

GREEN+ 2026

Session 7 - LEED & The Living Building Challenge



GREEN+ 2026

SUSTAINABLE DEVELOPMENT
10 TRAINING SESSIONS

hosted and supported by

TEXAS ASSOCIATION OF COMMUNITY
DEVELOPMENT CORPORATIONS

Why Do We Need a Green CDC Training in Texas?

- Nearly one-third of Texans face high energy burdens, with low-income, minority, and rural communities disproportionately affected due to aging homes and inefficient infrastructure.
- Rising utility costs, grid upgrades, and new industrial demands like data centers threaten to worsen affordability and reliability across the state.
- While conservation and clean energy is a potential solution, public understanding is low and opinions are deeply divided along partisan lines, highlighting a need for broader education and policy focus on both supply and demand.
- Nearly 45% of households pay over \$200 a month on average for summer electricity. About one-third of Texans spend 7% or more of their income on energy — surpassing the high energy burden threshold of 6%.





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Masters in HCD, SMU

**Co-Founder of
GREEN+**

Human Systems & Strategies Design
Sustainable Development Advocate



Karen Brooks
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MAE B. Real Estate Development
Managing Partner



Beth Brant, AIA,
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**Board Member of
GREEN+**

DSGN - Architect / Director of
Sustainability/ Principal



Intro to Green Building and
Overview of Types of 3rd
Party Certifications

Session 1
Today - January 13



Designing For Resilience

Session 2
February 10th



March 29 - 31
TACDC Conference



Passive Solar Design in
Texas

Session 4
April 14



Basic Energy Modeling &
Why We Do It

Session 5
May 12



Renovation & Reuse: The
Hidden Power of Existing
Buildings

Session 6
June 9



LEED & The Living Building
Challenge

Session 7
July 14



WELL, Fitwell, & Healthy
Materials

Session 8
August 11



Net Zero Energy (NZE)

Session 9
September 8



Carbon/Electrification & A
Year In Review

Session 10
October 13



LEED & The Living Building Challenge

July 14

This session introduces two of the most recognized third-party green building certifications: LEED (Leadership in Energy and Environmental Design) and the Living Building Challenge. We'll provide a clear overview of each system, their core goals, and the major categories they evaluate—from energy and water efficiency to health, materials, and community impact. Participants will learn the basic steps required to pursue certification and how each can add value to attainable housing and community projects. The session will highlight what's achievable, what to expect, and how these frameworks can guide better design and operations.



Presenters



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Agenda

1. Why do building owners pursue green building certification?
2. Intro to LEED & Scorecard
3. Intro to LBC & Petals
4. Case Studies??
5. Cost Comparisons
6. Takeaways
7. Q&A / Discussion

Third Party Rating Systems





Question:
Why do building owners pursue green building certification?

Leadership in Energy and Environmental Design



LEED is the most widely used green building rating system in the world.



LEED is a concise framework for identifying & implementing practical & measurable green building solutions.





