PREPARING FOR LEED V5

INSIGHTS FROM THE FRONT LINES OF GREEN BUILDING CONSULTING

INTRODUCTIONS

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LEED V5

LEED V5

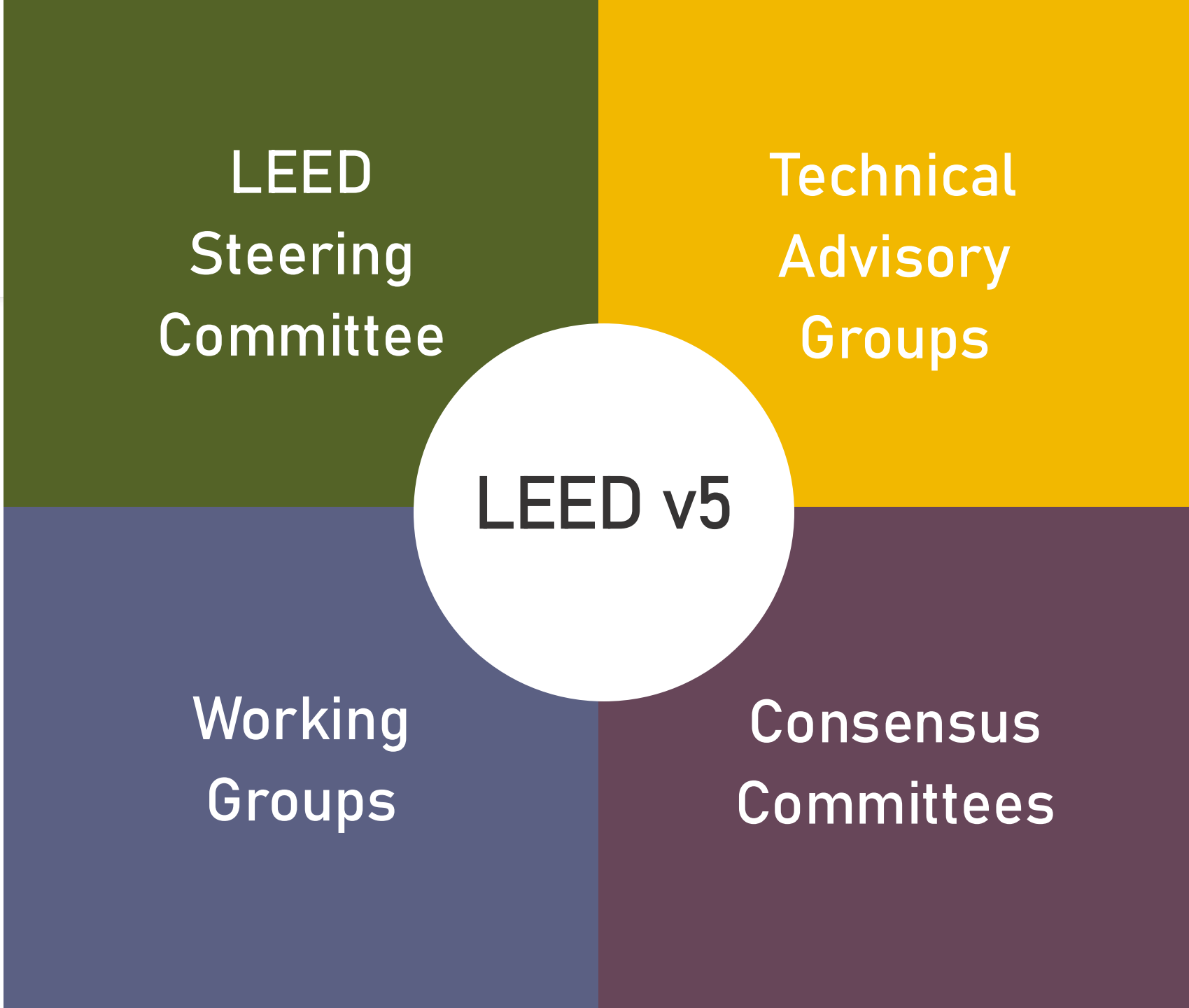
FOR MORE INFO

usgbc.org/leed/v5

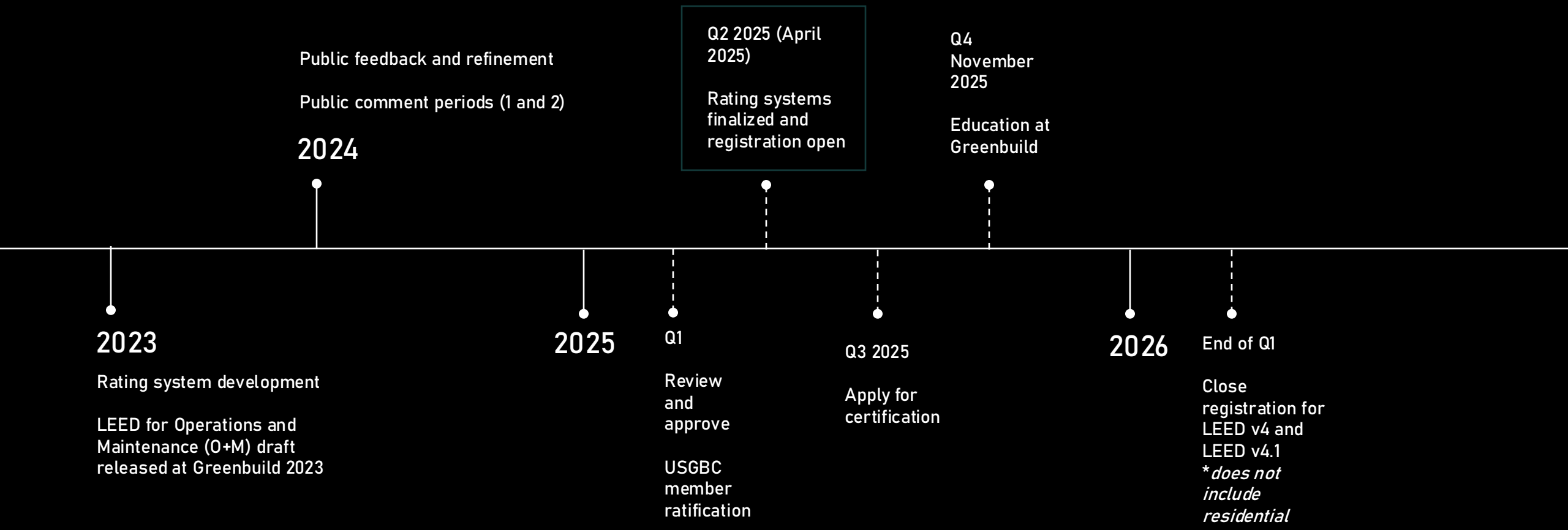
LEED V5 DEVELOPMENT

LEED is built by practitioners.

USGBC relies on community and volunteer engagement to deliver consensus-based rating systems.



LEED v5 TIMELINE



LEED V5

LEED V5

A market ready rating system that will drive the built environment toward a near zero carbon future that is equitable, resilient, and promotes the wise, safe utilization of all resources.

WHAT IS NEW IN LEED V5?

