



USGBC Rating System Offerings for Sustainable Transit

The 2018 Sustainability & Multimodal Planning Workshop

August 1, 2018

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**GREEN BUILDINGS
FOR EVERYONE
WITHIN THIS
GENERATION**



LEED IS GLOBAL
REGIONAL
LOCAL



167 COUNTRIES & TERRITORIES



41,200+ CERTIFIED COMMERCIAL PROJECTS



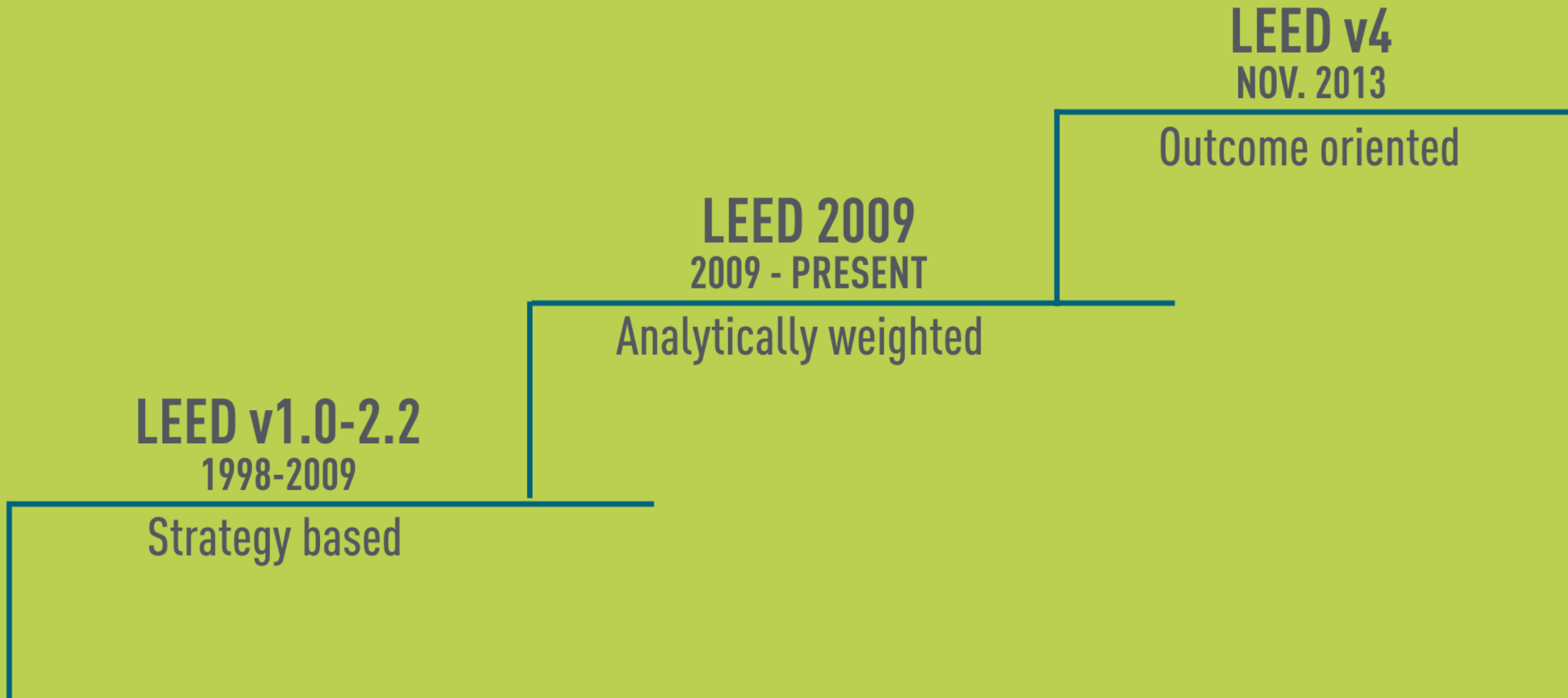
52,000 REGISTERED COMMERCIAL PROJECTS



2.2 MILLION SQUARE FEET DAILY



EVOLUTION OF LEED



» stronger energy performance

» better materials

» increased water efficiency

» accounts for human experience

LEED v4

LEED v4.1

THIS is

LEED®



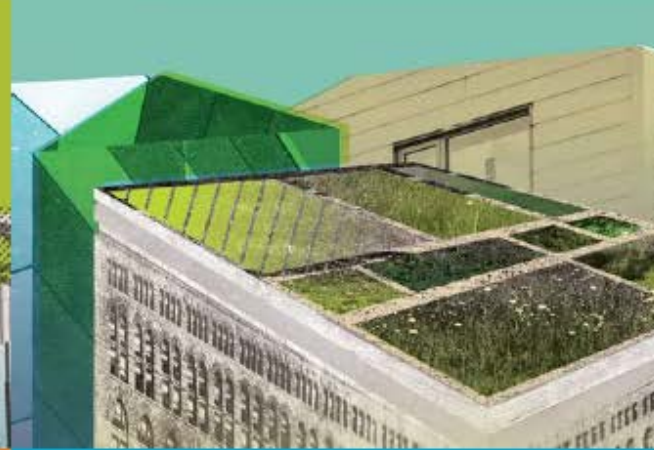
LEED® for

BUILDING DESIGN
+ CONSTRUCTION



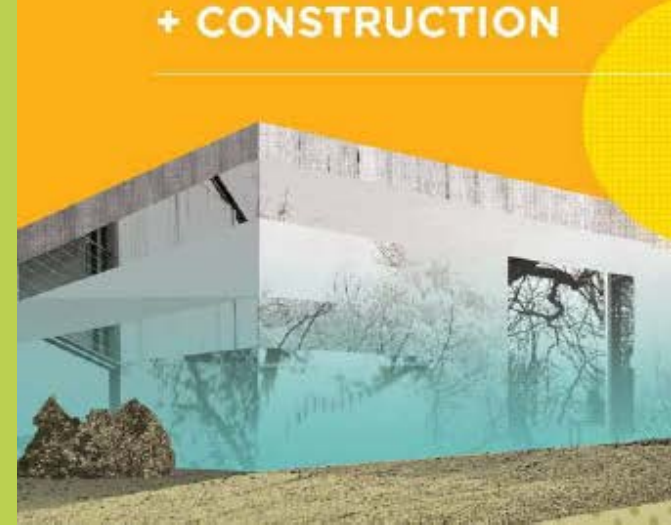
LEED® for

BUILDING OPERATIONS
