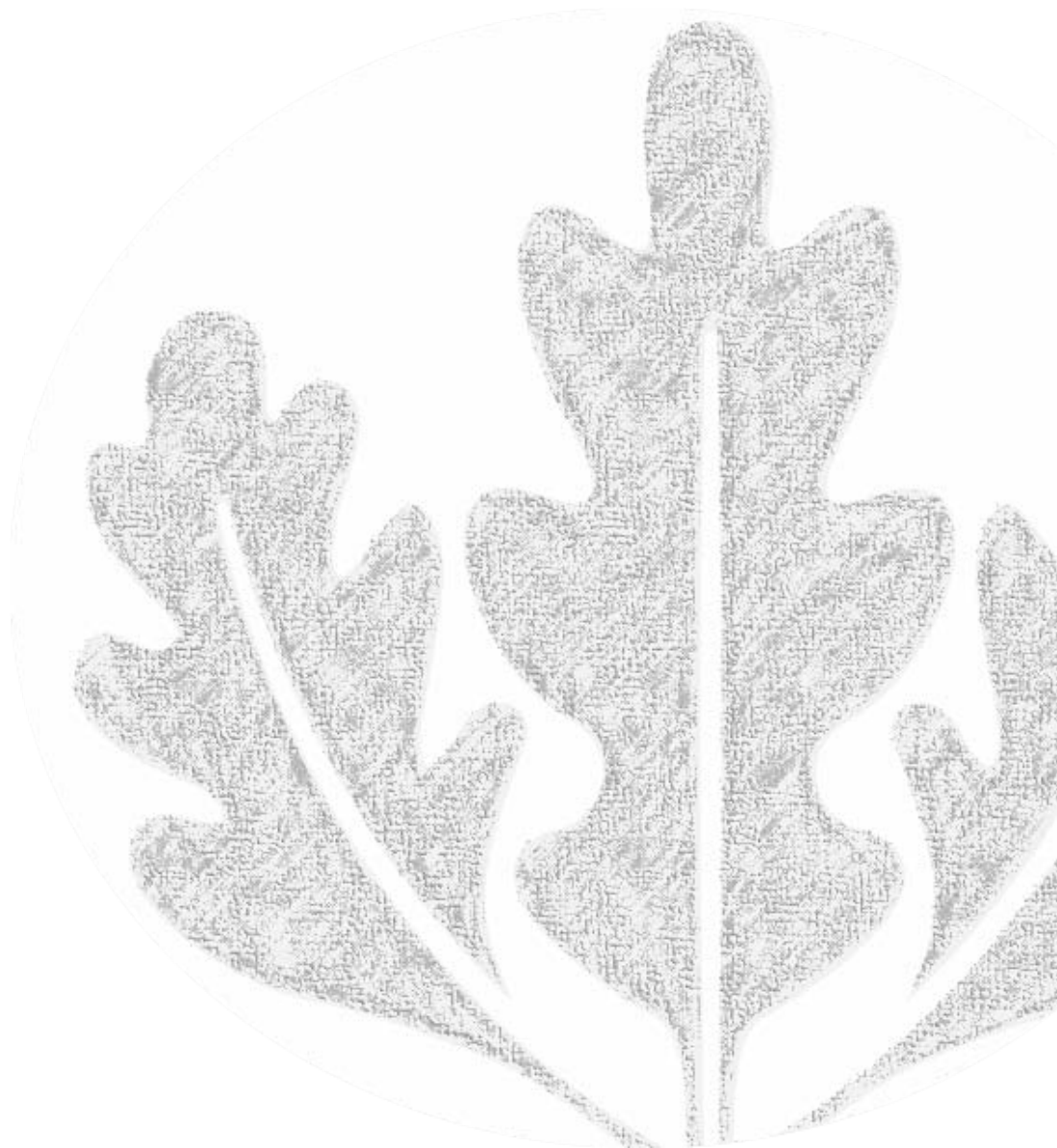


# LEED v4

## User Guide



OCTOBER 2013

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## Welcome to LEED v4

# Welcome to LEED v4! [[open audio clip](#)]

We're so happy that you're interested in learning more.

LEED v4 is the next exciting step in the continuous improvement of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. LEED v4 includes a comprehensive technical update to rating system requirements, as well as significant work to improve the reference guide, credit documentation and certification experience.

The development of all aspects of LEED version 4 has relied on collaboration with our dedicated volunteers and membership community. This engagement has enabled USGBC to balance the technical stringency of LEED version 4 with market feedback and to make key refinements and improvements to our program tools and resources.

### LEED v4 is global

It should come as no surprise that after more than 10 years in the marketplace, LEED is global. Today, LEED is used in more than 145 countries. In a world full of green building rating programs, LEED stands at the front of the line, representing the global standard for green building best practices around the world.

The development of LEED v4 has provided a great opportunity to further the mission of USGBC on a global scale. In the new rating system, project teams will find greater flexibility and recognition of regional context by allowing for regional and local equivalencies to typical referenced standards. Project teams will also experience a greater ease of use through Integration of metric units into all tools and resources.

### LEED v4: market sector improvements

In addition to the growth LEED has experienced globally, projects now use the LEED rating system on a wider variety of project types than ever before. From stadiums to convention centers, commercial offices to hospitals, each space type has unique needs and challenges when using LEED. LEED v4 addresses 21 different market sector adaptations, including new and existing data centers, new and existing warehouse and distribution centers, hospitality, existing schools, existing retail, and multifamily midrise. Each of the adaptations were reviewed by market leaders either owning or designing or operating those space types to identify the unique needs to that market and appropriately address those needs within revisions to LEED v4.

Let's take data centers as an example. Data centers are a project type with unique needs that need to be addressed by LEED more appropriately. Data centers have very few

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occupants. They're also huge energy users: a data center can use as much energy as a small town. Whereas a typical building is designed to meet heating and cooling needs for occupant comfort, a data center must provide massive cooling power for its servers. Water use is also a key target area for data centers, if the facility utilizes water for cooling. These specific building needs are built in to the data center adaption for LEED.

By bringing data centers - and other market adaptations - into the suite of LEED rating systems, we're removing barriers so that even more facilities can participate in LEED.

## LEED v4: performance

What do we want LEED projects to accomplish? That is the central question that has driven our technical development for LEED version 4. As a market transformation tool, LEED engages building project teams in a way that connects strategies to a defined set of goals - or the things we ultimately want LEED projects to accomplish. LEED's goals are referred to as "impact categories." Seven impact categories have been selected to provide the framework for the technical development of LEED version 4, as well as future versions of the system. USGBC wants LEED projects to do the following:

- Reverse Contribution to Global **Climate Change**
- Enhance Individual **Human Health** and Well-Being
- Protect and Restore **Water Resources**
- Protect, Enhance, and Restore **Biodiversity** and Ecosystem Services
- Promote Sustainable and Regenerative **Material Resources** Cycles
- Build a **Greener Economy**
- Enhance Social Equity, Environmental Justice, and **Community Quality of Life**

The impact categories provide an ambitious agenda for the buildings industry that is readily actionable when presented in the simple LEED framework: prerequisites, credits and points. Projects earning a higher number of points are positioned to deliver a set of performance outcomes that span the impact categories in an integrated way. The LEED certification structure is designed to incentivize progressively higher credit achievement and, in turn, progressively higher compliance with credits whose outcomes accomplish the system goals.

The development of LEED v4 has spanned more than three years, engaged hundreds of volunteers and thousands of stakeholders around the world. LEED v4 has the potential to drive the reduction of building carbon emissions and take a stronger stand on human health, more so than any previous version of LEED. This guide provides an in depth overview of the program and its changes from previous versions of the rating system. We invite you to explore this guide and get to know LEED v4.

If you have any questions about LEED v4, [just ask!](#)

## LEED Certification Process

Certification begins with rating system selection and project registration. The project team then prepares documentation for all prerequisites and for the credits the team has chosen to pursue. When submitted for certification, a project goes through preliminary and final reviews. The preliminary review provides the project team with technical advice on credits that require additional work for their achievement, and the final review contains the project's final score and certification level. The latter can be accepted or appealed in cases where the team believes additional consideration is warranted.

There are four possible levels of certification that can be achieved by exceeding the following point thresholds:

- Certified 40–49 points
- Silver 50–59 points
- Gold 60–79 points
- Platinum 80 points and above

## Preparing for LEED Certification

Approaching certification using an integrative process gives the project team the greatest chance of success. The process includes three phases:

- *Discovery*: This is the most important phase of the integrative process; it can be thought of as an extensive expansion of what is conventionally called “Pre-Design.” It is unlikely that a project's environmental goals will be achieved cost-effectively if this phase is not rigorously engaged as a discreet phase of the design process. Discovery work needs to be accomplished before “putting pencil to paper” . . . in other words, before schematic design begins.
- *Design and Construction (Implementation)*: This phase begins with what is conventionally called “Schematic Design”. It resembles conventional practice in its structure, but integrates all of the work and collective understanding of system interactions reached during the Discovery Phase.
- *Occupancy, Operations, and Performance Feedback*: This third stage focuses on implementing performance measurement and creating performance feedback mechanisms. Such feedback is critical for informing building operations, so the degree to which established performance targets have been met can be assessed and so corrective actions can be taken.

Achieving the greatest effectiveness in cost and environmental performance requires that every issue and every team member be brought into the project at the earliest point, before anything is yet designed.

The structure to manage this flow of people, information, and analysis is fairly simple:

- All project team disciplines gather information and data relevant to the project;
- This information is analyzed;
- The people on the project team who hold this information (clients, designers, engineers, constructors, operators) gather together in workshops to compare notes and identify opportunities for synergy.

This process of research, analysis, and meeting is done in a repeating cycle that progressively approximates and refines the design solution iteratively. In the best scenario, this cycling of research and workshops continues until the project systems are optimized, all reasonable synergies are identified, and the related strategies associated with all LEED credits are documented and implemented.

## Rating System Selection

USGBC provides general guidance to help project teams select a LEED rating system. Projects are required to use the rating system that is most appropriate. However, when the decision is not clear, it is the responsibility of the project team to make a reasonable decision in selecting a rating system before registering their project.

The project teams should first identify an appropriate rating system, and then determine the best adaptation. Occasionally, USGBC recognizes that an entirely inappropriate rating system has been chosen. In this case, the project team will be asked to change the designated rating system for their registered project. Please review this guidance carefully and contact USGBC if it is not clear which rating system to use.

### Rating system descriptions

**LEED for Building Design and Construction.** Buildings that are new construction or *major renovation*. In addition, at least 60% of the project's *gross floor area* must be *complete* by the time of certification (except for LEED BD+C: Core and Shell).

- **LEED BD+C: New Construction and Major Renovations.** New construction or major renovation of buildings that do not primarily serve K-12 educational, retail, data centers, warehouses and distribution centers, hospitality, or healthcare uses. New construction also includes high-rise residential buildings 9 stories or more.