GREATER FLEXIBILITY FOR PROJECTS AND MORE OPPORTUNITIES TO RESPOND TO A RAPIDLY CHANGING MARKET

1

FIVE-YEAR DEVELOPMENT CYCLE
Provides increased predictability for the market

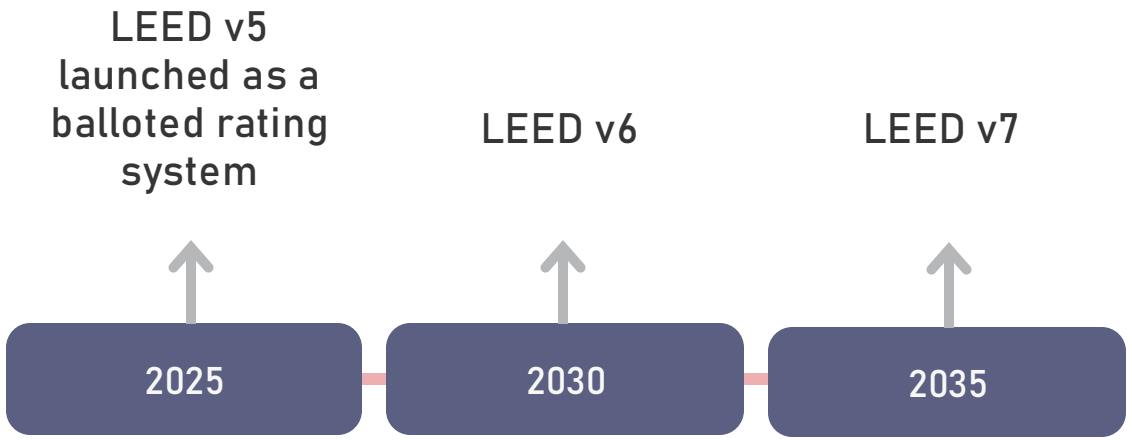
2

PLATINUM REQUIREMENTS
Requirements address energy efficiency, carbon emissions and renewable energy use

3

PROJECT PRIORITY LIBRARY
New credit category and library allows for customization of LEED scorecard

The cycle of LEED rating system updates will now be once every 5 years



PLATINUM REQUIREMENTS

NEW CONSTRUCTION

1 **EAc1: Electrification**
Five points required

2 **EAc3: Enhanced Energy Efficiency**
Eight points required

3 **EAc4: Renewable Energy**
100% of site energy use from any combination of Tier 1, Tier 2, and Tier 3 renewable energy

4 **MRc2: Reduce Embodied Carbon**
20% reduction in embodied carbon

PROJECT PRIORITIES

Flexibility

The project priority category creates greater flexibility for projects to address their unique goals, priorities, and contexts including building type, culture, location, areas of innovation, and individual performance objectives.

Responsiveness

The project priority library will support LEED project teams in responding to rapidly emerging industry knowledge, technologies, and innovative solutions

Regional Priority	Project-type Credits	Exemplary Performance	Pilot Credits	Innovation Credits
Achieve a **regional priority credit** from USGBC's Project Priority Library	Achieve a **project-type credit** from USGBC's Project Priority Library	Achieve an **exemplary performance credit** from USGBC's Project Priority Library	Achieve **a pilot credit** from USGBC's Project Priority Library	Achieve significant, measurable, environmental performance using **a strategy not addressed in LEED v5**


ECOLOGICAL CONSERVATION & RESTORATION
QUALITY OF LIFE
DECARBONIZATION
IMPACT
AREAS

LEED v5 for Building Design and Construction

		New Construction	Core and Shell
Integrative Process, Planning and Assessments (IP)		**1**	**7**
IPp1	Climate Resilience Assessment	Required	Required
IPp2	Human Impact Assessment	Required	Required
IPp3	Carbon Assessment	Required	Required
IPp4	Tenant Guidelines	-	Required
IPc1	Integrative Design Process	1	1
IPc2	Green Leases	-	6
Location and Transportation (LT)		**15**	**15**
LTc1	Sensitive Land Protection	1	1
LTc2	Equitable Development	2	2
LTc3	Compact and Connected Development	6	6
LTc4	Transportation Demand Management	4	4
LTc5	Electric Vehicles	2	2
Sustainable Sites (SS)		**11**	**11**
SSp1	Minimize Site Disturbance	Required	Required
SSc1	Biodiverse Habitat	2	2
SSc2	Accessible Outdoor Space	1	1
SSc3	Rainwater Management	3	3
SSc4	Enhanced Resilient Site Design	2	2
SSc5	Heat Island Reduction	2	2
SSc6	Light Pollution Reduction	1	1
Water Efficiency (WE)		**9**	**8**
WEp1	Water Metering and Reporting	Required	Required
WEp2	Minimum Water Efficiency	Required	Required
WEc1	Water Metering and Leak Detection	1	1
WEc2	Enhanced Water Efficiency	8	7

		New Construction	Core and Shell
Energy and Atmosphere (EA)		**33**	**27**
EAp1	Operational Carbon Projection and Decarbonization Plan	Required	Required
EAp2	Minimum Energy Efficiency	Required	Required
EAp3	Fundamental Commissioning	Required	Required
EAp4	Energy Metering and Reporting	Required	Required
EAp5	Fundamental Refrigerant Management	Required	Required
EAc1	Electrification	5	4
EAc2	Reduce Peak Thermal Loads	5	5
EAc3	Enhanced Energy Efficiency	10	7
EAc4	Renewable Energy	5	4
EAc5	Enhanced Commissioning	4	3
EAc6	Grid Interactive	2	2
EAc7	Enhanced Refrigerant Management	2	2
Materials and Resources (MR)		**18**	**21**
MRp1	Planning for Zero Waste Operations	Required	Required
MRp2	Quantify and Assess Embodied Carbon	Required	Required
MRc1	Building and Materials Reuse	3	5
MRc2	Reduce Embodied Carbon	6	8
MRc3	Low-Emitting Materials	2	1
MRc4	Building Product Selection and Procurement	5	5
MRc5	Construction and Demolition Waste Diversion	2	2
Indoor Environmental Quality (EQ)		**13**	**11**
EQp1	Construction Management	Required	Required
EQp2	Fundamental Air Quality	Required	Required
EQp3	No Smoking or Vehicle Idling	Required	Required
EQc1	Enhanced Air Quality	1	1
EQc2	Occupant Experience	7	7
EQc3	Accessibility and Inclusion	1	1
EQc4	Resilient Spaces	2	2
EQc5	Air Quality Testing and Monitoring	2	-
Project Priorities (PR)		**10**	**10**
PRc1	Project Priorities	9	9
PRc2	LEED AP	1	1
Total	Possible Points:	**110**	**110**

Decarbonization

		NEW CONSTRUCTION	CORE AND SHELL
IP Prereq	Carbon Assessment	Required	Required
IP Prereq	Tenant Guidelines	-	Required
IP Credit	Integrative Design Process	1	1
IP Credit	Green Leases	-	6
LT Credit	Compact and Connected Development	6	6
LT Credit	Transportation Demand Management	4	4
LT Credit	Electric Vehicles	2	2
SS Credit	Heat Island Reduction	2	2
WE Prereq	Minimum Water Efficiency	Required	Required
WE Credit	Water Metering and Leak Detection	1	1
WE Credit	Enhanced Water Efficiency	8	7
EA Prereq	Operational Carbon Projection and Decar-	Required	Required
EA Prereq	Minimum Energy Efficiency	Required	Required
EA Prereq	Fundamental Commissioning	Required	Required
EA Prereq	Energy Metering and Reporting	Required	Required
EA Prereq	Fundamental Refrigerant Management	Required	Required
EA Credit	Electrification	5	4
EA Credit	Reduce Peak Thermal Loads	5	5
EA Credit	Enhanced Energy Efficiency	10	7
EA Credit	Renewable Energy	5	4
EA Credit	Enhanced Commissioning	4	3
EA Credit	Grid Interactive	2	2
EA Credit	Enhanced Refrigerant Management	2	2
MR Prereq	Planning for Zero Waste Operations	Required	Required
MR Prereq	Quantify and Assess Embodied Carbon	Required	Required
MR Credit	Building and Materials Reuse	3	5
MR Credit	Reduce Embodied Carbon	6	8
MR Credit	Building Product Selection and Procure-	5	5
MR Credit	Construction and Demolition Waste Diver-	2	2