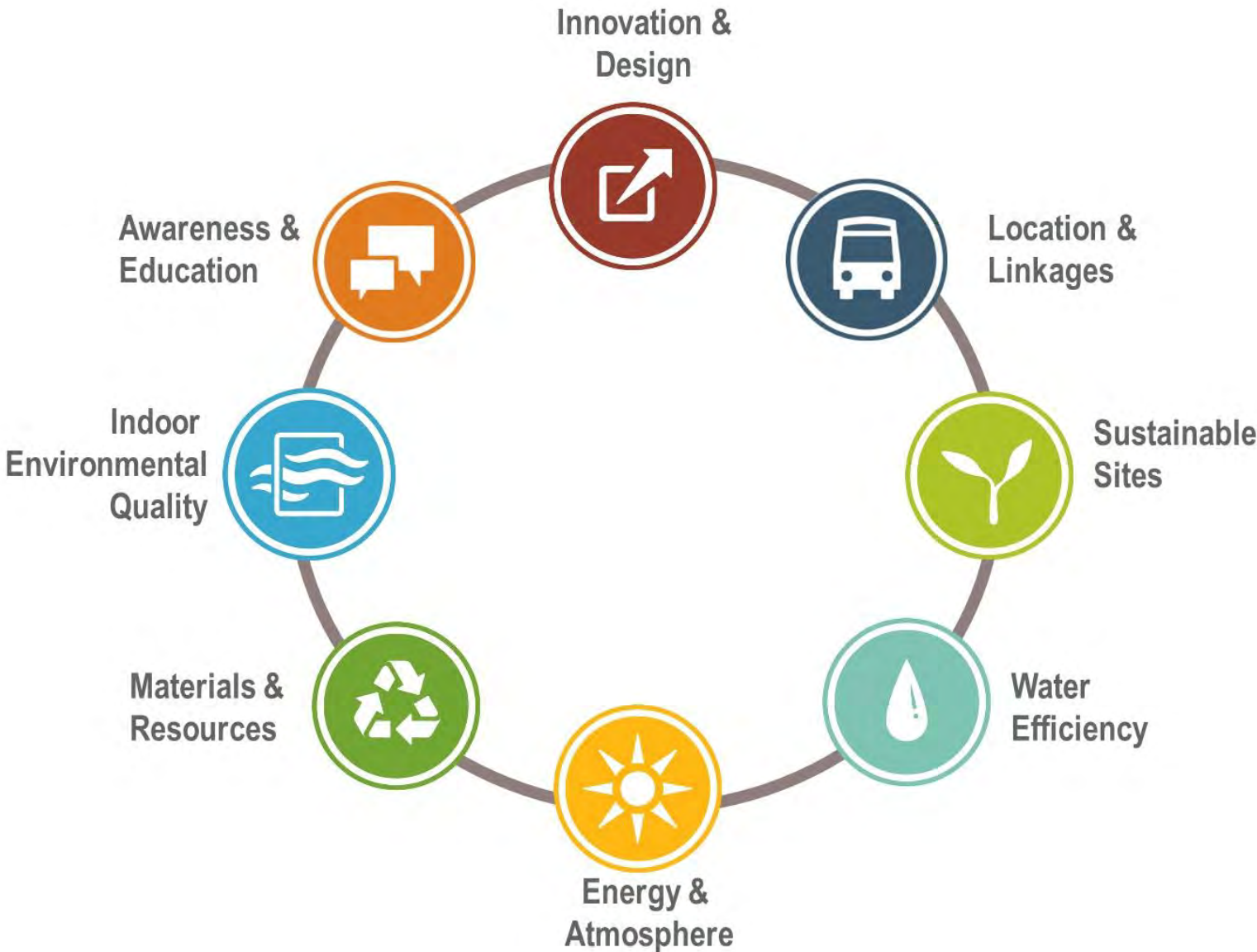
Integrative Process

Building sustainably starts at the beginning of the design process.

why pursue certification?

- It's part of the organization's DNA
- To set an example for others
- To save on utilities and other costs
- To create a more valuable building
- To fulfill expectations from the public, from investors or other stakeholders
- To fulfill corporate or government requirements

LEED v4 Categories



LEED v4 for Building Design and Construction: Homes and Multifamily Low-rise
Project Checklist
Project Name: _____
Date: 3/31

Y	?	N			
			Credit	Integrative Process	2
0	0	0		Location and Transportation	15
Y			Pass	Floodplain Avoidance	Required
				PERFORMANCE PATH	
	?		Credit	LEED for Neighborhood Development Location	15
				PRESCRIPTIVE PATH	
	?		Credit	Site Selection	8
		N	Credit	Compact Development	3
Y			Credit	Community Resources	2
Y			Credit	Access to Transit	2
0	0	0		Sustainable Sites	7
Y			Pass	Construction Activity Pollution Prevention	Required
Y			Pass	No Invasive Plants	Required
		N	Credit	Heat Island Reduction	2
Y			Credit	Rainwater Management	3
Y			Credit	Non-Toxic Pest Control	2
0	0	0		Water Efficiency	12
Y			Pass	Water Metering	Required
				PERFORMANCE PATH	
Y			Credit	Total Water Use	12
				PRESCRIPTIVE PATH	
Y			Credit	Indoor Water Use	6
		N	Credit	Outdoor Water Use	4
0	0	0		Energy and Atmosphere	38
Y			Pass	Minimum Energy Performance	Required
Y			Pass	Energy Metering	Required
Y			Pass	Education of the Homeowner, Tenant or Building Manager	Required
				PERFORMANCE PATH	
	?		Credit	Annual Energy Use	29
				BOTH PATHS	
Y			Credit	Efficient Hot Water Distribution System	5
		N	Credit	Advanced Utility Tracking	2
		N	Credit	Active Solar Ready Design	1
Y			Credit	HVAC Start-Up Credentialing	1
				PRESCRIPTIVE PATH	
Y			Pass	Home Size	Required
		N	Credit	Building Orientation for Passive Solar	3
Y			Credit	Air Infiltration	2
Y			Credit	Envelope Insulation	2
Y			Credit	Windows	3
Y			Credit	Space Heating & Cooling Equipment	4

77 52 33
Certified



Sabre Building – First LEED Building in DFW



Austin Energy Headquarters



USGBC State Market Brief

TEXAS BY THE NUMBERS

Texas by the numbers

- Ranked ninth in the U.S. by square feet per capita
- 205+ certified LEED projects
- 75,052,176 square feet certified
- Ranked eighth in total projects registered
- Ranked seventh in LEED residential certifications
- Ranked third in number of LEED professionals

Texas Ranks seventh in
LEED residential
certifications

7th

2024

Introduction to LEED

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

5 Rating systems

BD+C

**BUILDING DESIGN
+ CONSTRUCTION**
New Construction
Core & Shell
Schools
Retail
Healthcare
Data Centres
Hospitality
Warehouses & Distribution

ID+C

**INTERIOR DESIGN
+ CONSTRUCTION**
Commercial Interiors
Retail
Hospitality

O+M

**OPERATION
+ MAINTENANCE**
Existing Buildings
Data Centres
Warehouses & Distribution
Hospitality
Schools
Retail

ND

**NEIGHBOURHOOD
DEVELOPMENT**
New land developments
Land Redevelopment
Residential
Mixed Use
Commercial
Industrial

HOMES

**HOUSES
+ UNITS**
Single Homes
Low Rise Multi Unit
Mid Rise Multi Unit

Credit Categories

Each rating system is made up of a combination of credit categories.

Within each of the credit categories, there are specific prerequisites projects must satisfy and a variety of credits projects can pursue to earn points. The number of points the project earns determines its level of LEED certification.



