



The Evolution of Green Building Standards: LEED v4 to v5

A simplified overview of how LEED v5 is empowering a more comprehensive and holistic approach to sustainable construction.

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Introduction

As we at Ethos continue to lead in electromechanical design and sustainability, we're excited to share insights on the evolution of green building standards. The transition from LEED v4 to the anticipated LEED v5 in 2025 marks a significant shift in sustainable construction practices.

LEED v4 laid a strong foundation, focusing on quantifiable metrics and performance-based approaches throughout a building's lifecycle. The upcoming LEED v5, however, promises a more comprehensive vision for green building. The innovative scorecard now features interconnected impact categories, with a strong focus on resiliency, equity, occupant needs, and decarbonisation.

LEED v5's new mission statement encapsulates this broader perspective: *"A market-ready rating system that will drive the built environment toward a low-carbon future that is equitable, resilient, and promotes the wise, safe utilisation of all resources."*

This evolution is reflected in LEED v5's restructured framework, which prioritises:

- Decarbonisation (50% of points)
- Quality of life (25% of points)
- Ecological conservation and restoration (25% of points)

This new streamlined approach compliments with LEED v4's seven impact categories, which included climate change mitigation, human health enhancement, water resource protection, biodiversity promotion, sustainable material cycles, green economy building, and community quality of life improvement.



LEED v5 Scorecard

LEED v5's innovative scorecard offers an alternative view, grouping credits and prerequisites to illustrate the interconnectedness of different impact categories. This holistic approach emphasises resiliency, equity, occupant needs, and decarbonisation, pushing the boundaries of sustainable design.

At Ethos, we're committed to staying at the forefront of these advancements, ensuring our electromechanical designs align with the latest in sustainable building practices. As we delve deeper into the differences between LEED v4 and v5, we'll highlight key changes in credit categories.

LEED v5 Scorecard

Decarbonization		
IP Prereq	Carbon Assessment	Required
LT Credit	Compact and Connected Development	6
LT Credit	Active Travel Facilities	2
LT Credit	Transportation Demand Management	2
LT Credit	Electric Vehicles	2
SS Credit	Heat Island Reduction	2
WE Prereq	Minimum Water Efficiency	Required
WE Prereq	Enhanced Water Efficiency	6
WE Prereq	Water Reuse	2
WE Prereq	Water Metering and Leak Detection	1
EA Prereq	Operational Carbon Projection and Decarbonization Plan	Required
EA Prereq	Minimum Energy Efficiency	Required
EA Prereq	Fundamental Commissioning	Required
EA Prereq	Energy Metering and Reporting	Required
EA Prereq	Fundamental Refrigerant Management	Required
EA Credit	Electrification	5
EA Credit	Reduce Peak Thermal Loads	5
EA Credit	Enhanced Energy Efficiency	10
EA Credit	Renewable Energy	5
EA Credit	Enhanced and Ongoing Commissioning	4
EA Credit	Grid Interactive	2
EA Credit	Enhanced Refrigerant Management	2
MR Prereq	Planning for Zero Waste Operations	Required
MR Prereq	Assess Embodied Carbon	Required
MR Credit	Building and Materials Reuse	5
MR Credit	Reduce Embodied Carbon	8
MR Credit	Construction and Demolition Waste Diversion	2

Quality of Life		
IP Prereq	Climate Resilience Assessment	Required
IP Prereq	Social Equity Assessment	Required
LT Credit	Equitable Development	2
LT Credit	Compact and Connected Development	6
LT Credit	Active Travel Facilities	2
LT Credit	Transportation Demand Management	2
SS Prereq	Resilient Site Design	Required
SS Credit	Accessible Open Space	1
SS Credit	Enhanced Resilient Site Design	2
SS Credit	Heat Island Reduction	2
WE Credit	Water Metering and Leak Detection	1
MR Credit	Low Emitting Materials	2
MR Credit	Optimized Building Products	5
EQ Prereq	Fundamental Air Quality	Required
EQ Prereq	No Smoking or Vehicle Idling	Required
EQ Prereq	Building Accessibility	Required
EQ Credit	Enhanced Air Quality	1
EQ Credit	Occupant Experience	6
EQ Credit	Connecting with Nature	1
EQ Credit	Enhanced Building Accessibility	1
EQ Credit	Resilient Spaces	2
EQ Credit	Air Quality Testing and Monitoring	2

Ecosystem Preservation and Restoration		
LT Credit	Sensitive Land Protection	1
LT Credit	Compact and Connected Development	6
SS Prereq	Minimized Site Disturbance	Required
SS Credit	Protect and Restore Biodiverse Habitat	2
SS Credit	Accessible Open Space	1
SS Credit	Rainwater Management	3
SS Credit	Enhanced Resilient Site Design	2
SS Credit	Heat Island Reduction	2
SS Credit	Light Pollution and Bird Collision Reduction	1
WE Prereq	Water Metering and Reporting	Required
WE Prereq	Minimum Water Efficiency	Required
WE Credit	Enhanced Water Efficiency	6
WE Credit	Water Reuse	2
WE Credit	Water Metering and Leak Detection	1
MR Prereq	Planning for Zero Waste Operations	Required
MR Credit	Building and Materials Reuse	3
MR Credit	Optimized Building Products	5
MR Credit	Construction and Demolition Waste Diversion	2
EQ Prereq	No Smoking or Vehicle Idling	Required

Integrative Process, Planning, & Assessment

This new category introduces **3 prerequisites** and **1 credit**, emphasizing a holistic approach to planning.