Quality of Life

		NEW CONSTRUCTION	CORE AND SHELL
IP Prereq	Climate Resilience Assessment	Required	Required
IP Prereq	Tenant Guidelines	-	Required
IP Prereq	Human Impact Assessment	Required	Required
IP Credit	Integrative Design Process	1	1
IP Credit	Green Leases	-	6
LT Credit	Equitable Development	2	2
LT Credit	Compact and Connected Development	6	6
LT Credit	Transportation Demand Management	4	4
SS Credit	Accessible Outdoor Space	1	1
SS Credit	Enhanced Resilient Site Design	2	2
SS Credit	Heat Island Reduction	2	2
WE Credit	Water Metering and Leak Detection	1	1
MR Credit	Low Emitting Materials	2	1
MR Credit	Building Product Selection and Procurement	5	5
EQ Prereq	Construction Management	Required	Required
EQ Prereq	Fundamental Air Quality	Required	Required
EQ Prereq	No Smoking or Vehicle Idling	Required	Required
EQ Credit	Enhanced Air Quality	1	1
EQ Credit	Occupant Experience	7	7
EQ Credit	Accessibility and Inclusion	1	1
EQ Credit	Resilient Spaces	2	2
EQ Credit	Air Quality Testing and Monitoring	2	-

Ecological Conservation and Restoration

		NEW CONSTRUCTION	CORE AND SHELL
IP Prereq	Tenant Guidelines	-	Required
IP Credit	Integrative Design Process	1	1
IP Credit	Green Leases	-	6
LT Credit	Sensitive Land Protection	1	1
LT Credit	Compact and Connected Development	6	6
SS Prereq	Minimized Site Disturbance	Required	Required
SS Credit	Biodiverse Habitat	2	2
SS Credit	Accessible Outdoor Space	1	1
SS Credit	Rainwater Management	3	3
SS Credit	Enhanced Resilient Site Design	2	2
SS Credit	Heat Island Reduction	2	2
SS Credit	Light Pollution Reduction	1	1
WE Prereq	Water Metering and Reporting	Required	Required
WE Prereq	Minimum Water Efficiency	Required	Required
WE Credit	Water Metering and Leak Detection	1	1
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MR Prereq	Planning for Zero Waste Operations	Required	Required
MR Credit	Building and Materials Reuse	3	5
MR Credit	Building Product Selection and Procurement	5	5
MR Credit	Construction and Demolition Waste Diversion	2	2
EQ Prereq	No Smoking or Vehicle Idling	Required	Required

LEED v5 for Building Design and Construction

LEED v5 Rating Systems

BD+C

Building Design and Construction

- New Construction
- Core + Shell

ID+C

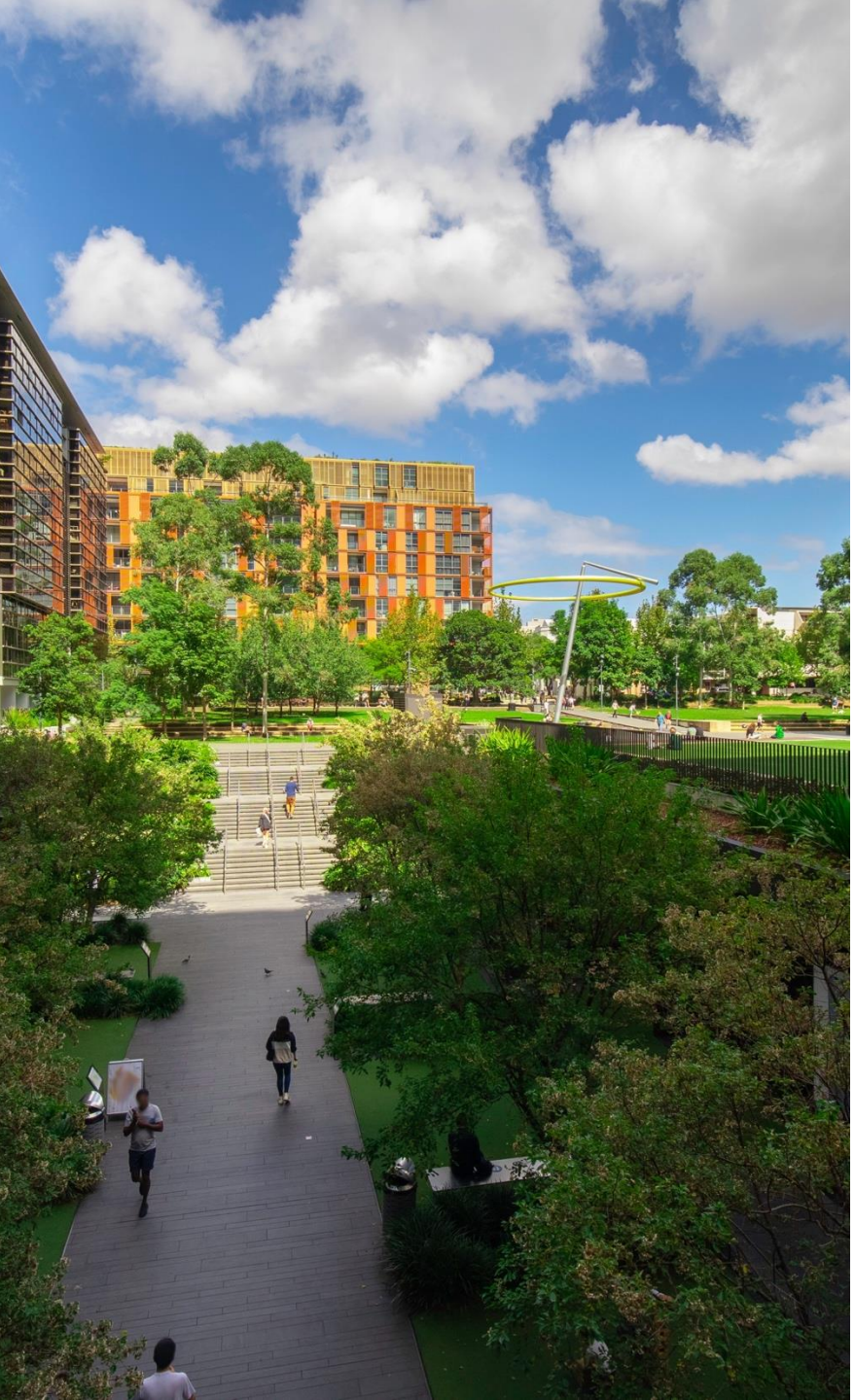
Interior Design and Construction

O+M

Building Operations and Maintenance

LEED v5 BD+C AND ID+C HIGHLIGHTS

- Assessment prerequisites: Climate Resilience, Human Impact, Carbon
- Provides a design framework for decarbonization: operational energy, embodied carbon, transportation carbon
- Addresses quality of life holistically: health benefits, resilience, human experience



LEED v5 O+M HIGHLIGHTS

- Gives projects a pathway towards decarbonization
- Updated prerequisites: shift from policies to assessments, one performance prerequisite
- Transparent performance metrics
- O+M focused strategy credits