INTEGRATIVE PROCESS
Encouraging cross discipline collaboration



LOCATION & TRANSPORTATION
Access to variety of transport and/or credit for constrained sites



MATERIALS & RESOURCES
Using sustainable materials & reducing waste



WATER EFFICIENCY
Smart use and reuse of water



ENERGY & ATMOSPHERE
Energy Performance



SUSTAINABLE SITES
Minimising impact on ecosystems & water resources



INDOOR ENVIRONMENT
Indoor air quality & access to natural light & views



INNOVATION

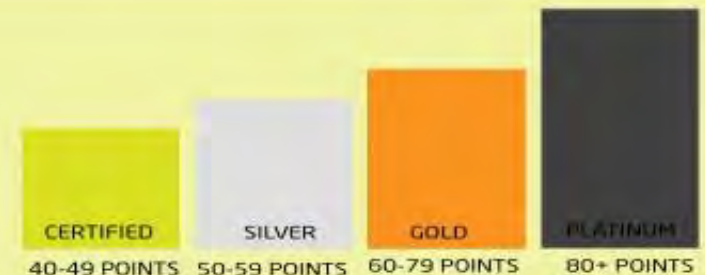


REGIONAL PRIORITY
Geographic environmental priorities



LEED is administered by the US Green Building Council. For information on the scheme go to www.usgbc.com

The Ratings





LEED version 5 is out now!

2025

LEED v5 Priorities

Green Buildings for Everyone Within a Generation

- Scale for the greatest impact (reach more projects)
- Decarbonize the building industry
- Inspire and recognize adaptive and Resilient built environments
- Invest in human health and well-being
- Create environments in which Diversity, Equity, and Inclusivity (DEI) thrive
- Support flourishing ecosystems and regenerative development practices

Sustainably Sourced Materials



Summary of Environmental Product Declaration		Environmental Impacts		
Central Concrete				
Mix	340PG9Q1			
San Jose Service Area				
EF V2 Gen Use P4000 3" Line 50% SCM				
Performance Metrics		Impact name	Unit	Impact per m3
28-day compressive strength	4,000 psi	Total primary energy consumption	MJ	2,491
Slump	4.0 in	Concrete water use (batch)	m3	1,906
		Concrete water use (wash)	m3	6.66E-2
		Global warming potential	kg CO2-eq	5.10E-2
		Ozone depletion	8.56E-3	6.55E-3
		Acidification	kg CFC-11-eq	271
		Eutrophication	kg SO2-eq	207
		Photochemical ozone creation	kg N-eq	5.40E-6
			kg O3-eq	2.26
				1.73
				1.31E-1
				1.00E-1
				46.6
				35.7

A sample EPD for a concrete mix design by Central Concrete Supply Co.
Credit: Central Concrete Supply

“Transparency is the new green”

Sustainably Sourced Materials



	Declare	HPD
Disclosure requirements	99% of ingredients to 100 parts per million	Flexible (but chosen level of disclosure must be disclosed)
Format	Database & product label	Multi-page declaration form
Free and publicly available?	Yes (in central database)	Yes (on manufacturers' websites)
Fee to manufacturers?	\$850 per product or product line annually (plus volume discounts)	None
Focused on LBC Red List?	Yes	No
Identifies health hazards?	No	Yes
Benchmarks against hazard lists?	Yes (EPA Chemical Action Plan, and EU REACH)	Yes (uses GreenScreen for Safer Chemicals methodology)
Includes certifications and VOC emissions testing data?	No	Yes
Includes CAS numbers for chemicals?	Yes	Yes
Identifies health hazards even for proprietary ingredients?	No (but can't be LBC Red List)	Yes
Referenced in LEED v4?	No	Yes

“Transparency is the new green”

Questions and Discussion



Living Building Challenge® 4.1

Program Manual

A Visionary Path to a
Regenerative Future

APRIL 2026





**LIVING
BUILDING
CHALLENGE**SM



**LIVING
COMMUNITY
CHALLENGE**SM



**LIVING
PRODUCT
CHALLENGE**SM



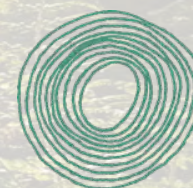
INTERNATIONAL
LIVING FUTURE
INSTITUTESM



CARBON
CERTIFICATION



ZERO ENERGY
CERTIFICATION



CORE
GREEN BUILDING
CERTIFICATION

Declare.

Just.SM

Reveal.



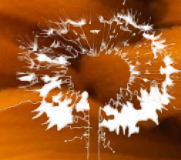
THE METAPHOR OF THE FLOWER

ROOTED IN PLACE AND YET:
Harvests all energy + water Is
adapted to climate and site Operates
pollution free
Is comprised of integrated systems Is
beautiful

