An Introduction to ILFI, the Living Building Challenge, and Zero Carbon

INTERNATIONAL LIVING FUTURE INSTITUTE

NWCCC

February, 2020

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AGENDA
1. Introduction to ILFI + our programs
2. Overview of the Living Building Challenge
3. Deep dive into the Zero Carbon Certification
4. Discuss the value of a Zero Carbon approach to building design and construction

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LIVING BUILDING CHALLENGE™
LIVING COMMUNITY CHALLENGE™
LIVING PRODUCT CHALLENGE™
CORE GREEN BUILDING CERTIFICATION
ZERO CARBON CERTIFICATION
ZERO ENERGY CERTIFICATION
Declare.
Reveal.
Just.

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To catalyze the transformation toward communities that are socially just, culturally rich, and ecologically restorative.
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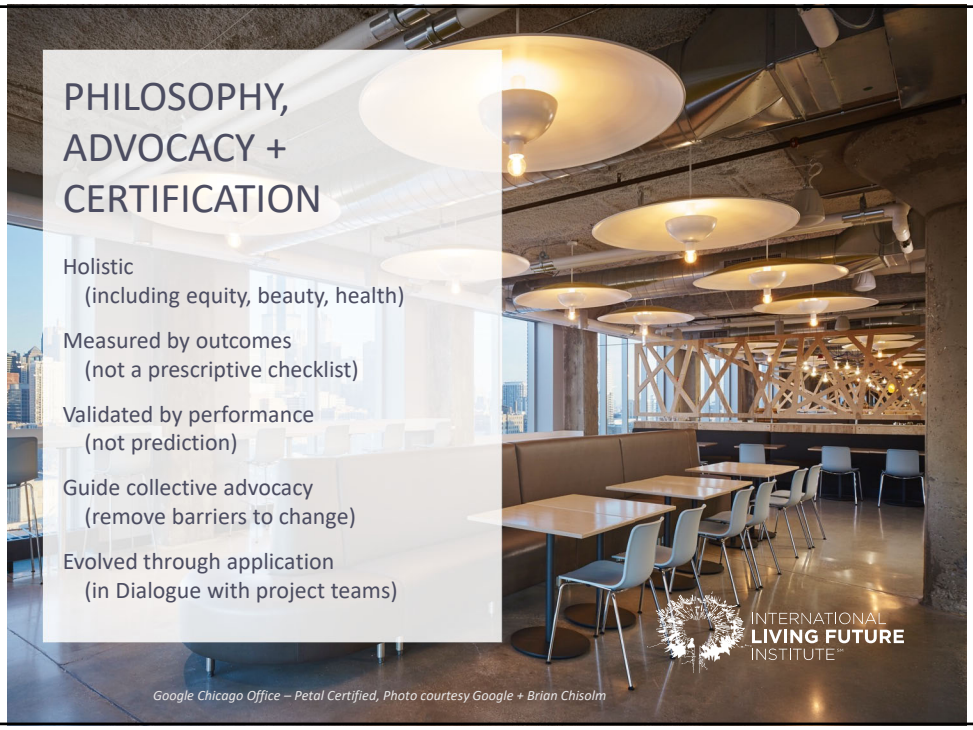
PHILOSOPHY, ADVOCACY + CERTIFICATION
Holistic
(including equity, beauty, health)
Measured by outcomes
(not a prescriptive checklist)
Validated by performance
(not prediction)
Guide collective advocacy
(remove barriers to change)
Evolved through application
(in Dialogue with project teams)
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Google Chicago Office – Petal Certified, Photo courtesy Google + Brian Chisolm