BIG CHANGES

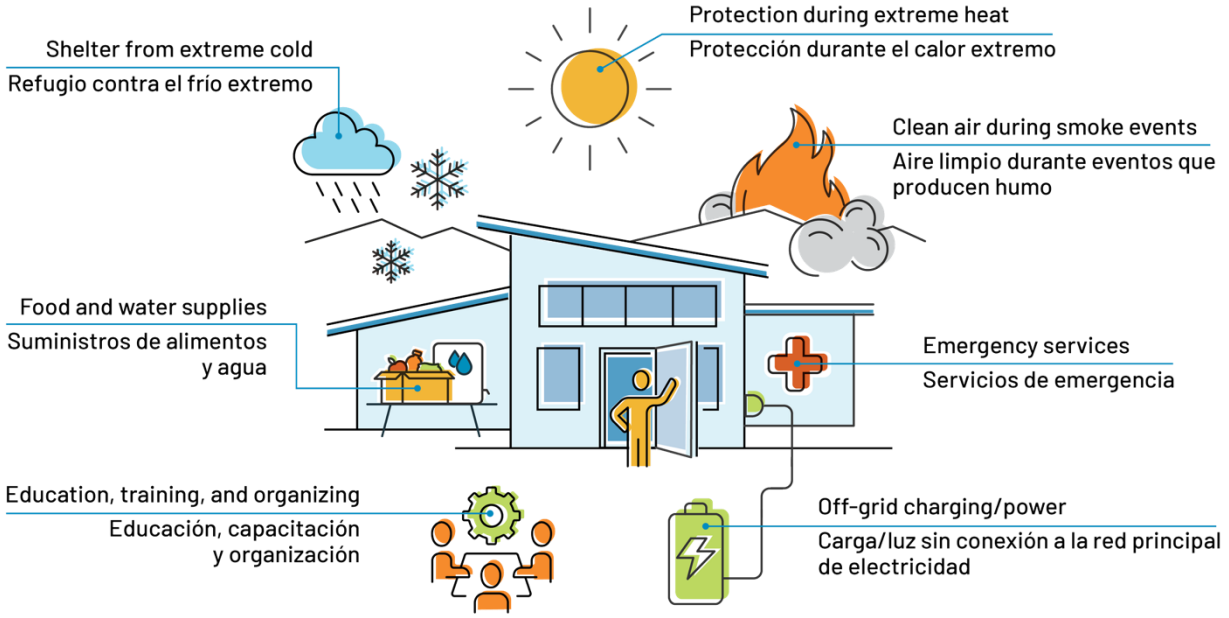
THE CONSULTANT PERSPECTIVE

- Back to credit numbers
- Must start early & integrated approach
- Streamlined credits with many options – more flexibility, but more complicated credit tracking
- Required credits for Platinum

Achievement pathways	Points
New Construction	1–7
Option 1. Biophilic Environment	1–4
Path 1. Integrated Biophilic Design	1
AND/OR	
Path 2. Quality Views	2–3
AND/OR	
Option 2. Adaptable Environment	1
AND/OR	
Option 3. Thermal Environment	1
AND/OR	
Option 4. Sound Environment	1–2
Path 1. Mapping Acoustical Expectations for Indoor and Outdoor Spaces	1
OR	
Path 2. Acoustic Criteria for Indoor and Outdoor Spaces	2
AND/OR	
Option 5. Lighting Environment	1–6
Path 1. Solar Glare	1
AND/OR	
Path 2. Quality Electric Lighting	1
AND/OR	
Path 3. Proximity to Windows for Daylight Access	1
AND/OR	
Path 4. Daylight Simulation	1–4

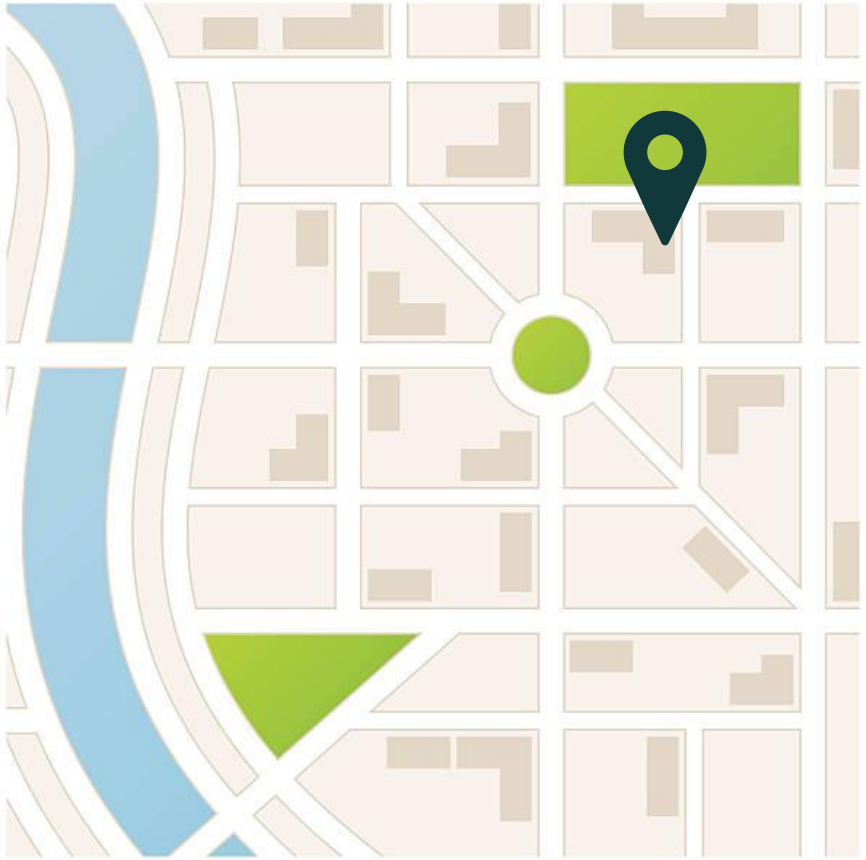
INTEGRATIVE PROCESS, PLANNING & ASSESSMENTS

- IPp1 Climate Resilience Assessment
  - Climate & natural hazard assessment
- IPp2 Human Impact Assessment
- IPp3 Carbon Assessment
  - Create a 25-year carbon assessment
- IPc2 Green Leases (Core & Shell)



