followed by "How Can LEED-ND Help Improve Your Community?" which provides some creative suggestions to get you started using LEED-ND's diverse standards in your own community. These suggestions include using LEED-ND to evaluate and improve development proposals, to guide improvements to existing neighborhoods, to inform community planning and zoning, and other policy-making.

Following this are supplementary materials, including a "Sustainable Neighborhood Development Checklist." The checklist is a sort of "crib sheet" for every LEED-ND credit and prerequisite, presenting them in an easy-to-use format for evaluating development proposals, assessing existing neighborhoods, and informing community planning and policy. It is organized by topic, so you can use it in its entirety or just to evaluate certain topics. The checklist includes an optional scoring exercise so you can calculate what the LEED-ND score would for the project you are assessing. It is also a great source for nationally-tested standards or numerical thresholds to incorporate into design guidelines, planning policy, or other work you are doing.

Finally, the supplementary materials include a summary of the LEED-ND Rating System, and a summary of the basics of formal LEED and LEED-ND certification procedures.

What is a Sustainable Neighborhood?



LEED-ND Credit Breakdown

Credit: Jeffrey Lovshin/ U.S. Green Building Council

LEED-ND was designed to reflect the key aspects of neighborhood sustainability. Understanding these concepts and their relationship to each other can provide citizens with guidance and technical prowess as they work in their own neighborhoods and communities.

This section of the guide provides a snapshot of neighborhood sustainability by summarizing the key strategies of the LEED-ND Rating System, which is organized into three basic sections:

- **Smart Location and Linkage** (SLL)—where to build
- **Neighborhood Pattern and Design** (NPD)—what to build
- **Green Infrastructure and Buildings** (GIB)—how to manage environmental impacts

WHAT IS A NEIGHBORHOOD?

LEED-ND applies to neighborhoods and parts of neighborhoods. But a neighborhood is more than territory within a boundary drawn on a map. At best, it is a place with its own unique character and function, where people can live, work, shop, and interact with their neighbors. The most sustainable neighborhoods tend to exhibit high levels of walkability, a sense of place, social cohesion and stability, and neighborhood resiliency amidst changing economic and sociopolitical conditions. As summarized by architects Andres Duany and Elizabeth Plater-Zyberk, good traditional neighborhoods include:

- A discernible center
- Housing within a five minute walk of the center
- A variety of dwelling types
- A variety of stores and commercial activity
- Flexible backyard "ancillary" buildings for working or living
- A school within walking distance
- Playgrounds near all dwellings
- Connected streets
- Narrow, shaded streets conducive to pedestrians and cyclists
- Buildings close to the street at a pedestrian scale
- Parking or garages placed behind buildings and away from street frontages
- Prominent civic and public buildings
- A community decision process for maintenance, security, and neighborhood development

Smart Location and Linkage: Where to Build

LEED-ND can be used to help you discern whether a proposed development—or even an existing neighborhood, plan, or policy—rates as a good one when compared to environmental and community criteria. When making this determination, the first question to ask may be the most basic of all: Is this a good place to build something? LEED-ND encourages strategies that conserve resources such as reinvesting within existing neighborhoods, cleaning up contaminated sites, protecting natural areas, and facilitating connections to the surrounding community.

Key Prerequisites and Credits

SLL Prerequisite 1:	Smart Location
SLL Credit 1:	Preferred Locations
SLL Credit 2:	Brownfields Redevelopment
SLL Credit 3:	Locations with Reduced Automobile Dependence
SLL Credit 5:	Housing and Jobs Proximity

SMART LOCATIONS

Selecting and planning for the location of development is fundamental to environmental sustainability and, according to research, the most important determinant of how much residents will drive.[1] Even if a building or larger development uses green construction techniques, a poor location that destroys natural areas, requires people to drive long distances, or exposes people to toxic substances will likely overshadow the benefits of green construction. Building on, or "redeveloping," **previously developed sites** (where there has been previous construction or paving) and "infill" sites (which are surrounded or mostly surrounded by previously developed land) is a key smart growth strategy. As a result, it is strongly rewarded in the LEED-ND rating system. Building in these locations uses land efficiently and preserves open space, ecological areas, and agricultural land around cities. It also tends to cluster housing, jobs, stores, and public spaces together. When these conveniences are within easy reach, it makes public transit, cycling, and walking more feasible and reduces the length of car trips.

LEED-ND also rewards cleaning up and redeveloping **contaminated sites**—or "brownfields"—such as old gas stations, industrial facilities, storage facilities for toxic substances, or contaminated military sites. Though many brownfield sites qualify as smart locations—being infill, transit-served and walkable—they often lie vacant unless there are incentives for cleanup, which can be complicated, unpredictable, and expensive.

Key Prerequisites and Credits

SLL Prerequisite 2:	Imperiled Species and Ecological Communities
SLL Prerequisite 3:	Wetland and Water Body Conservation
SLL Prerequisite 4:	Agricultural Land Conservation
SLL Prerequisite 5:	Floodplain Avoidance
SLL Credit 6:	Steep Slope Protection
SLL Credits 7, 8, 9:	Site Design for, Restoration of, or Long-Term Conservation Management of Habitat or Wetlands and Water Bodies
Also see:	GIB Credit 7: Minimized Site Disturbance

DESIGN WITH NATURE

Locating development in a way that is **sensitive to its natural setting** is an important aspect of protecting local environmental quality. This is particularly important for habitat areas, wetlands and water bodies, prime agricultural land, and floodplains. As a result, several LEED-ND prerequisites prohibit or strictly limit development in these types of natural areas.

Other important strategies include restoring and conserving habitat areas and wetlands, minimizing on-site construction impacts, and protecting steep slopes from erosion that can pose safety risks and pollute downstream lakes and rivers. Infill and previously developed sites are much less likely to contain valuable biological resources like farmland, wetlands, and plant and wildlife habitat.

Idaho Falls, Idaho

Credit: Lisa Town

Key Credits

SLL Credit 1:	Preferred Locations
Also see:	NPD Prerequisite 3: Connected and Open Community
NPD Credit 6:	Street Network

CONNECTED NEIGHBORHOODS

Good connections for pedestrians, cyclists, and vehicles—both within a neighborhood and to surrounding areas—are essential for a neighborhood to capitalize on a smart location. This means frequent **street connections and pathways** to surrounding areas, a high degree of internal connectivity, and few barriers—such as cul-de-sacs or difficult-to-cross streets—to adjacent areas and uses. Research shows that walking and physical fitness increase with greater street connectivity, measured by the number of intersections per square mile.[2]

Curving, suburban-style streets with long blocks and multiple dead-ends, on the other hand, require long, circuitous walking or driving routes to nearby destinations, reducing walking. Street connectivity is an important cross-cutting strategy for neighborhood sustainability since it also improves access to parks, schools, transit, businesses, jobs, and shopping—all rewarded in LEED-ND.

Eastgate Town Center
Chattanooga, Tennessee - Axo Sequence

Credit: Victor Dover/Dover, Kohl & Partners

PUBLIC TRANSIT

Locating housing and jobs in compact clusters near public transit, widely referred to as "transit-oriented development," increases the likelihood that people will take transit or walk rather than drive. In the United States, most vehicle miles traveled VMT are by single-occupancy vehicles, which generate more greenhouse gas emissions and pollution per mile than car sharing, carpooling, walking, cycling, and most forms of public transit. Transit-oriented development reduces greenhouse gas emissions, provides riders necessary to support transit systems, offers an alternative to automobile use, reduces demand for parking, and captures many of the other benefits of infill development. In addition to locating near transit service, providing comfortable shelters, benches, lighting, and schedule information at transit stops can encourage transit use. And even when residents of transit-oriented housing do drive, their central location means their trips are often shorter.

Key Credits

SLL Credit 3:	Locations with Reduced Automobile Dependence
Also see:	NPD Credit 7: Transit Facilities
NPD Credit 8:	Transportation Demand Management

Seattle, Washington

Credit: RACTOD/
www.ReconnectingAmerica.org

Neighborhood Pattern and Design: What to Build

Once planners or developers have decided where to build, it has to decide what to build. Should there be homes? Shops? Parks? Which activities will the neighborhood be designed for? What will it look like, and how will it feel to walk through? The Neighborhood Pattern and Design section of LEED-ND addresses some of these topics. It encourages strategies like walkable streets, diverse and compact neighborhoods, high-quality public spaces, reduced dependence on automobiles, and community participation in design.

Key Credits and Prerequisites

NPD Prerequisite 2:	Compact Development
NPD Credit 2:	Compact Development

NEIGHBORHOODS THAT USE LAND EFFICIENTLY

Neighborhoods that make efficient use of land help limit the spread of suburban sprawl, which consumes and fragments the rural landscape along with watersheds, wildlife habitat, and prime farmland.

In addition, more efficient neighborhood design means that destinations like schools, shops, and parks can be closer together, making walking and cycling more efficient. Public transit systems are also more likely to be successful in compact neighborhoods because there are more potential riders near each station and, even

The rendering shows the central square of a prototypical neighborhood for east El Paso, Texas. Through changes in El Paso's zoning regulations, the inclusion of public spaces such as the one shown can again become a feature of new neighborhoods.

