Urban Land Institute

The Materials Movement

Creating Value with Better Building Materials

ULI Webinar
December 1, 2023

Today’s Speakers

Victoria Oestreich
Senior Manager
Randall Lewis Center for Sustainability in Real Estate

Urban Land Institute

Sydney Mainster
Vice President of Sustainability and Design Management

The Durst Organization

Suzanne Fallender
Vice President
Global ESG

Prologis

Heidi Creighton
Vice President
Sustainability

Skanska USA
Commercial Development

Urban Land Institute

Randall Lewis Center for Sustainability in Real Estate

Leads the real estate industry in creating buildings and places where people and the environment thrive

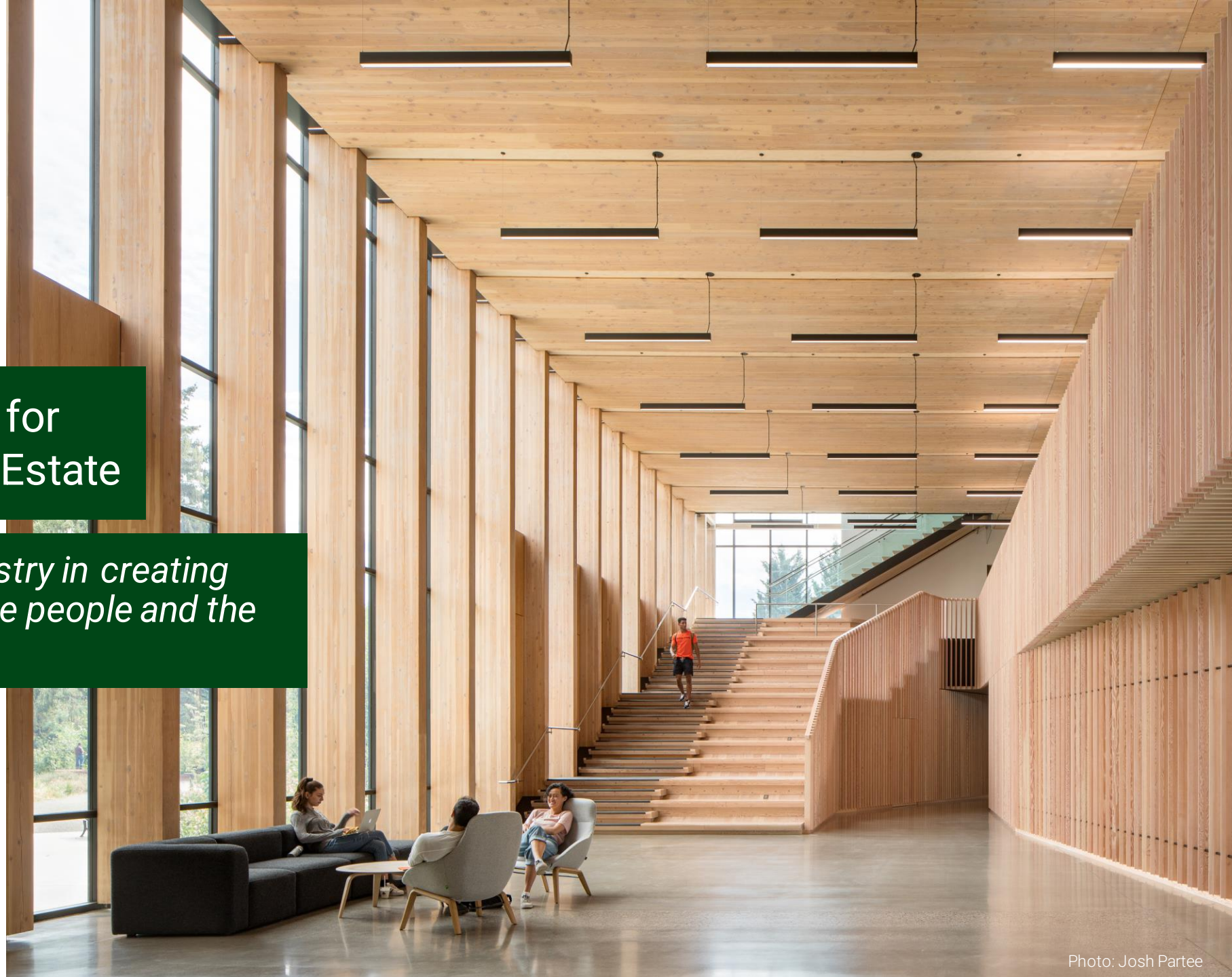

Photo: Josh Partee

Today's Agenda

1. Audience poll
2. Overview of *The Materials Movement* report
3. Panelist perspectives on better building materials
4. Discussion and Q&A

Housekeeping:

- Please submit questions through the Q&A feature, and upvote the questions you want to see asked
- This presentation will be recorded and distributed
- We hope you'll share your feedback about this webinar in our email survey

Audience Poll

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Quick Definitions

Embodied carbon: The greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.

Material health: The impact of material components or ingredients on human health. Encompasses the health impacts across the entire lifecycle of a product, including extraction, manufacture, installation, maintenance, and disposal.

Drivers of the Movement Towards Better Materials

Regulations

Green Building Certifications

Occupier Demand

Enhanced Building Value

ESG Investing Requirements

Photo: Benjamin Benschneider

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Material Impacts

How do our building material choices impact people and the environment?

Climate

11% of global carbon emissions are from the manufacture, transportation, and disposal of building materials.

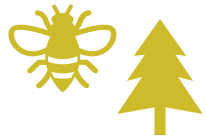
Human Health

Humans spend about 90 percent of their lives inside buildings.

Equity

People of color and those with low incomes are disproportionately impacted by toxic chemicals, air pollution, and climate change.

Ecosystems



Ecosystems around the world are impacted by the extraction, manufacture, and disposal of materials.

Circularity

The built environment is one of the largest producers of solid waste, and only a small fraction of construction and demolition material is reused in other buildings.