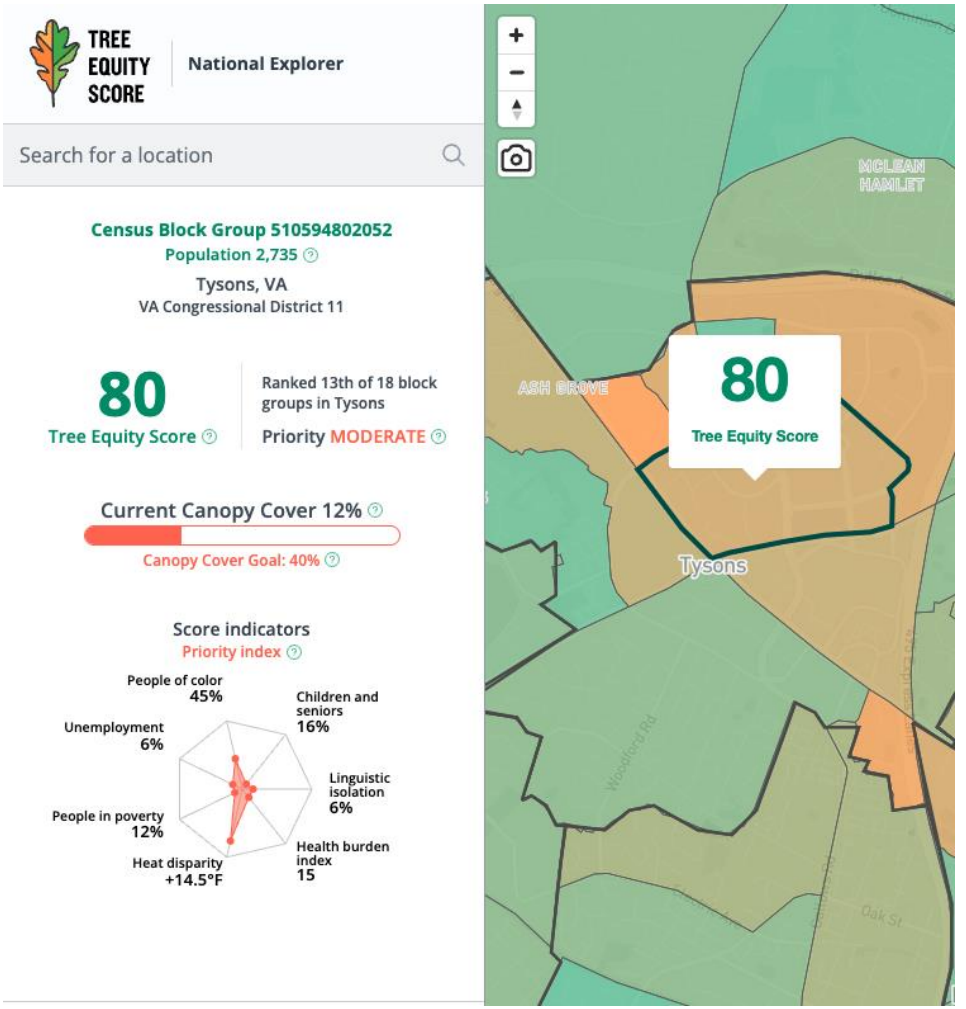
LOCATION & TRANSPORTATION

- LTc2 Equitable Development
  - Affordable housing, workforce training, & community partnerships
- LTc3 Compact & Connected Development
  - Density, transit & walkability
- LTc4 Transportation Demand Management
  - Assess vehicle miles traveled (VMT)
- LTc5 Electric Vehicles



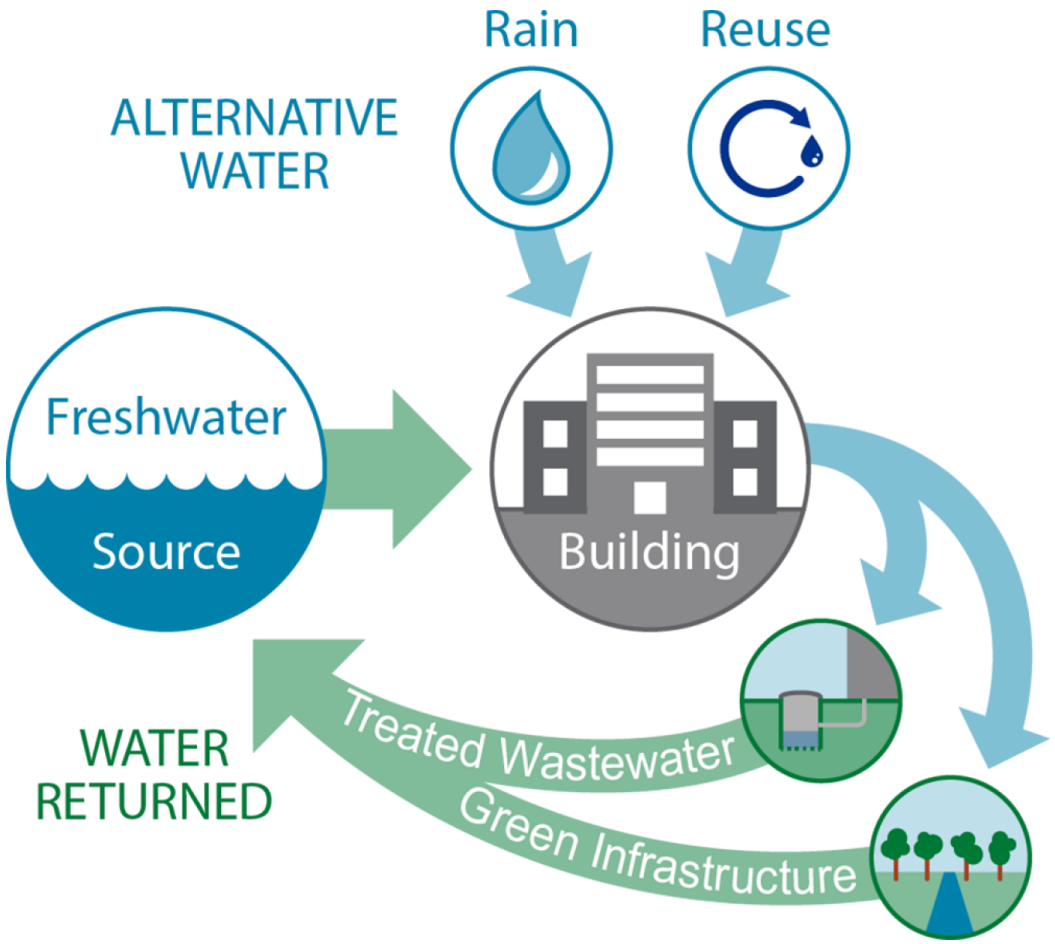
SUSTAINABLE SITES

- SSp1 Minimized Site Disturbance
  - EPA Construction General Permit 2022
- SSc1 Biodiverse Habitat
  - Bird friendly glazing
- SSc4 Enhanced Resilient Site Design
  - Address 2 hazards from IPp1
- SSc5 Heat Island Reduction
  - Tree Equity