Credit: Dover, Kohl & Partners.

when people do drive, they tend to drive less. Finally, compact development requires less infrastructure—such as water, sewer, and electricity facilities—to serve the same number of people, saving economic resources. Because of its underlying benefits, compact neighborhood design is assigned a high number of points in the LEED-ND rating system. A neighborhood's level of compactness is also known as its "density."

Orenco Station
Hillsboro, Oregon
Credit: Lisa Town

DIVERSE AND CONVENIENT NEIGHBORHOODS

Though it is still considered best practice to separate polluting or heavy industrial land uses from others, there are a number of benefits to mixing residential, commercial, and live-work land uses. The diverse uses of **blended neighborhoods** tend to support each other and reinforce a sense of neighborhood character, while decreasing the need to travel long distances for goods, services, or work. Uses can be mixed within the same neighborhood—such as when homes are located next to a corner store—or even within the same building—such as live-work spaces or ground-level shops with housing or office space above them.

In addition, a neighborhood with a wide **range of housing types and sizes**—such as large and small townhouses, duplexes, single-family homes, apartment buildings, or special needs housing—can support a diverse population that includes students, families, seniors, group housing, young singles, or couples. This mix reinforces neighborhood stability by allowing people to stay in the same community throughout different stages of their lives. It can also add a sense of texture and character to a place, encouraging social and economic diversity, along with multiple levels of affordability. When housing is available at affordability range of prices, people who earn less but are vital parts of any community—such as teachers, police officers and public sector employees, or artists—can live and work in the same community as those with higher incomes. This encourages economic opportunity and social diversity, and can sometimes reduce commute times by allowing people to live closer to work.

LEED-ND rewards neighborhoods that are **designed for a variety of ages and abilities.** Key techniques include designing some housing to have "stepless" entrances and other accessible features, making public portions of buildings universally accessible, and including wheelchair access at traffic intersections and between buildings.

Denver, Colorado
Credit: Charles Perry/Perry Rose LLC

St. Louis, Missouri
Credit: Sean Thomas/Old North St. Louis Restoration Group

Key Credits and Prerequisites

NPD Prerequisite 1:	Walkable Streets
NPD Credit 1:	Walkable Streets
NPD Credit 5:	Reduced Parking Footprint
NPD Credit 14:	Tree-Lined and Shaded Streets

WALKABLE STREETS

Walking has cross-cutting benefits for public health, environmental sustainability, and neighborhood vitality, and further unlocks the advantages of neighborhoods with smart locations, a mix of uses, and compact development. A number of features working together can ensure that a street is **comfortable, safe, and inviting for pedestrians**. These include a connected pedestrian network and elements of high-quality urban design.

Charlottesville, Virginia Credit:citydata.com

Too many poorly designed neighborhoods are uninviting to pedestrians. For example, buildings that are set far back from the street, are separated from the sidewalk by large parking lots, or are too low in comparison to the width of streets often lack a sense of place or undermine pedestrian comfort. Excessive blank walls, a lack of frequent building entrances onto public space, shuttered or infrequent windows, and unattractive building facades can also deteriorate the pedestrian environment. Frequent garage doors and driveway intrusions across the sidewalk can further diminish the pedestrian experience.

San Francisco, California Credit: Dan Burden/ www.pedbikeimages.org

By contrast, streets designed for walkability include building entrances that are easy to reach from the sidewalk and include doorways and window displays that create a sense of interest and architectural diversity along the path. Frequent, well-established street trees can make pedestrians more comfortable by providing shade and contact with nature. Continuous sidewalks, low-speed traffic, and on-street parking that provides a buffer between the sidewalk and the street can also increase pedestrian comfort and safety.

Key Credits

NPD Credit 5:	Reduced Parking Footprint
NPD Credit 8:	Transportation Demand Management

REDUCED PARKING AND TRANSPORTATION DEMAND

Large surface **parking lots** discourage pedestrian access from sidewalks and other nearby buildings, especially when they are located between sidewalks and buildings. Parking lots also diminish the quality of nearby public spaces like parks, plazas, or sidewalks. The pavement used to construct parking lots also leads to more polluted stormwater runoff after rainstorms. LEED-ND calls for all off-street parking not to exceed a maximum size and to be located to the side or rear of or underneath buildings.

In addition, parking and building design, and operation all affect how much people drive. Strategies like an on-site vehicle sharing program, providing shuttle service to jobs or transit, providing transit passes to project occupants, or selling parking spots separately from dwelling units can all **reduce the need for car ownership**. Other strategies that can reduce how many trips people take include ride sharing, flexible working hours, pedestrian and bicycle promotion, and reduced amounts of parking.

Key Credits

SLL Credit 4:	Bicycle Network and Storage
See Also:	NPD Credit 5: Reduced Parking Footprint

BICYCLE-FRIENDLY DESIGN

Cycling is an efficient mode of transportation without the negative environmental effects or high installation costs of many other modes. It can improve public health by providing regular physical activity. Like pedestrian facilities, successful bicycle facilities should be arranged in a connected network, providing safe, comfortable, and well-maintained access to a variety of destinations while decreasing conflicts with cars and transit vehicles. To be credited in LEED-ND, a **bicycle network** must consist of continuous off-street paths (Class I bikeways), on-street lanes (Class II bikeways), or bicycle-friendly low-speed streets. Sufficient, secure, and well-placed bicycle parking for visitors and for building occupants also encourages cycling. Compared to car parking, bike parking requires very little space: just one off-street car parking spot usually takes up about same amount of space as 10 to 12 bicycle parking spots.

Portland, Oregon

Credit: Laura Sandt/ www.pedbikeimages.org

Seattle, Washington

Credit: VeloBusDriver

Key Credits

NPD Credit 3:	Mixed-Use Neighborhood Centers
NPD Credit 9:	Access to Civic and Public Spaces
NPD Credit 10:	Access to Recreation Facilities
NPD Credit 12:	Community Outreach and Involvement
NPD Credit 13:	Local Food Production
NPD Credit 15:	Neighborhood Schools

Portland, Oregon

Credit: Heather Bowden

MIXED USES AND COMMUNITY SPACES

In the same way that a mixed-use environment creates a sustainable and diverse neighborhood by integrating both residential and commercial uses into one building or neighborhood, they also place a variety of shops, services, and amenities within walking distance of neighborhood residents and each other. This reduces car trips and facilitates walking, which contributes to health and fitness. A sustainable neighborhood also offers public facilities and services for residents and visitors in various stages of life. These can include schools, libraries, civic buildings, community centers, places of worship, recreation facilities, and community gardens. Amenities like these are critical to meeting a community's cultural, social, spiritual, and physical needs.

Holland, Michigan

Credit: Dan Burden/ www.pedbikeimages.org

Orenco Station
Hillsboro, Oregon

Credit: Lisa Town

Parks, open spaces, gardens, and ecological areas are particularly important for urban environments where green space and places of refuge can be in short supply. Proximity to parks is often associated with increased physical activity, more social interaction, and reduced stress. Likewise, physical and economic access to sources of **healthy food** such as community gardens, farmer's markets, full-service grocery stores, or other sources of fruit and vegetables is associated with higher intakes of health foods and reduced risk of chronic diseases.

New York, New York

Credit: Christopher Titzer

Vancouver, British Columbia, Canada

Credit: Dan Burden/ www.pedbikeimages.org

Community members involved in planning for a neighborhood's future are often more likely to invest in it, care for it, and maintain it. This sort of personal investment supports a neighborhood's long-term stability and sustainability. If new development or other major changes are proposed in a neighborhood, basic facets of community involvement should include meetings with surrounding property owners, residents, and businesses; modifying project designs to meet stated community needs; and maintaining open lines of communication throughout the project. A more advanced technique is the multi-day "charrette," which is an intense period (anywhere from a few hours to a few days) of design activity involving design professionals and local stakeholders working in close collaboration.

Green Infrastructure and Buildings: How to Manage Environmental Impacts

Even if your neighborhood has a great location and layout, it won't have excellent environmental performance without thoughtful and innovative green design. This includes strategies like incorporating energy and water efficiency, reusing older buildings, recycling materials, reducing stormwater runoff, and eliminating pollution sources.

Key Credits and Prerequisites

GIB Prerequisite 1 and Credit 1:	Certified Green Building(s)
GIB Prerequisite 2 and Credit 2:	Building Energy Efficiency
GIB Prerequisite 3 and Credit 3:	Building Water Efficiency
GIB Credit 4:	Water-Efficient Landscaping

GREEN BUILDINGS

"Green buildings" emphasize environmental excellence and sensitivity in their design, incorporating strategies like energy and water efficiency, high indoor air quality, and sustainably sourced (or recycled) materials. LEED-ND contains prerequisites and credits for energy efficiency, water efficiency, and certified green buildings—underscoring their foundational role for a sustainable neighborhood.

Solar Powered Affordable Housing
West Hollywood, California

Credit: limelightpower

In addition to water efficiency inside buildings, **water used outside buildings** for landscaping and street trees determines a neighborhood's overall water use. Planting native species is preferable as they are less disruptive to natural ecosystmes; in arid climates they tend to be drought-tolerant and require less irrigation. For plants that require irrigation, using efficient irrigation equipment, capturing rainwater, or recycling wastewater can reduce overall water consumption.