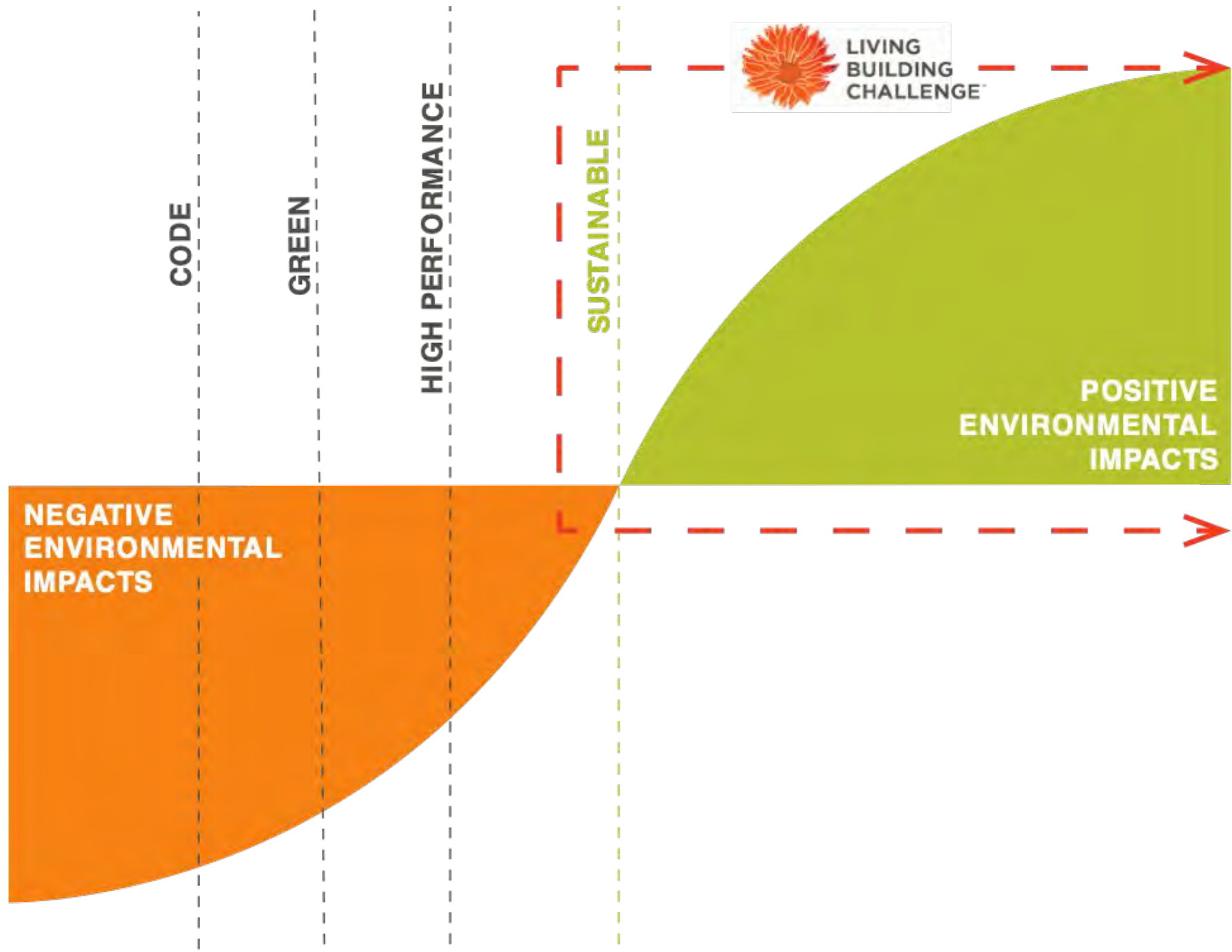
Instead of a world that is a less bad version of the one that we currently have —

We ask a simple and profound question —

WHAT DOES GOOD
LOOK LIKE?



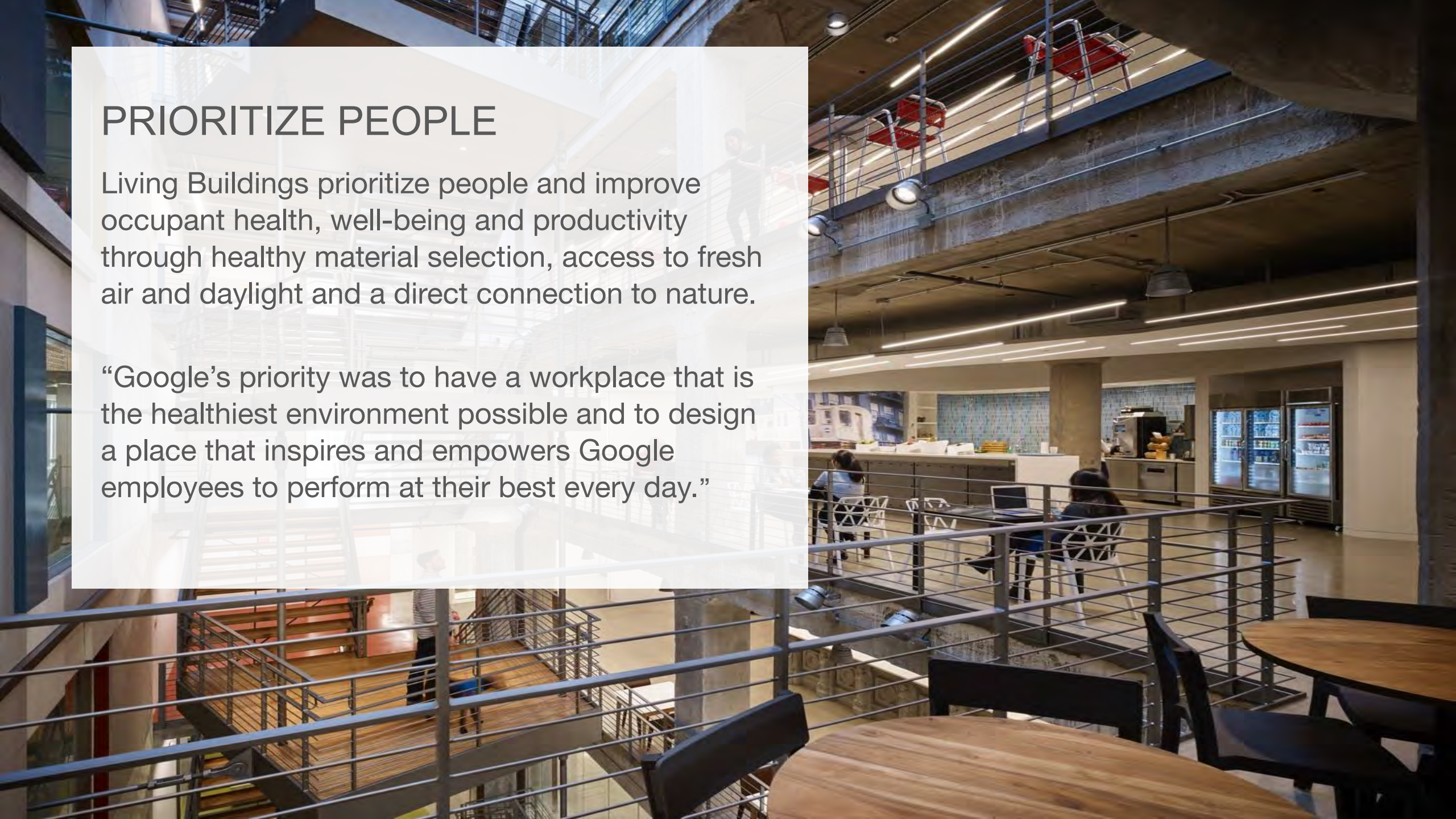
INTERNATIONAL
LIVING FUTURE
INSTITUTE SM