- **LEED BD+C: Core and Shell Development.** Buildings that are new construction or major renovation for the *exterior shell* and core mechanical, electrical, and plumbing units, but not a *complete interior fit-out*. LEED BD+C: Core and Shell is the appropriate rating system to use if more than 40% of the gross floor area is incomplete at the time of certification.
- **LEED BD+C: Schools.** Buildings made up of *core* and *ancillary learning spaces* on K-12 school grounds. LEED BD+C: Schools may optionally be used for higher education and non-academic buildings on school campuses.
- **LEED BD+C: Retail.** Buildings used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.
- **LEED BD+C: Data Centers.** Buildings specifically designed and equipped to meet the needs of high density computing equipment such as server racks, used for data storage and processing. LEED BD+C: Data Centers only addresses whole building data centers (greater than 60%).
- **LEED BD+C: Warehouses and Distribution Centers.** Buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings, such as self-storage.
- **LEED BD+C: Hospitality.** Buildings dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.
- **LEED BD+C: Healthcare.** Buildings that serve individuals who seek medical treatment, including licensed and federal inpatient care facilities, licensed and federal outpatient care facilities, and licensed and federal long-term care facilities. May optionally be used for buildings with other kinds of medically-related uses, such as unlicensed outpatient facilities, medical, dental and veterinary offices and clinics, assisted living facilities and medical education & research centers.
- **LEED BD+C: Homes and Multifamily Lowrise.** Single-family homes and multi-family residential buildings of 1 to 3 stories. Projects 3 to 5 stories may choose the Homes rating system that corresponds to the ENERGY STAR program in which they are participating.
- **LEED BD+C: Multifamily Midrise.** Multi-family residential buildings of 4 to 8 occupiable stories above grade. The building must have 50% or more residential space. Buildings near 8 stories can inquire with USGBC about using Midrise or New Construction, if appropriate.

**LEED for Interior Design and Construction.** Interior spaces that are a complete interior fit-out. In addition, at least 60% of the project's gross floor area must be complete by the time of certification.

- **LEED ID+C: Commercial Interiors.** Interior spaces dedicated to functions other than retail or hospitality.
- **LEED ID+C: Retail.** Interior spaces used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.
- **LEED ID+C: Hospitality.** Interior spaces dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.

**LEED for Building Operations and Maintenance.** Existing buildings that are undergoing *improvement* work or little to no construction.

- **LEED O+M: Existing Buildings.** Existing buildings that do not primarily serve K-12 educational, retail, data centers, warehouses and distribution centers, or hospitality uses.
- **LEED O+M: Retail.** Existing buildings used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.
- **LEED O+M: Schools.** Existing buildings made up of core and ancillary learning spaces on K-12 school grounds. May also be used for higher education and non-academic buildings on school campuses.
- **LEED O+M: Hospitality.** Existing buildings dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.
- **LEED O+M: Data Centers.** Existing buildings specifically designed and equipped to meet the needs of high density computing equipment such as server racks, used for data storage and processing. LEED O+M: Data Centers only addresses whole building data centers.
- **LEED O+M: Warehouses & Distribution Centers.** Existing buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings (such as self-storage).

**LEED for Neighborhood Development.** New land development projects or redevelopment projects containing residential uses, nonresidential uses, or a mix. Projects may be at any stage of the development process, from conceptual planning through construction. It is recommended that at least 50% of total building floor area be new construction or major renovation. Buildings within the project and features in the public realm are evaluated.

- **LEED ND: Plan.** Projects in conceptual planning or master planning phases, or under construction.

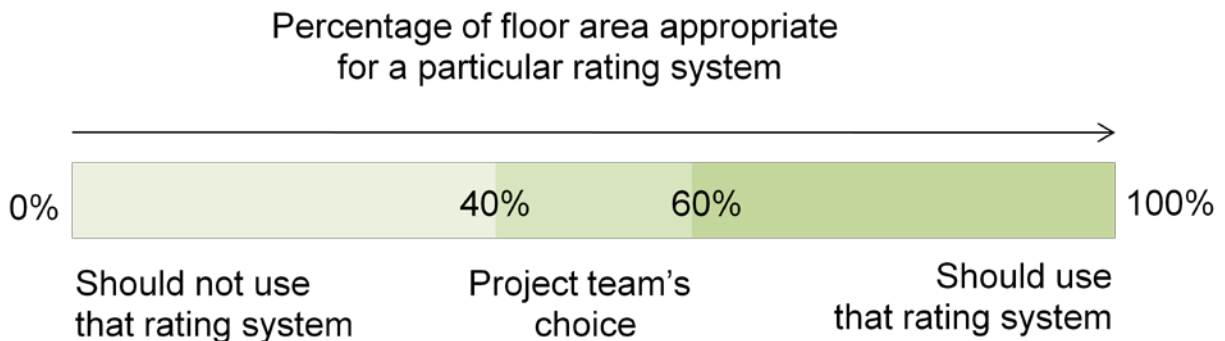


- **LEED ND: Built Project.** Completed development projects.

## Choosing between rating systems

The following 40/60 rule provides guidance for making a decision when several rating systems appear to be appropriate for a project. To use this rule, first assign a rating system to each square foot or square meter of the building. Then, choose the most appropriate rating system based on the resulting percentages.

The entire gross floor area of a LEED project must be certified under a single rating system and is subject to all prerequisites and attempted credits in that rating system, regardless of mixed construction or space usage type.



- If a rating system is appropriate for less than 40% of the gross floor area of a LEED project building or space, then that rating system should not be used.
- If a rating system is appropriate for more than 60% of the gross floor area of a LEED project building or space, then that rating system should be used.
- If an appropriate rating system falls between 40% and 60% of the gross floor area, project teams must independently assess their situation and decide which rating system is most applicable.

## Quick Links

### LEED v4 for Building Design and Construction

- LEED for BD+C: [New Construction and Major Renovations](#)
- LEED for BD+C: [Core and Shell Development](#)
- LEED for BD+C: [Schools](#)
- LEED for BD+C: [Retail](#)
- LEED for BD+C: [Healthcare](#)
- LEED for BD+C: [Data Centers](#)
- LEED for BD+C: [Hospitality](#)
- LEED for BD+C: [Warehouses and Distribution Centers](#)
- [Download Scorecard](#)

### LEED v4 for Interiors Design and Construction

- LEED for ID+C: [Commercial Interiors](#)
- LEED for ID+C: [Retail](#)
- LEED for ID+C: [Hospitality](#)
- [Download Scorecard](#)

### LEED v4 for Building Operations and Maintenance

- LEED for O+M: [Existing Buildings](#)
- LEED for O+M: [Data Centers](#)
- LEED for O+M: [Warehouses and Distribution Centers](#)
- LEED for O+M: [Hospitality](#)
- LEED for O+M: [Schools](#)
- LEED for O+M: [Retail](#)
- [Download Scorecard](#)

### LEED v4 for Neighborhood Development

- LEED for ND: [Plan](#)
- LEED for ND: [Built Project](#)
- [Download Scorecard](#)

### LEED v4 for Building Design and Construction: Homes and Midrise

- LEED for BD+C: [Homes and Multifamily Lowrise](#)
- LEED for BD+C: [Multifamily Midrise](#)
- [Download Scorecard](#)

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## Changes at-a-glance

### LEED v4 for Building Design and Construction

Summary of changes from LEED 2009

Prerequisite	Integrative Project Planning and Design (Healthcare Only)	<ul style="list-style-type: none"> <li>• Credit language clarified.</li> <li>• Charrette requirement adjusted from 8 hours to 4 hours.</li> </ul>
Credit	Integrative Process	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages early analysis of energy and water systems to inform design.</li> </ul>
<b>LOCATION AND TRANSPORTATION</b>		
Credit	LEED for Neighborhood Development Location	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages selection of a LEED ND certified site.</li> <li>• Gives project teams a streamlined path to earn LT points.</li> </ul>
Credit	Sensitive Land Protection	<ul style="list-style-type: none"> <li>• Credit title renamed from “Site Selection”.</li> <li>• Credit language clarified.</li> <li>• Option for projects located on protected sites to earn credits through sensitive land best management practices.</li> </ul>
Credit	High Priority Site	<ul style="list-style-type: none"> <li>• Credit incorporates requirements from “Brownfield Remediation”.</li> <li>• Encourages selection of sites with development constraints.</li> </ul>
Credit	Surrounding Density and Diverse Uses	<ul style="list-style-type: none"> <li>• Credit title renamed from “Development Density and Community Connectivity”.</li> <li>• Multiple thresholds to reward different density levels and amounts of diverse uses.</li> <li>• Projects earn points in the density and the diverse uses options separately.</li> <li>• Warehouse and distribution center requirements added to encourage development near commercial or industrial sites or near transportation infrastructure.</li> </ul>
Credit	Access to Quality Transit	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Public Transportation Access”.</li> <li>• Multiple thresholds to reward varying transit service levels.</li> <li>• Metric of radius changed to walk distance.</li> <li>• Frequency of transit included in metric.</li> </ul>
Credit	Bicycle Facilities	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Bicycle Storage and Changing Rooms”</li> <li>• Added a requirement to be located at a bicycle-accessible site or bicycle network.</li> </ul>
Credit	Reduced Parking Footprint	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Parking Capacity”.</li> <li>• Minimum parking requirements reference levels in the <i>ITE Transportation Planning Handbook</i>.</li> <li>• Option for No New Parking omitted.</li> </ul>

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Credit	Green Vehicles	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles”.</li> <li>• 5% of parking spaces must be reserved for green vehicles.</li> <li>• An additional 2% of parking spaces must have refueling stations – electric vehicle charging or liquid, gas, or battery facilities.</li> <li>• Revised Schools requirements for buses and on-site vehicles</li> <li>• Warehouse and Distribution Centers requirement added for on-site vehicles and anti-idling measures.</li> </ul>
Credit	Alternative Transportation	<ul style="list-style-type: none"> <li>• Removed this previously Retail-specific credit and distributed its former options among the analogous D&amp;C rating systems</li> </ul>
<b>SUSTAINABLE SITES</b>		
Prerequisite	Construction Activity Pollution Prevention	<ul style="list-style-type: none"> <li>• Updated the EPA Construction General Permit version from 2003 to 2010.</li> </ul>
Prerequisite	Environmental Site Assessment	<ul style="list-style-type: none"> <li>• No substantive changes.</li> </ul>
Credit	Site Assessment	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages early analysis of site conditions to inform design.</li> </ul>
Credit	Brownfield Remediation	<ul style="list-style-type: none"> <li>• Moved requirements to Location and Transportation Credit: High Priority Site.</li> <li>• Combined options.</li> </ul>
Credit	Site Development - Protect or Restore Habitat	<ul style="list-style-type: none"> <li>• Replaced setback requirements with preservation standards.</li> <li>• Added option for financial support of off-site preservation.</li> </ul>
Credit	Open Space	<ul style="list-style-type: none"> <li>• Credit renamed from “Site Development – Maximize Open Space”</li> <li>• Added qualification that open space must be of beneficial use to the occupants or community.</li> <li>• Clarified turf grass requirements and vegetated roof requirements.</li> </ul>
Credit	Rainwater Management	<ul style="list-style-type: none"> <li>• Credit is a combination of “Stormwater Design—Quality Control” and “Stormwater Design—Quantity Control “.</li> <li>• Includes site-specific criteria for more frequent, low-intensity events.</li> <li>• Added option for zero lot line, urban projects.</li> </ul>
Credit	Heat Island Reduction	<ul style="list-style-type: none"> <li>• Credit is a combination of “Heat Island Effect—Nonroof” and “Heat Island Effect—Roof “.</li> <li>• Updated the roof SRI requirements.</li> <li>• Changed paving materials metric to Solar Reflectance (SR).</li> <li>• Included 3-year aged SRI and SR values.</li> <li>• Included weighted SRI average calculation methodology.</li> <li>• Increased threshold for parking spaces under cover.</li> </ul>