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Categories from the AIA Materials Pledge

Actions at Every Stage

Project Kick-Off and Visioning	Pre-design	Schematic Design	Design Development	Construction Documents	Bidding/ Pricing	Construction Administration	Operations / Maintenance	End-of-life
Articulate big-picture ESG goals. Start early. Reuse and repurpose.	Define a materials strategy. Identify partners and champions. Pursue green building certifications with a focus on materials.	Consider the structure. Do not overlook MEP systems. Design for adaptability, reuse, and disassembly. Use whole-building modeling tools. Engage with manufacturers and suppliers. Choose performance-based specs for concrete.	Design for efficiency and use fewer materials. Limit or optimize high-impact materials. Select reclaimed, salvaged, or recycled materials. Specify bio-based, low-carbon, non-toxic materials. Request product certifications (such as EPDs and HPDs).	Streamline material evaluation and reporting with material libraries and project management software.	Incorporate embodied carbon and health requirements into the competitive bidding process.	Watch for substitutions. Minimize construction waste. Reduce construction site emissions. Work with local partners to funnel construction and demolition waste out of landfills. Document the as-built embodied carbon and health of the building.	Establish health and sustainability targets for tenant-fit-outs and MEP equipment replacements.	Opt for deconstruction, rather than demolition, to preserve materials for reuse.

The Materials Movement

Creating Value with Better Building Materials

COMING SOON!

NEW ULI REPORT

. Articulates the **business case** for prioritizing better materials in projects and portfolios.

Outlines the science behind the **lifecycle impacts** of materials on humans and the environment.

Highlights high-level **strategies** for incorporating better materials.

Shares **innovative projects** that successfully integrate healthy and sustainable materials to achieve positive outcomes

uli.org/materialsmovement

Sydney Mainster

Vice President of Sustainability and Design Management

The Durst Organization

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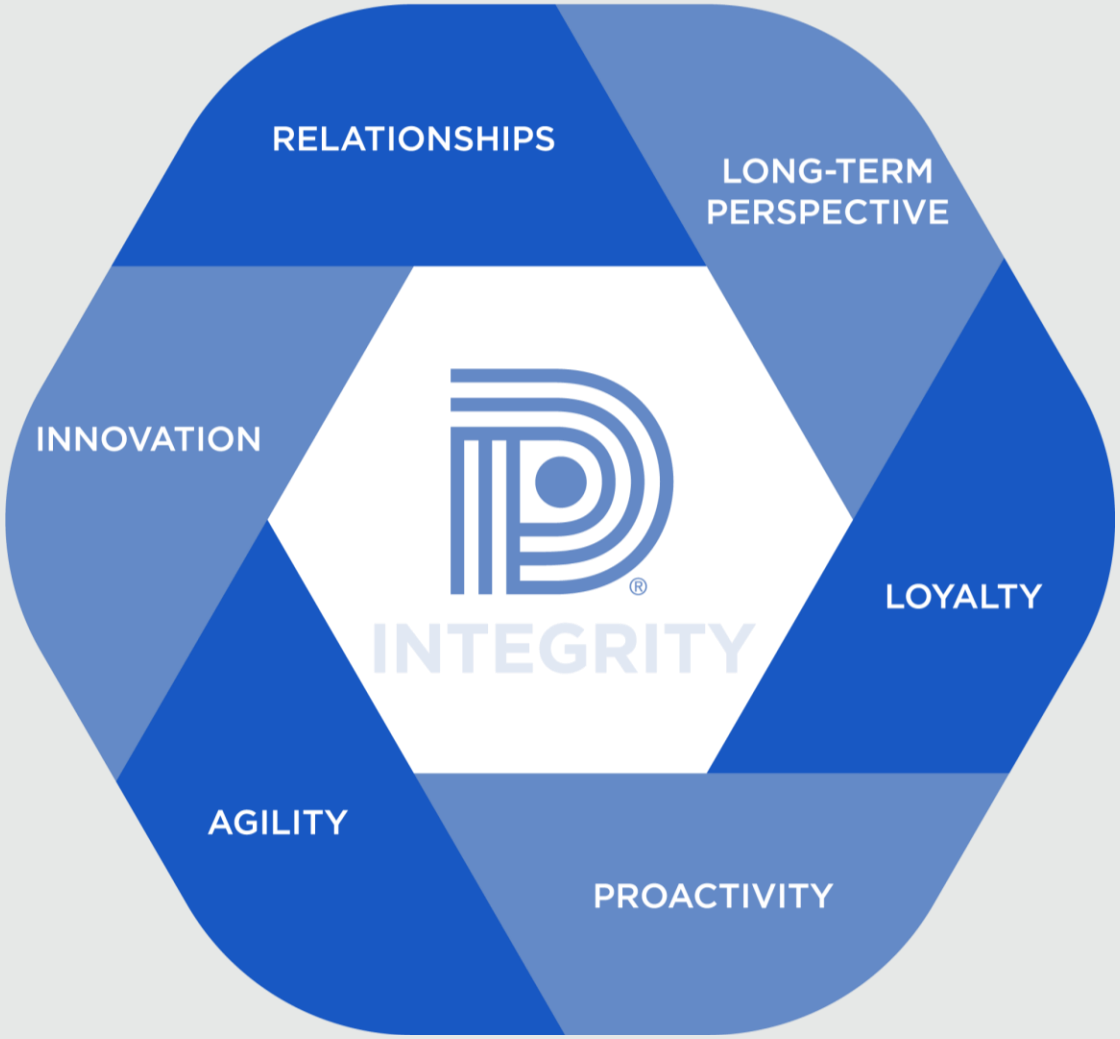
- **Location:** Long Island City, New York
- **Developer:** The Durst Organization
- **Architect:** Handel Architects (Design); Selldorf Architects (Interior & Amenity)
- **Size:** 978,000 sq ft
  - 71 stories
  - 958 residential units total
  - 288 affordable units
- **Status:** opened in 2022
- **Certifications:** LEEDv4 BD+C: New Construction, Certified Platinum