Hart Building
Dallas, Texas

Credit: Steve Minor

Key Credits

GIB Credit 5:	Existing Building Reuse
GIB Credit 6:	Historic Resource Preservation and Adaptive Use

REUSING OLDER BUILDINGS

Reusing as much of a building as possible—whether it be the entire building, the building shell, or just salvageable components of the building—is a fundamental green building strategy rewarded in most LEED rating systems, including LEED-ND. In

Old Town
Fort Collins, Colorado

Credit: Carol Jacobs Carre

addition to eliminating waste and reducing the energy and resources needed to produce building material, reusing or adapting buildings reinforces a neighborhood's existing character. Neighborhood landmarks and historic or architecturally significant buildings are particularly valuable because they can provide visible public gathering places and generate interest and investment in a neighborhood.

Key Credits and Prerequisites

GIB Prerequisite 4:	Construction Activity Pollution Prevention
GIB Credit 8:	Stormwater Management
GIB Credit 17:	Light Pollution Reduction

REDUCING POLLUTION

A neighborhood's design and manner of construction influences the amount of air and water pollution it generates. **Preventing pollution during construction** is considered so essential to good building practice that it is a prerequisite in LEED-ND (GIB Prerequisite 4: *Construction Activity Pollution Prevention*). It is also often required to some extent by federal, state, or local regulation. The main goals are to prevent (1) on-site wind and water erosion, (2) air and dust pollution, and (3) pollution or sedimentation—excessive sand and gravel—in downstream creeks, rivers, and lakes.

Contaminated **stormwater** is one of the largest sources of water pollution in the United States, but neighborhoods can reduce stormwater pollution by keeping as much runoff as possible from flowing off the site. This reduces erosion, pollution, and flooding of downstream water bodies by naturally filtering and reabsorbing stormwater runoff. It can also help recharge natural aquifers below the neighborhood. Green stormwater retention techniques include use of street-side "swales" (low-lying, and often marshy areas), water-pervious paving materials, stormwater retention basins, green roofs, open green space, and landscaping, all of which can facilitate stormwater capture, absorption by trees and plants, or reuse.

Light pollution occurs when bright lighting or glare negatively affects neighboring homes, public spaces, and natural areas. Light pollution can disturb nearby wildlife movement and life cycles, decrease a neighborhood's livability, and limit views of the night sky. For human health, light pollution has been

Rain Garden
Vastra Hamnen, Sweden

Credit: La Citta Vita

Bioswale Curb Extension
Portland, Oregon

Credit: Greg Raisman

linked to disruptions in natural circadian rhythms and depressed immune function. Important strategies for reducing light pollution include directing artificial light downward instead of upward and outward, and using more frequently spaced, lower intensity lights instead of only a few very bright lights. Another basic strategy is for non-essential lighting to automatically turn off when not needed.

Green Roof at Walter Reed Community Center Arlington, Virginia

Credit: Arlington County

Green Roof at Portland State University, Portland, Oregon

Credit: Alex Abboud

KEEPING THINGS COOL

Key Credits

GIB Credit 9:	Heat Island Reduction
NPD Credit 5:	Reduced Parking Footprint
NPD Credit 14:	Tree-Lined and Shaded Streets

"Heat islands" are localized areas, usually within cities, where the ambient temperature is significantly warmer than the natural environment or surrounding areas. Unshaded pavement, dark-colored rooftops, and other building and infrastructure surfaces that absorb and then radiate heat from the sun can all contribute to creating heat islands. A study by the Local Government Commission found wide streets without a tree canopy to be 10 degrees warmer on hot days than nearby narrow, shaded streets.[3] In addition to creating discomfort for pedestrians and health risks for vulnerable populations and manual laborers, heat islands can also create difficult growing conditions for plants and increase irrigation demand. Proven techniques to counteract heat island effects include tree planting, smaller and narrower streets and parking lots, light-colored solar-reflective roofing (which also reduces demand for air conditioning), vegetated roofs or other landscaping, open-grid and solar-reflective paving, and covering parking with solar-reflective roofing.

Key Credits

GIB Credit 10:	Solar Orientation
GIB Credit 11:	On-Site Renewable Energy Sources
GIB Credit 12:	District Heating and Cooling
GIB Credit 13:	Infrastructure Energy Efficiency

NEIGHBORHOOD-WIDE ENERGY EFFICIENCY

An energy-efficient building is good. An entire neighborhood that is energy-efficient is better. The initial **layout and orientation** of a neighborhood can affect its ability to use solar energy both actively (such as for photovoltaic cells) and passively (such as for natural lighting or direct solar heating through windows and walls). In the United States, sunlight from the south is stronger and more consistent than sunlight from other directions, while northern light can provide a consistent, glare-free source of interior daylighting. For this reason, it is ideal when neighborhood blocks (or lower density buildings) can maximize their northern and southern exposure.

Similarly, installing **renewable energy sources and distribution systems** at a neighborhood scale, which serves multiple buildings or homes, is often more cost- and energy-efficient than installing them building-by-building. Examples include geothermal wells, photovoltaic (solar) or wind-powered electrical systems, combined heat and power plants using biofuels, hydroelectric power, and wave or tidal power. Heating and cooling multiple buildings through a centralized system requires less infrastructure and capacity per individual building. This is true whether it harnesses renewable sources, conventional boilers and air-conditioning systems, or heat that is a by-product of industrial processes. Installing either shared

renewable energy sources or shared heating and cooling usually requires close collaboration between multiple buildings landowners.

Energy-efficient streetlights, traffic lights, park lights, water pumps, and sewer systems can also significantly reduce a neighborhood's total level of energy consumption. Common examples of energy-efficient *infrastructure* include light-emitting diode (LED) technology for traffic and other lights, efficient or adjustable-power water pumps, or solar-powered lights.

Key Credits
GIB Credit 14: Wastewater Management
GIB Credit 15: Recycled Content in Infrastructure
GIB Credit 16: Solid Waste Management Infrastructure

REUSE AND RECYCLING

Reusing and recycling materials preserves natural resources while reducing waste and energy used in industrial manufacturing. There are often opportunities to use **recycled material** for new infrastructure—including streets, sidewalks, or water piping. Commonly available types of materials include reused cement or asphalt, rubberized asphalt incorporating scrap tires, refabricated metal for piping, or industrial byproducts such as coal fly ash mixed into concrete. LEED-ND also encourages recycling and reusing construction debris and rewards neighborhood design that facilitates pick-up services or drop-off points for household composting, recycling, and hazardous waste disposal.

Reusing wastewater from buildings reduces overall water use, demands on public infrastructure, energy use, and chemical inputs from conventional wastewater treatment. Wastewater reuse can range from relatively simple graywater systems that harness non-sewer wastewater for irrigation, to complex constructed wetlands or biological wastewater systems that completely treat all forms of wastewater onsite.

How Can LEED-ND Help Improve Your Community?

The goal of this *Citizen's Guide* is to empower you to improve your own community or neighborhood, utilizing LEED-ND as a flexible tool and source of information. This section provides some suggestions for how to get started. These suggestions are intended to spark the creativity and expertise of citizens and advocates, who will undoubtedly improve on them and come up with applications of their own. As a helpful companion, see the *Citizen's Guide*'s "Sustainable Neighborhood Development Checklist," which allows you to quickly estimate the performance of a project, plan, or policy. It can provide standards for a specific topic, or you can look directly at the LEED-ND Rating System for more detail. If you just need a refresher on what is included in the Rating System, please refer to the "LEED-ND Summary" Appendix or the Rating System itself, available for free at www.usgbc.org/neighborhoods.

1. Evaluate Development Proposals

Have you ever wondered whether or not a proposal for new development was a good idea, whether it was environmentally friendly, and whether or not you should support it? Have you wondered if there were key areas where it could be improved? These are complicated questions that are not made any easier by the competing claims and messages of developers, neighborhood groups, government agencies, or other voices. LEED-ND offers one way to begin answering these questions impartially.

Perhaps the most basic use of the system is to promote and publicly support projects that obtain LEED-ND certification, particularly if they do so at a high (gold or platinum) level. While LEED-ND is not a guarantee that you will approve of every aspect of a project, it is a very good indication that a project's environmental performance will be superior to average development.

A Project Evaluation Program: The Washington Smart Growth Alliance
The Washington (DC) Smart Growth Alliance operates a "Smart and Sustainable Growth Recognition Program." Based on review by an independent jury, the Program provides recognition for development projects that meet criteria for smart location, mixed land uses, environmental protection, walkability, and community coordination. LEED-ND can be a good starting point for creating a similar recognition or endorsement program in your own community, or updating one that already exists.

For projects that do not (or cannot) pursue LEED-ND certification, another approach is to perform your own internal LEED-ND audit using the checklist in this *Citizen's Guide* to evaluate some or all of the categories and standards in the system. If a project meets the LEED-ND prerequisites and scores enough points to be certifiable at a high level, consider publicly supporting it. If the project is certifiable at one of the lower (basic or silver) levels, it may well be an asset to the neighborhood but may require further inquiry. If it does not appear to be certifiable at any level, consider opposing it. (If you belong to an organization or agency that already maintains guidelines for which projects to support, it might be helpful to refine or augment those guidelines with standards from LEED-ND).