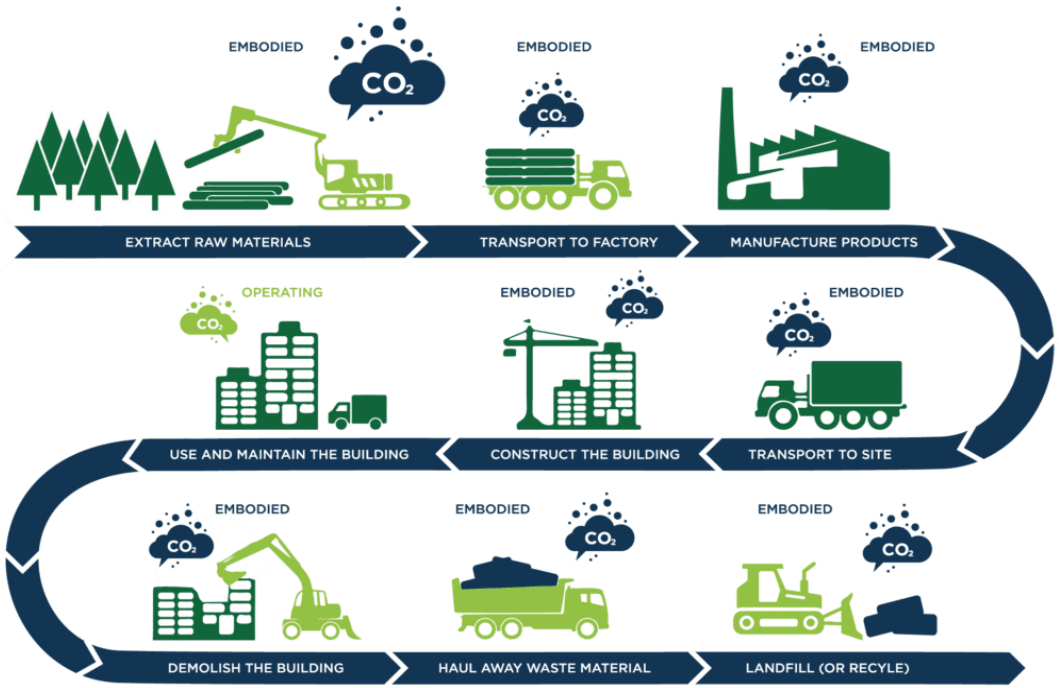
WATER EFFICIENCY

- WEp1 Water Metering & Reporting
- WEp2 Minimum Water Efficiency
  - Combines indoor & outdoor efficiency
- WEc1 Water Metering Detection
  - Submeters or leak detection
- WEc2 Enhanced Water Efficiency
  - Whole Project Water Use (1-8 points)



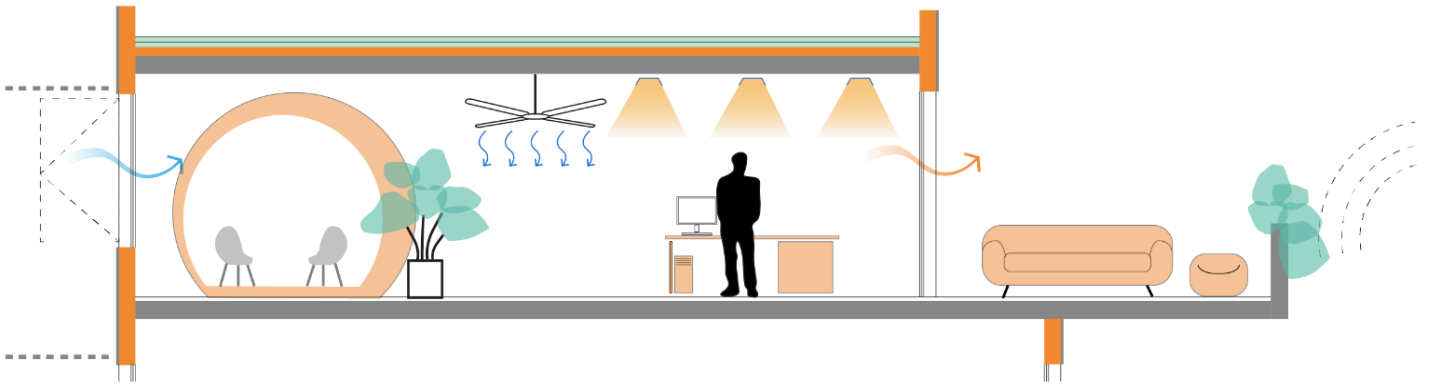
MATERIALS & RESOURCES

- MRp1 Planning for Zero Waste Operations
- MRp2 Quantify & Assess Embodied Carbon
- MRc2 Reduce Embodied Carbon
- MRc4 Building Product Selection & Procurement
- MRc5 Construction & Demolition Waste Diversion



INDOOR ENVIRONMENTAL QUALITY

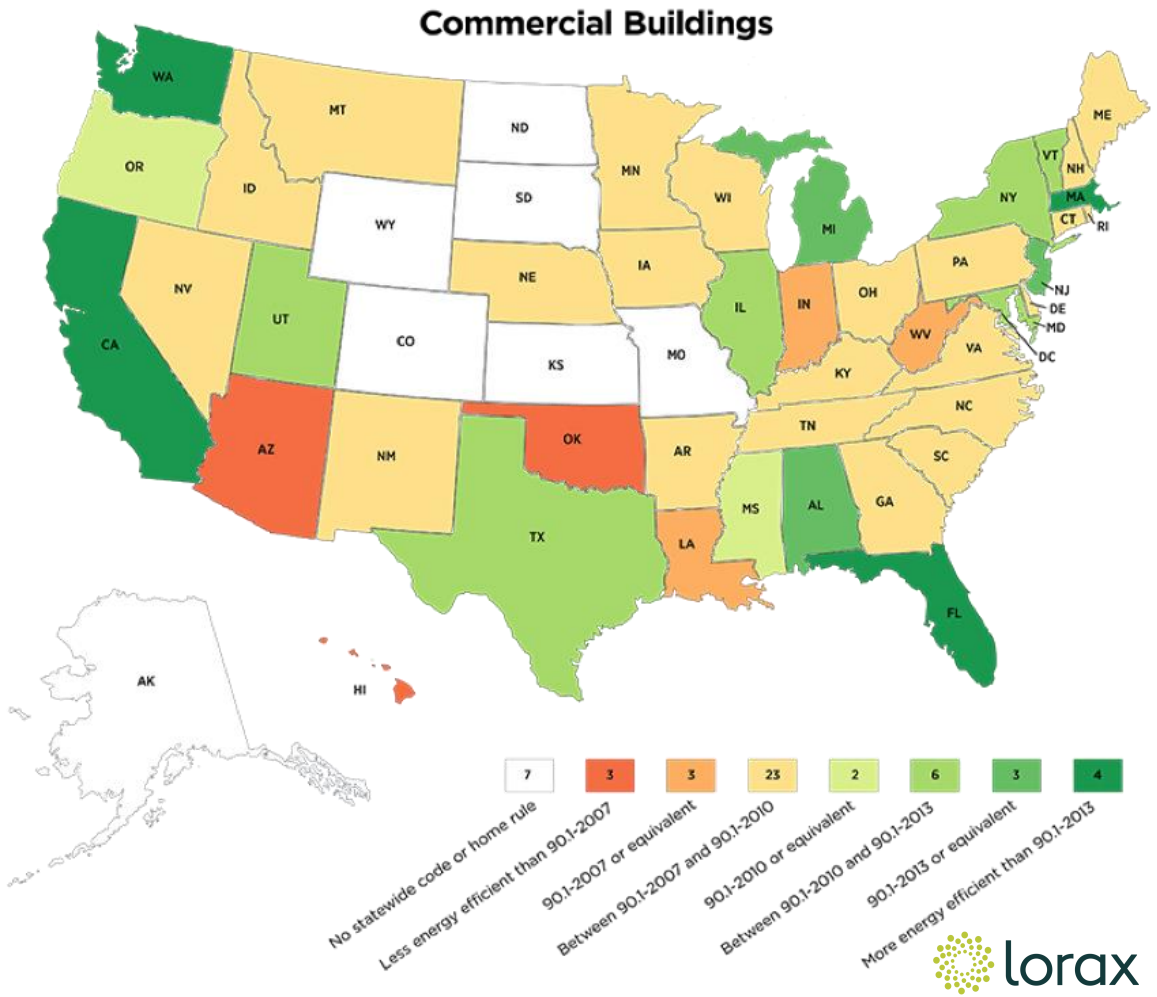
- IEQp1 Construction Management
  - Construction IAQ Management Plan
- IEQp2 Fundamental Air Quality
  - ASHRAE 62.1-2022, MERV 13 filters
- IEQc2 Occupant Experience
- IEQc3 Accessibility & Inclusion
- IEQc4 Resilient Spaces



PROJECT PRIORITIES

INNOVATION

- Regional Priority
- Project Type Priority
  - Healthcare, Schools
- Exemplary Performance
- Pilot
- Innovation