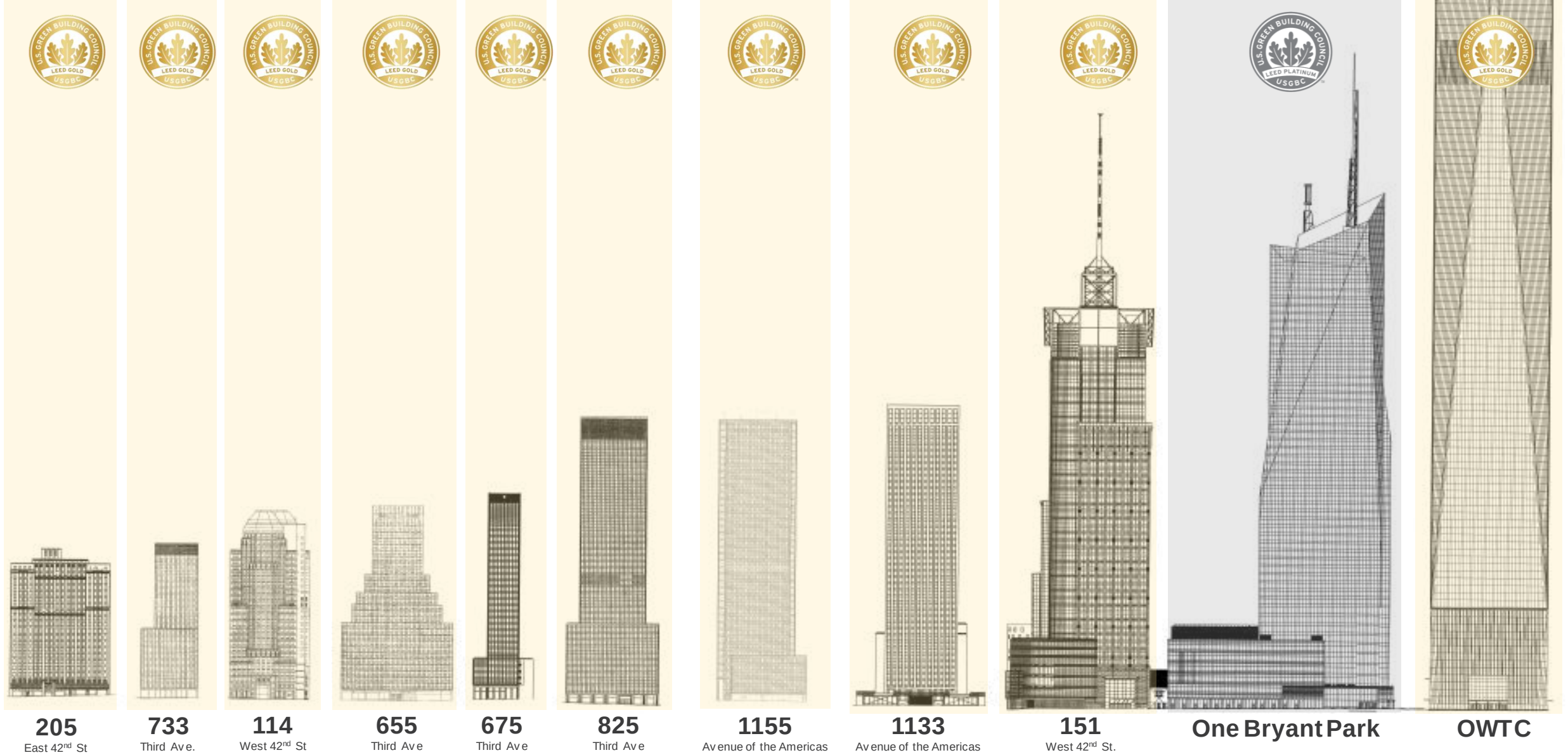
Sven – Building Overview

OUR MISSION

We build, own, and operate many of the world's most innovative and efficient buildings. We create value for our tenants by developing sustainable residential and commercial properties in which people live, work, and thrive.



Durst Core Values



COMMERCIAL PROPERTIES

VIA 57 WEST

HELENA 57 WEST

FRANK 57 WEST

10 HALLETTS POINT

EOS

SVEN

RESIDENTIAL PROPERTIES

WATER CONSERVATION & QUALITY

Conservation is prioritized for Water's Diminishing Supply, Increasing Cost, and CSO Concerns

ENERGY EFFICIENCY

Optimized Efficiency for Whole Building Source CO_2 Emissions Reduction

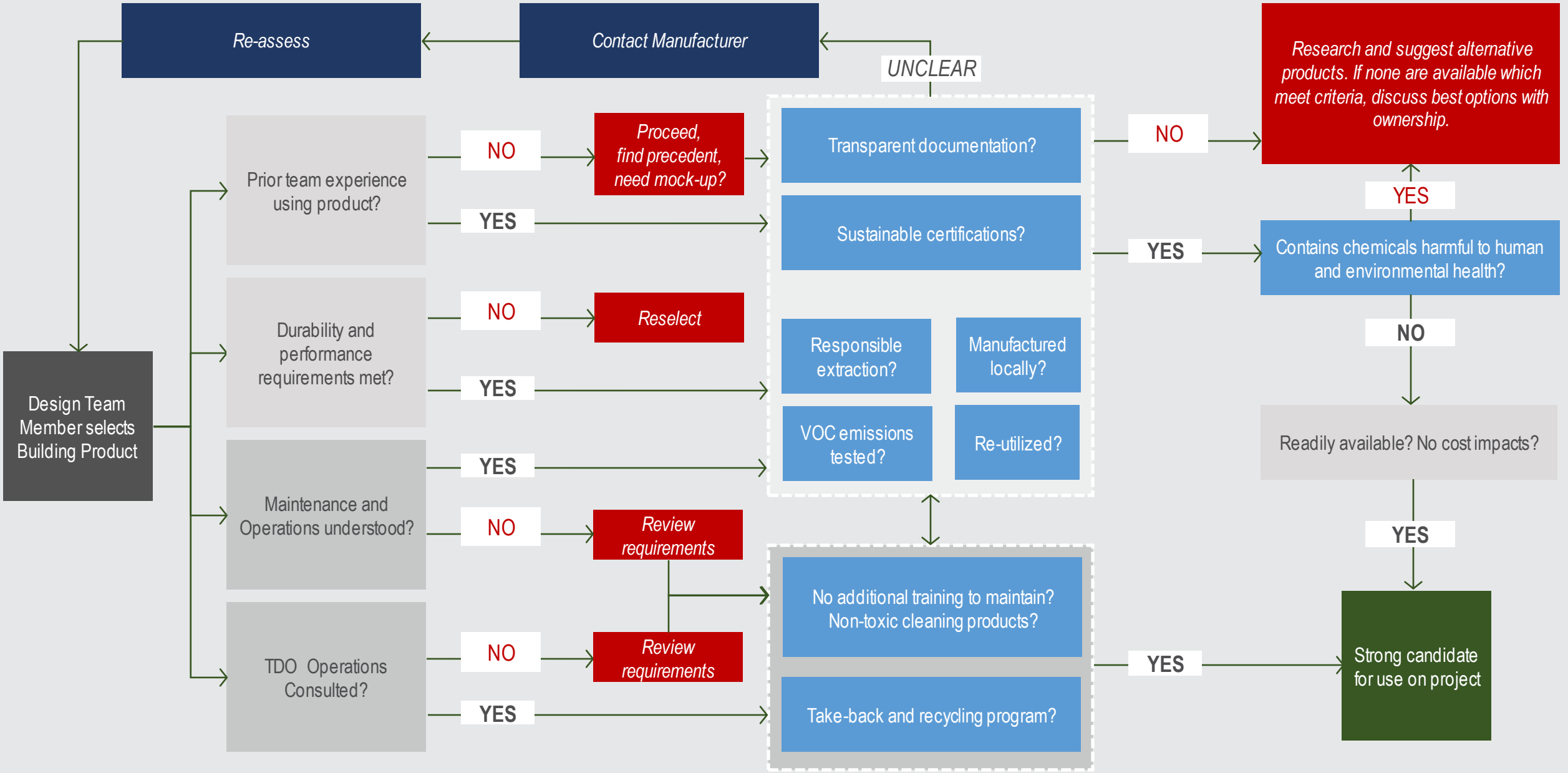
MATERIAL STREAM OPTIMIZATION

Enhanced Resident Wellness and Minimized Environmental Impact from Smart Materials Streams