PRIORITIZE PEOPLE

Living Buildings prioritize people and improve occupant health, well-being and productivity through healthy material selection, access to fresh air and daylight and a direct connection to nature.

“Google’s priority was to have a workplace that is the healthiest environment possible and to design a place that inspires and empowers Google employees to perform at their best every day.”



600+

REGISTERED PROJECTS
AROUND THE WORLD

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 YTD





PETALS

PLACE

WATER

ENERGY

HEALTH &
HAPPINESS

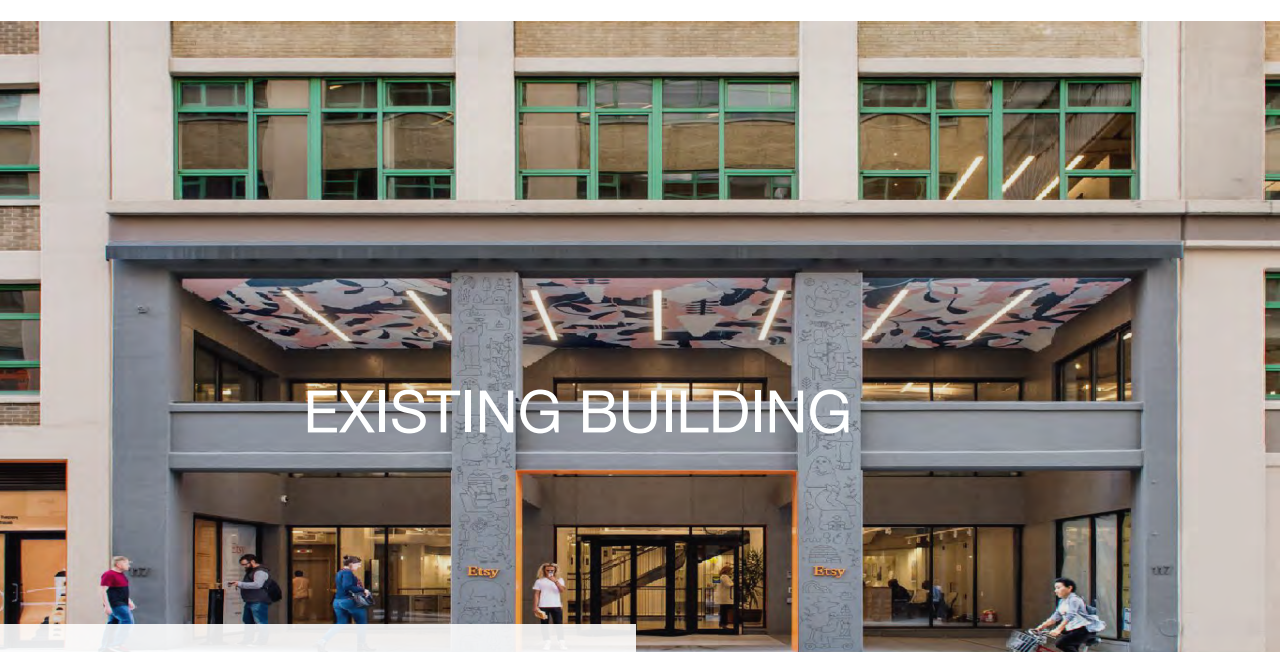
MATERIALS

EQUITY

BEAUTY



NEW BUILDING



EXISTING BUILDING

FOUR TYPOLOGIES



INTERIOR



LANDSCAPE &
INFRASTRUCTURE



L1.
NATURAL HABITAT PRESERVE



L2.
RURAL AGRICULTURE ZONE



L3.
VILLAGE OR CAMPUS ZONE



L4.
GENERAL URBAN ZONE

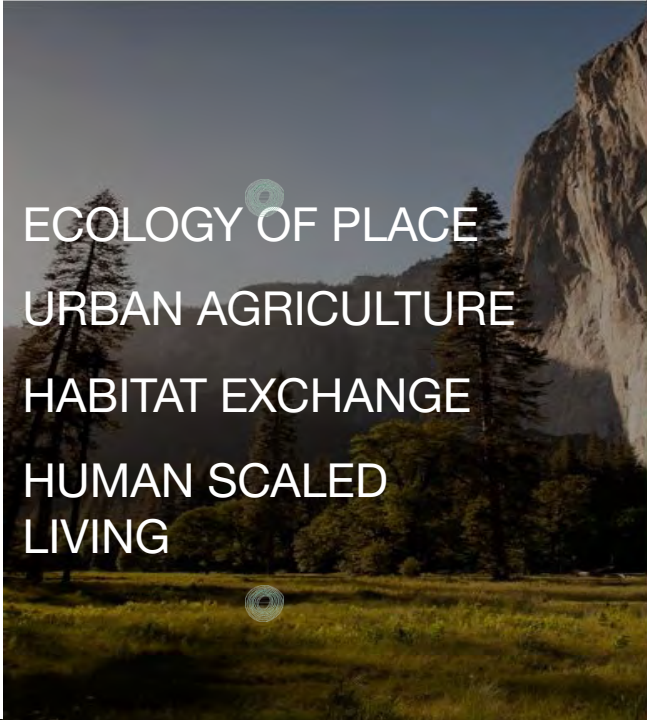


L5.
URBAN CENTER ZONE



L6.
URBAN CORE ZONE

IMPERATIVES



ECOLOGY OF PLACE
URBAN AGRICULTURE
HABITAT EXCHANGE
HUMAN SCALED
LIVING



RESPONSIBLE
WATER USE
NET POSITIVE WATER



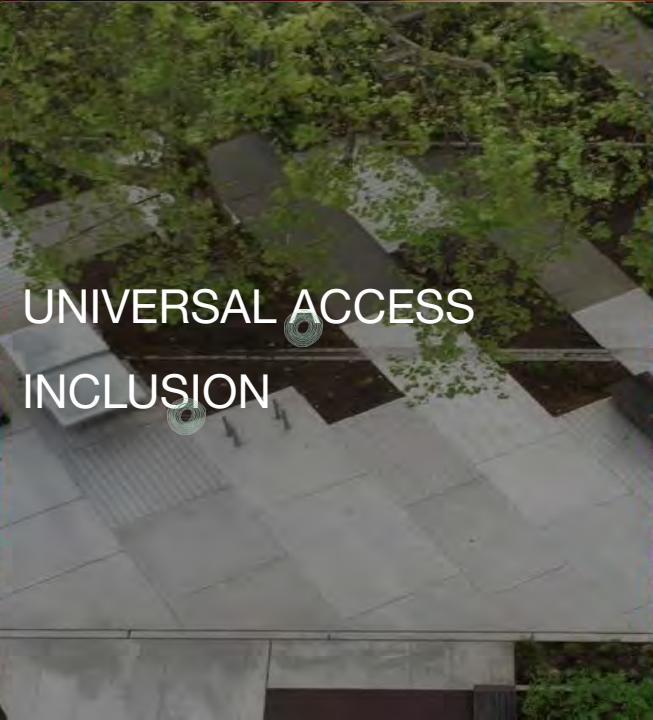
ENERGY + CARBON
REDUCTION
NET POSITIVE ENERGY



HEALTHY INTERIOR
ENVIRONMENT
HEALTHY INTERIOR
PERFORMANCE
ACCESS TO NATURE



RESPONSIBLE
MATERIALS
RED LIST 90%
RESPONSIBLE
SOURCING
LIVING ECONOMY
SOURCING
NET POSITIVE WASTE



UNIVERSAL ACCESS
INCLUSION



BEAUTY + BIOPHILIA
INSPIRATION +
EDUCATION



**LIVING
BUILDING
CHALLENGE**

LIVING CERTIFICATION

All 20 Imperatives are achieved