+ MAINTENANCE



LEED® for

INTERIOR DESIGN
+ CONSTRUCTION



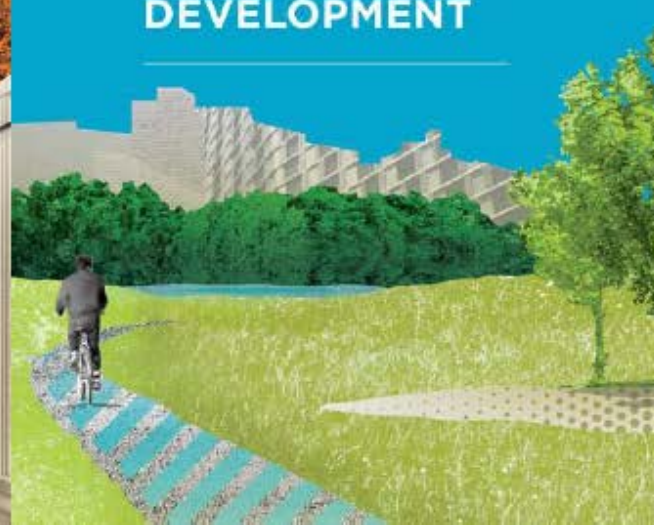
LEED® for

HOMES



LEED® for

NEIGHBORHOOD
DEVELOPMENT



LEED BD+C includes
New Construction, Core
& Shell, Schools,
Retail,
Hospitality,
Data Centers,
Warehouses &
Distribution Centers,
Healthcare
Transit

**PARTNERSHIP
IS THE NEW
LEADERSHIP**

Third-party certification tools



PEER™ is a dynamic, adaptive rating process designed to measure and improve sustainable power system performance. The PEER system serves as a tool to accelerate transformation of the electricity sector. By engaging in the PEER process, power grids have an opportunity to gain competitive advantage by differentiating their performance, documenting the value produced, and demonstrating meaningful outcomes.