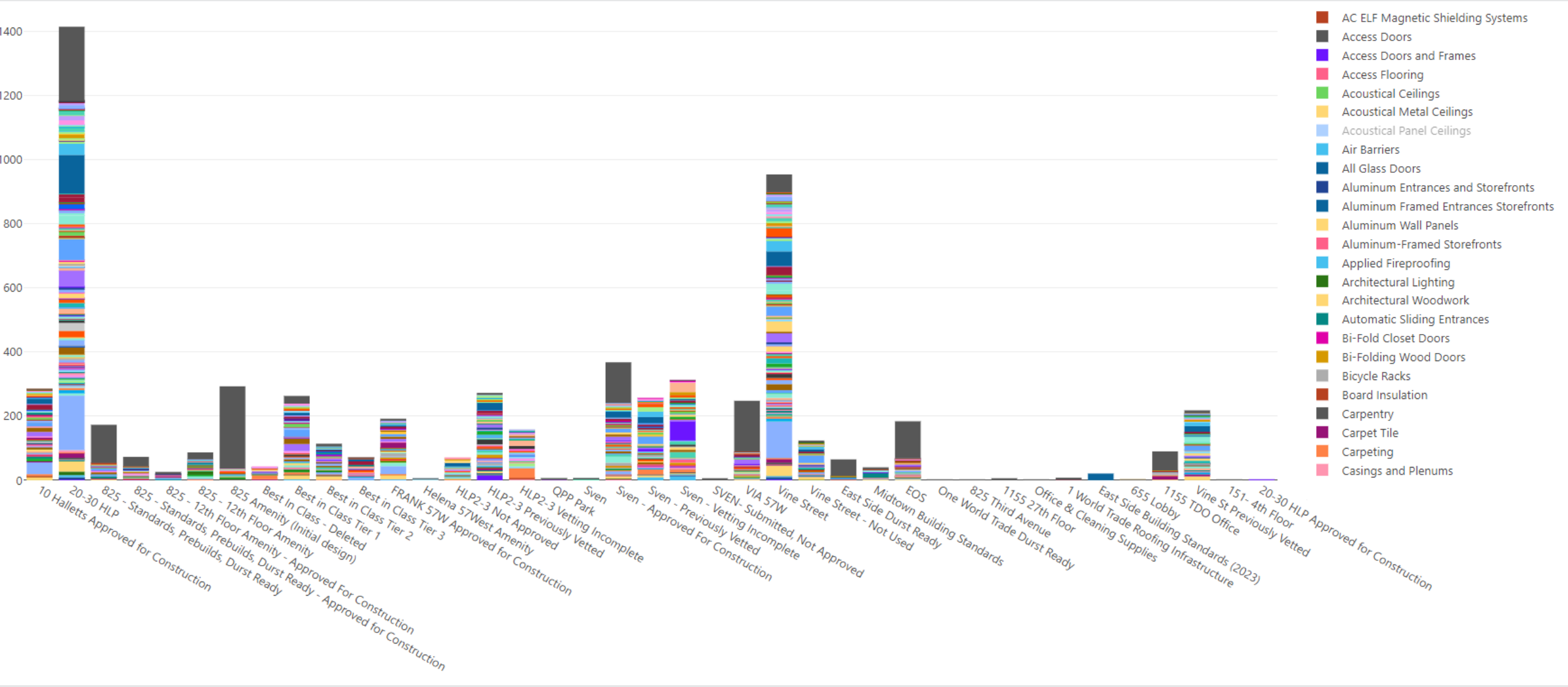
INDOOR ENVIRONMENTAL QUALITY

Thermal, IAQ, Acoustic, and Lighting Satisfaction via Careful System Design and Resident Engagement

Sustainability Focus Areas



Building Product Selection



Building Product Database & Workflow Tool

Cabinetry – Criteria, Testing Process, and Project Implementation

Lower-Embodied Concrete

LEED NC v4	Sven

110	87	23	Total Project Score	Platinum Scorecard - 9/2/22

Available Pts.	Earned	Not Viable	
			Certified 40 points
			Silver 50 points
			Gold 60 points
			Platinum 80 points
1	1		Integrative Process — 1 Possible Points
1	1		IP 1 Integrative Process
16	14	2	Location and Transportation — 18 Possible Points
Av	E	NV	
16		16	LT 1 LEED for Neighborhood Development Location
1	1		LT 2 Sensitive Land Protection
2	2		LT 3 High Priority Site
5	5		LT 4 Surrounding Density and Diverse Uses
5	5		LT 5 Access to Quality Transit
1		1	LT 6 Bicycle Facilities
1	1		LT 7 Reduced Parking Footprint
1		1	LT 8 Green Vehicles
10	4	6	Sustainable Sites — 10 Possible Points
Av	E	NV	
Y			SSp1 Construction Activity Pollution Prevention
1	1		SS 1 Site Assessment
2		2	SS 2 Site Development - Protect or Restore Habitat
1		1	SS 3 Open Space
3		3	SS 4 Rainwater Management
2	2		SS 5 Heat Island Reduction
1	1		SS 6 Light Pollution Reduction
11	11		Water Efficiency — 11 Possible Points
Av	E	NV	
Y			WEp1 Outdoor Water Use Reduction
Y			WEp2 Indoor Water Use Reduction
Y			WEp3 Building-Level Water Metering
2	10		WE 1 Whole Buliding Water Use Reduction
1	1		WE 4 Water Metering