Certification is based on actual performance



PETAL CERTIFICATION

All Core Imperatives are achieved, and the remaining imperatives to complete either the Water, or Energy, or Materials Petal.

IT'S TIME TO STEP UP

TO THE LIVING BUILDING CHALLENGE



Carbon neutral with top tier efficiency.

- 100% building energy load offset with on- or off-site renewables
- For existing buildings, combustion allowed
- Embodied carbon reduction and offset



World class efficiency and characteristics, reinforcing a fossil fuel free future.

- 100% building energy load offset with on-site renewables, driving efficiency
- Pathway for premium off-site renewables for certain project types



Responding to climate change with holistic high performance.

Required Imperatives:

C1	01	Ecology of Place
C2	04	Human Scaled Living
C3	05	Responsible Water Use
C4	07	Energy + Carbon Reduction
C5	09	Healthy Interior Environment
C6	12	Responsible Materials
C7	17	Universal Access
C8	18	Inclusion
C9	19	Beauty + Biophilia
C10	20	Education + Inspiration



PETAL CERTIFICATION

One pillar of deep regenerative design built on a holistic high-performance foundation.

All Core Imperatives are required, plus the remaining Imperatives to complete either the Water, or Energy or Materials Petal.

ALL CORE IMPERATIVES

Water

06 Net Positive Water

Energy

08 Net Positive Carbon

Materials

13 Red List

14 Responsible Sourcing

15 Living Economy Sourcing

16 Net Positive Waste



LIVING CERTIFICATION

Summit of holistic aspiration and attainment; fully restorative.