Publicly supporting a project could include speaking at public hearings and community meetings, providing marketing support, or writing letters of support. As talking points for this material, look at the project's LEED-ND scorecard (the official U.S. Green Building Council scorecard if it is certified, or your own internal checklist if it is not, but could have been) and see which credits it achieves. This is a good articulation of the project's key strengths. If you are opposing a project, a list of which LEED-ND credits it does *not* achieve is a helpful talking point.

2. Improve Development Proposals

You may also find opportunities to collaborate with private, public, or non-profit developers on a specific proposal. This is a great way to encourage sustainable neighborhoods and establish long-term working relationships with developers and other stakeholders in your community. LEED-ND can provide a helpful guide for this process.

LEED-ND as a Basis for Financial Assistance:
In 2010, the federal Department of Housing and Urban Development (HUD) announced that it would consider LEED-ND's location criteria when awarding competitive housing grants, including its Sustainable Communities Regional Planning Grants. This includes LEED-ND-based standards for such things as transit service, proximity to neighborhood shops and services, sensitivity to environmental features, and the amount and character of nearby development. If you are part of a grant-giving organization or agency, you can use LEED-ND in a similar way, incorporating standards for smart and sustainable development into your project selection process.

As a first step, you can encourage projects to become LEED-ND certified or insist that they pursue certification to earn your support. In some cases, you may wish to ask that projects attain certification at a certain level such as silver, gold, or platinum. This will ensure that they meet basic location and design criteria for sustainability, and enable you to follow through on them when the project is built. But, whether or not a project pursues certification, you can use LEED-ND to identify a project's strengths and weaknesses and generate some tangible design recommendations—about walkable streets, cycling facilities, energy efficiency, or any other topics that LEED-ND addresses.

While LEED-ND standards are not a substitute for good design, they can show developers, designers, community members, and advocacy groups where a project is doing well environmentally and where it has room for improvement. The sooner you get involved in the design process, the better your chances for making a difference.

3. Guide Improvements to Existing Neighborhoods

LEED-ND's basic purpose is to assess or certify new development. But you can also use it to guide planning and investment in existing neighborhoods. For most neighborhoods, this process will involve three main steps:

1. **EVALUATE THE NEIGHBORHOOD.** Work with local governments or other community organizations to conduct an audit of a neighborhood using the LEED-ND categories, prerequisites and credits. You can use the checklist at the end of the *Citizen's Guide* to aid the evaluation.
2. **FOCUS ON STRENGTHS AND WEAKNESSES.** Identify areas where the neighborhood or community performs well under LEED-ND. Where it does not, solicit stakeholder input on community needs.
3. **RESPOND WITH A PLAN.** Propose retrofits, targeted redevelopment, infrastructure improvements, or other measures that build on the neighborhood's strengths and address its weaknesses. The level of detail and effort can vary widely—from an informal list of suggestions to a detailed design and policy

proposal that becomes the backbone of a neighborhood plan. If a neighborhood is already the focus of a planning effort, participate in that process to ensure that it addresses the needs you have identified and protects the neighborhood's strengths.

The Syracuse SALT District
The 156-acre Syracuse, Art, Life, and Technology (SALT) District, in Syracuse, New York, is the focus of an ongoing neighborhood improvement and retrofit effort by a broad variety of partners—including the Syracuse Center of Excellence, Home Headquarters affordable housing development, Syracuse University, the City of Syracuse, and multiple residents and community groups. These partners coordinated their neighborhood improvement efforts through the lens of LEED-ND. Their first step was to assess the existing neighborhood using LEED-ND, identifying strengths and weaknesses by each prerequisite and credit. Next, through a collaborative stakeholder process, the project team proposed design and policy responses that would address those issues and improve neighborhood sustainability. The result for the SALT District was a certified LEED-ND Gold plan that provides policies and design proposals for improving the street and pedestrian network, improving stormwater management, adding parks and open space, increasing green building and energy efficiency efforts, and targeted redevelopment. The process applied in the SALT District—assessing an existing neighborhood and developing a retrofit plan using LEED-ND—is one that could be replicated in neighborhoods across the country, whether or not they pursue LEED-ND certification.

4. Inform Community Planning and Zoning

While LEED-ND is useful at the neighborhood scale, you can also apply it on a wider scale, informing community-wide plans, zoning codes, and other planning documents. Many local governments have comprehensive, citywide plans that provide long-term policy guidance for land use and transportation. Some also address the design of buildings and public space, economic development, public infrastructure, natural resource protection, parks, housing, health, or a variety of other issues. These are typically updated periodically.

You can audit your community's plan, assessing how well it promotes these topics and suggesting improvements. Use the Sustainable Neighborhood Development Checklist at the end of the *Citizen's Guide* to walk yourself through this process. You can also use the checklist as a source for policy language to adapt, or look directly at the LEED-ND Rating System for more detail. All LEED-ND credits and prerequisites also have a general "Intent" statement (easily found in the official Rating System) that can sometimes be adapted for use in a community plan.

Most local governments have a zoning code that guides how and where development can happen. Zoning codes can regulate anything from building heights and parking requirements to building uses, design, and pedestrian orientation. They are often very detailed and technical. As a result, they can be intimidating to the layperson (or even the professional), but LEED-ND can suggest specific topics and standards to look for and encourage (see the *Citizen's Guide's* Sustainable Neighborhood Development Checklist, or the LEED-ND Rating System).

A Sustainable Development "Overlay Zone"
Zoning is the set of regulations that a city, town, or county uses to guide development within its own borders. You can talk to your local government about creating areas of town where zoning specifically promotes sustainable development. This could include requiring development projects to meet some or all of LEED-ND's standards, or it could include limiting development in areas that don't meet LEED-ND's location criteria. Be careful that requirements for sustainability don't create a disincentive in the very areas that are appropriate for development.

Topics to look for and assess in zoning codes include:

- Density (NPD Credit 2: *Compact Development*);
- Building and sidewalk design for *walkable streets* (NPD Credit 1: Walkable Streets; NPD Credit 14: Tree-*Lined and Shaded Streets*);
- Transit service and access (SLL Credit 3: *Locations with Reduced Automobile Dependence*, NPD Credit 7: *Transit Facilities*); parking standards for cars and bicycles (NPD Credit 5: *Reduced Parking* Footprint; NPD Credit 8: *Transportation Demand Management*);
- Affordable and diverse housing (NPD Credit 4: *Mixed-Income Diverse Communities*); and
- Urban agriculture set-asides (NPD Credit 13: *Local Food Production*).

Incentive Example: Fee Reductions
Kane County, Illinois offers discounts on road impact fees (Ordinance 07-232, 2007) for development projects that meet certain minimum standards for density, location, and design, including:

- 40 percent discount for walkable transit; diverse uses; density; and small blocks.
- Additional 10 percent discount for infill or redevelopment.
- Additional 10 to 20 percent for higher densities.

LEED-ND can provide best practices and standards when designing incentives like these.

In addition, you can encourage local governments, redevelopment agencies, developers, land trusts, affordable housing organizations, or other decision-makers to require or provide benefits to projects that meet LEED-ND standards. For instance, the City of East Lansing, Michigan requires private development that receives city assistance and is over a certain size to attain LEED-ND or LEED-NC Silver-level certification (Resolution 2009-10, April 2009). The City of Nashville's 2009 Zoning Ordinance (BL2009-586) provides a "height bonus" for LEED-ND certified projects. Other cities—including Oakland, California and Boston, Massachusetts—require certain projects to submit a LEED-ND checklist demonstrating their level of performance.

Potential benefits that might be provided include:

- Streamlined development approval process
- Fee reductions
- Tax credits
- Grants

- Allowing additional density or building height
- Sharing the cost of new infrastructure required by projects
- Marketing assistance

A Local Government Guide to LEED-ND
The U.S. Green Building Council has published a white paper focusing on how local governments can implement LEED-ND, outlining some constraints they may face, and suggesting a variety of approaches and examples. It's a helpful complement to the *Citizen's Guide*.

5. Inform Specific State, Local, and Regional Policy

Local governments often maintain topic-specific ordinances, master plans, design standards, or operations standards. Examples of these could include a parking or water conservation ordinance, a bicycle or pedestrian master plan, streetscape design standards, infrastructure replacement standards, a climate action plan, or an economic development plan. You can use the Sustainable Neighborhood Development Checklist at the end of this *Citizen's Guide* to assess these policies. It is organized by topic, so if needed you can consult just the policy topics that match your interest.

Many regions and states also have plans, policies, and regulations that might either deter or promote LEED-ND implementation. You can again use the Checklist at the end of the *Citizen's Guide* to review these state or regional policies and advocate reform if necessary. In some cases, there may be opportunities to remove barriers to LEED-ND implementation. In other cases, you may be able to adapt LEED-ND standards directly into these policy documents. Examples may include:

- State or regional land use plans
- State building codes
- Regional transportation funding
- Development standards or guidelines from air quality agencies
- Congestion management agency policies
- Regional water, wastewater, or stormwater regulations

Supplementary Materials

So far, we have looked at the key concepts of neighborhood sustainability and suggested some ways you might use LEED-ND in your own community. Now what? First of all, we encourage you to come up with your own ways of promoting smart and green neighborhoods, since you know your own community better than we do.

As discussed above, the "Sustainable Neighborhood Development Checklist" can help in your day-to-day work. It summarizes all credits and prerequisites in LEED-ND by topic and is designed to make the system more accessible, portable, and easy to adapt to a number of contexts. You can use it in all of the circumstances we suggested in the previous section.

