The Smart-BUS Automation

What is LEED?

First created by the USGBC in 2000

Leadership
in
Energy
&
Environmental Design

LEED Rating Levels

40-49 points	50-59 points	60-79 points	80+ points

New Construction

LEED v4 Building Design and Construction (**LEED BD+C**)

LEED for New Construction and Major Renovations (v4)

		POSSIBLE: 1
IP102	Integrative process	1

LOCATION & TRANSPORTATION		POSSIBLE: 16
LT101	LEED for Neighborhood Development location	16
LT102	Sensitive land protection	1
LT103	High priority site	2
LT104	Surrounding density and diverse uses	5
LT107	Access to quality transit	5
LT108	Bicycle facilities	1
LT110	Reduced parking footprint	1
LT111	Green vehicles	1

SUSTAINABLE SITES		POSSIBLE: 10
SS101	Construction activity pollution prevention	
SS104	Site assessment	1
SS105	Site development - protect or restore habitat	2
SS107	Open space	1
SS108	Rainwater Mgmt	3
SS110	Heat island reduction	2
SS112	Light pollution reduction	1

WATER EFFICIENCY		POSSIBLE: 11
WE101	Outdoor water use reduction	2
WE102	Indoor water use reduction	6
WE104	Building-level water metering	
WE110	Cooling tower water use	2
WE112	Water metering	1

ENERGY & ATMOSPHERE		POSSIBLE: 33
EA101	Fundamental commissioning and verification	
EA103	Optimize energy performance	18
EA106	Building-level energy metering	
EA108	Fundamental refrigerant Mgmt	
EA110	Enhanced commissioning	6
EA118	Advanced energy metering	1
EA121	Demand response	2
EA123	Renewable energy production	3
EA126	Enhanced refrigerant Mgmt	1
EA128	Green power and carbon offsets	2

MATERIAL & RESOURCES		POSSIBLE: 13
MR101	Storage and collection of recyclables	
MR103	Construction and demolition waste Mgmt planning	
MR108	Building life-cycle impact reduction	5
MR112	Building product disclosure and optimization - environmental product declarations	2
MR114	Building product disclosure and optimization - sourcing of raw materials	2
MR115	Building product disclosure and optimization - material ingredients	2
MR123	Construction and demolition waste Mgmt	2

INDOOR ENVIRONMENTAL QUALITY		POSSIBLE: 16
EQ101	Minimum IAQ performance	
EQ104	Environmental tobacco smoke control	
EQ110	Enhanced IAQ strategies	2
EQ112	Low-emitting materials	3
EQ113	Construction IAQ Mgmt plan	1
EQ114	IAQ assessment	2
EQ115	Thermal comfort	1
EQ117	Interior lighting	2
EQ121	Daylight	3
EQ123	Quality views	1
EQ124	Acoustic performance	1

REGIONAL PRIORITY		POSSIBLE: 4
RPc1	Regional priority	4

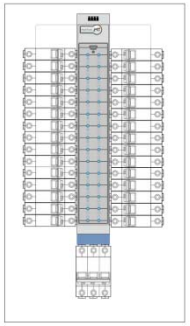
TOTAL	110

40-49 Points	50-59 Points	60-79 Points	80+ Points
CERTIFIED	SILVER	GOLD	PLATINUM

Possible ESR Contributing Points 39 Total of 44 through Innovation points

Water Efficiency (WE)

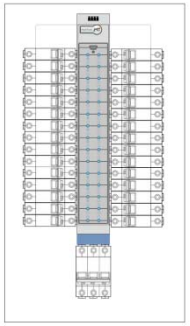
WE101 Outdoor Water Use Reduction	
Intent	Reduce the project's landscape water requirement (LWR)by at least 50% from the calculated baseline for the site's peak watering month. Reductions must first be achieved through plant species selection and irrigation system efficiency as calculated in the Environmental Protection Agency (EPA) WaterSense Water Budget Tool. Additional reductions beyond 30% may be achieved using any combination of efficiency, alternative water sources, and smart scheduling technologies.
Solution	ESR control of irrigation based on schedule, soil moisture content and climatic conditions. ESR can monitor and trend flow rates to discover leaks, breaks or changes in distribution system.



Possible ESR Contributing Points 1-2

Energy & Atmosphere (EA)

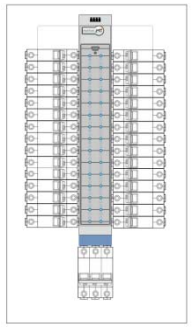
EA103 Optimize Energy Performance	
Intent	To achieve increasing levels of energy performance beyond the prerequisite to reduce environmental and economic harms associated with excessive energy use.
Solution	ESR can monitor equipment runtimes, alarms, and trend logs for use in quantifying, and establishing the baseline. Historical analysis of this data can help facilitate continuous improvement. Public dashboards can be used to create awareness and active participation in ongoing energy reduction.