Available Pts.	Earned	Not Viable	
33	26	7	Energy and Atmosphere — 33 Possible Points
Av	E	NV	
Y			EAp1 Fundamental Commissioning and Verification
Y			EAp2 Minimum Energy Performance
Y			EAp3 Building-Level Energy Metering
Y			EAp4 Fundamental Refrigerant Management
6	4	2	EA 1 Enhanced Commissioning
18	18		EA 2 Optimize Energy Performance
1	1		EA 3 Advanced Energy Metering
2	2		EA 4 Demand Response
3		3	EA 5 Renewable Energy Production
1	1		EA 6 Enhanced Refrigerant Management
2		2	EA 7 Green Power and Carbon Offsets
13	11	2	Materials & Resources — 13 Possible Points
Av	E	NV	
Y			MRp1 Storage and Collection of Recyclables
Y			MRp2 Construction and Demolition Waste Management Planning
5	5		MR 1 Building Life-Cycle Impact Reduction
2	1	1	MR 2 BPDO - EPD
2	1	1	MR 3 BPDO - Sourcing of Raw Materials
2	2		MR 4 BPDO - Material Ingredients
2	2		MR 5 Construction and Demolition Waste Management
4	4		Regional Priorities — 4 Possible Points
Av	E	NV	
1	1		RPc1 Lifecycle Impact Rdctn (2)
1	1		RPc2 High Priority Site (2 pts)
1	1		Rpc3 Enhanced IAQ (2 pts)
1	1		Rpc4 Demand Response

Available Pts.	Earned	Not Viable	
16	10	6	Indoor Environmental Quality — 16 Possible Points
Av	E	NV	
Y			EQp1 Minimum Indoor Air Quality Performance
Y			EQp2 Environmental Tobacco Smoke Control
2	2		EQ 1 Enhanced Indoor Air Quality Strategies
3	3		EQ 2 Low-Emitting Materials
1	1		EQ 3 Construction Indoor Air Quality Management Plan
2	2		EQ 4 Indoor Air Quality Assessment
1	1		EQ 5 Thermal Comfort
2		2	EQ 6 Interior Lighting
3		3	EQ 7 Daylight
1	1		EQ 8 Quality Views
1		1	EQ 9 Acoustic Performance
6	6		Innovation & Design Process — 6 Possible Points
Av	E	NV	*Maximum of 3 Exemplary Performance*
1	1		ID 1.1 Green Cleaning Policy & Integrated Pest Management (O+M Starter Kit)
1	1		ID 1.2 Ongoing Purchasing, Facility Waste and Renov. Policies (O+M Starter Kit)
1	1		ID 1.3 Pilot Credit - Integrative Analysis of Building Materials
1	1		ID 1.4 Access to Quality Transit
1	1		ID 1.5 Reduced Parking Footprint
1	1		ID 2 LEED™ Accredited Professional

Sven – Building Overview – Final LEED Scorecard

Suzanne Fallender

Vice President, Global ESG

Prologis

Urban Land Institute

Prologis At-A-Glance

1983
founded

1.2B
square feet on 4 continents

19
countries

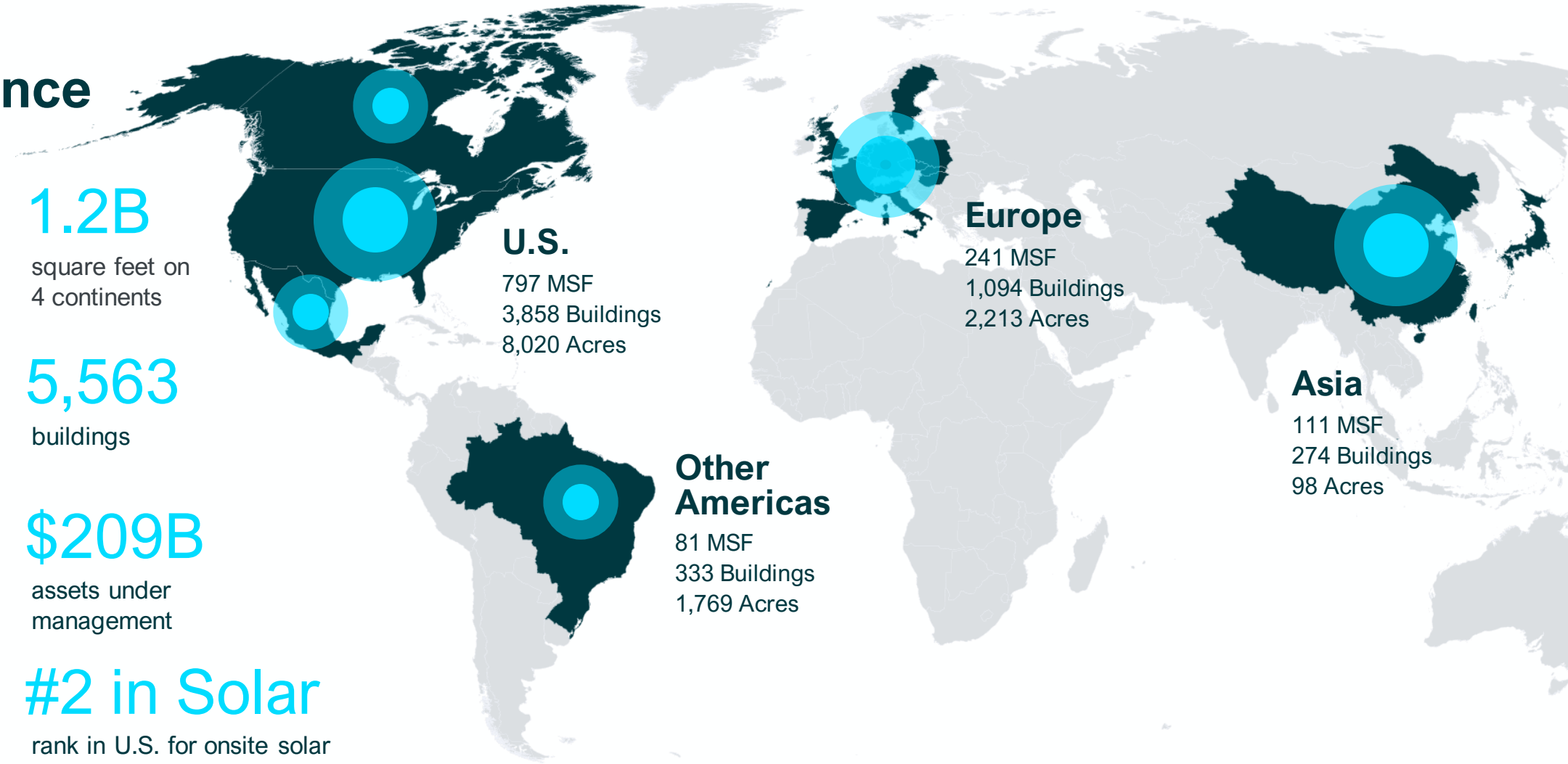
5,563
buildings

6,700
customers

$209B
assets under management

A3/A
credit rating

#2 in Solar
rank in U.S. for onsite solar installations, SEIA



U.S.
797 MSF
3,858 Buildings
8,020 Acres

Europe
241 MSF
1,094 Buildings
2,213 Acres

Asia
111 MSF
274 Buildings
98 Acres

Other Americas
81 MSF
333 Buildings
1,769 Acres

As of 9/30/2023

Global Economic Impact

$2.7T
Economic value of goods flowing through Prologis' distribution centers each year, representing…