If you want, you can also estimate the score for a project if it were to pursue LEED-ND certification through the U.S. Green Building Council's formal process. When you want to propose specific best practices for a proposal, plan, regulation, or policy document, you can use the checklist or go straight to the LEED-ND Rating System for more detail. It can be a struggle for local citizens, designers, planners, and governments to create feasible standards for sustainable development on their own. LEED-ND has the potential to fill this gap with criteria that have been developed in a consensus process and field-tested in various contexts.

Most importantly, we welcome you to be creative and bold in your use of LEED-ND and your important efforts to improve where you live. As someone who knows your community well and cares about a sustainable future for it, you are doing important work for which you are uniquely qualified.

SUSTAINABLE NEIGHBORHOOD DEVELOPMENT CHECKLIST

This informal checklist summarizes all credits and prerequisites in the LEED-ND Rating's Systems. You can use it to assess the strengths and weaknesses of a development proposal, site plan, existing neighborhood, or even a zoning code or neighborhood plan. You can also use it as a source for standards and thresholds to include in plans, regulations, designs, or topic-specific policy efforts, although the LEED-ND Rating System itself can provide additional detail for this task. If your interest is in a specific topic(s) like cycling or walkable streets, or if you are assessing a policy document like a water efficiency ordinance or parks and recreation plan, you can use just the parts of the checklist that relate to that topic. Please note that this checklist is a simplification and is not LEED-ND itself, which requires sophisticated verification of compliance with standards and provides a much more authoritative evaluation. This checklist is organized into the following topics:

Smart Location and Linkage

- Location
- Ecosystems and Open Spaces
- Contaminated Sites
- Transit-Accessible Locations
- Cycling Facilities
- Jobs and Housing Proximity

Neighborhood Pattern and Design

- Walkable Streets
- Compact Development
- Neighborhood Connections
- Mixed Uses
- Affordable and Diverse Housing
- Parking and Transportation Demand
- Parks and Recreation
- Universal Design
- Community Participation
- Local Food
- School Access and Design

Green Infrastructure and Buildings

- Construction Techniques
- Energy Efficiency and Conservation
- Energy Production and Distribution
- Water Efficiency and Conservation
- Stormwater and Wastewater
- Green Building Process
- Historic and Existing Building Reuse
- Heat Islands
- Recycling and Reuse
- Light Pollution

Some people may want to spend 30 minutes or an hour to quickly move through the checklist, estimating when necessary to get a ballpark idea of performance. Others may want to spend more time doing research, making calculations, or even mapping site conditions to get a more detailed and accurate assessment. In either case, we recommend you take notes as you move through the checklist, particularly as you have ideas for how the proposal, plan, or neighborhood could be improved. As an optional second step, you can estimate a score under the LEED-ND Rating System.

PROJECT NAME: _____ ADDRESS/LOCATION: _____ TYPE OF PROJECT: _____

STEP 1: Sustainable Neighborhood Development Checklist					Step 2: Optional LEED-ND Scoring Exercise			
TOPIC	**DOES THE PROJECT DO THE FOLLOWING?**	**YES**	**MAYBE**	**NO**	**LEED-ND POINTS POSSIBLE**	**PROJECT "YES" POINTS**	**PROJECT "MAYBE" POINTS**	**LEED-ND SOURCE CREDIT OR PREREQUISITE**
SMART LOCATION AND LINKAGE (SLL)								
LOCATION	Is located on a site that is **any** of the following (only one required for scoring):				Required			Prereq 1: Smart Location
	Infill (75% surrounded by existing development)	❑	❑	❑				
	Well-connected to adjacent development by an existing street network	❑	❑	❑				
	Well-served by transit or neighborhood amenities	❑	❑	❑				
	Is located on a site that is **one** of the following (pick just one for scoring):							Credit 1: Preferred Locations
	Infill and also a previously developed site	❑	❑	❑	5			
	Infill but not a previously developed site	❑	❑	❑	3			
	Adjacent to existing development, and also a previously developed site	❑	❑	❑	2			
	A previously developed site, but not adjacent or infill	❑	❑	❑	1			
	Is surrounded (within ½ mile) by a well-connected existing street network. If possible, estimate the existing number of intersections per square mile nearby (pick just **one** for scoring):							Credit 1: Preferred Locations
	200 to 250 intersections per square mile	❑	❑	❑	1			
	250 to 300 intersections per square mile	❑	❑	❑	2			
	300 to 350 intersections per square mile	❑	❑	❑	3			
	350 to 400 intersections per square mile	❑	❑	❑	4			
	More than 400 intersections per square mile	❑	❑	❑	5			
	Is located in an economically distressed area while **also** providing affordable housing.	❑	❑	❑	3			Credit 1: Preferred Locations
ECOSYSTEMS AND OPEN SPACES	Does not build on habitat where species are threatened, endangered, or imperiled **or** creates a habitat conservation plan under the Endangered Species Act.	❑	❑	❑	Required			Prereq 2: Imperiled Species
	Does not build on wetlands or water bodies **and** leaves buffers of undeveloped land around them of at least 50 to 100 feet.	❑	❑	❑	Required			Prereq 3: Wetland/ Water Body Conservation
	Does not build on prime agricultural land, **unless** the project is infill, transit-served, or makes up for soil loss by creating permanently protected soil easements elsewhere.	❑	❑	❑	Required			Prereq 4: Agricultural Land Conservation

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
ECOSYSTEMS AND OPEN SPACES	Does not build on floodplains.	❑	❑	❑	Required			Prereq 5: Floodplain Avoidance
	Conserves pre-existing on-site habitat, native plants, wetlands, and water bodies in perpetuity.	❑	❑	❑	1			Credit 7: Site Design for Habitat/ Wetland Conservation
	Restores degraded on-site habitat, wetlands, or water bodies, **and** conserves them in perpetuity.	❑	❑	❑	1			Credit 8: Restoration of Habitat/Wetlands
	Implements a long-term (at least 10 years), fully funded management plan for on-site wetlands, water bodies, and habitat.	❑	❑	❑	1			Credit 9: Long-Term Management of Habitat/Wetlands
	Limits development on steep slopes (greater than 15%), **and** restores many or all previously developed steep slopes with native or noninvasive plants.	❑	❑	❑	1			Credit 6: Steep Slope Protection
CONTAMINATED SITES	Does **one** of the following (pick just one for scoring):							Credit 2: Brownfield Redevelopment
	Remediates a contaminated site and then locates there.	❑	❑	❑	1			
	Remediates a contaminated site **in an economically distressed area**, and then locates there.	❑	❑	❑	2			
TRANSIT-ORIENTED LOCATIONS	Is located on a site that is **either** of the following (pick just one for scoring):							Credit 3: Locations with Reduced Auto Dependence
	Within walking distance (¼ mile for buses or streetcars and ½ mile for rail, ferry, and bus rapid transit) of high levels of transit service (See the LEED-ND Rating System for detailed transit thresholds).	❑	❑	❑	1-7			
	In an area documented to have low vehicle miles travelled (See the LEED-ND Rating System for detailed thresholds).	❑	❑	❑	1-7			
CYCLING FACILITIES	Does **both** of the following:				1			Credit 4: Bicycle Network/ Storage
	Is located within ¼ mile of a bicycle network that is either 5 miles long (minimum) **or** connects to 10 diverse land uses.	❑	❑	❑				
	Provides secure and covered bicycle storage (for at least 10% of nonresidential and 30% of residential building occupants), **as well as** bicycle parking for visitors.	❑	❑	❑				
JOBS AND HOUSING PROXIMITY	Does **one** of the following (pick just one for scoring):							Credit 5: Housing/ Jobs Proximity
	Existing jobs within ½ mile walk distance outnumber project's dwelling units, **and** the project provides affordable housing.	❑	❑	❑	3			
	Existing jobs within ½ mile walk distance outnumber project's dwelling units.	❑	❑	❑	2			
	Provides jobs on an infill site within ½ mile walk distance of both existing housing and an existing (or new) rail, ferry, tram, or bus rapid transit stop.	❑	❑	❑	1			
					27 Points Possible	_____	_____	**SLL SUB-TOTALS**