Credit	Light Pollution Reduction	<ul style="list-style-type: none"> <li>Removed the interior lighting requirements which are now addressed in the EA prerequisite.</li> <li>Included the BUG rating methodology as a prescriptive way to meet the exterior lighting requirements.</li> <li>Added Lighting Zone 0.</li> <li>Included exterior signage requirements.</li> <li>Added exemptions from exterior lighting requirements.</li> </ul>
Credit	Site Master Plan (Schools)	<ul style="list-style-type: none"> <li>Clarified requirements for projects with no future planned development.</li> </ul>
Credit	Tenant Design and Construction Guidelines (Core and Shell)	<ul style="list-style-type: none"> <li>Added “Storage and Collection of Recyclables” to the list of prerequisites and credits.</li> </ul>
Credit	Places of Respite (Healthcare)	<ul style="list-style-type: none"> <li>No substantive changes.</li> <li>Credit titled renamed from “Connection to the Outside World—Places of Respite”.</li> </ul>
Credit	Direct Exterior Access (Healthcare)	<ul style="list-style-type: none"> <li>No substantive changes.</li> <li>Credit title renamed from “Connection to the Outside World—Direct Exterior Access for Patients”.</li> </ul>
Credit	Joint Use of Facilities (Schools)	<ul style="list-style-type: none"> <li>Removed the requirements for separate entries.</li> </ul>
<b>WATER EFFICIENCY</b>		
Prerequisite	Outdoor Water Use Reduction	<ul style="list-style-type: none"> <li>New prerequisite.</li> <li>Requires a reduction in landscape water use by 30% using EPA’s WaterSense Water Budget Tool or no irrigation.</li> </ul>
Prerequisite	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit title renamed from “Water Use Reduction”.</li> <li>WaterSense label required for certain fixtures and fittings</li> <li>Appliance and process water uses addressed.</li> <li>Basic cooling tower requirements from ASHRAE 189 added.</li> <li>Additional appliance and process water requirements for Retail, Schools, Healthcare and Hospitality only.</li> </ul>
Prerequisite	Minimum Potable Water Use for Medical Equipment Cooling (Healthcare)	<ul style="list-style-type: none"> <li>Prerequisite removed.</li> </ul>
Prerequisite	Building-Level Water Metering	<ul style="list-style-type: none"> <li>New prerequisite.</li> <li>Requires each project to be capable of measuring whole building water use.</li> </ul>
Credit	Outdoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit title renamed from “Water Efficient Landscaping”.</li> <li>Requires a reduction in landscape water use by at least 50% using EPA’s WaterSense Water Budget Tool or no irrigation.</li> </ul>
Credit	Innovative Wastewater Technologies	<ul style="list-style-type: none"> <li>Credit removed.</li> <li>Will be tested in Pilot Credit Library with new nutrient recovery option.</li> </ul>
Credit	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit title renamed from “Water Use Reduction”.</li> <li>WaterSense label required for certain fixtures and fittings.</li> <li>Added Appliance and Process Water requirements.</li> <li>Added more thresholds for achievement.</li> </ul>
Credit	Cooling Tower Water Use	<ul style="list-style-type: none"> <li>New credit.</li> <li>Encourages projects to analyze water source and maximize water cycles.</li> </ul>

Credit	Water Metering	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Rewards projects for submetering at least two water end uses.</li> </ul>
<b>ENERGY AND ATMOSPHERE</b>		
Prerequisite	Fundamental Commissioning and Verification	<ul style="list-style-type: none"> <li>• Credit title renamed from “Fundamental Commissioning of Building Energy Systems”.</li> <li>• Modified intent to ensure project meets the owner’s projects requirements related to energy, water, indoor environmental quality and durability.</li> <li>• Added requirement for preparing an Operations and Maintenance Plan.</li> <li>• Added requirement to engage a Commissioning Authority by the end of the design development phase.</li> <li>• Clarified language for who can be the commissioning authority.</li> <li>• Included requirements for a design review of the enclosure.</li> </ul>
Prerequisite	Minimum Energy Performance	<ul style="list-style-type: none"> <li>• Updated referenced standard to ASHRAE 90.1-2010.</li> <li>• Added requirements for data centers.</li> <li>• Added retail-specific process load requirements</li> <li>• Updated Advanced Energy Design Guides prescriptive option to 50% AEDG for Office, Retail, Schools, and Healthcare.</li> <li>• Updated Core Performance Guide prescriptive option to meeting core requirements plus six additional strategies.</li> </ul>
Prerequisite	Building-Level Energy Metering	<ul style="list-style-type: none"> <li>• New prerequisite.</li> <li>• Requires each project to be capable of measuring whole building energy use.</li> </ul>
Prerequisite	Fundamental Refrigerant Management	<ul style="list-style-type: none"> <li>• No substantive changes.</li> </ul>
Credit	Enhanced Commissioning	<ul style="list-style-type: none"> <li>• Added options for monitoring based commissioning and envelope commissioning.</li> <li>• Added requirements to prepare the building operators for the intended operation of building systems</li> <li>• Clarified language for who can be the commissioning authority.</li> </ul>
Credit	Optimize Energy Performance	<ul style="list-style-type: none"> <li>• Updated referenced standard to ASHRAE 90.1-2010.</li> <li>• Added requirements for data centers.</li> <li>• Added retail-specific process load requirements</li> <li>• Updated Advanced Energy Design Guides prescriptive option to 50% AEDG for Office, Retail, Schools, and Healthcare.</li> <li>• Updated Core Performance Guide prescriptive option to meeting core requirements plus six additional strategies.</li> </ul>
Credit	Advanced Energy Metering	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Requires all energy end-uses that represent 10% or more of the total energy consumption of the building to be metered.</li> <li>• Meters must be connected to the building automation system and log data at appropriate intervals.</li> <li>• Core and Shell projects required to address future tenant</li> </ul>

		spaces.
Credit	Demand Response	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages projects to design and install systems necessary to participate in a demand response program.</li> <li>• Also available to projects located in areas without demand response programs.</li> <li>• Added requirement to include demand response processes in the commissioning scope.</li> </ul>
Credit	Renewable Energy Production	<ul style="list-style-type: none"> <li>• Credit title renamed from “On-Site Renewable Energy”.</li> <li>• Added provision for community-scale renewable energy systems.</li> <li>• Points adjusted significantly.</li> </ul>
Credit	Enhanced Refrigerant Management	<ul style="list-style-type: none"> <li>• Added retail-specific requirements.</li> </ul>
Credit	Measurement and Verification	<ul style="list-style-type: none"> <li>• Credit removed.</li> <li>• Installation of measurement and verification infrastructure addressed in Building-Level Energy Metering prerequisite and Advanced Metering credit.</li> </ul>
Credit	Green Power and Carbon Offsets	<ul style="list-style-type: none"> <li>• Credit title renamed from “Green Power”.</li> <li>• Credit based on total building energy usage.</li> <li>• Carbon offsets allowed for scope 1 or 2 emissions</li> <li>• Required contract length extended from 2 years to 5 years.</li> <li>• Eligible resources must have come online after January 1, 2005.</li> </ul>
<b>MATERIALS AND RESOURCES</b>		
Prerequisite	Storage and Collection of Recyclables	<ul style="list-style-type: none"> <li>• Added requirement to address batteries, mercury containing lamps, or electronic waste.</li> <li>• Added retail requirement to identify top 4 waste streams to provide recycling collection and storage.</li> </ul>
Prerequisite	Construction and Demolition Waste Management Planning	<ul style="list-style-type: none"> <li>• New prerequisite.</li> <li>• Requires setting a project target for waste management.</li> <li>• Require reporting waste diversion rates.</li> </ul>
Prerequisite	PBT Source Reduction—Mercury	<ul style="list-style-type: none"> <li>• No substantive changes.</li> </ul>
Credit	Building Reuse - Maintain Existing Walls, Floors, and Roof	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Building Life Cycle Impact Reduction” credit.</li> </ul>
Credit	Building Reuse - Maintain Interior Nonstructural Elements	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Building Life Cycle Impact Reduction” credit.</li> </ul>
Credit	Building Life Cycle Impact Reduction	<ul style="list-style-type: none"> <li>• Credit is a combination of “Building Reuse—Maintain Existing Walls, Floors, and Roof” and “Building Reuse—Maintain Interior Nonstructural Elements”.</li> <li>• Added options for the reuse of historic and blighted buildings.</li> <li>• Added option for a whole building life-cycle assessment of the project’s structure and enclosure.</li> </ul>
Credit	Building Product Disclosure and Optimization—Environmental Product	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Addresses transparency in environmental life-cycle impacts and selecting products with improved life-cycles.</li> <li>• Structured into disclosure and optimization options.</li> </ul>

	Declarations	<ul style="list-style-type: none"> <li>Rewards the use of products with Environmental Product Declarations.</li> <li>Rewards products that meet the local products criteria.</li> </ul>
Credit	Materials Reuse	<ul style="list-style-type: none"> <li>Credit requirements moved to “Building Life Cycle Impact Reduction”.</li> </ul>
Credit	Recycled Content	<ul style="list-style-type: none"> <li>Credit requirements moved to “Building Product Disclosure and Optimization—Sourcing of Raw Materials.”</li> </ul>
Credit	Regional Materials	<ul style="list-style-type: none"> <li>Credit requirements moved to the “Building Product Disclosure and Optimization” credits.</li> </ul>
Credit	Rapidly Renewable Materials	<ul style="list-style-type: none"> <li>Credit removed. Rapidly renewable materials addressed by “Building Product Disclosure and Optimization—Sourcing of Raw Materials”.</li> </ul>
Credit	Certified Wood	<ul style="list-style-type: none"> <li>Credit requirements moved to “Building Product Disclosure and Optimization—Sourcing of Raw Materials”.</li> </ul>
Credit	Building Product Disclosure and Optimization—Sourcing of Raw Materials	<ul style="list-style-type: none"> <li>New credit.</li> <li>Addresses transparency in raw material sourcing and selecting materials that have been appropriately sourced.</li> <li>Restructured into disclosure and optimization sections.</li> <li>Rewards products from manufacturers that have provided information on land use practices, extraction locations, labor practices, etc.</li> <li>Rewards products that meet the local products criteria.</li> </ul>
Credit	Building Product Disclosure and Optimization—Material Ingredient Reporting	<ul style="list-style-type: none"> <li>New credit.</li> <li>Addresses transparency in material ingredients and selecting products with optimized ingredients.</li> <li>Structured into disclosure and optimization options.</li> <li>Rewards the use of products with ingredient reporting in programs like Health Product Declaration, Cradle 2 Cradle, and others.</li> <li>Rewards products that meet the local products criteria.</li> <li>Third option for supply chain optimization.</li> </ul>
Credit	PBT Source Reduction-Mercury (Healthcare)	<ul style="list-style-type: none"> <li>No substantive change.</li> <li>Credit title revised.</li> </ul>
Credit	PBT Source Reduction-Lead, Cadmium, Copper (Healthcare)	<ul style="list-style-type: none"> <li>No substantive change.</li> </ul>
Credit	Furniture and Medical Furnishings (Healthcare)	<ul style="list-style-type: none"> <li>Updated referenced standards in option 2.</li> <li>Updated the criteria for option 3.</li> </ul>
Credit	Resource Use-Design for Flexibility (Healthcare)	<ul style="list-style-type: none"> <li>Credit renamed to “Design for Flexibility”.</li> <li>Credit language clarified.</li> </ul>
Credit	Construction and Demolition Waste Management	<ul style="list-style-type: none"> <li>Added an option for waste reduction strategy.</li> <li>Requires waste diversion from multiple material types.</li> <li>Alternative daily cover no longer counted as diverted waste.</li> </ul>
<b>INDOOR ENVIRONMENTAL QUALITY</b>		
Prerequisite	Minimum Indoor Air Quality Performance	<ul style="list-style-type: none"> <li>Added requirements for outside air delivery monitoring</li> <li>Added requirements for residential projects addressing combustion appliances, CO monitors, and radon.</li> </ul>