ENERGY & ATMOSPHERE

EARLY ENERGY MODELING

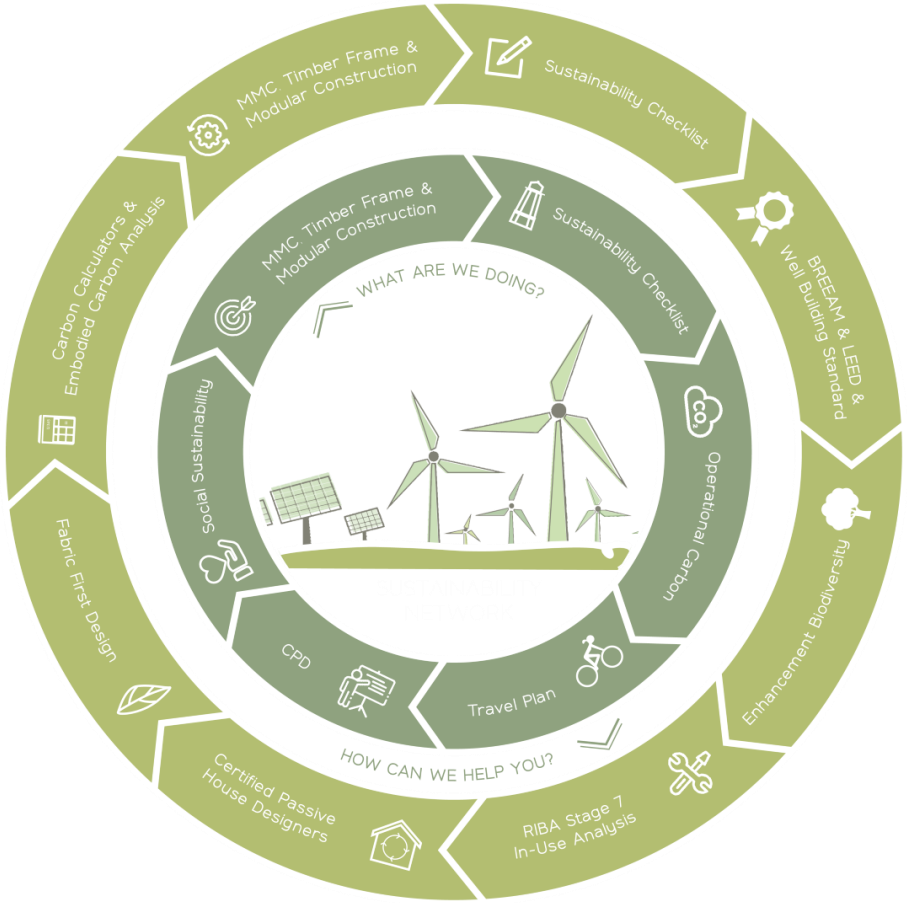
Multiple prerequisites and credits are related to decarbonization. Use the energy model to help guide that decarb strategy.

The value added to the LEED projects from whole building energy modeling is now increasing due to the added interactions and integrations from various prerequisites and credits.

ENERGY MODELING CHANGES

- Savings is *no longer* cost, but source energy
- ASHRAE 90.1- 2019 Baseline with custom BPF adjustments
  - 2022 Baseline for projects registered after January 1, 2028 with stricter savings
  - Easy to convert between the two
- Renewables only count for a maximum of 5%
  - You can't REC your way out of an inefficient design

Source Energy Savings (adjusted) without renewables	LEED Points
3%	1
6%	2
9%	3
12%	4
15%	5
18%	6
21%	7
24%	8
27%	9
30%	10



EXAMPLE PROJECTS

YELLOW BRICK ROAD

- Single story127,000 SF Warehouse
- Baltimore, MD
- Typical Envelope
- Typical HVAC (SEER 15 heat pumps in office, gas-fired heaters in warehouse)
- Typical Lighting Layout
- Solar PV

	Proposed	Baseline
Electricity (kWh)	236,264	471,456
Natural Gas (therms)	4,142.3	3,609.8
Plug / Process Loads (kWh)	95,142	
Source Energy (MMBTU)	1,867.4	3,596.2
Energy Cost	$53,781	$93,076
GHG Emissions (tons CO2e)	103.5	181.8
BPF	0.33	
Savings (BPF Adjusted)	-15.1%	
LEED Points	FAIL	

KING ELEMENTARY

- Three-story 60,900 SF K12 School
- Washington, DC
- High Performance All-Electric Everything (envelope, geothermal HVAC, ventilation controls, heat pump domestic hot water)
- Solar PV

	Proposed	Baseline
Electricity (kWh)	430,312	78,008
Natural Gas (therms)	0	64,198.0
Plug / Process Loads (kWh)	81,792	
Source Energy (MMBTU)	2,572.8	7,273.1
Energy Cost	$74,874	$209,955
GHG Emissions (tons CO2e)	148.5	367.2
BPF	0.48	
Savings (BPF Adjusted)	32.0%	
LEED Points	10	

TWINBROOK OFFICE CONVERSION

- Seven-story 148,000 SF Multifamily
- Rockville, MD
- Improved Envelope
- Slightly Better HVAC (SEER 15.2 heat pumps with heat exchanger)
- Typical Domestic Water (electric resistance)
- Solar PV

	Proposed	Baseline
Electricity (kWh)	1,702,496	1,984,065
Natural Gas (therms)	0	39,669.1
Plug / Process Loads (kWh)	603,439	
Source Energy (MMBTU)	10,732.6	17,704.6
Energy Cost	$296,234	$466,577
GHG Emissions (tons CO2e)	587.4	894.8
BPF	0.43	
Savings (BPF Adjusted)	21.2%	
LEED Points	7	

EXAMPLE MULTIFAMILY

- Four-story 45,600 SF Multifamily
- Baltimore, MD
- All-electric heat pump HVAC (dwelling units)
- Improved Envelope
- Heat Pump Domestic Hot Water
- VRF in common areas
- Lights at 0.3 W/SF
- Solar PV

	Proposed	Baseline
Electricity (kWh)	366,303	390,000
Natural Gas (therms)	0	19,165.0
Plug / Process Loads (kWh)	132,317	
Source Energy (MMBTU)	2,266.0	4,673.7
Energy Cost	$63,737	$126,486
GHG Emissions (tons CO2e)	126.4	236.1
BPF	0.70	
Savings (BPF Adjusted)	36.0%	
LEED Points	10	

EXAMPLE MULTIFAMILY

- Four-story 45,600 SF Multifamily
- Baltimore, MD
- All-electric heat pump HVAC (dwelling units)
- Improved Envelope
- Heat Pump Domestic Hot Water
- VRF in common areas
- Lights at 0.3 W/SF
- ~~**Solar PV**~~

	Proposed	Baseline
Electricity (kWh)	366,303	390,000
Natural Gas (therms)	0	19,165.0
Plug / Process Loads (kWh)	132,317	
Source Energy (MMBTU)	2,266.0	4,673.7
Energy Cost	$63,737	$126,486
GHG Emissions (tons CO2e)	126.4	236.1
BPF	0.70	
Savings (BPF Adjusted)	29.4%	
LEED Points	9	

EXAMPLE MULTIFAMILY

- Four-story 45,600 SF Multifamily
- Baltimore, MD
- All-electric heat pump HVAC (dwelling units)
- Improved Envelope
- ~~**Heat Pump Domestic Hot Water**~~
- VRF in common areas
- Lights at 0.3 W/SF
- ~~**Solar PV**~~