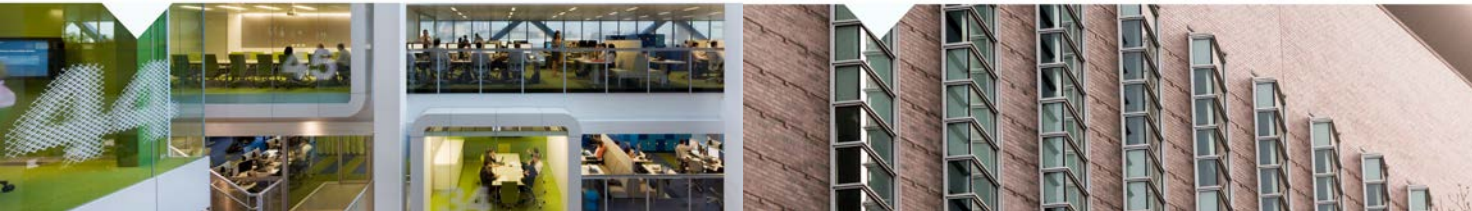
The **Sustainable Sites Initiative (SITES™)** offers a systematic, comprehensive rating system designed to define sustainable sites, measure their performance, and ultimately elevate the value of landscapes. Administered by GBCI, the SITES rating system can apply to development projects located on sites with or without buildings, including open spaces, streetscapes and plazas, commercial, residential, educational/institutional, infrastructure, government, military and industrial.



The **WELL Building Standard®** is an evidence-based system for measuring, certifying, and monitoring the performance of building features that impact health and wellbeing. WELL is administered by the International WELL Building Institute (IWBI™), a public benefit corporation whose mission is to improve human health and wellbeing through the built environment. The WELL Building Standard is third-party certified by Green Business Certification Inc. (GBCI).



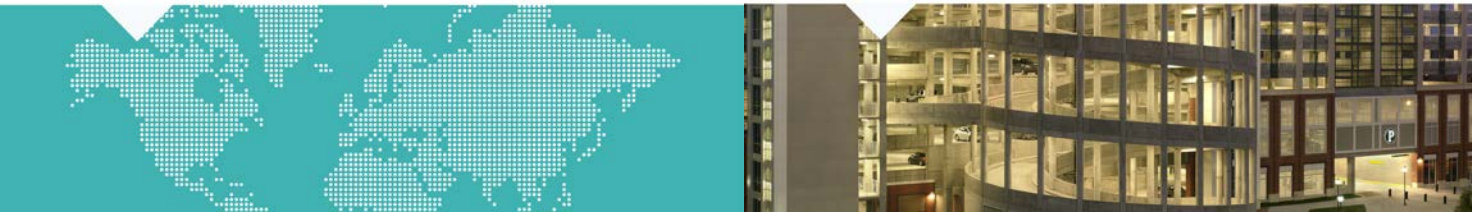
GBCI administers EDGE certification in India. **EDGE** ("Excellence in Design for Greater Efficiencies") is poised to jumpstart the mainstreaming of green buildings in a fast, simple and affordable way. EDGE consists of a software application for new residential and commercial buildings that enables design teams and project owners to assess the most cost-effective ways to incorporate energy and water saving options in their buildings.



The **Global Real Estate Sustainability Benchmark (GRESB™)** is an industry-driven organization committed to assessing the sustainability performance of real estate portfolios around the globe. A dynamic benchmark used by institutional investors, GRESB creates transparency in the sustainability performance of the global real estate sector.



Parksmart is the world's only rating system defining and recognizing sustainable practices in parking structure management, programming, design and technology. Parksmart enables our parking structures to achieve increased energy efficiency, reduced environmental impact, improved parking space management, integrated mobility solutions and technologies, enhanced performance and stronger community relationships.