Possible ESR Contributing Points 1-18

Energy & Atmosphere (EA)

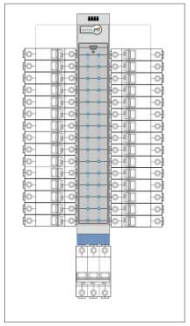
EA110 Enhanced Commissioning	
Intent	To further support the design, construction, and eventual operation of a project that meets the owner's project requirements for energy, water, indoor environmental quality, and durability.
Solution	Provide ongoing and continuous commissioning via the ESR and automated Fault Detection and Diagnostics. Commissioning reports may be built-into the ESR to provide real-time feedback to operators.



Possible ESR Contributing Points 4

Energy & Atmosphere (EA)

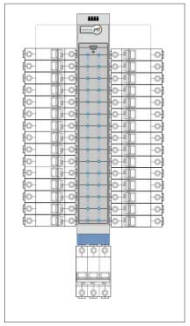
EA118 Advanced Energy Monitoring	
Intent	To support energy management and identify opportunities for additional energy savings by tracking building-level and system-level energy use.
Solution	ESR can be used to collect data and cloud storage implemented to satisfy the remote data storage requirement.



Possible ESR Contributing Points 1

Energy & Atmosphere (EA)

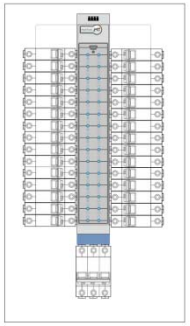
EA121 Demand Response	
Intent	To increase participation in demand response technologies and programs that make energy generation and distribution systems more efficient, increase grid reliability, and reduce greenhouse gas emissions.
Solution	ESR can be configured to accept external control signals and act in response to a local demand response program.



Possible ESR Contributing Points 2

Indoor Air Quality (EQ)

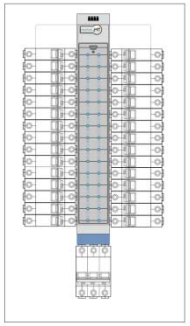
EQ110 Enhanced IAQ strategies	
Intent	To promote occupants' comfort, well-being, and productivity by improving indoor air quality.
Solution	ESR can monitor airflow rates and CO_2 concentrations in ventilated spaces as well as potential to provide additional source control and monitoring of other air contaminants.



Possible ESR Contributing Points 2

Indoor Environmental Quality (EQ)

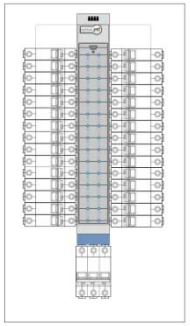
EQ114 IAQ Assessment	
Intent	To establish better quality indoor air in the building after construction and during occupancy.
Solution	Provide documentation through trend log reporting of system fan run-times, air flow supplied and duration of flush-out procedures prior to occupancy. Provide additional scheduling capabilities should the flush-out during occupancy option is required.



Possible ESR Contributing Points 1

Indoor Environmental Quality (EQ)

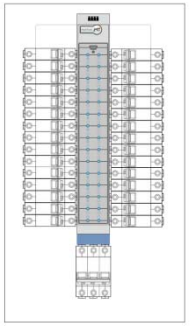
EQ115 Thermal Comfort	
Intent	To promote occupants' productivity, comfort, and well-being by providing quality thermal comfort.
Solution	Space thermostats and/or Virtual Stat application can provide or exceed the individual thermal comfort controls requirement for 50% of the occupant spaces.



Possible ESR Contributing Points 1

Indoor Environmental Quality (EQ)

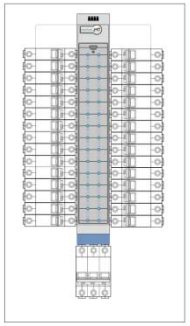
EQ117 Interior Lighting	
Intent	To promote occupants' productivity, comfort, and well-being by providing high-quality lighting
Solution	Programmable lighting controllers and dimmable ballast controllers can be configured to provide the required three levels of lighting required.



Possible ESR Contributing Points 1

Indoor Environmental Quality (EQ)

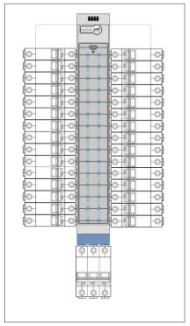
EQ121 Daylight	
Intent	To connect building occupants with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight and views into the space.
Solution	ESR monitoring of ambient lighting levels and daylight harvesting control strategies for the lighting and blind control.



Possible ESR Contributing Points 1-3

Innovation

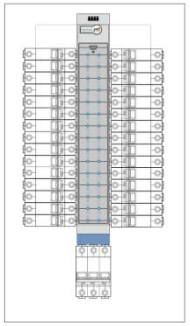
LEED Accredited Professional	
Intent	To encourage the team integration required by a LEED project and to streamline the application and certification process .
Solution	Many G4 Partners have LEED APs that can become an active part of your team.