A Broader Version of Site assessment V4 credit is now mandatory and included in this category.

The LEED Project Team must complete the Checklist for Social Impact.

The team is required to develop a 25-year projected carbon assessment, which must account for onsite combustion, grid-supplied electricity, refrigerants, and embodied carbon.

Results must include annual and cumulative emissions, presented both in total and per square foot, along with the percentage of emissions from each source.

The USGBC will provide visualisation tools for anticipated carbon emission (BAU).



Location and Transportation

The credits are intended to be more holistic and broader. The credit category is now worth 15 points compared to 16 point in v4. Below is an overview of the credit changes.

The LEED credit for Neighbourhood development location is no longer included.

The requirements for the **Sensitive Land Protection credit** remain similar to previous versions.

A new credit has been added, **Equitable Development**. It is a broader version of high priority site credit, incorporating more options that address social equity and employment opportunities.

The **Compact and Connected Development credit** has replaced the Access to Quality Transit credit. However, achieving the full 6 points requires targeting multiple transit strategies. The shuttle bus option has been reintroduced from version 3.

The **Active Travel Facilities credit** addresses similar requirements to the previous Bicycle Facilities credit. It offers 1 point for a bicycle network and storage, with an additional point available for providing showers or bike maintenance facilities.

The requirements for the Reduced Parking Footprint credit are now included under the **Transportation Demand Management credit** in v5.

Assessing carbon emissions is now mandatory, and additional options such as flexible work arrangements have been incorporated.

The **Electric Vehicle (EV) Charging credit** offers 2 points for projects with 20% EV charging infrastructure. There is also a new option for projects with no parking, allowing for public EV or e-bike charging facilities.



Sustainable Sites

The credit category now includes **1 additional prerequisite and 1 new credit, bringing the total points available in this category to 11, compared to 10 points in v4. Below is an overview of the changes to the credits.**

The Construction Activity Pollution Prevention credit has been renamed to **Minimised Site Disturbance**. It now includes additional requirements for protecting healthy vegetation and removing invasive plants.

A new prerequisite, **Resilient Site Design**, has been added, which mandates the construction of critical infrastructure to withstand 500-year flood events.

The credit renamed as **Protect and Restore Biodiverse Habitat** now includes higher thresholds, requiring 20% and 40% restoration and at least 15 species. Additionally, the financial option is available only for zero-lot projects.

The **Accessible Open Space credit** now contains new requirements that focus on site public accessibility, inclusivity, health, and wellness, with similarities to WELL Features.

The **Rainwater Management** credit in v5 now has higher thresholds, specifically targeting the 90th, 95th, and 98th percentiles.

A new credit, **Enhanced Resilient Site Design**, has been introduced to address catastrophic natural events, such as flooding, extreme heat, and hurricanes.

The **Heat Island Reduction credit** now includes additional requirements for on-site tree canopy cover.

The **Light Pollution and Bird Collision Reduction credit** has been updated to prohibit uplighting and includes new requirements for bird collision avoidance.



Water Efficiency

The credits in this category have been restructured, reducing the number of prerequisites to two and offering three credits in V5. The credit category is now worth 9 points, compared to 11 points in V4.

The **Water Metering & Reporting prerequisite** now includes additional metering requirements for alternative water supply sources and campus-level irrigation.

The indoor and outdoor water use reduction prerequisites have been merged into a single **Minimum Water Efficiency prerequisite**. This new prerequisite mandates the provision of a landscape management plan that reflects estimated annual potable water use.

A new credit, **Water Re-use**, has been introduced to reward projects that incorporate greywater, process water, or rainwater re-use.

Enhanced Water Efficiency credit, now worth 6 points, consolidates the requirements of the previous Indoor and Outdoor Water Use Reduction and Cooling Tower credits, along with Appliance and Process Water requirements as optional strategies. To earn the full 6 points, projects must achieve at least 3 different strategies.

The **Water Metering and Leak Detection credit** is similar to the V4 Water Metering credit but includes additional water leak detection requirements, which were previously part of the v4 pilot credit with the same name.



Energy & Atmosphere

The report introduces a new prerequisite and three new credits which focus on carbon emissions evaluation, electrification, envelope performance, and grid interaction. The total point value remains at 33, with existing credits updated to align with current industry standards and decarbonisation goals.

Operational Carbon Projection and Decarbonisation Plan is a new prerequisite that requires provision of annual energy predictions, Business As Usual carbon emissions predictions for 2050, and a decarbonisation plan.