4.0%
of GDP for the 19 countries where Prologis does business, and…

2.8%
of the World's GDP

1.1M
Employees under Prologis' roofs

Source: Oxford Economics, IMF, Prologis Research as of December 31, 2022

Achieving Net Zero At Prologis

We will be net zero for operations by 2030 and value chain by 2040, a decade ahead of the required commitment

2022

Committed to net zero and launched key partnerships

Submitted target to Science Based Targets initiative for validation

2025

Deploy 1 GW of onsite solar

supported by storage

Carbon neutral for construction and operations

2030

Net zero for operations

scopes 1 and 2

2040

Net zero for value chain

scopes 1, 2, and 3

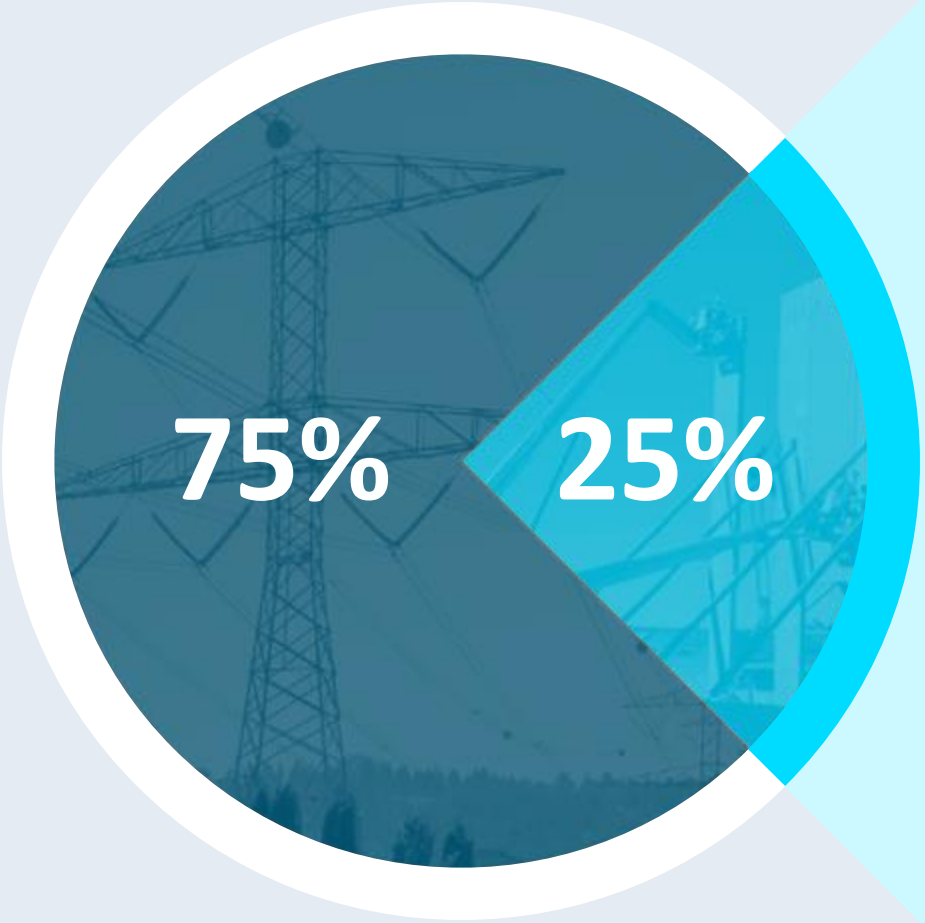
"Our deep dive on the level of ambition for science-based targets suggests PLD's goal will set it on the path to be the most ambitious across all ~170 public REITs."

– Morgan Stanley Research; Review of PLD ESG Report

Customer Energy Use

55% heating and cooling

20% building operations



Construction + Development

17% concrete / asphalt

3% roof/ insulation

2% steel

3% other

99.9% of Prologis emissions footprint sits in scope 3

1. Scope 3 = Indirect emissions from our value chain including customers' operations and building construction

New construction standards for net zero

Constructing energy-ready buildings to expand distributed energy generation onsite and optimize low carbon solutions

Solar-ready roofing

Ensure all new builds are ready for rooftop solar installation

Amenity charging ready

Charging for workforce and fleets to electrify transportation

Expandable switch gear

Switch gear solutions for a microgrid approach for distributed energy solutions

Smart metering

Increase control of resource use and ensure greater efficiency

High-efficiency HVAC

Implement high-efficiency HVAC with plans to electrify all heating and cooling

Lifecycle assessments

Increase data collection to gauge performance and identify opportunities

Addressing embodied carbon in construction

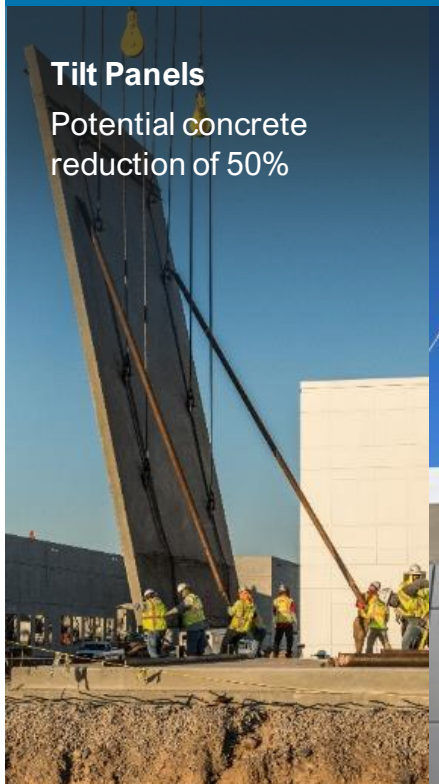
Currently testing and piloting all technologies available to reduce embodied carbon in our concrete and steel

Of the 140+ technologies in Prologis development innovation pipeline, 85% are specifically addressing embodied carbon