- **LEED:** for design and operations of buildings and transit systems
- **PEER:** for power system performance & electricity infrastructure
- **Sustainable SITES Initiative:** for landscapes and public spaces
- **ParkSmart:** for parking structure management, programming, design and technology
- **RELi:** for integrative resilience planning in neighborhoods, buildings, homes and infrastructure
- **GRESB:** for assessing the sustainability performance of real estate and infrastructure portfolios and assets worldwide



Key Highlights:

Airports
Ports
Metros

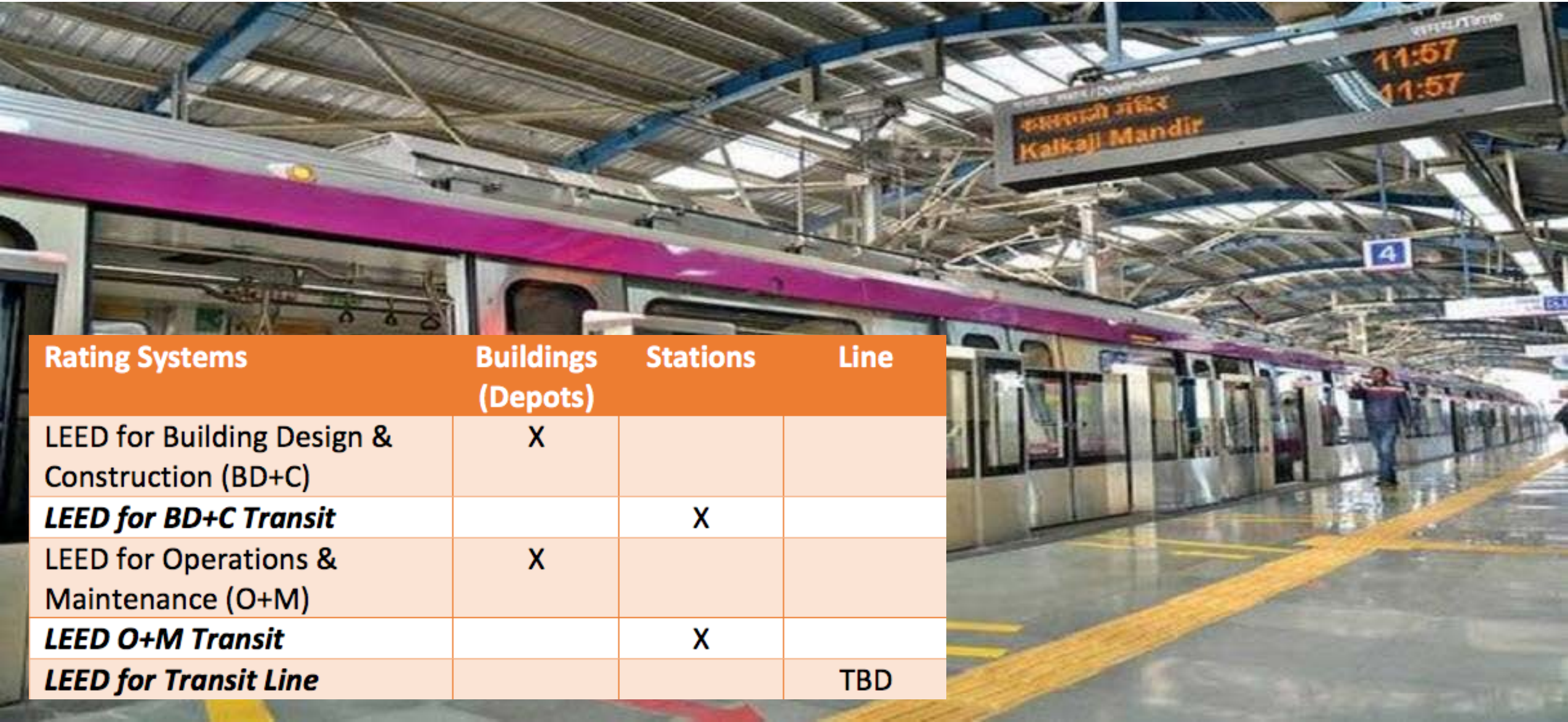


LEED[®] IN MOTION: TRANSPORTATION



<https://readymag.com/usgbc/transportation/>

LEED for Transit – a Path to Sustainability



Rating Systems	Buildings (Depots)	Stations	Line
LEED for Building Design & Construction (BD+C)	X		
LEED for BD+C Transit		X	
LEED for Operations & Maintenance (O+M)	X		
LEED O+M Transit		X	
LEED for Transit Line			TBD

LEED O+M for Transit System



LEED for Transit



Phase I of Delhi Metro Rail (DMRC) project consists of three lines, 58 stations and 65 kilometers of Metro corridors

LEED for Transit O&M: 5 stations are currently certified (4 gold; 1 silver) and 48 stations are currently registered under.