All Imperatives must be achieved to certify:

01	Ecology of Place
02	Urban Agriculture
03	Habitat Exchange
04	Human Scaled Living
05	Responsible Water Use
06	Net Positive Water
07	Energy + Carbon Reduction
08	Net Positive Carbon
09	Healthy Interior Environment
10	Healthy Interior Performance
11	Access to Nature
12	Responsible Materials
13	Red List
14	Responsible Sourcing
15	Living Economy Sourcing
16	Net Positive Waste
17	Universal Access
18	Inclusion
19	Beauty + Biophilia
20	Education + Inspiration

WATER



05: NET POSITIVE WATER



STORMWATER



GREYWATER



BLACKWATER



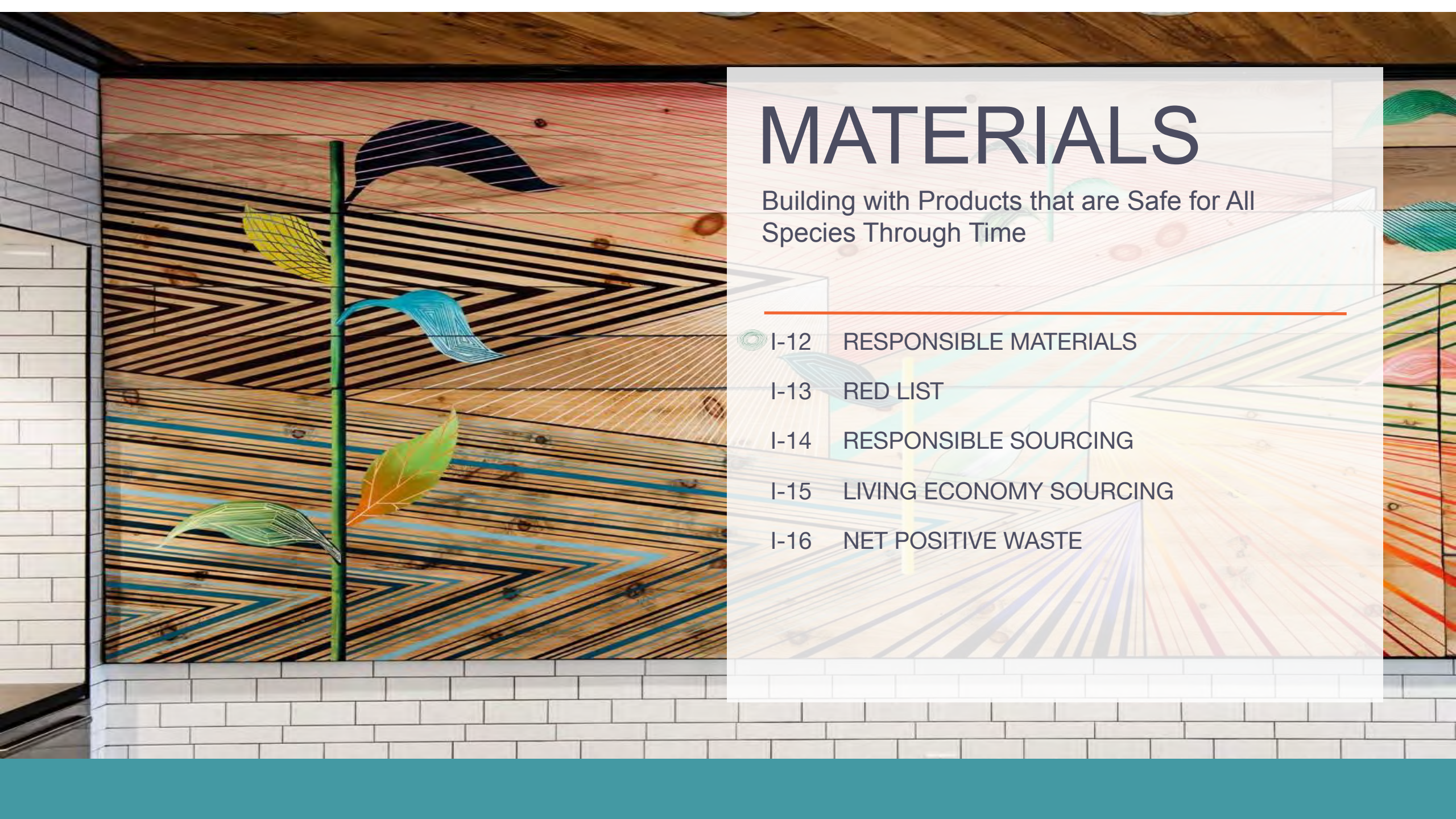
ENERGY



06: NET POSITIVE ENERGY



Rooftop Solar Array at The Bullitt Center



MATERIALS

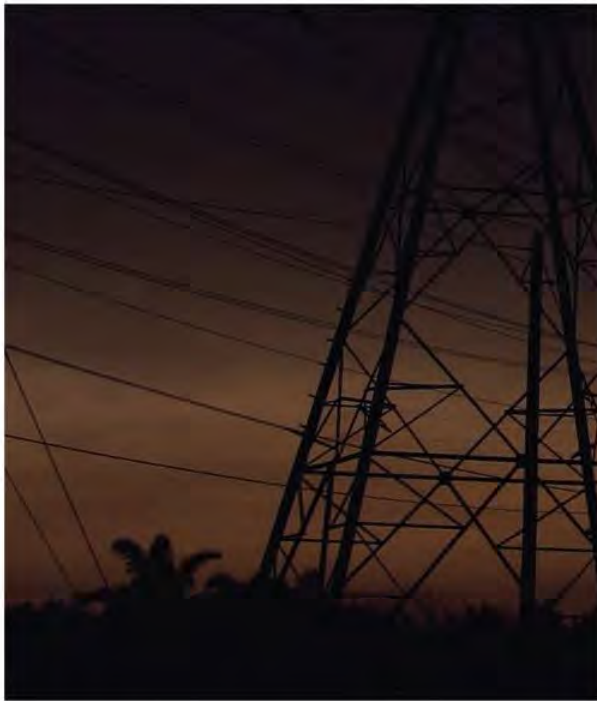
Building with Products that are Safe for All Species Through Time

-
- I-12 RESPONSIBLE MATERIALS
 - I-13 RED LIST
 - I-14 RESPONSIBLE SOURCING
 - I-15 LIVING ECONOMY SOURCING
 - I-16 NET POSITIVE WASTE

RED LIST



10



There are temporary exceptions for numerous Red List items due to current limitations in the materials economy. Refer to the Materials Petal Handbook for complete and up-to-date listings.

The project cannot contain any of the following Red List materials or chemicals:

- Alkylphenols
- Asbestos
- Bisphenol A (BPA)
- Cadmium
- Chlorinated Polyethylene and Chlorosulfonated Polyethylene
- Chlorobenzenes
- Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)
- Chloroprene (Neoprene)
- Chromium VI
- Chlorinated Polyvinyl Chloride (CPVC)
- Formaldehyde (added)
- Halogenated Flame Retardants (HFRs)
- Lead (added)
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Perfluorinated Compounds (PFCs)
- Phthalates
- Polyvinyl Chloride (PVC)
- Polyvinylidene Chloride (PVDC)
- Short Chain Chlorinated Paraffins
- Wood treatments containing Creosote, Arsenic or Pentachlorophenol
- Volatile Organic Compounds (VOCs) in wet applied products

[illegible][illegible][illegible][illegible]

Program Alignment

All intentional ingredients are reported screened and publicly disclosed, allowing for easy alignment with multiple green building certification programs.



**LIVING
BUILDING
CHALLENGE** SM



Declare.

Your Product Your Company

Final Assembly: City, State, Country

Life Expectancy: 000 Years

End of Life Options: Recyclable (42%), Landfill (58%)

Ingredients:

Your First Component: Sustainably Sourced Ingredient (Location), Your Second Component: **Living Building Challenge Red List**, Proprietary Ingredient (0.07%), **REACH or SIN List**; Your Third Component: Non-Toxic Ingredient, [XXX-0001] Declare Supplier Ingredient, **EPA Chemical of Concern**, Bio-Based Ingredient, **Red List and SIN List**