PILOTING

Paving Fibers

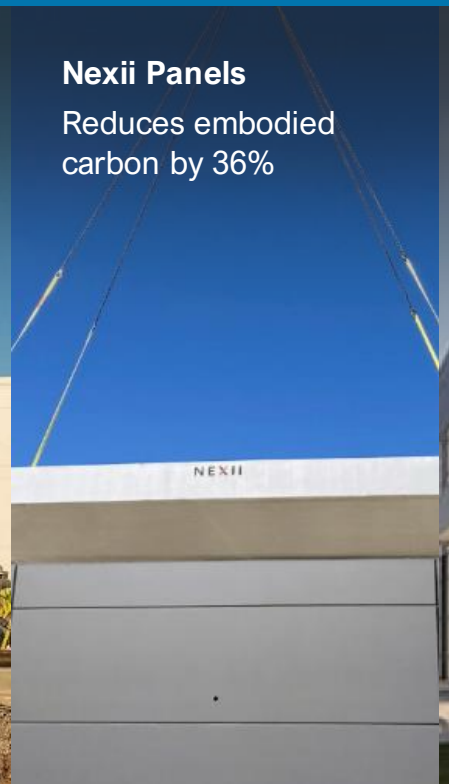
Dramatically lower global warming potential



Tilt Panels

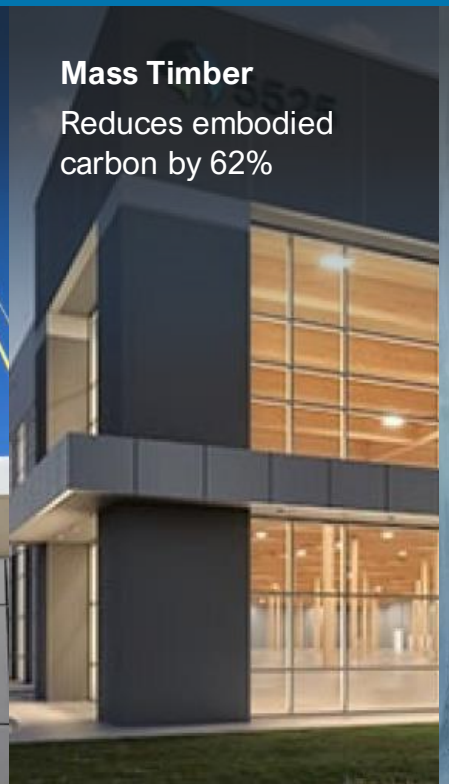
Potential concrete reduction of 50%

TESTING



Nexii Panels

Reduces embodied carbon by 36%



Mass Timber

Reduces embodied carbon by 62%

Pozzotive

Glass concrete, potential cement reduction up to 50%

Low-carbon steel


5525
PROLOGIS
EVERGREEN

PROLOGIS
EVERGREEN

Building 3
5525 Countryside Drive, Brampton
(245,000 square foot industrial warehouse)

Sustainable Materials

Mass timber structure and Nexii wall panel system

Sustainable Certification

Targeting LEED Silver

Carbon Reduction

~1,480 tons reduced in the shell building

329
gasoline-powered passenger vehicles driven for one year

288
homes' electricity use for one year

- Optimized slab on grade with metal fibers
- Clerestory windows
- Low emission paints and sealants
- LED lighting
- Solar ready structure and electrical switch
- Natural ventilation
- EV ready conduits
- Cool roof

Heidi Creighton

Vice President, Sustainability

Skanska USA Commercial Development

Urban Land Institute

Skanska CDUS Markets

Started in 2009 in D.C., Skanska CDUS is an office and multi-family developer now present in 5 regional markets across the U.S.

Washington, D.C.
Opened: 2009
Projects completed: 6
Projects in progress: 6

Boston, MA
Opened: 2009
Projects completed: 6
Projects in progress: 3

Houston, TX
Opened: 2011
Projects completed: 3
Projects in progress: 2

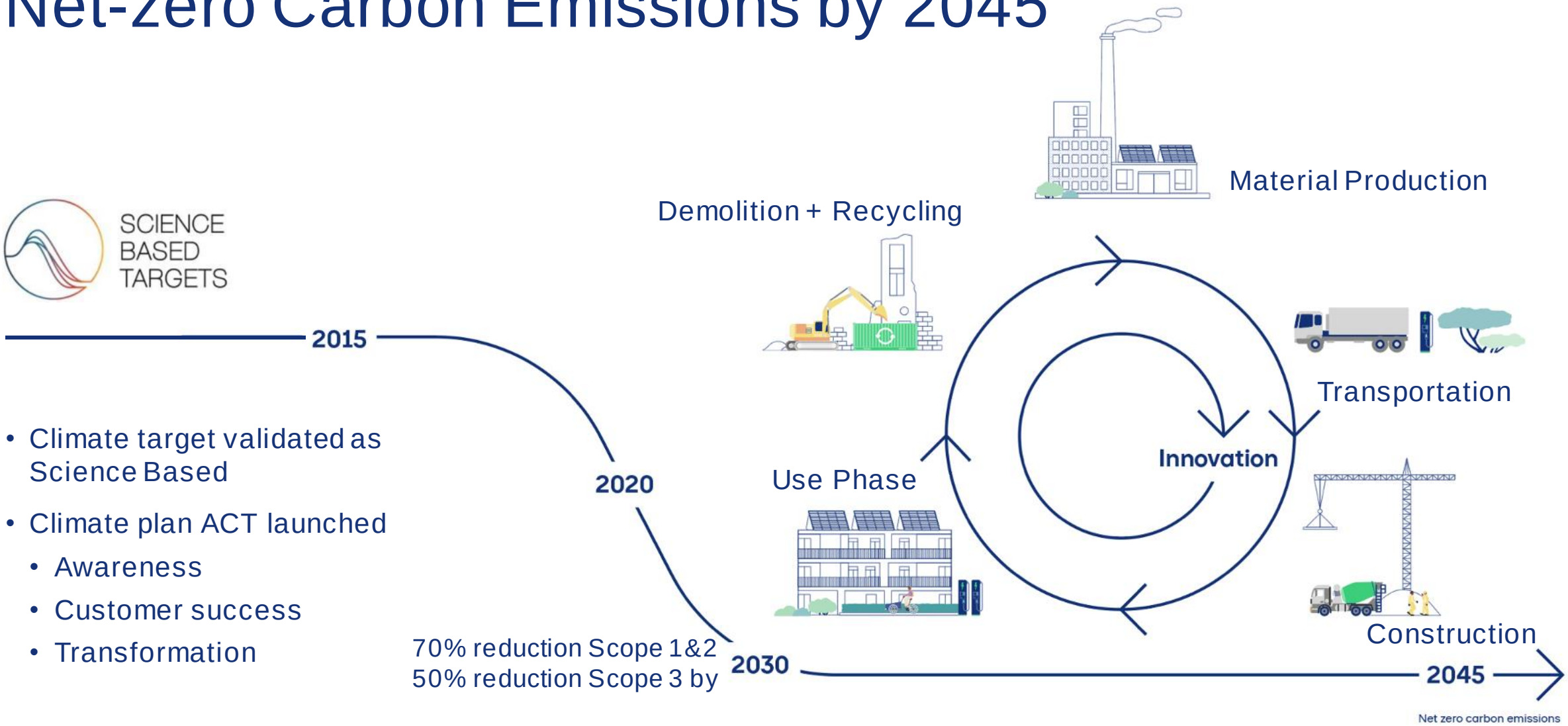
Seattle, WA
Opened: 2011
Projects completed: 4
Projects in progress: 3