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
NEIGHBORHOOD PATTERN AND DESIGN (NPD)								
WALKABLE STREETS	Includes **all** of the following at minimum:				Required			Prereq 1: Walkable Streets
	Public-facing building entries (onto any public space except a parking lot) on 90% of building frontage.	❑	❑	❑				
	A minimum "building-height-to-street width-ratio" of 1 to 3 (1 foot of building height for every 3 feet of street width) along at least 15% of street length.	❑	❑	❑				
	Sidewalks along 90% of street length (both sides of the street).	❑	❑	❑				
	Garage doors along no more than **20%** of street length.	❑	❑	❑				
	Includes **some or all** of the following (See Rating System for scoring thresholds):				1-12			Credit 1: Walkable Streets
	Minimal distance between the sidewalk and most buildings, with mixed-use and nonresidential buildings particularly close to the sidewalk.	❑	❑	❑				
	Frequent building entries (at least every 75 feet).	❑	❑	❑				
	Unshuttered windows along the sidewalk for nonresidential buildings.	❑	❑	❑				
	No blank walls more than 50 feet along sidewalks.	❑	❑	❑				
	Frequent on-street parking (available along at least 70% of streets).	❑	❑	❑				
	Sidewalks along 100% of street length (both sides of the street).	❑	❑	❑				
	Elevated ground-floors for at least half of all dwelling units (at least 24 inches above sidewalk grade).	❑	❑	❑				
	A minimum "building-height-to-street width-ratio" of 1 to 3 (1 foot of building height for every 3 feet of street width) along 30% of street length.	❑	❑	❑				
	Low design speeds for most streets (20 mph for residential, 25 mph for non-residential).	❑	❑	❑				
	Driveway crossings along no more than 10% of sidewalk length.	❑	❑	❑				
	Lines 60% of street length with non-invasive trees (spaced an average of at least every 40 feet from trunk center to trunk center).	❑	❑	❑	1			Credit 14: Tree-Lined and Shaded Streets
	Provides noon-time shade along at least 40% of sidewalks.	❑	❑	❑	1			
COMPACT DEVELOPMENT	Meets minimum required densities (At least seven dwelling units per acre for residential and 0.50 floor-area ratio for non-residential—see Rating System for calculation and scoring details).	❑	❑	❑	Required			Prereq 2: Compact Development
	Exceeds increasing density thresholds (At least 10 dwelling units per acre for residential and 0.75 floor-area ratio for non-residential—see Rating System for calculation and scoring details).	❑	❑	❑	1-6			Credit 2: Compact Development

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
NEIGHBORHOOD CONNECTIONS	Does **either** of the following (only one required for scoring):				Required			Prereq 3: Connected Community
	Includes a street or pathway into the project at least every 800 feet, and has at least 140 intersections per square mile within the project (estimate if possible).	❑	❑	❑				
	Or, only if the project has no internal streets: is surrounded (within ¼ mile) by an existing street network of at least 90 intersections per square mile (estimate if possible).	❑	❑	❑				
	Does **all** of the following:							Credit 6: Street Network
	Does not include cul-de-sacs.	❑	❑	❑				
	Includes a street or pathway into the project at least every 400 feet.	❑	❑	❑				
	Has high intersections per square mile within the project (pick **just one** of the following for scoring this credit):							
	300 to 400 intersections per square mile	❑	❑	❑	1			
	Has more than 400 intersections per square	❑	❑	❑	2			
MIXED USES	Enables walking access (within ¼ mile) to the following number of existing or new land uses, clustered within neighborhood centers (pick just one of the following for scoring this credit):							Credit 3: Mixed-Use Neighborhood Centers
	4 to 6 uses	❑	❑	❑	1			
	7 to 10 uses	❑	❑	❑	2			
	11 to 18 uses	❑	❑	❑	3			
	More than 19 uses	❑	❑	❑	4			
	Uses can include commercial or civic facilities such as restaurants, schools, pharmacies, supermarkets, theatres, parks, libraries, or shops.							
AFFORDABLE AND DIVERSE HOUSING	Provides multiple housing types of different sizes, such as large and small apartments, duplexes, townhomes, and/or single-family homes. (See Rating System for detailed housing diversity thresholds).	❑	❑	❑	1-3			Credit 4: Mixed-Income Diverse Communities
	Provides a percentage of new rental and/or for-sale housing at high levels of affordability, available for at least 15 years (See Rating System for detailed affordability thresholds).	❑	❑	❑	1-3			
	Provides both high levels of affordability and multiple housing types of different sizes.	❑	❑	❑	1			

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
PARKING AND TRANSPORTATION DEMAND	Does **all** of the following:				1			Credit 5: Reduced Parking Footprint
	Minimizes total surface parking area (no greater than 20% of development area) and includes no individual surface lot over 2 acres.	❑	❑	❑				
	Locates any off-street parking at the side or rear of buildings (not along the sidewalk).	❑	❑	❑				
	Provides bicycle storage for building occupants, bicycle parking for visitors, and spaces for carpool or shared vehicles.	❑	❑	❑				
	Includes shelters, benches, lighting, and information displays at all new and existing transit stops.	❑	❑	❑	1			Credit 7: Transit Facilities
	Provides **any or all** of the following options (for scoring, award 1 point for every 2 options achieved):				1-2			Credit 8: Transportation Demand Management
	Subsidized transit passes to half of regular price or cheaper.	❑	❑	❑				
	Developer-sponsored-transit services—such as a shuttle—to off-site employment centers and/or major transit facilities.	❑	❑	❑				
	Well-publicized vehicle sharing facilities on-site, or within ¼ mile walk distance.	❑	❑	❑				
	For 90% of dwelling units or non-residential space, separates the cost of a parking space from the price of dwelling units or non-residential space.	❑	❑	❑				
	A comprehensive transportation demand management (TDM) program to reduce trips by 20%.	❑	❑	❑				
PARKS AND RECREATION	Enables access (within ¼ mile walk distance) to public space such as squares, parks, paseos, and plazas.	❑	❑	❑	1			Credit 9: Access to Civic/ Public Spaces
	Enables access (within ½ mile walk distance) to publicly accessible indoor or outdoor recreational facilities (at least 1 acre in size outdoor or 25,000 square feet indoor).	❑	❑	❑	1			Credit 10: Access to Recreation Facilities
UNIVERSAL DESIGN	Provides **either** of the following (only one necessary to score a point):				1			Credit 11: Visitability and Universal Design
	For residential projects, universal accessibility for people of diverse abilities in 20% of dwelling units.	❑	❑	❑				
	For non-residential projects, universal accessibility for people of diverse abilities along 100% of public rights-of-way.	❑	❑	❑				
COMMUNITY PARTICIPATION	Does **either** of the following (pick just one for scoring):							Credit 12: Community Outreach and Involvement
	Relies on multiple forms of community input and feedback to guide project concept and design, both before and during development.	❑	❑	❑	1			
	Relies on multiple forms of community input and feedback as above, but also conducts a design charrette or obtains an endorsement from a smart growth jury or program.	❑	❑	❑	2			

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
LOCAL FOOD	Provides **both** of the following:				1			Credit 13: Local Food Production
	Permanently set aside gardening space, free local produce shares (from within 150 miles) for residents, or proximity to a farmer's market (on-site or within ½ mile walk distance).	❑	❑	❑				
	Allows growing of produce, including in yards or on balconies, patios, or rooftops.	❑	❑	❑				
SCHOOL ACCESS AND DESIGN	Achieves **both** of the following:				1			Credit 15: Neighborhood Schools
	Is located within walking distance of a school (½ mile for elementary and middle schools; 1 mile for high schools).	❑	❑	❑				
	New school campuses included in the project are no larger than 5 acres (elementary), 10 acres (middle schools), or 15 acres (high schools).	❑	❑	❑				
					44 Points Possible	_____	_____	**NPD SUB-TOTALS**
GREEN INFRASTRUCTURE AND BUILDINGS (GIB)								
CONSTRUCTION TECHNIQUES	Creates and implements an erosion and sedimentation control plan for construction activities, reducing soil erosion and downstream pollution.	❑	❑	❑	Required			Prereq 4: Construction Pollution Prevention
	Does **both** of the following:				1			Credit 7: Minimized Site Disturbance in Design and Construction
	Preserves all heritage trees and most other noninvasive trees, especially larger ones.	❑	❑	❑				
	Preserves a proportion of previously undeveloped land (10% to 20%) on the project site.	❑	❑	❑				
ENERGY EFFICIENCY AND CONSERVATION	Ninety percent of building square footage meets minimum energy efficiency requirements. (Minimum 10% improvement over ASHRAE 90.1—see Rating System for details).	❑	❑	❑	Required			Prereq 2: Minimum Building Energy Efficiency
	Ninety percent of building square footage exceeds increasing thresholds for energy efficiency. (Minimum 18% improvement over ASHRAE 90.1 and/or 75 HERS Score—see Rating System for details and increasing thresholds).	❑	❑	❑	1-2			Credit 2: Building Energy Efficiency
	Orients 75% of buildings or dense blocks length-wise along east-west axes (within 15 degrees) to maximize passive and active solar access.	❑	❑	❑	1			Credit 10: Solar Orientation

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
ENERGY PRODUCTION AND DISTRIBUTION	Generates renewable energy on-site, providing the following percentage of the project's annual electrical thermal and energy cost (pick just **one** for scoring):							Credit 11: On-Site Renewable Energy Sources
	5%	❑	❑	❑	1			
	12.5%	❑	❑	❑	2			
	20%	❑	❑	❑	3			
	Provides at least 80% of building heating and cooling through a shared neighborhood-wide system.	❑	❑	❑	2			Credit 12: District Heating/ Cooling
	Provides energy-efficient new neighborhood infrastructure such as traffic lights, street lights, and water and wastewater pumps (15% minimum improvement over a conventional model).	❑	❑	❑	1			Credit 13: Infrastructure Energy Efficiency
WATER EFFICIENCY AND CONSERVATION	Meets minimum requirements for water efficiency in buildings (at least 20% reduction over a baseline - see Rating System for details).	❑	❑	❑	Required			Prereq 3: Minimum Building Water Efficiency
	Exceeds increased threshold for water efficiency in buildings (at least 40% reduction over baseline—see Rating System for details).	❑	❑	❑	1			Credit 3: Building Water Efficiency
	Reduces water consumption for outdoor landscaping (at least 50% reduction over baseline).	❑	❑	❑	1			Credit 4: Water-Efficient Landscaping
STORMWATER AND WASTEWATER	Is able to retain and treat all stormwater on-site from the following sizes of rainstorm (pick just **one** for scoring):							Credit 8: Stormwater Management
	80th percentile rainstorm (more rain than 80% of storms for the past 20-40 years)	❑	❑	❑	1			
	85th percentile rainstorm	❑	❑	❑	2			
	90th percentile rainstorm	❑	❑	❑	3			
	95th percentile rainstorm	❑	❑	❑	4			
	Treats and reuses wastewater on-site (pick just **one** of the following for scoring):							Credit 14: Wastewater Management
	25% of wastewater reused	❑	❑	❑	1			
	50% of wastewater reused	❑	❑	❑	2			