Prerequisite	Environmental Tobacco Smoke Control	<ul style="list-style-type: none"> <li>Removed allowance for designated smoking areas inside the building for all projects but residential.</li> <li>Reduced the maximum allowable leakage rate for compartmentalized residential units.</li> <li>Prohibited smoking on the entire site for Schools projects.</li> </ul>
Prerequisite	Minimum Acoustic Performance (Schools)	<ul style="list-style-type: none"> <li>Harmonized ANSI &amp; ASHARE standards.</li> <li>Added exterior noise control exceptions for projects located on quiet sites.</li> <li>Added exceptions for projects with limited renovation scopes or strict historic preservation requirements.</li> </ul>
Credit	Outdoor Air Delivery Monitoring	<ul style="list-style-type: none"> <li>Credit requirements moved to “Minimum Indoor Air Quality Performance” and “Enhanced Indoor Air Quality Strategies” credits.</li> </ul>
Credit	Increased Ventilation	<ul style="list-style-type: none"> <li>Credit requirements moved to “Enhanced Indoor Air Quality Strategies” credit.</li> </ul>
Credit	Enhanced Indoor Air Quality Strategies	<ul style="list-style-type: none"> <li>Credit is a combination of “Outdoor Air Delivery Monitoring”, “Increased Ventilation”, and “Indoor Chemical and Pollutant Source Control” credits.</li> <li>Added additional options for mathematical modeling, additional sensors, and mixed mode systems.</li> </ul>
Credit	Low-Emitting Materials	<ul style="list-style-type: none"> <li>Credit is a combination of the “Low-Emitting Materials” credits.</li> <li>Requirements based on VOC emissions rather than VOC content.</li> <li>Systems approach to emissions within a space.</li> <li>Added requirement for TVOC disclosure.</li> <li>Modified requirements for formaldehyde.</li> </ul>
Credit	Construction Indoor Air Quality Management Plan	<ul style="list-style-type: none"> <li>Credit title renamed from “Construction Indoor Air Quality Management Plan—During Construction”.</li> <li>No substantive changes.</li> </ul>
Credit	Indoor Air Quality Assessment	<ul style="list-style-type: none"> <li>Credit title renamed from “Construction Indoor Air Quality Management Plan—Before Occupancy”.</li> <li>Added a maximum temperature limit for flush outs.</li> <li>Expanded the list of contaminants for which to test under Option 2.</li> <li>Clarified that furniture must be installed.</li> </ul>
Credit	Indoor Chemical and Pollutant Source Control	<ul style="list-style-type: none"> <li>Credit requirements moved to “Enhanced Indoor Air Quality Strategies” credit.</li> </ul>
Credit	Controllability of Systems—Lighting	<ul style="list-style-type: none"> <li>Credit requirements moved to “Interior Lighting” credit.</li> </ul>
Credit	Thermal Comfort	<ul style="list-style-type: none"> <li>Credit title renamed from “Thermal Comfort—Design”.</li> <li>Updated reference standard to ASHRAE 55-2010.</li> <li>Credit removed from Core and Shell.</li> </ul>
Credit	Interior Lighting	<ul style="list-style-type: none"> <li>New Credit.</li> <li>Incorporates controls requirements from “Controllability of Systems—Lighting” credit.</li> <li>Added an option that addresses lighting quality.</li> </ul>
Credit	Daylight	<ul style="list-style-type: none"> <li>Credit title renamed from “Daylight and Views—Daylight”.</li> <li>Removed prescriptive option.</li> <li>Added option for spatial daylight autonomy.</li> <li>Changed units from footcandles to lux.</li> <li>Added a timing requirement to measurement option.</li> </ul>

Credit	Quality Views	<ul style="list-style-type: none"> <li>• Credit title renamed from “Daylight and Views—Views”.</li> <li>• Added requirement for quality view, defined by the LEED 2009 exemplary performance criteria.</li> <li>• Added provisions for interior atria.</li> </ul>
Credit	Acoustic Performance	<ul style="list-style-type: none"> <li>• New credit except in Schools and Healthcare.</li> <li>• Added requirements for room noise levels, speech privacy and sound isolation, reverberation time, and paging, masking, and sound reinforcement systems.</li> <li>• Harmonized ANSI and ASHRAE standards.</li> </ul>
Credit	Mold Prevention (Schools)	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Thermal Comfort” credit.</li> </ul>

## LEED v4 for Interior Design and Construction

### *Summary of changes from LEED 2009*

Credit – Integrative Process		<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages early analysis of energy, site, and water systems to inform design.</li> </ul>
LOCATION AND TRANSPORTATION		
Credit	LEED for Neighborhood Development Location	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Encourages selection of a LEED ND certified site.</li> <li>• Gives project teams a streamlined path to earn LT points.</li> </ul>
Credit	Surrounding Density and Diverse Uses	<ul style="list-style-type: none"> <li>• Credit title renamed from “Development Density and Community Connectivity”.</li> <li>• Multiple thresholds to reward different density levels and amounts of diverse uses.</li> <li>• Projects earn points in the density and the diverse uses options separately.</li> </ul>
Credit	Access to Quality Transit	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Public Transportation Access”.</li> <li>• Multiple thresholds to reward varying transit service levels.</li> </ul>
Credit	Bicycle Facilities	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Bicycle Storage and Changing Rooms”</li> <li>• Added a requirement to be located at a bicycle-accessible site or bicycle network.</li> </ul>
Credit	Reduced Parking Footprint	<ul style="list-style-type: none"> <li>• Credit title renamed from “Alternative Transportation—Parking Capacity”.</li> <li>• Minimum parking requirements reference levels in the <i>ITE Transportation Planning Handbook</i>.</li> <li>• Option for No New parking removed</li> </ul>
Credit	Alternative Transportation (Retail CI)	<ul style="list-style-type: none"> <li>• Credit requirements moved to other LT credits.</li> </ul>

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WATER EFFICIENCY		
Prerequisite	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>• Credit title renamed from “Water Use Reduction”.</li> <li>• WaterSense label required for certain fixtures and fittings</li> <li>• Appliance and process water uses addressed.</li> <li>• Basic cooling tower requirements from ASHRAE 189 added.</li> <li>• Additional appliance and process water requirements for Retail and Hospitality only.</li> </ul>
Credit	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>• Credit title renamed from “Water Use Reduction”.</li> <li>• WaterSense label required for certain fixtures and fittings.</li> <li>• Added Appliance and Process Water requirements.</li> <li>• Added more thresholds for achievement.</li> </ul>
ENERGY AND ATMOSPHERE		
Prerequisite	Fundamental Commissioning and Verification	<ul style="list-style-type: none"> <li>• Credit title renamed from “Fundamental Commissioning of Building Energy Systems”.</li> <li>• Modified intent to ensure project meets the owner’s projects requirements related to energy, water, indoor environmental quality and durability.</li> <li>• Added requirement for preparing an Operations and Maintenance Plan.</li> <li>• Added requirement to engage a Commissioning Authority by the end of the design development phase.</li> <li>• Clarified language for who can be the commissioning authority.</li> </ul>
Prerequisite	Minimum Energy Performance	<ul style="list-style-type: none"> <li>• Updated referenced standard to ASHRAE 90.1-2010.</li> <li>• Added retail-specific process load requirements</li> <li>• Aligned modeling path with BD&amp;C</li> <li>• Include new prescriptive option</li> </ul>
Prerequisite	Fundamental Refrigerant Management	<ul style="list-style-type: none"> <li>• No substantive changes.</li> </ul>
Credit	Enhanced Commissioning	<ul style="list-style-type: none"> <li>• Added options for monitoring based commissioning and envelope commissioning if included in scope of project.</li> <li>• Added requirements to prepare the building operators for the intended operation of building systems</li> <li>• Clarified language for who can be the commissioning authority.</li> </ul>
Credit	Optimize Energy Performance	<ul style="list-style-type: none"> <li>• Updated referenced standard to ASHRAE 90.1-2010.</li> <li>• Added requirements for data centers.</li> <li>• Added retail-specific process load requirements</li> <li>• Added prescriptive compliance path addressing 50% Advanced Energy Design Guides.</li> <li>• Aligned modeling path to BD&amp;C</li> </ul>
Credit	Advanced Energy Metering	<ul style="list-style-type: none"> <li>• New credit</li> <li>• Includes option for installing building-level energy meter and advanced energy meters for all energy end-uses that represent 10% or more of the total energy consumption</li> </ul>
Credit	Renewable Energy Production	<ul style="list-style-type: none"> <li>• Credit title renamed from “On-Site Renewable Energy”.</li> <li>• Added provision for community-scale renewable energy systems.</li> <li>• Points adjusted significantly.</li> </ul>

Credit	Enhanced Refrigerant Management	<ul style="list-style-type: none"> <li>Added retail-specific requirements.</li> </ul>
Credit	Green Power and Carbon Offsets	<ul style="list-style-type: none"> <li>Credit title renamed from “Green Power”.</li> <li>Credit based on total energy usage.</li> <li>Carbon offsets allowed for scope 1 or 2 emissions</li> <li>Required contract length extended from 2 years to 5 years.</li> <li>Eligible resources must have come online after January 1, 2005.</li> </ul>
<b>MATERIALS AND RESOURCES</b>		
Prerequisite	Storage and Collection of Recyclables	<ul style="list-style-type: none"> <li>Added requirement to address batteries, mercury containing lamps, or electronic waste.</li> <li>Added retail requirement to identify top 4 waste streams to provide recycling collection and storage.</li> </ul>
Prerequisite	Construction and Demolition Waste Management Planning	<ul style="list-style-type: none"> <li>New prerequisite.</li> <li>Requires setting a project target for waste management.</li> <li>Requires reporting waste diversion rates.</li> </ul>
Credit	Tenant Space - Long Term Commitment	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Building Reuse-Maintain Interior Nonstructural Elements	<ul style="list-style-type: none"> <li>Credit requirements moved to “Interiors Life Cycle Impact Reduction” credit.</li> </ul>
Credit	Interiors Life Cycle Impact Reduction	<ul style="list-style-type: none"> <li>Credit is a combination of “Materials Reuse” and “Materials Reuse - Furniture and Furnishings”</li> <li>Encourages reuse of materials</li> <li>Added option for Design for Flexibility.</li> </ul>
Credit	Building Product Disclosure and Optimization—Environmental Product Declarations	<ul style="list-style-type: none"> <li>New credit.</li> <li>Addresses transparency in environmental life-cycle impacts and selecting products with improved life-cycles.</li> <li>Structured into disclosure and optimization options.</li> <li>Rewards the use of products with Environmental Product Declarations.</li> <li>Rewards products that meet the local products criteria.</li> </ul>
Credit	Materials Reuse	<ul style="list-style-type: none"> <li>Credit requirements moved to “Interiors Life Cycle Impact Reduction”.</li> </ul>
Credit	Materials Reuse - Furniture and Furnishings	<ul style="list-style-type: none"> <li>Credit requirements moved to “Interiors Life Cycle Impact Reduction”.</li> </ul>
Credit	Recycled Content	<ul style="list-style-type: none"> <li>Credit requirements moved to “Building Product Disclosure and Optimization—Sourcing of Raw Materials.”</li> </ul>
Credit	Regional Materials	<ul style="list-style-type: none"> <li>Credit requirements moved to the “Building Product Disclosure and Optimization” credits.</li> </ul>
Credit	Rapidly Renewable Materials	<ul style="list-style-type: none"> <li>Credit removed. Rapidly renewable materials addressed by “Building Product Disclosure and Optimization—Sourcing of Raw Materials”</li> </ul>
Credit	Certified Wood	<ul style="list-style-type: none"> <li>Credit requirements moved to “Building Product Disclosure and Optimization—Sourcing of Raw Materials”.</li> </ul>
Credit	Building Product Disclosure and Optimization—Sourcing of Raw Materials	<ul style="list-style-type: none"> <li>New credit.</li> <li>Addresses transparency in raw material sourcing and selecting materials that have been appropriately sourced.</li> <li>Restructured into disclosure and optimization sections. Rewards products from manufacturers that have provided</li> </ul>