PEER: DMRC Blue line is PEER Gold Certified
The certification applies to its Blue Line covering 51 stations in India

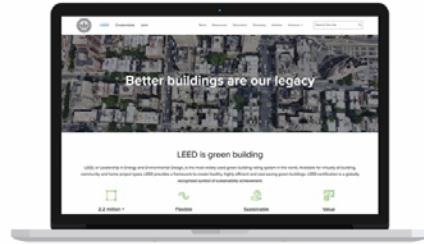




Path to LEED certification:



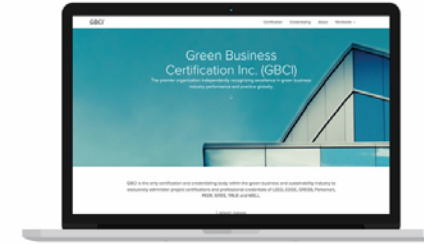
Step 1:
Register
your project
in arc



Step 2:
Pre-certify



Step 3:
Share data
to receive a
score



Step 4:
GBCI review
of data



Step 5:
Certify to
LEED

TRACK MANAGE BENCHMARK PERFORMANCE

LEED BD+C for Transit System



LEED BD+C Transit Stations



Phase II of Delhi Metro Rail
Project consists of ten lines,
85 stations
125 kilometers of Metro corridors



Shanghai Rail:
617 km operating distance (800 km by 2020)
367 Stations
25 Depots
75% Underground Stations

LEED BD+C Transit Stations: Rating Framework

- ✓ Adaptation of BD+C v4
- ✓ Contributions from DMRC and Shentong
- ✓ Global interest
- ✓ Ready for pilot release soon

TRANSIT SPECIFIC STRATEGIES FOR INNOVATION

Pilot credit:

Whole Project Water Use Reduction can be used to evaluate overall station water efficiency. This pilot credit will take the place of Outdoor, Indoor, and Cooling Tower Water Use.



All indoor concourses and platforms should not exceed specific pollutants levels and are required to assess CO₂, CO, and PM on an ongoing basis.



- Disaster Preparedness Planning Credit
- Social Equity
- Whole Project Water Use Reduction
- Universal Accessibility
- Intermodal Connectivity
- Acoustic Performance
- Innovation Strategies:
 - Alternative path – traction energy
 - New Strategy: Construction Method Assessment



LEED v4 BD+C: Transit

Project Checklist

Project Name:

Date:

Y ? N

Y	?	N	Credit	Integrative Process	2
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0	0	0	Location and Transportation	18
Y			Credit Sensitive Land Protection	1
Y			Credit High Priority Site	2
Y			Credit Surrounding Density and Diverse Uses	6
Y			Credit Intermodal Connectivity and Placemaking	4
Y			Credit Bicycle Facilities	1
Y			Credit Reduced Parking Footprint	1
Y			Credit Green Vehicles	1
Y			Credit Disaster Preparedness Planning	1
Y			Credit Social Equity	1

0	0	0	Sustainable Sites	9
Y			Prereq Construction Activity Pollution Prevention	Required
Y			Credit Site Assessment	1
Y			Credit Site Development - Protect or Restore Habitat	2
Y			Credit Open Space	0
Y			Credit Rainwater Management	2
Y			Credit Heat Island Reduction	2
Y			Credit Light Pollution Reduction	1
Y			Credit Universal Accessibility	1

0	0	0	Water Efficiency	9
Y			Prereq Whole Project Water Use Reduction (Pilot Credit)	Required
Y			Prereq Water Metering	Required
Y			Credit Whole Project Water Use Reduction	6
Y			Credit Cooling Tower Water Use (Alternative Compliance Path)	2
Y			Credit Advanced Water Metering	1