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO	LEED-ND POINTS POSSIBLE	PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
GREEN BUILDING PROCESS	Uses LEED or a similar green building rating system to certify at least one project building.	❑	❑	❑	Required			Prereq 1: Certified Green Building
	Uses LEED or a similar green building rating system to certify the following percentages of the project's building square footage (pick just one for scoring):							Credit 1: Certified Green Buildings
	At least 10%	❑	❑	❑	1			
	At least 20%	❑	❑	❑	2			
	At least 30%	❑	❑	❑	3			
	At least 40%	❑	❑	❑	4			
	At least 50%	❑	❑	❑	5			
HISTORIC AND EXISTING BUILDING REUSE	Reuses and restores at least 20% of the existing building stock.	❑	❑	❑	1			Credit 5: Existing Building Use
	Includes a historic building(s), and rehabilitates if necessary.	❑	❑	❑	1			Credit 6: Historic Resource Preservation/Reuse
HEAT ISLANDS	Uses **one** of the following strategies—**or a combination of the two**—to reflect instead of absorb solar heat:				1			Credit 9: Heat Island Reduction
	Solar-reflective roofs (usually light-colored) or vegetated roofs.	❑	❑	❑				
	Shade, open-grid pervious paving, or solar-reflective paving for at least 50% of roads, sidewalks, parking areas, and other "hardscape."	❑	❑	❑				
REUSE AND RECYCLING	Uses recycled content in at least 50% of the total mass of public infrastructure materials such as paving, road base, and water/sewer piping.	❑	❑	❑	1			Credit 15: Recycled Content in Infrastructure
	Provides **at least four** of the following five:				1			Credit 16: Solid Waste Management Infrastructure
	Recycling services for residents	❑	❑	❑				
	Hazardous waste disposal services for residents	❑	❑	❑				
	Composting services for residents	❑	❑	❑				
	Recycling receptacles on every mixed-use or nonresidential block	❑	❑	❑				
	Recycling or salvaging of at least 50% of construction waste	❑	❑	❑				
LIGHT POLLUTION	Provides **both** of the following:				1			Credit 17: Light Pollution Reduction
	Motion sensors in "shared areas" (publicly or privately owned) to reduce lighting when unoccupied and during daylight hours.	❑	❑	❑				
	Limits "light trespass" to surrounding areas by directing exterior lighting downward and reducing its brightness, especially in rural areas and residential or mixed use neighborhoods.	❑	❑	❑				
					29 Points Possible	_____	_____	**GIB SUB-TOTALS**

TOPIC	DOES THE PROJECT DO THE FOLLOWING?	YES	MAYBE	NO		PROJECT "YES" POINTS	PROJECT "MAYBE" POINTS	LEED-ND SOURCE CREDIT OR PREREQUISITE
INNOVATION AND DESIGN PROCESS (ID)								
INNOVATION AND EXEMPLARY PERFORMANCE	Exhibits exemplary environmental performance in areas not addressed by, or greatly exceeding, the LEED-ND rating system. Write in below (for scoring, add up to five):							Credit 1: Innovation and Exemplary Performance
	1.	❑	❑	❑	1			
	2.	❑	❑	❑	1			
	3.	❑	❑	❑	1			
	4.	❑	❑	❑	1			
	5.	❑	❑	❑	1			
	Employs a project team member credentialed as a LEED Accredited Professional, in smart growth by the Natural Resources Defense Council and Smart Growth America, or in new urbanism by the Congress for the New Urbanism.	❑	❑	❑	1			Credit 2: LEED Accredited Professional
					6 Points Possible	_____	_____	**ID SUB-TOTALS**
REGIONAL PRIORITY CREDIT (RP)								
REGIONAL PRIORITY	Addresses geographically-specific environmental, social equity, or public health priorities. Write in below (for scoring, add one point per strategy used up to four, even if the strategy is already addressed in LEED-ND. A complete list of Regional Priority Credits is available from U.S. Green Building Council):							Credit 1: Regional Priority Credit
	1.	❑	❑	❑	1			
	2.	❑	❑	❑	1			
	3.	❑	❑	❑	1			
	4.	❑	❑	❑	1			
					4 Points Possible	_____	_____	**RP SUB-TOTALS**
	110 POINTS POSSIBLE							
	TOTAL							
						_____	_____	**PROJECT TOTALS (Certification Estimates)**

Certified: 40-49 points **Silver:** 50-59 points **Gold:** 60-79 points **Platinum:** 80+ points

NUMBER	TITLE	POINTS	BRIEF DESCRIPTION
Smart Location and Linkage		**27 Points Possible**	
Prereq 1	Smart Location	Required	Develop on a site that is infill, connected to adjacent development, or served by transit or neighborhood amenities.
Prereq 2	Imperiled Species and Ecological Communities	Required	Conserve any on-site imperiled species and habitat.
Prereq 3	Wetland and Water Body Conservation	Required	Do not build near or on wetlands or water bodies.
Prereq 4	Agricultural Land Conservation	Required	Protect prime agricultural land.
Prereq 5	Floodplain Avoidance	Required	Prevent most building on floodplains.
Credit 1	Preferred Locations	1-10	Develop on a site that is highly accessible and connected to other nearby development.
Credit 2	Brownfield Redevelopment	1-2	Remediate a contaminated site and redevelop.
Credit 3	Locations with Reduced Automobile Dependence	1-7	Develop in an area that is well-served by transit or has a low average driving rate.
Credit 4	Bicycle Network and Storage	1	Locate along a bicycle network and provide bicycle storage and parking.
Credit 5	Housing and Jobs Proximity	1-3	Locate jobs and housing, particularly affordable housing, nearby each other.
Credit 6	Steep Slope Protection	1	Protect steep slopes from development.
Credit 7	Site Design for Habitat or Wetland and Water Body Conservation	1	Conserve pre-existing on-site habitat, wetlands, or water bodies in perpetuity.
Credit 8	Restoration of Habitat or Wetlands and Water Bodies	1	Restore degraded on-site habitat, wetlands, or water bodies, and conserve in perpetuity.
Credit 9	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1	Implement a long-term management plan for on-site habitat, wetlands, or water bodies.
Neighborhood Pattern and Design		**44 Points Possible**	
Prereq 1	Walkable Streets	Required	Include public-facing building entries, building heights appropriate to street widths, continuous sidewalks, and limited garage entries.
Prereq 2	Compact Development	Required	Meet minimum density thresholds.
Prereq 3	Connected and Open Community	Required	Connect neighborhood streets to each other and adjacent areas.
Credit 1	Walkable Streets	1-12	In addition to complying with the items in Prerequisite 1 above, improve the pedestrian experience at the street level by providing: frequent building entries, ground-level windows, on-street parking, elevated ground-floor units, low street speeds, and/or minimal driveway interruptions of sidewalks.
Credit 2	Compact Development	1-6	Add homes and/or nonresidential space to make efficient use of land.
Credit 3	Mixed-Use Neighborhood Centers	1-4	Provide neighborhood shops, services, and amenities clustered in neighborhood centers within walking distance of residents and each other.

Credit 4	Mixed-Income Diverse Communities	1-7	Provide diverse housing types and affordability levels.
Credit 5	Reduced Parking Footprint	1	Minimize surface parking lots and discourage them along building frontages. Also provide bicycle and car-share parking.
Credit 6	Street Network	1-2	Provide superior connection of streets to each other and adjacent areas, and avoid cul-de-sacs.
Credit 7	Transit Facilities	1	Include shelters, benches, lighting, and information displays at transit stops.
Credit 8	Transportation Demand Management	1-2	Encourage use of environmentally preferable transportation choices with transit passes, shuttles, vehicle sharing, and/or unbundled parking pricing.
Credit 9	Access to Civic and Public Spaces	1	Provide squares, parks, and plazas within walking distance of residents and commercial tenants.
Credit 10	Access to Recreation Facilities	1	Provide indoor or outdoor recreational facilities.
Credit 11	Visitability and Universal Design	1	Design public spaces and dwelling units for all abilities.
Credit 12	Community Outreach and Involvement	1-2	Base project designs on community input.
Credit 13	Local Food Production	1	Provide access to gardening space, local produce, or a farmer's market.
Credit 14	Tree-Lined and Shaded Streets	1-2	Line and shade streets with trees.
Credit 15	Neighborhood Schools	1	Locate within walking distance to local schools.
Green Infrastructure and Buildings		**29 Points Possible**	
Prereq 1	Certified Green Building	Required	Include at least one building certified under LEED or a similar green building rating system.
Prereq 2	Minimum Building Energy Efficiency	Required	Meet minimum requirements for building energy efficiency.
Prereq 3	Minimum Building Water Efficiency	Required	Meet minimum requirements for building water efficiency.
Prereq 4	Construction Activity Pollution Prevention	Required	Implement an erosion and sedimentation control plan for construction.
Credit 1	Certified Green Buildings	1-5	Include multiple buildings certified under LEED or a similar green building rating system.
Credit 2	Building Energy Efficiency	1-2	Provide superior building energy efficiency.
Credit 3	Building Water Efficiency	1	Provide superior building water efficiency.
Credit 4	Water-Efficient Landscaping	1	Reduce water consumption for outdoor landscaping.
Credit 5	Existing Building Use	1	Reuse existing buildings.
Credit 6	Historic Resource Preservation and Adaptive Use	1	Reuse and restore historic buildings.
Credit 7	Minimized Site Disturbance in Design and Construction	1	Preserve heritage trees and previously undeveloped land.
Credit 8	Stormwater Management	1-4	Retain and treat stormwater on-site.
Credit 9	Heat Island Reduction	1	Use roofing and paving that reflects instead of absorbs solar heat.