		<p>information on land use practices, extraction locations, labor practices, etc.</p> <ul style="list-style-type: none"> <li>• Rewards products that meet the local products criteria.</li> </ul>
Credit	Building Product Disclosure and Optimization—Material Ingredient Reporting	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Addresses transparency in material ingredients and selecting products with optimized ingredients.</li> <li>• Structured into disclosure and optimization options.</li> <li>• Rewards the use of products with ingredient reporting in programs like Health Product Declaration, Cradle 2 Cradle, and others.</li> <li>• Rewards products that meet the local products criteria.</li> <li>• Third option for supply chain optimization.</li> </ul>
Credit	Construction and Demolition Waste Management	<ul style="list-style-type: none"> <li>• Added an option for waste reduction strategy.</li> <li>• Requires waste diversion from multiple material types.</li> <li>• Alternative daily cover no longer counted as diverted waste.</li> </ul>
<b>INDOOR ENVIRONMENTAL QUALITY</b>		
Prerequisite	Minimum Indoor Air Quality Performance	<ul style="list-style-type: none"> <li>• Added requirements for outside air delivery monitoring</li> </ul>
Prerequisite	Environmental Tobacco Smoke Control	<ul style="list-style-type: none"> <li>• Removed allowance for designated smoking areas inside the building for all projects but residential.</li> <li>• Reduced the maximum allowable leakage rate for compartmentalized residential units.</li> </ul>
Credit	Outdoor Air Delivery Monitoring	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Minimum Indoor Air Quality Performance” and “Enhanced Indoor Air Quality Strategies” credits.</li> </ul>
Credit	Increased Ventilation	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Enhanced Indoor Air Quality Strategies” credit.</li> </ul>
Credit	Enhanced Indoor Air Quality Strategies	<ul style="list-style-type: none"> <li>• Credit is a combination of “Outdoor Air Delivery Monitoring”, “Increased Ventilation”, and “Indoor Chemical and Pollutant Source Control” credits.</li> <li>• Added additional options for mathematical modeling, additional sensors, and mixed mode systems.</li> </ul>
Credit	Low-Emitting Interiors	<ul style="list-style-type: none"> <li>• Credit is a combination of the “Low-Emitting Materials” credits.</li> <li>• Requirements based on VOC emissions rather than VOC content.</li> <li>• Systems approach to emissions within a space.</li> <li>• Added requirement for TVOC disclosure.</li> <li>• Modified requirements for formaldehyde.</li> </ul>
Credit	Construction Indoor Air Quality Management Plan	<ul style="list-style-type: none"> <li>• Credit title renamed from “Construction Indoor Air Quality Management Plan—During Construction”.</li> <li>• No substantive changes.</li> </ul>
Credit	Indoor Air Quality Assessment	<ul style="list-style-type: none"> <li>• Credit title renamed from “Construction Indoor Air Quality Management Plan—Before Occupancy”.</li> <li>• Added a maximum temperature limit for flush outs.</li> <li>• Expanded the list of contaminants for which to test under Option 2.</li> <li>• Clarified that furniture must be installed.</li> </ul>
Credit	Indoor Chemical and Pollutant Source Control	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Enhanced Indoor Air Quality Strategies” credit.</li> </ul>

Credit	Controllability of Systems—Lighting	<ul style="list-style-type: none"> <li>• Credit requirements moved to “Interior Lighting” credit.</li> </ul>
Credit	Thermal Comfort	<ul style="list-style-type: none"> <li>• Credit title renamed from “Thermal Comfort—Design”.</li> <li>• Updated reference standard to ASHRAE 55-2010.</li> </ul>
Credit	Interior Lighting	<ul style="list-style-type: none"> <li>• New Credit.</li> <li>• Incorporates controls requirements from “Controllability of Systems—Lighting” credit.</li> <li>• Added an option that addresses lighting quality.</li> </ul>
Credit	Daylight	<ul style="list-style-type: none"> <li>• Credit title renamed from “Daylight and Views—Daylight”.</li> <li>• Removed prescriptive option.</li> <li>• Added option for spatial daylight autonomy.</li> <li>• Changed units from footcandles to lux.</li> <li>• Added a timing requirement to measurement option.</li> </ul>
Credit	Quality Views	<ul style="list-style-type: none"> <li>• Credit title renamed from “Daylight and Views—Views”.</li> <li>• Added requirement for quality view, defined by the LEED 2009 exemplary performance criteria.</li> <li>• Added provisions for interior atria.</li> </ul>
Credit	Acoustic Performance	<ul style="list-style-type: none"> <li>• New credit.</li> <li>• Added requirements for room noise levels, speech privacy and sound isolation, reverberation time, and paging, masking, and sound reinforcement systems.</li> <li>• Harmonized ANSI and ASHRAE standards.</li> </ul>

## LEED v4 for Building Operations and Maintenance

### *Summary of changes from LEED 2009*

LOCATION AND TRANSPORTATION		
Credit	Alternative Transportation	<ul style="list-style-type: none"> <li>• Clarified credit requirements for transient occupants.</li> <li>• Added Option 1 to reward projects for conducting a survey.</li> <li>• Added Option 3 to reward projects for implementing an alternative transportation program.</li> </ul>
SUSTAINABLE SITES		
Prerequisite	Site Management Policy	<ul style="list-style-type: none"> <li>• New prerequisite.</li> <li>• Incorporates the policy requirements of Building Exterior and Hardscape Management Plan and Integrated Pest Management, Erosion Control and Landscape Management Plan credits.</li> <li>• Requires the creation and implementation of a policy addressing best site management practices to reduce chemical use, energy and water waste, air pollution, solid waste, and run-off.</li> </ul>
Credit	LEED Certified Design and Construction	<ul style="list-style-type: none"> <li>• Credit removed.</li> </ul>
Credit	Building Exterior and Hardscape Management Plan	<ul style="list-style-type: none"> <li>• Credit requirements moved to Site Management Policy prerequisite and Site Management credit.</li> <li>• Policy requirements moved to Site Management Policy prerequisite.</li> <li>• Plan implementation requirements moved to Site</li> </ul>

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		Management credit.
Credit	Integrated Pest Management, Erosion Control and Landscape Management Plan	<ul style="list-style-type: none"> <li>• Credits moved to Site Management Policy prerequisite and Site Management credit.</li> <li>• Policy requirements moved to Site Management Policy prerequisite.</li> <li>• Erosion control and landscape management plan implementation requirements moved to Site Management credit.</li> <li>• Integrated Pest Management requirements moved to Integrated Pest Management credit in EQ category.</li> </ul>
Credit	Site Development—Protect or Restore Habitat	<ul style="list-style-type: none"> <li>• Increased the area requirement for native or adapted vegetation to 20% of the site including the building footprint with a minimum of 5,000 sq. ft.</li> <li>• Added off-site conservation option that requires financial support equal to at least \$0.05 per sq. ft. of project site area.</li> </ul>
Credit	Rainwater Management	<ul style="list-style-type: none"> <li>• Revised requirements to include site-specific criteria focusing on frequent, low-intensity events.</li> </ul>
Credit	Heat Island Reduction	<ul style="list-style-type: none"> <li>• Credit is a combination of Heat Island Reduction—Nonroof and Heat Island Reduction—Roof credits.</li> <li>• Changed paving materials metric to Solar Reflectance (SR).</li> <li>• Updated the roof SRI requirements.</li> <li>• Added 3-year aged SRI and SR values.</li> <li>• Added a weighted SRI average calculation methodology.</li> </ul>
Credit	Light Pollution Reduction	<ul style="list-style-type: none"> <li>• Removed the interior requirements.</li> <li>• Clarified the fixture shielding option.</li> </ul>
Credit	Site Management	<ul style="list-style-type: none"> <li>• Credit is a combination of Building Exterior and Hardscape Management Plan and Integrated Pest Management, Erosion Control and Landscape Management Plan credits.</li> <li>• Clarified requirements and added performance criteria.</li> <li>• Added options addressing environmentally sensitive site maintenance equipment.</li> </ul>
Credit	Site Improvement Plan	<ul style="list-style-type: none"> <li>• New credit that addresses the long term ecological health of the site.</li> <li>• Requires a five year site improvement plan addressing hydrology, vegetation, and soils.</li> </ul>
Credit	Joint Use of Facilities (Schools)	<ul style="list-style-type: none"> <li>• New credit for Schools taken from Building Design and Construction rating system.</li> <li>• Encourages shared use community spaces.</li> </ul>
<b>WATER EFFICIENCY</b>		
Prerequisite	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>• Changed title from Minimum Indoor Plumbing Fixture and Fitting Efficiency.</li> <li>• Changed baseline calculation date from 1993 to 1995.</li> <li>• Changed pre-1995 baseline from 160% of UPC/IPC to 150%.</li> <li>• Replaced economic assessment with replacement and retrofit policy purchasing plan requiring newly install fixtures and fittings to be WaterSense labeled if eligible.</li> <li>• Added appliance and process water requirements for retail, hospitality, and schools projects.</li> <li>• Added metering option.</li> </ul>