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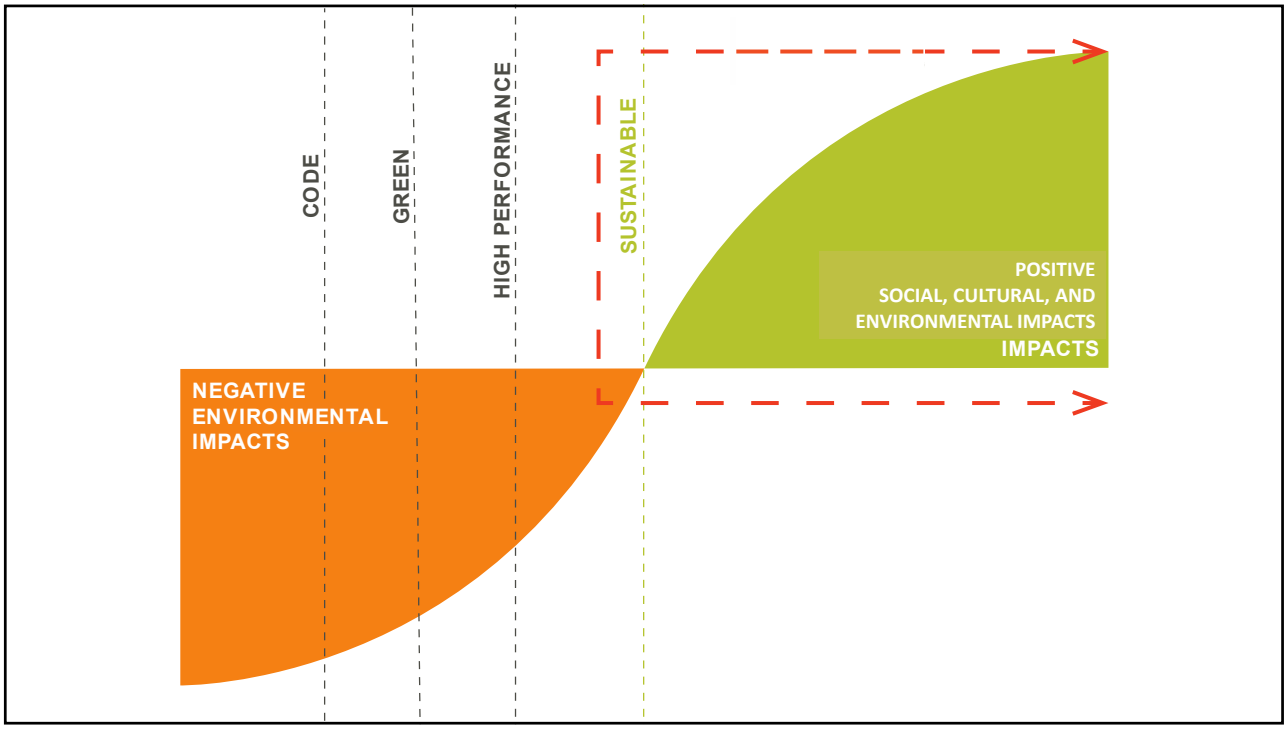
CODE
GREEN
HIGH PERFORMANCE
SUSTAINABLE
POSITIVE
SOCIAL, CULTURAL, AND
ENVIRONMENTAL IMPACTS
IMPACTS
NEGATIVE
ENVIRONMENTAL
IMPACTS

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HOW THE LIVING BUILDING CHALLENGE WORKS
Proven performance rather than anticipated outcomes
• Holistic
• Any location, any scale, any program
• Pragmatic and tested
• Focused on key leverage points for maximum impact
• Regional solutions for varying climates and cultures
• Evolving