Los Angeles, CA
Opened: 2019
Projects completed: 1
Projects in progress: 2

Net-zero Carbon Emissions by 2045

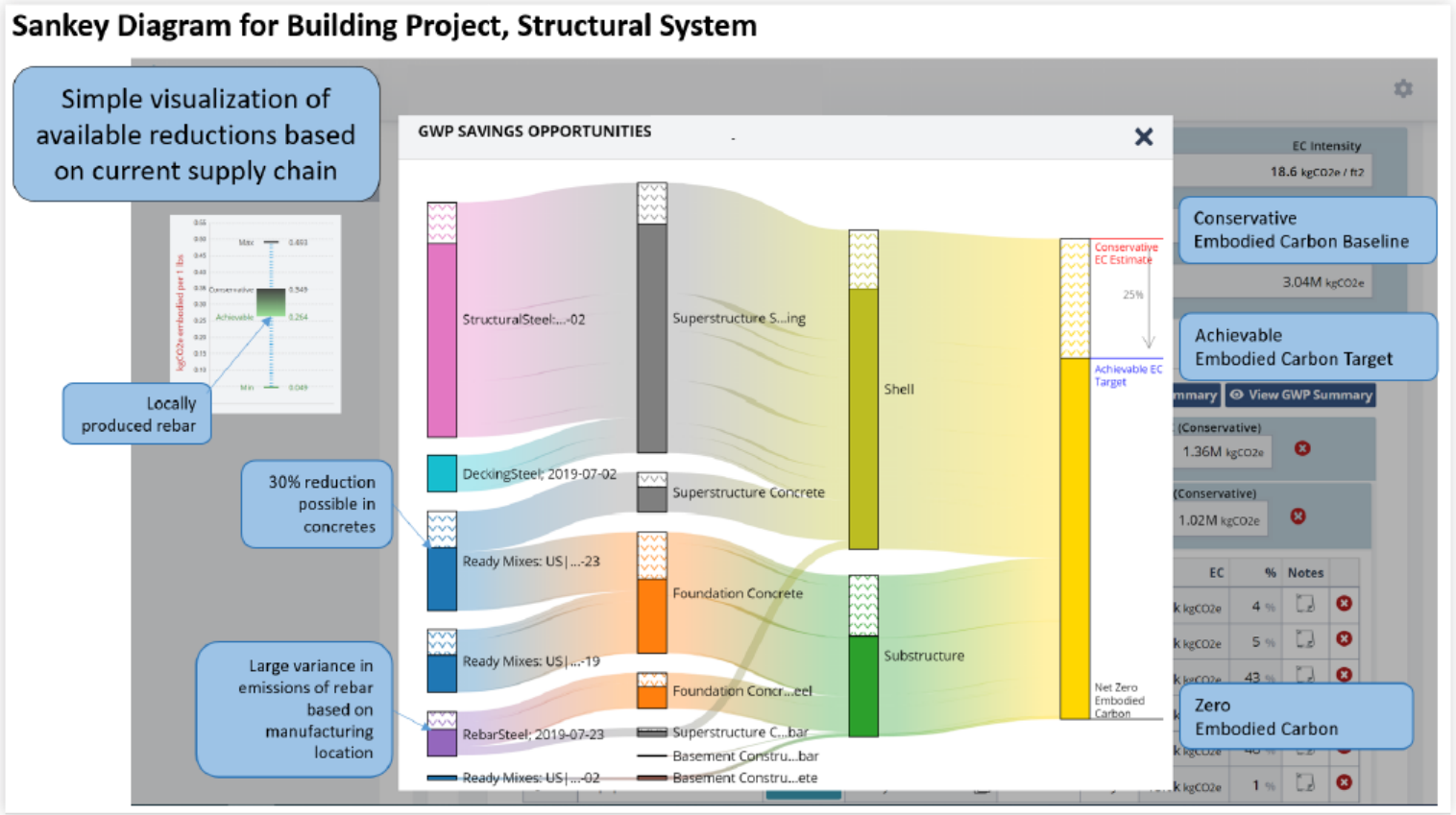
SCIENCE BASED TARGETS

- Climate target validated as Science Based
- Climate plan ACT launched
  - Awareness
  - Customer success
  - Transformation



EC3 Tool

www.buildingtransparency.org



TRANSFORMING BUSINESS ON THE GREEN

Dynamic Neighborhood with Walkable Amenities

Health & Wellness Focus

Next Generation Sustainability

Thoughtful and Elevated Amenities

Amenity Programming

Distinctive Design

THE MOST SUSTAINABLE BUILDING IN HOUSTON

CERTIFIED AT THE HIGHEST LEVEL

LEED Platinum V4

WELL Building Standard Platinum

Wired Score Platinum

Fitwel 3-Star Rating

Energy Star Rated

- 32% less energy use
- District Cooling
- Demand Control Ventilation
- Energy Recovery Unit
- Regenerative elevators
- 48,000 gallon rainwater collection tank
- Daylight harvesting and motion detection in garage

EMBODIED CARBON AT 1550 ON THE GREEN

Reduced our carbon footprint by 45% from the baseline

Possibility for higher as the documentation and EPDs continue to come in

Scope of materials includes the foundations, basement construction, superstructure, exterior enclosure, roofing and the Core & Shell interior construction

MATERIALS

Low carbon concrete

Rebar

Cold-formed metal framing

Aluminum fins

Gypsum board

Acoustic ceilings

Carpet tile

Concrete in the foundations (55% of the cement was replaced with a lower carbon-intensive cement)

Connect With Us

Ben Llana
Vice President - Development

Shannon Emerson
Manager - Development

Brandon Hendricks
Manager - Development