0	0	0	Energy and Atmosphere	32
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Energy Metering	Required
Y			Prereq Fundamental Refrigerant Management	Required
Y			Credit Enhanced Commissioning	5
Y			Credit Optimize Energy Performance	19
Y			Credit Advanced Energy Metering	1
Y			Credit Demand Response	2
Y			Credit Renewable Energy Production	2
Y			Credit Enhanced Refrigerant Management	1
Y			Credit Green Power and Carbon Offsets	2

0	0	0	Materials and Resources	14
Y			Prereq Storage and Collection of Recyclables	Required
Y			Prereq Construction and Demolition Waste Management Planning	Required
Y			Credit System Life-Cycle Impact Reduction	5
Y			Credit Building Product Disclosure and Optimization - Environmental Product Declarations	2
Y			Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials	3
Y			Credit Building Product Disclosure and Optimization - Material Ingredients	2
Y			Credit Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality	16
Y			Prereq Minimum Indoor Air Quality Performance	Required
Y			Prereq Environmental Tobacco Smoke Control	Required
Y			Credit Enhanced Indoor Air Quality Strategies	3
Y			Credit Low Emitting Materials	3
Y			Credit Construction Indoor Air Quality Management Plan	1
Y			Credit Indoor Air Quality Assessment	2
Y			Credit Thermal Comfort	1
Y			Credit Interior Lighting	1
Y			Credit Daylight	2
Y			Credit Quality Views	1
Y			Credit Acoustic Performance	2

0	0	0	Innovation	6
Y			Credit Innovation (Traction Energy, Construction Method Assessment)	5
Y			Credit LEED Accredited Professional	1

0	0	0	Regional Priority	4
Y			Credit Regional Priority: Specific Credit	1
Y			Credit Regional Priority: Specific Credit	1
Y			Credit Regional Priority: Specific Credit	1
Y			Credit Regional Priority: Specific Credit	1

0	0	0	TOTALS	110
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

LEGEND



Credits unchanged from LEED v4 BDC



Credits adapted from LEED v4 BDC w/Transit specific language



New to LEED v4 BDC for Transit

LEED BD+C Transit Stations: Integrative Process and Location and Transportation

- ✓ Disaster Preparedness Planning added to LT Credit Category
- ✓ Access to Quality Transit becomes Intermodal Connectivity and Placemaking to encourage multimodal transportation choices.

LT Credit: Intermodal Connectivity and Placemaking – New Credit

Intent

To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other environmental and public health harms associated with motor vehicle use.

Requirements

Option 1. Transit for Placemaking

Ensure that the station displays characteristics that will integrate a mixture of uses to connect people and places and maximize utilization (1-3 points)

- Walkable Streets
- Compact Development
- Public Spaces and Cultural Opportunities
- Mixed Use

Table 1. Points for Placemaking Characteristics

Number of placemaking characteristics displayed by station	Points
1 characteristics	1
2 characteristics	2
3-characteristics	3
4-characteristics	4

LT Credit: Intermodal Connectivity and Placemaking – Con't

AND/OR

Option 2. Transit for People-moving: Intermodal Connections (1-4 points)

Ensure that the station is connected to three or more other modes of transportation and includes at least 3 of 8 of the following intermodal connectivity features:

- Three or more bus routes at station
- Minimum of four short-term bicycle storage spaces at station
- Minimum two long-term bicycle storage spaces or valet at station or policies to allow bicycles on transit systems
- Vehicle parking at station with carpool services provided
- Airport within one connection and total transit travel time of less than . . . 1.5 hours
- Regional or commuter rail within one connection and total transit travel time of less than . . . 1 hour
- Ferry within one connection
- Designated passenger drop off area

LEED BD+C Transit Stations: Next Steps

- ✓ Greenbuild 2018 LEED v4 BDC for Transit Pilot release
- ✓ 2019 create advisory group for LEED for Transit development
- ✓ On-going collaboration with transit leaders

THANK YOU!

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Links & Resources:

- USGBC resources on Resilience
 - LEED & Resilience [fact sheets](#)
 - Multi-program [policy brief](#)
- LEED v4.1: new.usgbc.org/leed-v41
- LEED for Transit pilot rating system:
 - [Guide](#) to the rating system
 - [Press release](#) with DMRC
- [PEER](#)
- [SITES](#)
- [RELi](#)
- [ParkSmart](#)
- GRESB [Resilience Module](#)