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LIVING
BUILDING
CHALLENGE℠
4.0
A Visionary Path to a
Regenerative Future
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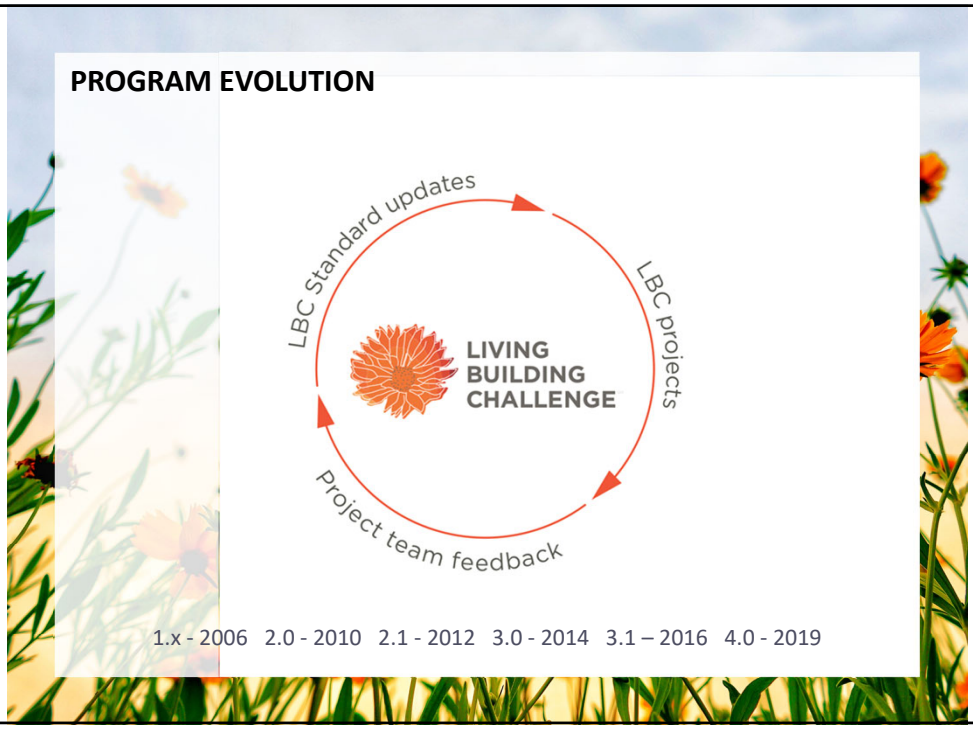
PROGRAM EVOLUTION
LBC Standard updates
LBC projects
Project team feedback
LIVING
BUILDING
CHALLENGE
1.x - 2006
2.0 - 2010
2.1 - 2012
3.0 - 2014
3.1 – 2016
4.0 - 2019

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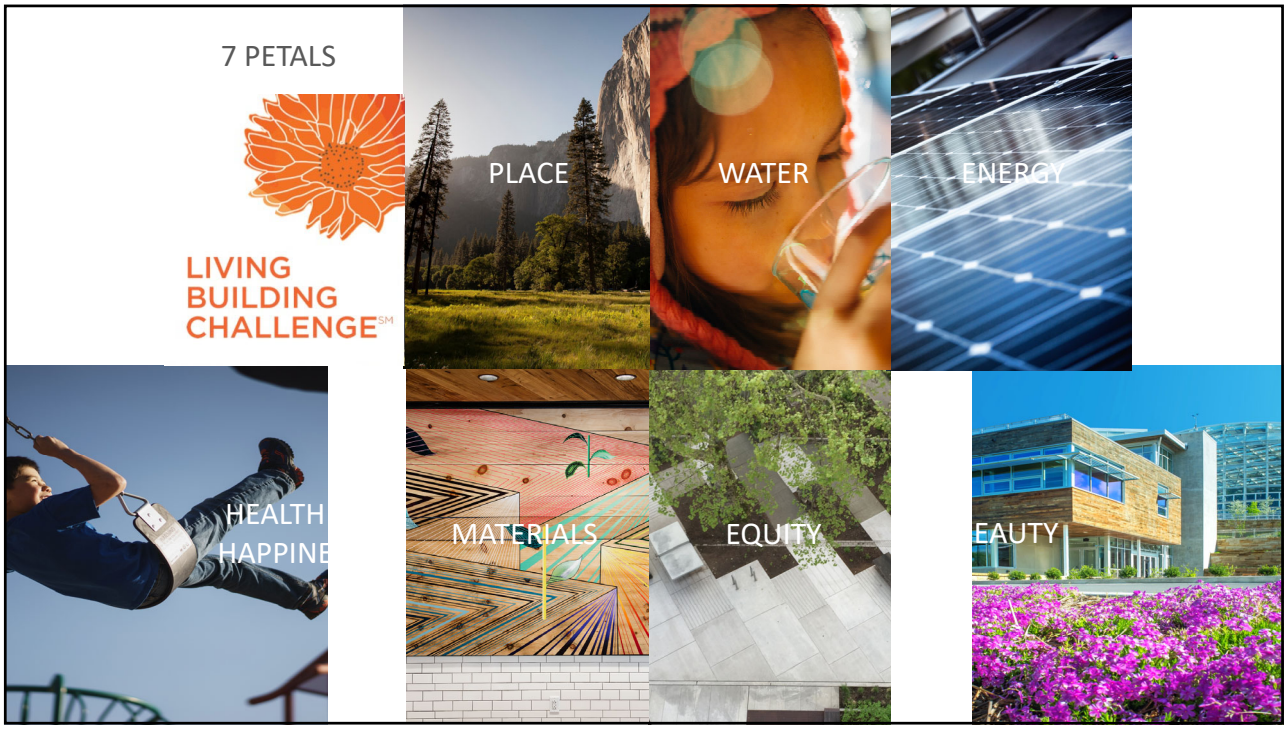
7 PETALS
LIVING BUILDING CHALLENGE SM
PLACE
WATER
ENERGY
HEALTH
HAPPINE
MATERIALS
EQUITY
EAUTY