The **Minimum Energy Efficiency prerequisite** and **Fundamental Commissioning** credit now mandate compliance with the updated ASHRAE 90.1 standard, using the 2019 version with Addenda for projects registered before January 2028 and the 2022 version thereafter.

The **Fundamental Commissioning prerequisite** has a new option to comply via Envelope and ongoing Commissioning requirements.

Energy Metering and Reporting prerequisite has been updated for building-level energy metering, including additional metering for on-site renewable energy and Electric Vehicle Supply Equipment (EVSE). The Advanced Energy Metering credit has been removed.

The **Fundamental Refrigerant Management prerequisite** now features an updated calculation methodology for the prescriptive path.

A new credit, **Electrification**, rewards projects that do not use any type of burning fuel on-site, such as natural gas for heating or cooling.

Another new credit, **Reduce Peak Thermal Load**, addresses building envelope elements affecting peak thermal loads, such as thermal

bridging and infiltration rates, with reference to the Passive House Institute protocol as one of the calculation methods.

The **Enhanced Energy Efficiency credit**, equivalent to the previous Optimise Energy Performance credit, now has its points reduced from 18 to 10, featuring a new methodology for the prescriptive path with more focus on plug loads.

The **Renewable Energy credit** is an updated version from V4.1, combining the renewable energy and green power credits with the carbon offset credits from V4.

The **Enhanced and Ongoing Commissioning credit** now requires compliance with the ASHRAE 202-2018 Commissioning Process, including field testing for air leakage, infrared imaging, and water penetration, along with technology provision and communication requirements.

The new **Grid Interactive credit** addresses on-site electrical and thermal storage, along with updated demand response requirements.

The credit, **Enhanced Refrigerant Management**, has been completely restructured with different options and requirements.



Materials & Resources

The credit category has undergone significant restructuring, expanding from 13 to 18 points, and now includes an embodied carbon assessment alongside relocated low-emitting materials criteria.

The prerequisite for planning zero waste operations corresponds to the storage and collection of recyclables, with additional requirements addressing the recovery and circularity of building materials during operation.

The Assess Embodied Carbon prerequisites mandates evaluating the global warming potential (GWP) of structure, envelope, and hardscape materials through a life cycle assessment (LCA) from cradle to gate, comparing results against a provided benchmark GWP for each material.

The new Building and Materials Reuse credit rewards projects that reuse portions of existing buildings.

The Reduce Embodied Carbon credit is a new addition that covers whole building life cycle assessment (WBLCA) for as-built materials, with a cradle-to-grave scope excluding operational energy. Points are awarded based on GWP percentage reductions, with additional prescriptive options available, such as assessing environmental product declarations (EPDs).

The Low Emitting Materials credit now offers fewer points but requires meeting higher threshold requirements compared to v4.

Optimised Building Products credit replaces the v4 credit, Building Product Disclosure and Optimisation, introducing a new methodology for calculating multiple optimisation criteria for materials across five impact areas:

- Climate Health
- Human Health
- Ecosystem Health,
- Social Health And Equity
- Circular Economy

The Construction and Demolition Waste Diversion credit has been updated with lower thresholds of 35% and 50%, and it now requires that energy recovery be included as waste rather than being counted as diverted.



Indoor Environmental Quality

The LEED v5 introduces significant revisions, reducing the total points available from 16 to 13, with several credits being combined and thresholds increased.

The **Fundamental Air Quality Prerequisite** in v5 now requires a local air quality investigation, entryway systems, MERV 13 filtration, adherence to ASHRAE 2022 ventilation rates, and includes construction indoor air quality requirements.

Prerequisite on **no smoking or vehicle idling** has been introduced, addressing the prohibition of e-devices and smoking during construction, as well as preventing vehicle idling.

Building Accessibility is a newly introduced prerequisite, focusing on addressing the diverse physical needs of occupants through architectural design.

Enhanced air quality now incorporates various pathways and options, including design limits for PM2.5, formaldehyde, ozone, and the inclusion of automatic filter change notifications.

New credit for **occupant experience** has been created, combining previous requirements from LEED v4, such as thermal comfort, interior lighting, daylighting, quality views, and acoustic performance.

Two new credits, **connecting with nature credit** and **enhanced building accessibility credit**, have been introduced to address nature accessibility, building physical accessibility, wayfinding, and safety.

A new credit, **resilient spaces**, has been added to address climate change and disastrous events through design.

The **air quality testing and monitoring credit** has been revised, removing the flush-out option and offering various testing alternatives.



LEED Platinum New Requirements

LEED v5 significantly raises the bar for Platinum certification, introducing more rigorous requirements that underscore a holistic approach to sustainability.

Projects aiming for this prestigious level must now demonstrate excellence across multiple dimensions:

1. Achieving full points in the Enhanced Energy Efficiency credit.
2. Eliminating all greenhouse gas emissions generated on-site.
3. Sourcing 100% of their energy from renewable sources (either on-site or off-site).
4. Actively reducing embodied carbon.

By setting these ambitious criteria, LEED v5 challenges the industry to create buildings that not only minimise their environmental impact but actively contribute to a more sustainable future.





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