	Proposed	Baseline
Electricity (kWh)	463,906	390,000
Natural Gas (therms)	0	19,165.0
Plug / Process Loads (kWh)	132,317	
Source Energy (MMBTU)	3,165.7	4,673.7
Energy Cost	$80,720	$126,486
GHG Emissions (tons CO2e)	160.0	236.1
BPF	0.70	
Savings (BPF Adjusted)	10.6%	
LEED Points	3	

EXAMPLE MULTIFAMILY

- Four-story 45,600 SF Multifamily
- Baltimore, MD
- All-electric heat pump HVAC (dwelling units)
- ~~**Improved Envelope**~~
- ~~**Heat Pump Domestic Hot Water**~~
- VRF in common areas
- ~~**Lights at 0.3 W/SF**~~
- ~~**Solar PV**~~

Aldi not required for LEED certification

	Proposed	Baseline
Electricity (kWh)	500,964	390,000
Natural Gas (therms)	0	19,165.0
Plug / Process Loads (kWh)	132,317	
Source Energy (MMBTU)	3,418.6	4,673.7
Energy Cost	$87,168	$126,486
GHG Emissions (tons CO2e)	172.8	236.1
BPF	0.70	
Savings (BPF Adjusted)	3.5%	
LEED Points	1	

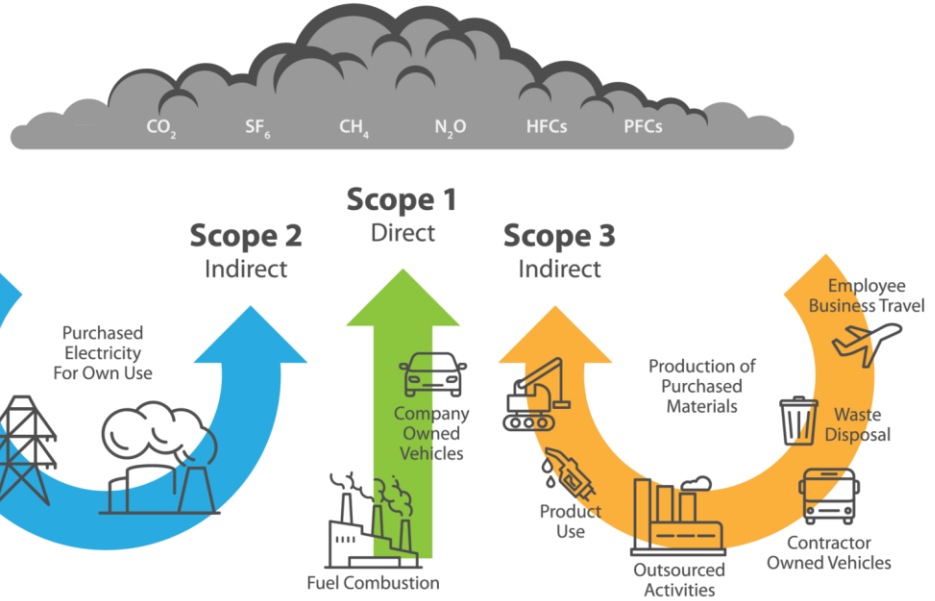
EXAMPLE MULTIFAMILY

- Four-story 45,600 SF Multifamily
- Baltimore, MD
- All-electric heat pump HVAC (dwelling units)
- ~~**Improved Envelope**~~
- ~~**Heat Pump Domestic Hot Water**~~
- ~~**VRF in common areas**~~
- ~~**Lights at 0.3 W/SF**~~
- ~~**Solar PV**~~

	Proposed	Baseline
Electricity (kWh)	676,883	390,000
Natural Gas (therms)	0	19,165.0
Plug / Process Loads (kWh)	132,317	
Source Energy (MMBTU)	4,619.0	4,673.7
Energy Cost	$117,778	$126,486
GHG Emissions (tons CO2e)	233.5	236.1
BPF	0.70	
Savings (BPF Adjusted)	-30.4%	
LEED Points	FAIL	

CONNECTED CREDITS & PREREQUISITES

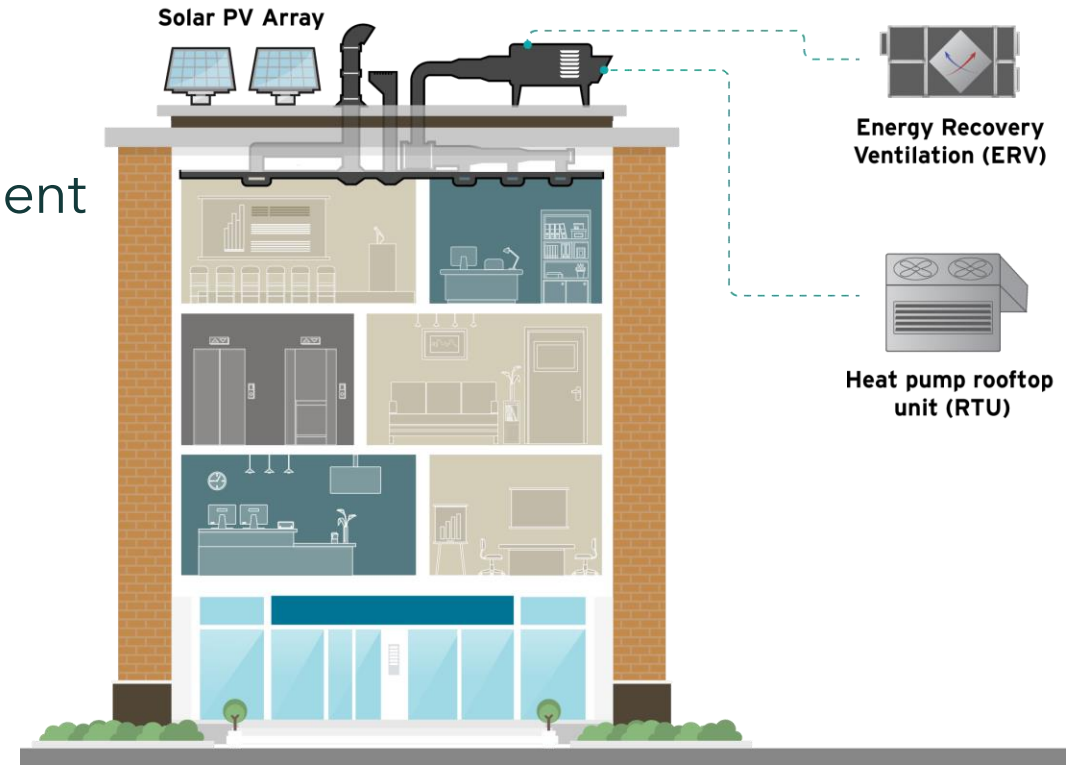
- IPp3 Carbon Assessment
- IPc1 Integrative Design Process
- IPc2 Green Leases
- EAp1 Operational Carbon Projection & Decarbonization Plan
- EAp2 Minimum Energy Performance
- EAc2: Reduce Peak Thermal Loads
- EAc3: Enhanced Energy Efficiency
- EAc4: Renewable Energy
- EAc6: Grid Interactive
- MRc2: Reduce Embodied Carbon
- IEQc2: Occupant Experience



ENERGY & ATMOSPHERE

REMAINING CREDITS

- EAp3 Fundamental Commissioning
- EAp4 Energy Metering
- EAp5 Fundamental Refrigerant Management
- EAc1 Electrification
- EAc5 Enhanced Commissioning
- EAc7 Enhanced Refrigerant Management



QUESTIONS?

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