Prerequisite	Building-Level Water Metering	<ul style="list-style-type: none"> <li>• New prerequisite.</li> <li>• Requires permanently install whole building water meter.</li> <li>• Water usage data shared with USGBC.</li> </ul>
Credit	Water Performance Measurement	<ul style="list-style-type: none"> <li>• Whole building water meter requirements moved to Building-Level Water Metering prerequisite.</li> <li>• Submetering options moved to Water Metering credit.</li> </ul>
Credit	Outdoor Water Use Reduction	<ul style="list-style-type: none"> <li>• Changed title from Water Efficient Landscaping.</li> <li>• Reweighted from 5 to 2 points.</li> <li>• Changed referenced baseline to EPA WaterSense Water Budget Tool.</li> <li>• Added an option for projects with no irrigation required.</li> <li>• Added requirement to install an irrigation water meter if project has landscape water needs.</li> <li>• Reduced minimum threshold to 30% reduction.</li> </ul>
Credit	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>• Changed title from Additional Indoor Fixture and Fitting Efficiency.</li> <li>• Requires newly install fixtures and fittings and appliances to meet performance standards or be WaterSense labeled if eligible.</li> <li>• Added an option projects with metered fixtures and fittings.</li> </ul>
Credit	Cooling Tower Water Use	<ul style="list-style-type: none"> <li>• Revised to require a water analysis and encourage projects to maximize the number of cooling tower cycles.</li> </ul>
Credit	Water Metering	<ul style="list-style-type: none"> <li>• Incorporated submetering requirements of Water Performance Measurement credit, option 2.</li> </ul>
<b>ENERGY AND ATMOSPHERE</b>		
Prerequisite	Energy Efficiency Best Management Practices	<ul style="list-style-type: none"> <li>• No changes.</li> <li>• Added a path for data center projects to use the DOE DC Pro Profiling Tool.</li> </ul>
Prerequisite	Minimum Energy Performance	<ul style="list-style-type: none"> <li>• Credit title changed from Minimum Energy Efficiency Performance.</li> <li>• Increased minimum required Energy Star rating from 69 to 75 in Option 1, with corresponding changes in Option 2.</li> </ul>
Prerequisite	Building-Level Energy Metering	<ul style="list-style-type: none"> <li>• New prerequisite.</li> <li>• Requires energy meters capable of providing whole building energy use data.</li> <li>• Energy usage data shared with USGBC.</li> </ul>
Prerequisite	Fundamental Refrigerant Management	<ul style="list-style-type: none"> <li>• Phase out plan required to be completed within 10 years</li> </ul>
Credit	Existing Building Commissioning—Analysis	<ul style="list-style-type: none"> <li>• Modified to track closely with current facilities requirements and building operations and maintenance plan.</li> <li>• Added requirement for data centers to use DOE’s DC Pro Energy Assessment Tool.</li> </ul>
Credit	Existing Building Commissioning - Implementation	<ul style="list-style-type: none"> <li>• Modified to track closely with current facilities requirements and building operations and maintenance plan.</li> </ul>
Credit	Ongoing Commissioning	<ul style="list-style-type: none"> <li>• Modified to track closely with current facilities requirements and building operations and maintenance plan.</li> </ul>
Credit	Optimize Energy	<ul style="list-style-type: none"> <li>• Credit title changed from Optimize Energy Efficiency</li> </ul>



	Performance	Performance. <ul style="list-style-type: none"> <li>Adjusted point thresholds to reflect new minimum requirements in prerequisite.</li> </ul>
Credit	Performance Measurement—Building Automation System	<ul style="list-style-type: none"> <li>Credit requirements incorporated in Advanced Energy Metering credit.</li> </ul>
Credit	Performance Measurement—System Level Metering	<ul style="list-style-type: none"> <li>Credit requirements incorporated in Advanced Energy Metering credit.</li> </ul>
Credit	Advanced Energy Metering	<ul style="list-style-type: none"> <li>New credit.</li> <li>Incorporates the requirements of Performance Measurement—Building Automation System and Performance Measurement—System-Level Metering credits.</li> <li>Requires advanced meters for all whole-building energy sources used and end uses that represent 20% or more of the total annual consumption of the building.</li> </ul>
Credit	Demand Response	<ul style="list-style-type: none"> <li>New credit</li> <li>Option 1 requires projects to have the infrastructure necessary and/or participate in a demand response program.</li> <li>Option 2 requires projects to shift 10% of peak loads to off-peak hours.</li> </ul>
Credit	Renewable Energy and Carbon Offsets	<ul style="list-style-type: none"> <li>Credit titled changed from On-site and Off-site Renewable Energy.</li> <li>Reduced thresholds for on-site renewable energy.</li> </ul>
Credit	Enhanced Refrigerant Management	<ul style="list-style-type: none"> <li>Clarified requirements.</li> <li>Added retail requirements addressing commercial refrigeration systems.</li> </ul>
Credit	Emissions Reduction Reporting	<ul style="list-style-type: none"> <li>Credit removed.</li> </ul>
<b>MATERIALS AND RESOURCES</b>		
Prerequisite	Sustainable Purchasing Policy	<ul style="list-style-type: none"> <li>Prerequisite requirements moved to Ongoing Purchasing and Waste Policy.</li> </ul>
Prerequisite	Solid Waste Management Policy	<ul style="list-style-type: none"> <li>Prerequisite requirements moved to Ongoing Purchasing and Waste Policy.</li> </ul>
Prerequisite	Ongoing Purchasing and Waste Policy	<ul style="list-style-type: none"> <li>Incorporates requirements from Sustainable Purchasing Policy and Solid Waste Management Policy prerequisites.</li> <li>Clarified requirements.</li> <li>Requires waste stream audit every five years unless other requirements are met.</li> <li>Added requirement for minimum recyclables storage.</li> <li>Added requirement for retail projects to address environmentally responsible purchasing and waste through their supply chains.</li> </ul>
Prerequisite	Facility Maintenance and Renovations Policy	<ul style="list-style-type: none"> <li>New prerequisite.</li> <li>Incorporates the requirements of EQ credit Indoor Air Quality Best Management Practices—Indoor Air Quality Management for Facility Alterations and Additions.</li> <li>Requires policies addressing purchasing, waste, and indoor air quality for ongoing maintenance and renovations.</li> </ul>
Credit	Purchasing—Ongoing	<ul style="list-style-type: none"> <li>Credit title changed from Sustainable Purchasing—Ongoing Consumables.</li> </ul>

		<ul style="list-style-type: none"> <li>• Incorporates purchasing requirements for electronic equipment from the Sustainable Purchasing—Durable Goods credit.</li> <li>• Incorporates purchasing requirements for food from the Sustainable Purchasing—Food credit.</li> <li>• Modified criteria to align with MR section in Building Design and Construction rating systems.</li> </ul>
Credit	Sustainable Purchasing—Durable Goods	<ul style="list-style-type: none"> <li>• Credit requirements for purchasing of electronic equipment moved to Purchasing—Ongoing credit.</li> <li>• Credit requirements for purchasing of furniture moved to Purchasing—Facility Maintenance and Renovations</li> </ul>
Credit	Purchasing—Lamps	<ul style="list-style-type: none"> <li>• Credit title changed from Sustainable Purchasing—Reduced Mercury in Lamps.</li> <li>• Threshold reduced from 90 to 70 picograms per lumen hour.</li> </ul>
Credit	Purchasing—Facility Maintenance and Renovations	<ul style="list-style-type: none"> <li>• Credit title changed from Sustainable Purchasing—Facility Alterations and Additions.</li> <li>• Incorporates purchasing requirements for furniture from the Sustainable Purchasing—Durable Goods credit.</li> <li>• Modified criteria to align with MR section in Building Design and Construction.</li> <li>• Added an option that rewards projects for having no alternations or furniture purchasing.</li> </ul>
Credit	Sustainable Purchasing—Food	<ul style="list-style-type: none"> <li>• Credit requirements moved to Purchasing—Ongoing credit.</li> </ul>
Credit	Solid Waste Management—Waste Stream Audit	<ul style="list-style-type: none"> <li>• Credit requirements moved to Ongoing Purchasing and Waste Policy prerequisite.</li> </ul>
Credit	Solid Waste Management—Ongoing	<ul style="list-style-type: none"> <li>• Credit title changed from Solid Waste Management—Ongoing Consumables.</li> <li>• Incorporates solid waste management requirements for durable goods from the Solid Waste Management—Durable Goods credit.</li> <li>• Requires safe disposal of all batteries and mercury-containing lamps.</li> <li>• Requires waste stream audit every five years.</li> </ul>
Credit	Solid Waste Management—Durable Goods	<ul style="list-style-type: none"> <li>• Credit requirements for durable goods moved to Solid Waste Management—Ongoing credit.</li> <li>• Credit requirements for furniture moved to Solid Waste Management—Facility Maintenance and Renovations.</li> </ul>
Credit	Solid Waste Management—Facility Maintenance and Renovations	<ul style="list-style-type: none"> <li>• Credit title changed from Solid Waste Management—Facility Alterations and Additions.</li> <li>• Incorporates solid waste management requirements for furniture from Solid Waste Management—Durable Goods credit.</li> </ul>
<b>INDOOR ENVIRONMENTAL QUALITY</b>		
Prerequisite	Minimum Indoor Air Quality Performance	<ul style="list-style-type: none"> <li>• Extended time frame for ventilation measurements.</li> <li>• Added reference to Section 8 of ASHRAE 62.1-2010 for HVAC system maintenance.</li> </ul>
Prerequisite	Environmental Tobacco Smoke Control	<ul style="list-style-type: none"> <li>• Removed smoking room allowance.</li> <li>• Residential option no longer applicable to hospitality projects.</li> <li>• Reduced the maximum allowable leakage rate for</li> </ul>

		<ul style="list-style-type: none"> <li>compartmentalized residential units.</li> <li>Prohibited smoking on the entire site for schools.</li> </ul>
Prerequisite	Green Cleaning Policy	<ul style="list-style-type: none"> <li>Incorporated requirements of Green Cleaning—High-Performance Cleaning Program credit.</li> <li>Added requirement to implement the policy</li> <li>Added option to contract third party certified cleaning contractors.</li> </ul>
Credit	Indoor Air Quality Management Program	<ul style="list-style-type: none"> <li>Credit title changed from Indoor Air Quality Best Management Practices—Indoor Air Quality Management Program.</li> <li>Clarified language to require an I-BEAM audit at least once every five years.</li> <li>Encourage projects to incorporate IAQ management program in the project’s current facilities requirements and operations and maintenance plan.</li> </ul>
Credit	Indoor Air Quality Best Management Practices—Outdoor Air Delivery Monitoring	<ul style="list-style-type: none"> <li>Credit requirements moved to Enhanced Indoor Air Quality Strategies credit.</li> </ul>
Credit	Indoor Air Quality Best Management Practices—Increased Ventilation	<ul style="list-style-type: none"> <li>Credit removed.</li> </ul>
Credit	Indoor Air Quality Best Management Practices—Reduce Particulates in Air Distribution	<ul style="list-style-type: none"> <li>Credit requirements moved to Enhanced Indoor Air Quality Strategies credit.</li> </ul>
Credit	Indoor Air Quality Best Management Practices—Indoor Air Quality Management for Facility Alterations and Additions	<ul style="list-style-type: none"> <li>Credit requirements moved to MR Prerequisite: Facility Maintenance and Renovation Policy and required as a policy only.</li> </ul>
Credit	Enhanced Indoor Air Quality Strategies	<ul style="list-style-type: none"> <li>New credit comprised of IAQ Best Management Practices—Outdoor Air Delivery Monitoring, IAQ Best Management Practices—Reduce Particulates in Air Distribution, and Green Cleaning—Indoor Chemical and Pollutant Source Control credits.</li> <li>Added paths for data centers and warehouse and distribution centers.</li> </ul>
Credit	Thermal Comfort	<ul style="list-style-type: none"> <li>Credit title changed from Occupant Comfort—Thermal Comfort Monitoring.</li> <li>Updated reference standard to ASHRAE 55-2010.</li> </ul>
Credit	Interior Lighting	<ul style="list-style-type: none"> <li>Credit title changed from Controllability of System—Lighting.</li> <li>Added requirement for three controllable lighting levels.</li> <li>Added an option addressing lighting quality.</li> </ul>
Credit	Daylight and Quality Views	<ul style="list-style-type: none"> <li>Removed simulation and prescriptive paths from daylight option.</li> <li>Revised compliant daylighting levels to 300-3,000 lux.</li> <li>Added requirement to take daylight measurements at two different times of the year.</li> </ul>