Credit 10	Solar Orientation	1	Increase passive and solar access by orienting buildings or dense blocks to maximize north- and south-facing exposure.
Credit 11	On-Site Renewable Energy Sources	1-3	Generate renewable energy on-site.
Credit 12	District Heating and Cooling	2	Provide building heating and cooling through a shared neighborhood-wide system.
Credit 13	Infrastructure Energy Efficiency	1	Provide energy-efficient neighborhood infrastructure.
Credit 14	Wastewater Management	1-2	Reuse treated wastewater.
Credit 15	Recycled Content in Infrastructure	1	Use recycled content in neighborhood infrastructure.
Credit 16	Solid Waste Management Infrastructure	1	Provide neighborhood composting, recycling, and hazardous waste collection.
Credit 17	Light Pollution Reduction	1	Limit exterior illumination and direct it downward.
Innovation and Design Process		**6 Points Possible**	
Credit 1	Innovation and Exemplary Performance	1-5	Exhibit exemplary environmental performance in areas not addressed by the LEED-ND rating system.
Credit 2	LEED Accredited Professional	1	Have a team member that is: a LEED Accredited Professional, and credentialed in smart growth by the Natural Resources Defense Council and Smart Growth America, or credentialed in new urbanism by the Congress for the New Urbanism.
Regional Priority Credit		**4 Points Possible**	
Credit 1	Regional Priority Credit	1-4	Address geographically specific environmental, social equity, or public health priorities.
Project Totals (Certification estimates)		**110 Points Possible**	
Certified: 40-49 points	**Silver:** 50-59 points	**Gold:** 60-79 points	**Platinum:** 80+ points

LEED AND LEED-ND BASICS

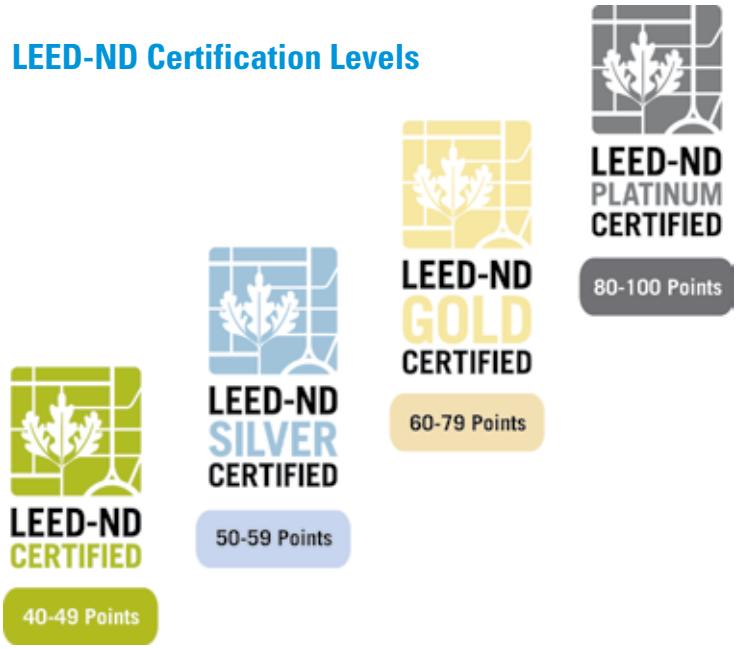
LEED, an acronym for "Leadership in Energy and Environmental Design," is a family of green building rating systems developed by the United States Green Building Council (USGBC). LEED provides verification of high environmental performance in building and neighborhood design and construction. Since the first LEED pilot program in 1998, LEED has become the most widely-used green building certification system in the United States. As of the beginning of 2011, there were more than 7,000 LEED-certified projects in the United States and around the world, with approximately 23,000 more registered for future certification.[4] Planning to construct a similar verification system for neighborhood location and design began in 2003 and, after a pilot program, LEED-ND was fully launched in 2010.

DIFFERENT LEED RATING SYSTEMS

Since LEED's first launch, USGBC has developed multiple LEED rating systems targeted towards specific types of development. The LEED family of rating systems now includes rating systems for New Construction, Schools, Building Core and Shell, Commercial Interiors, Existing Buildings, Homes, and Neighborhood Development. USGBC expects to launch LEED rating systems for Healthcare, Retail, and Retail Interiors in 2011. Though topics and requirements of different LEED rating systems sometimes overlap, they are designed to apply to the specific technological issues and building requirements of different development types.

PREREQUISITES AND CREDITS

All LEED rating systems contain a combination of required prerequisites and optional credits. Since 2009, all LEED rating systems—including LEED for Neighborhood Development—evaluate projects based on a 100-point base scale (not including up to 10 special "innovation" and "regional priority" bonus points, explained in the Rating System). Projects seeking certification must meet all prerequisites and earn at least 40 points by achieving various credits. Beyond basic certification, projects may achieve Silver (50 points), Gold (60 points), or Platinum (80+ points) certification for increasingly high performance.



WHAT'S UNIQUE ABOUT LEED-ND?

LEED for Neighborhood Development (LEED-ND) promotes best practices in location, design and development at the neighborhood scale. It is the first LEED rating system to focus beyond the building level and evaluate whole neighborhoods—or multi-building projects that contribute to neighborhoods—and prioritize criteria such as site location, urban design, transportation, housing affordability, walkability, socio-economics, and neighborhood-wide green infrastructure, in addition to green buildings.

Similarities
Follows LEED 2009 process
Third-party certification
Mix of prerequisites and credits
110 possible points
Preliminary and final review submittals

Differences
Developed through partnership
Focuses on area larger than building scale
Focus on location and land use
Focus on design of public realm
Credit categories
Multi-stage certification process

LEED-ND CERTIFICATION PROCESS

The LEED-ND rating system is applicable to a broad variety of advocacy efforts and community projects. For some of these applications, LEED-ND certification is possible and desirable, while for others it is not. Certified projects can vary widely by project size and type, but certification is most appropriate for projects smaller than 320 acres and larger than one building, being developed by a single developer or coordinated development group, and being constructed within a predictable timeframe.

For all LEED rating systems except LEED-ND, certification occurs after a project is fully constructed. However, due to the long time frame of large-scale planning and development projects, the LEED-ND Rating System has developed a three-stage certification process. This allows projects to be recognized by USGBC as they move through the planning, entitlement, and construction process, and to receive feedback throughout the project development process. USGBC's three stages of LEED-ND certification are as follows:

STAGE 1. *Conditional Approval of a LEED-ND Plan.* This stage is optional for projects in their initial planning phase, before or at the beginning of the entitlement process. Approval at this stage can be used to garner support during the entitlement process and give credibility to project designs.

STAGE 2. *Pre-Certified LEED-ND Plan.* This stage is available for projects that are approved and fully entitled to be built, but that have not yet completed construction. Pre-certification at this stage can help projects secure financing and set clear performance standards.

STAGE 3. *LEED-ND Certified Neighborhood Development.*
This stage is available for projects that are completed and ready to be occupied. Certification is finalized at this stage.

For more detailed information about stages of certification, eligible project types, and the certification process, see the introductory material in the *LEED for Neighborhood Development Rating* system, the *LEED Reference Guide for Green Neighborhood Development*, or the U.S. Green Building Council website (www.usgbc.org/neighborhoods).

Endnotes

1. R. Ewing and R. Cervero, Travel and the Built Environment, Journal of the American Planning Association, 76 (Summer 2010):1.

2. S. Handy, "Understanding the Link Between Urban Form and Nonwork Travel Behavior," *Journal of Planning Education and Research* 15 (1996): 183–98. R. Ewing and R. Cervero, Travel and the Built Environment, *Journal of the American Planning Association*, 76 (Summer 2010):1.

3. Local Government Commission, "Local Government Commission Report," Newsletter 30, No. 8 (August 2008): 2.

4. U.S. Green Building Council, "LEED Projects and Case Studies Directory," www.usgbc.org/LEED/Project/RegisteredProjectList.aspx

Congress for the New Urbanism

U.S. Green Building Council USGBC

NRDC The Earth's Best Defense