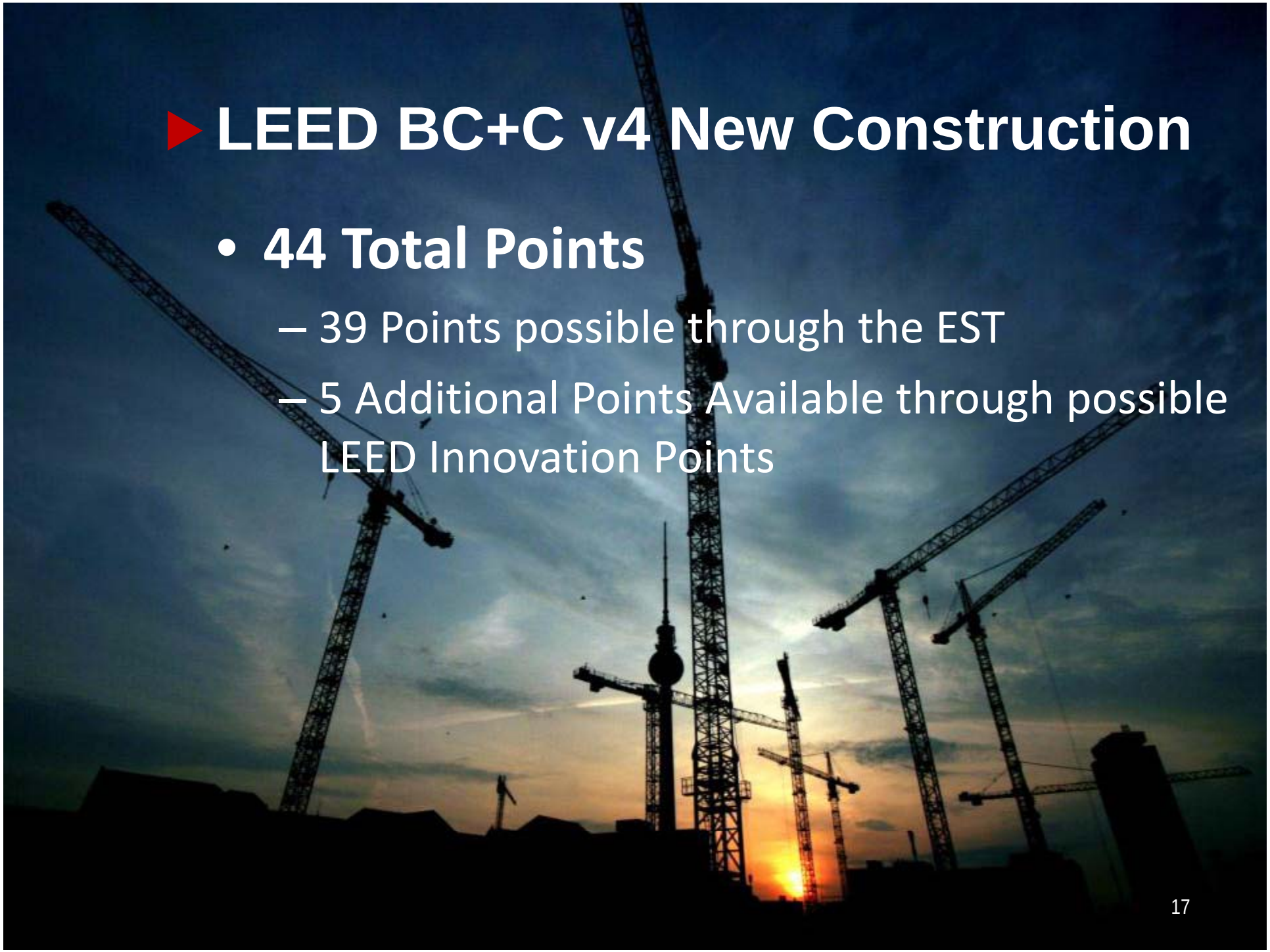
Possible ESR Contributing Points 1

Innovation

EQ122 Daylight and quality views	
Intent	To encourage projects to achieve exceptional or innovative performance.
Solution	Innovation (1 pt): Achieve significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system. Option 2 – Pilot (1-3 pts): Achieve one pilot credit from USGBC's LEED Pilot Credit Library Option 3 – Exemplary Performance (1-2 pts): Achieve exemplary performance in an existing LEED v4 prerequisite or credit that allows exemplary performance, as specified in the LEED Reference Guide, v4 edition.



Possible ESR Contributing Points 1-5



LEED BC+C v4 New Construction

- **44 Total Points**
  - 39 Points possible through the EST
  - 5 Additional Points Available through possible LEED Innovation Points

Thank you