		<ul style="list-style-type: none"> <li>• Added criteria to define a quality view, adopted from LEED 2009 Views exemplary performance.</li> <li>• Allow views into atria for 30% of area.</li> <li>• Added a warehouse and distribution center path for quality views.</li> </ul>
Credit	Green Cleaning—High-Performance Cleaning Program	<ul style="list-style-type: none"> <li>• Credit requirements moved to Green Cleaning Policy prerequisite.</li> </ul>
Credit	Green Cleaning—Custodial Effectiveness Assessment	<ul style="list-style-type: none"> <li>• Encourage projects to perform routine inspections verifying the implementation of the green cleaning policy.</li> <li>• Changed the APPA audit threshold from 3 to 2.5.</li> </ul>
Credit	Green Cleaning—Products and Materials	<ul style="list-style-type: none"> <li>• Credit title changed from Green Cleaning—Purchase of Sustainable Cleaning Products and Materials.</li> <li>• Increased the compliance threshold from 30% to 75% of purchases.</li> <li>• Added provisions for ionized water cleaning.</li> <li>• Updated the referenced standards used as criteria.</li> </ul>
Credit	Green Cleaning—Equipment	<ul style="list-style-type: none"> <li>• Credit title changed from Green Cleaning—Sustainable Cleaning Equipment.</li> <li>• Added a required threshold for compliant equipment at 40%.</li> <li>• Added a required phase-out plan for existing non-compliant equipment.</li> <li>• Clarified criteria.</li> </ul>
Credit	Green Cleaning—Indoor Chemical and Pollutant Source Control	<ul style="list-style-type: none"> <li>• Credit requirements moved to Enhanced Indoor Air Quality Strategies credit.</li> </ul>
Credit	Integrated Pest Management	<ul style="list-style-type: none"> <li>• Credit title changed from Green Cleaning—Indoor Integrated Pest Management.</li> <li>• Incorporates outdoor integrated pest management requirements from Integrated Pest Management, Erosion Control and Landscape Management Plan credit.</li> <li>• Clarified required elements of the IPM plan.</li> <li>• Landscape maintenance requirements</li> <li>• Added allowance for certified IPM providers.</li> </ul>
Credit	Occupant Comfort Survey	<ul style="list-style-type: none"> <li>• Credit title changed from Occupant Comfort—Occupant Survey.</li> <li>• Requires a survey at least once every two years.</li> </ul>

## LEED v4 for Neighborhood Development

### *Summary of changes from LEED 2009*

Smart Location and Linkage		
Prerequisite	Smart Location	<ul style="list-style-type: none"> <li>• Refined which diverse uses may be counted in Option 4.</li> </ul>
Prerequisite	Imperiled Species and Ecological Communities	<ul style="list-style-type: none"> <li>• No substantive changes.</li> </ul>
Prerequisite	Wetland and Water Body Conservation	<ul style="list-style-type: none"> <li>• Added prohibition on land reclaimed within last 20 years</li> </ul>

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Prerequisite	Agricultural Land Conservation	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Prerequisite	Floodplain Avoidance	<ul style="list-style-type: none"> <li>Revised floodplain terminology to align with industry standards</li> <li>Option for standard ASCE 24</li> </ul>
Credit	Preferred Locations	<ul style="list-style-type: none"> <li>No substantive technical changes.</li> </ul>
Credit	Brownfield Remediation	<ul style="list-style-type: none"> <li>Aligned with BD&amp;C; broader requirements for how a site is designated as a brownfield</li> </ul>
Credit	Access to Quality Transit	<ul style="list-style-type: none"> <li>Title change</li> <li>Option for large projects eliminated</li> <li>Removed option for locating on a site with low VMT</li> </ul>
Credit	Bicycle Facilities	<ul style="list-style-type: none"> <li>Title change</li> <li>Aligned with BD&amp;C; bicycle storage determined on percentage of occupancy</li> <li>Two options provided to recognize bicycle network both within the project and in the project vicinity</li> </ul>
Credit	Housing and Jobs Proximity	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Steep Slope Protection	<ul style="list-style-type: none"> <li>Credit restructured for simplicity, clarified appropriate cases for project conditions.</li> </ul>
Credit	Site Design for Habitat or Wetland and Water Body Conservation	<ul style="list-style-type: none"> <li>Protection of lands “in perpetuity” has been replaced with “for the purpose of long-term conservation”</li> </ul>
Credit	Restoration of Habitat or Wetlands and Water Bodies	<ul style="list-style-type: none"> <li>Protection of lands “in perpetuity” has been replaced with “for the purpose of long-term conservation”</li> </ul>
Credit	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
<b>Neighborhood Pattern and Design</b>		
Prerequisite	Walkable Streets	<ul style="list-style-type: none"> <li>Clarified building height to street centerline measurement</li> </ul>
Prerequisite	Compact Development	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Prerequisite	Connected and Open Community	<ul style="list-style-type: none"> <li>Added case 2 requirements for having no more than 10% of the project area behind gates (exceptions for health care, military, and education)</li> <li>Incorporates interpretation allowing flexibility for smaller projects.</li> </ul>
Credit	Walkable Streets	<ul style="list-style-type: none"> <li>Clarified building height to street centerline measurement</li> </ul>
Credit	Compact Development	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Mixed-Use Neighborhoods	<ul style="list-style-type: none"> <li>Credit name revised from “Mixed-Use Neighborhood Centers”</li> <li>Deleted requirements for projects over 40 acres</li> <li>Refined which diverse uses comply with requirements.</li> <li>Projects with a retail component must have a transit stop nearby.</li> <li>Prohibition for counting uses on-site removed.</li> <li>Streamlined thresholds and have all point levels be at</li> </ul>

		50% level.
Credit	Mixed-Income Diverse Communities	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Reduced Parking Footprint	<ul style="list-style-type: none"> <li>Deleted bicycle storage requirements.</li> </ul>
Credit	Street Network	<ul style="list-style-type: none"> <li>Added requirements for having no more than 10% of the project area behind gates (exceptions for health care, military, and education)</li> </ul>
Credit	Transit Facilities	<ul style="list-style-type: none"> <li>No substantive revisions.</li> </ul>
Credit	Transportation Demand Management	<ul style="list-style-type: none"> <li>Eliminated option for peak period trip reduction;</li> <li>Two options for a guaranteed ride home program and flexible work arrangements</li> </ul>
Credit	Access to Civic and Public Space	<ul style="list-style-type: none"> <li>Modified the large project requirements to require a median park size of at least 1 acre for spaces that are a) over ½ acre and b) counted towards the overarching 90% threshold</li> </ul>
Credit	Access to Recreation Facilities	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Visitability and Universal Design	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Community Outreach and Involvement	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Local Food Production	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Tree-Lined and Shaded Streets	<ul style="list-style-type: none"> <li>Maximum 50 feet tree spacing length.</li> </ul>
Credit	Neighborhood Schools	<ul style="list-style-type: none"> <li>New schools must provide a legally binding warrant by time of 1<sup>st</sup> building occupancy, demonstrating the school will be open by time of 50% project occupancy</li> </ul>
<b>Green Infrastructure and Buildings</b>		
Prerequisite	Certified Green Building	<ul style="list-style-type: none"> <li>Certified green building is now required to use a rating system that is accredited to the referenced ISO standard vs. “meeting” the ISO standard</li> <li>Core and Shell buildings no longer required to also use Commercial Interiors</li> </ul>
Prerequisite	Minimum Building Energy Performance	<ul style="list-style-type: none"> <li>Credit name revised</li> <li>Some building types formerly allowed to use the ASHRAE AEDG path have been eliminated, matching the BD&amp;C rating systems</li> <li>References ASHRAE 90.1-2010</li> <li>Low-rise residential requirements reference LEED for Homes</li> </ul>
Prerequisite	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit name revised</li> <li>Design performance requirements added.</li> </ul>
Prerequisite	Construction Activity Pollution Prevention	<ul style="list-style-type: none"> <li>Western Washington Stormwater Manual replaced with a reference to the US EPA’s Site Runoff Menu of BMPs</li> </ul>
Credit	Certified Green Buildings	<ul style="list-style-type: none"> <li>Certified green building is now required to use a rating system that is accredited to the referenced ISO standard vs. “meeting” the ISO standard</li> <li>Core and Shell buildings no longer required to also use Commercial Interiors</li> </ul>
Credit	Optimize Building	<ul style="list-style-type: none"> <li>Credit name revised</li> </ul>

	Energy Performance	<ul style="list-style-type: none"> <li>References ASHRAE 90.1-2010</li> <li>Low-rise residential section references LEED for Homes</li> </ul>
Credit	Indoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit name revised</li> <li>Design performance requirements added</li> </ul>
Credit	Outdoor Water Use Reduction	<ul style="list-style-type: none"> <li>Credit name revised</li> <li>Only projects with 2500 sf of vegetated space can use the credit (formerly 3% of land area)</li> <li>Explanation of how to reduce water from the baseline.</li> </ul>
Credit	Existing Building Reuse	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Historic Resource Preservation and Adaptive Use	<ul style="list-style-type: none"> <li>The National Park Service has been added to approve demolition of historic structures.</li> <li>Guidelines for rehabilitation extended to restoration and preservation</li> <li>Clarified requirements for buildings subject to review.</li> </ul>
Credit	Minimized Site Disturbance in Design and Construction	<ul style="list-style-type: none"> <li>Thresholds changed.</li> </ul>
Credit	Rainwater Management	<ul style="list-style-type: none"> <li>Credit name revised.</li> <li>Method for determining amount of rain to manage and BMPs to use updated.</li> </ul>
Credit	Heat Island	<ul style="list-style-type: none"> <li>Acceptable strategies for nonroof compliance updated.</li> <li>3 yr aged SRI values added</li> <li>Hardscape requirements based on SR to align with industry standards</li> </ul>
Credit	Solar Orientation	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Renewable Energy Production	<ul style="list-style-type: none"> <li>Credit name revised</li> <li>Removed reference to an energy simulation tool</li> </ul>
Credit	District Heating and Cooling	<ul style="list-style-type: none"> <li>Method for allowing DHC systems using combined heat and power to meet this credit clarified.</li> </ul>
Credit	Infrastructure Energy Efficiency	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Wastewater management	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Recycled Content in Infrastructure	<ul style="list-style-type: none"> <li>No substantive changes.</li> </ul>
Credit	Solid Waste Management	<ul style="list-style-type: none"> <li>Credit name revised.</li> <li>Clarified requirements for construction debris; asphalt, brick and concrete capped at 75%</li> </ul>
Credit	Light Pollution Reduction	<ul style="list-style-type: none"> <li>Residential motion sensors have been replaced with BUG rating requirements for individual fixtures.</li> <li>Requirements for street lighting added</li> <li>Clarified how a project with multiple lighting zones complies</li> </ul>