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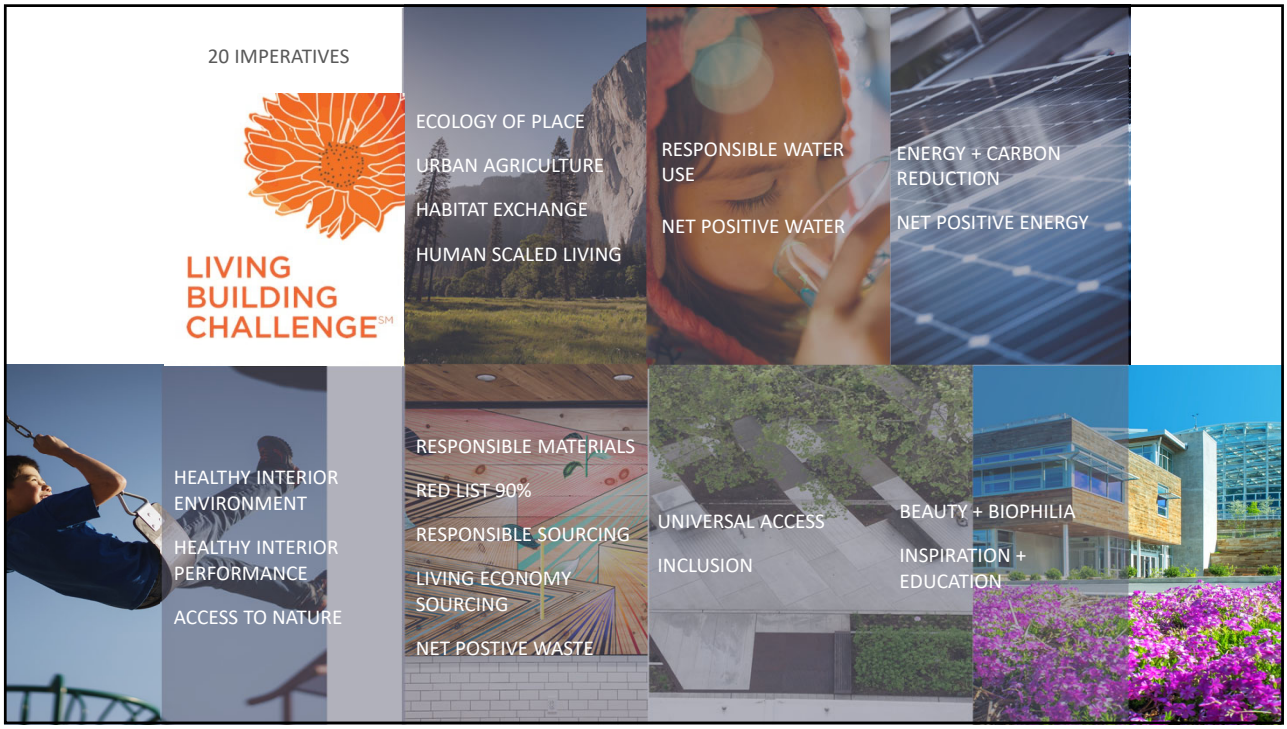
20 IMPERATIVES
LIVING BUILDING CHALLENGE SM
ECOLOGY OF PLACE
URBAN AGRICULTURE
HABITAT EXCHANGE
HUMAN SCALED LIVING
RESPONSIBLE WATER USE
NET POSITIVE WATER
ENERGY + CARBON REDUCTION
NET POSITIVE ENERGY
HEALTHY INTERIOR ENVIRONMENT
HEALTHY INTERIOR PERFORMANCE
ACCESS TO NATURE
RESPONSIBLE MATERIALS
RED LIST 90%
RESPONSIBLE SOURCING
LIVING ECONOMY SOURCING
NET POSTIVE WASTE
UNIVERSAL ACCESS
INCLUSION
BEAUTY + BIOPHILIA
INSPIRATION + EDUCATION