¹LBC Temp Exception (10-E4) Proprietary Ingredients <1%

Living Building Challenge Criteria:

XXX-0000

VOC Content: 0 g/L

Declaration Status

EXP: 01 JAN 2020

VOC Emissions: Compliant

☐ LBC Red List Free

☒ LBC Compliant

☐ Declared

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**SVHC
Free**

INTERNATIONAL LIVING
FUTURE INSTITUTE

WHAT IS BIOPHILIC DESIGN?

Integrating nature with design to create habitats where people thrive

Biophilia is our inherent affinity for nature. It contributes to our physical fitness and psychological health.

Biophilic Design creates vibrant and resilient habitats by understanding the deep connection between nature and human health and performance.



Josey Pavilion

Living Building Challenge Certified - Decatur, TX

Tour Josey Pavilion 10/23 – register at usgbctexas.org/events



Morris & Gwendolyn Cafritz Foundation Environmental Center



Kendeda Building

Georgia Tech University
Atlanta, GA

Local Green or Energy Codes..



Dallas Green Code



Austin Green Building (AEGB)



- Construction waste: >50% diverted from landfill
 - Indoor air quality measures
 - Sustainably sourced materials
 - Water-efficient fixtures
 - Energy efficient roofing materials reduce heat island effect
- IECC 2024 Alignment:
 - EV and Solar Readiness
 - Grid Resilience & Battery Storage
 - Water Forward Policy
 - Zero Waste Alignment
 - Wildlife Protection (such as glass etched patterns to protect migrating birds)

cost comparisons

High-Level Cost Summary

The overall financial difference centers on **prescriptive choices vs. mandatory performance**. LEED allows you to choose low-cost credits to reach your target tier, whereas LBC requires 100% compliance across all core "Imperatives".

Financial Metric	LEED v5 (Silver to Platinum)	LBC v4.1 (Full Certification)
Hard Cost Construction Premium	1% to 9% above baseline	11% to 27% above baseline
Administrative & Registration Fees	Tiered by square footage (\$5,000–\$30,000+) min. registration fee \$1200 - \$1500 Review approx \$0.62 per gross sf for projects less than 250,000 sf - min \$3,075	Scale-dependent (\$15,000–\$40,000+) flat registration fee \$5000 Review approx \$0.13 per gross sf for projects with min \$7,000
Soft Cost / Consulting Overhead	Moderate; widespread industry expertise	Very High; intensive advocacy and vetting
Performance Verification Timeline	Granted at construction completion	Requires 12 months of active data

Questions and Discussion



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WELL, Fitwel & Healthy Materials

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