## LEED v4 for Building Design and Construction: Homes and Midrise

*Summary of changes from LEED 2008*



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Integrative Process		<ul style="list-style-type: none"> <li>• Combines 3 options 'Integrative Project Team' and 'Design Charrette' from 2008 language</li> <li>• Option 'Trades Training' rewards projects for</li> </ul>
<b>WATER EFFICIENCY</b>		
Prerequisite	Water Metering	<ul style="list-style-type: none"> <li>• New prerequisite, requiring projects to meter their water use</li> </ul>
Prerequisite	Floodplain Avoidance	<ul style="list-style-type: none"> <li>• New prerequisite for avoiding building within 100 feet of a floodplain or mitigation through floodplain insurance requirements</li> </ul>
Credit	Total Water Use	<ul style="list-style-type: none"> <li>• New credit that combines indoor and outdoor water calculators</li> </ul>
Credit	LEED for Neighborhood Development Indoor Water Use	<ul style="list-style-type: none"> <li>• Increased stringency of requirements</li> </ul>
Credit	Outdoor Water Use	<ul style="list-style-type: none"> <li>• Replaces irrigation system and water reuse credits</li> <li>• Combined Site Selection, Preferred Locations, and Access to Open Space credits</li> </ul>
Credit	Site Selection	<ul style="list-style-type: none"> <li>• Street Network is a new option, rewarding credit for locating near many intersections</li> <li>• Bicycle Network and Storage is a new option, rewarding locating building near a bicycle friendly network and providing storage for bicycles</li> <li>• Changed definition of infill for urban/suburban projects to look at development from a wider view (1/2 mile from project) rather than immediate project boundary</li> </ul>
Credit	Compact Development	<ul style="list-style-type: none"> <li>• No substantive technical changes</li> </ul>
Credit	Community Resources	<ul style="list-style-type: none"> <li>• No substantive technical changes</li> </ul>
Credit	Access to Transit	<ul style="list-style-type: none"> <li>• Pulled out from Community Resources Credit</li> <li>• Added weekend trip requirements, modified some weekday trip thresholds</li> </ul>
<b>SUSTAINABLE SITES</b>		
Prerequisite	Construction Activity Pollution Prevention	<ul style="list-style-type: none"> <li>• Added requirement to control dust and particulate matter air pollution</li> <li>• Steep slope defined as 15% grads</li> </ul>
Prerequisite	No Invasive Plants	<ul style="list-style-type: none"> <li>• No substantive technical changes</li> </ul>
Credit	Heat Island Reduction	<ul style="list-style-type: none"> <li>• Added in requirements for roof, to meet ENERGY STAR or have vegetative roofing</li> <li>• Metric shifted from SRI (Solar Reflectance Index) to SR (Solar Reflectance) to use standard industry provided information</li> <li>• Option for 3 year aged solar reflectance of hardscapes</li> </ul>
Credit	Rainwater Management	<ul style="list-style-type: none"> <li>• Added option for minimizing total impermeable area</li> <li>• Added option for NPDES projects</li> </ul>
Credit	Non-Toxic Pest Control	<ul style="list-style-type: none"> <li>• Additional options</li> </ul>



ENERGY AND ATMOSPHERE		
Prerequisite	Performance of ENERGY STAR for Homes	<ul style="list-style-type: none"> <li>Updated to new ENERGY STAR version 3 requirements</li> <li>Midrise: Updated to 5% improvement over ASHRAE 90.1-2010 from 15% improvement over ASHRAE 90.1-2007</li> </ul>
Prerequisite	Energy Metering	<ul style="list-style-type: none"> <li>New prerequisite, requiring projects to meter their energy use</li> <li>Multifamily projects must have a meter or sub-meter for each unit</li> </ul>
Prerequisite	Education of Homeowner/Tenant	<ul style="list-style-type: none"> <li>No substantive technical changes</li> </ul>
Credit	Annual Energy Use	<ul style="list-style-type: none"> <li>New option to award points based on annual energy reduction based on LEED Energy Budget</li> <li>HERS option starts rewarding points at HERS 70</li> <li>Linear scoring of Home Size Adjuster for HERS option, 1 point per 4% change in home size</li> </ul>
Credit	Efficient Hot Water Distribution System	<ul style="list-style-type: none"> <li>Moved from EA Water Heating credit</li> <li>Efficient Hot Water Distribution <ul style="list-style-type: none"> <li>Simplified credit to two pathways</li> <li>New option for performance testing of water volume</li> </ul> </li> <li>Pipe Insulation, added requirement for protecting buried piping</li> </ul>
Credit	Solar Ready Design	<ul style="list-style-type: none"> <li>New credit, rewards projects for wiring for PV or solar water heating</li> </ul>
Credit	HVAC Commissioning	<ul style="list-style-type: none"> <li>New credit, points awarded for having HVAC installation contractor be credentialed or participate in quality assurance program</li> </ul>
Credit	Advanced Utility Tracking	<ul style="list-style-type: none"> <li>New credit, points awarded for having an advanced utility meter, or reporting energy and water use data to USGBC</li> </ul>
Credit	Building Orientation for Solar Design	<ul style="list-style-type: none"> <li>Removed roof size requirements</li> </ul>
Prerequisite	Home Size	<ul style="list-style-type: none"> <li>Adjusted home size adjustment calculation to be exclusively in the energy section for the prescriptive energy pathway</li> <li>Linear scoring of Home Size Adjuster, 1 point per 4% change in home size</li> </ul>

Credit	Air Infiltration	<ul style="list-style-type: none"> <li>Increased stringency to align with ENERGY STAR for Homes requirements</li> </ul>
Credit	Envelope Insulation	<ul style="list-style-type: none"> <li>Changed title from 'Insulation' to 'Envelope Insulation'</li> <li>Increased stringency to align with ENERGY STAR for Homes requirements</li> </ul>
Credit	Windows	<ul style="list-style-type: none"> <li>Increased stringency to align with ENERGY STAR for Homes requirements</li> </ul>
Credit	Space Heating & Cooling Equipment	<ul style="list-style-type: none"> <li>Increased stringency to align with ENERGY STAR for Homes requirements</li> </ul>
Credit	Heating & Cooling Distribution Systems	<ul style="list-style-type: none"> <li>Removed some compliance pathways</li> <li>Added relaxed requirement for duct leakage levels in small homes and units</li> </ul>
Credit	Efficient Domestic Hot Water Equipment	<ul style="list-style-type: none"> <li>Moved distribution of hot water into a standalone credit</li> <li>Edited thresholds of tankless and storage tank systems</li> </ul>
Credit	Lighting	<ul style="list-style-type: none"> <li>Modifying indoor lighting credit to lighting power density</li> <li>Multi-family projects follow EPA High-Rise lighting worksheets</li> <li>Requirement for outdoor lighting to be Dark Sky certified</li> </ul>
Credit	High-Efficiency Appliances	<ul style="list-style-type: none"> <li>Combined Water efficient clothes washers credit and High-Efficiency clothes washers into a single option</li> </ul>
Credit	Renewable Energy	<ul style="list-style-type: none"> <li>Reward points for every 500 kWh of energy production on site</li> </ul>

MATERIALS AND RESOURCES		
Prerequisite	Certified Tropical Wood	<ul style="list-style-type: none"> <li>No substantive technical changes</li> </ul>
Prerequisite	Durability Management	<ul style="list-style-type: none"> <li>Adapted from ID Durability Management prereq and credit</li> <li>The Interior Moisture Control Measures are not substantively changed</li> <li>Projects must complete the Esv3 Builder and Rater Water Management System Checklists</li> </ul>
Credit	Durability Management Verification	<ul style="list-style-type: none"> <li>No substantive technical changes.</li> </ul>
Credit	Environmentally Preferable Products	<ul style="list-style-type: none"> <li>Redefined local production threshold from 500 miles to 100 miles</li> <li>Local credit available for significant construction materials (framing, cement/aggregate, drywall/interior finish)</li> <li>EPP available for the major construction material</li> </ul>

		components.
Credit	Construction Waste Management	<ul style="list-style-type: none"> <li>• New calculation methodology based on total waste reduction from a baseline</li> <li>• Waste can be measured by weight or volume.</li> </ul>
Credit	Material Efficient Framing	<ul style="list-style-type: none"> <li>• Changed requirement for optimum value engineering option in exterior walls, removing the greater than 16” on center framing</li> <li>• Credit is not available for Midrise projects</li> </ul>
<b>INDOOR ENVIRONMENTAL QUALITY</b>		
Prerequisite	Ventilation	<ul style="list-style-type: none"> <li>• Multifamily projects to meet ASHRAE 62.1 for non-unit space</li> <li>• Multifamily projects must specify intake air location, and pressurized corridors are prohibited</li> </ul>
Prerequisite	Combustion Venting	<ul style="list-style-type: none"> <li>• Added diagnostic testing of backdraft potential for fireplaces and woodstoves requirement</li> </ul>
Prerequisite	Garage Pollutant Protection	<ul style="list-style-type: none"> <li>• No substantive technical changes</li> </ul>
Prerequisite	Radon Resistant Construction	<ul style="list-style-type: none"> <li>• Non-residential space exempted</li> <li>• Clarified requirements for retrofits where no slab work is performed</li> </ul>
Prerequisite	Air Filtering	<ul style="list-style-type: none"> <li>• Aligned MERV 8 and 6 requirements with ASHRAE 62.2-2010</li> </ul>
Prerequisite	Environmental Tobacco Smoke	<ul style="list-style-type: none"> <li>• New prerequisite, limited to Multi-Family projects</li> </ul>
Prerequisite	Compartmentalization	<ul style="list-style-type: none"> <li>• New prerequisite, which requires multifamily and attached single family project to air seal to neighboring units, not just outdoors</li> </ul>
Credit	Enhanced Ventilation	<ul style="list-style-type: none"> <li>• Combined local and whole-house ventilation credits</li> <li>• Removed credit for automatic timers on local exhaust</li> <li>• Credit for enhanced local and whole-house ventilation</li> </ul>
Credit	Contaminant Control	<ul style="list-style-type: none"> <li>• Combined contaminant control during construction and contaminant control credits</li> <li>• Added pathway for testing of VOCs from commercial rating system</li> </ul>
Credit	Balancing of Heating & Cooling Distribution Systems	<ul style="list-style-type: none"> <li>• Added pathway for pressure balancing testing</li> </ul>
Credit	Ban Environmental Tobacco Smoke (Mid-Rise only)	<ul style="list-style-type: none"> <li>• New credit, which rewards projects for banning smoking in the building</li> </ul>

Credit	Enhanced Compartmentalization	<ul style="list-style-type: none"> <li>• New credit, which rewards projects for having exceptional air sealing between units</li> </ul>
Credit	Combustion Venting	<ul style="list-style-type: none"> <li>• No substantive technical changes.</li> </ul>
Credit	Garage Pollutant Prevention	<ul style="list-style-type: none"> <li>• Added case for multifamily garages</li> </ul>
Credit	Low Emitting Products	<ul style="list-style-type: none"> <li>• Simplified to allow credit for only major building components</li> <li>• Requirements to meet California Department of Public Health 2010 Standard Method 01350</li> </ul>