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ZERO CARBON

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We envision a world of carbon-positive buildings and products that reverse climate change and help local economies thrive.
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Where is the CARBON in our buildings?

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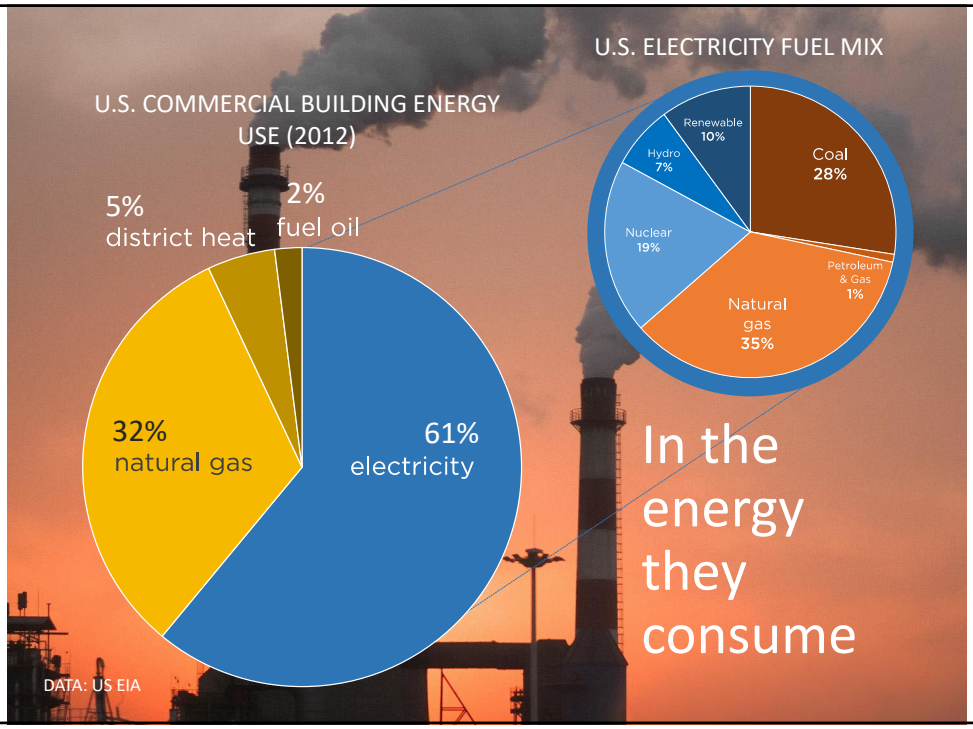
U.S. COMMERCIAL BUILDING ENERGY USE (2012)
5% district heat
2% fuel oil
32% natural gas
61% electricity
DATA: US EIA
U.S. ELECTRICITY FUEL MIX
Renewable 10%
Hydro 7%
Coal 28%
Nuclear 19%
Petroleum & Gas 1%
Natural gas 35%
In the energy they consume

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EMBODIED CARBON

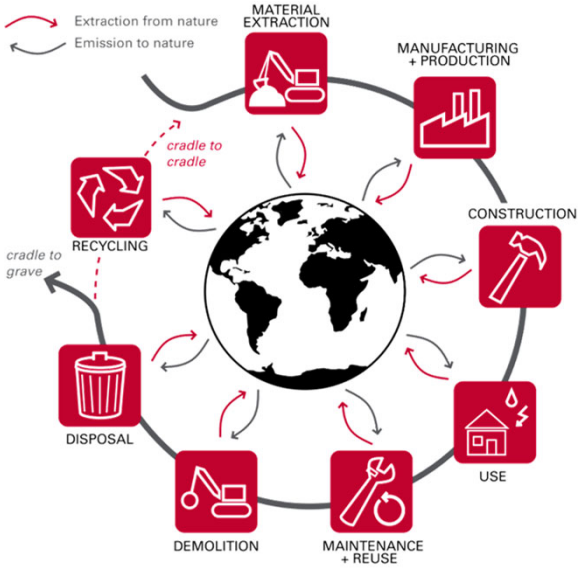

DIAGRAM: K.SIMONEN, CARBON LEADERSHIP FORUM

In the materials they require

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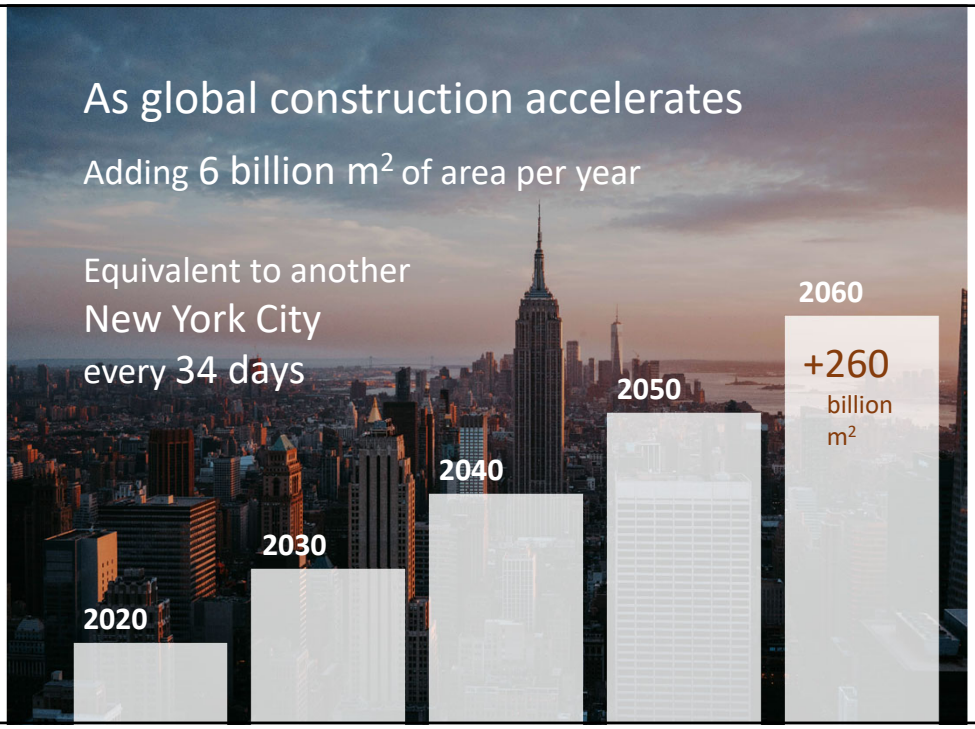

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energy efficiency

combustion elimination

renewable energy

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low carbon design + materials

sequestration + offsets

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low carbon design + materials

energy efficiency

combustion elimination

sequestration + offsets

renewable energy

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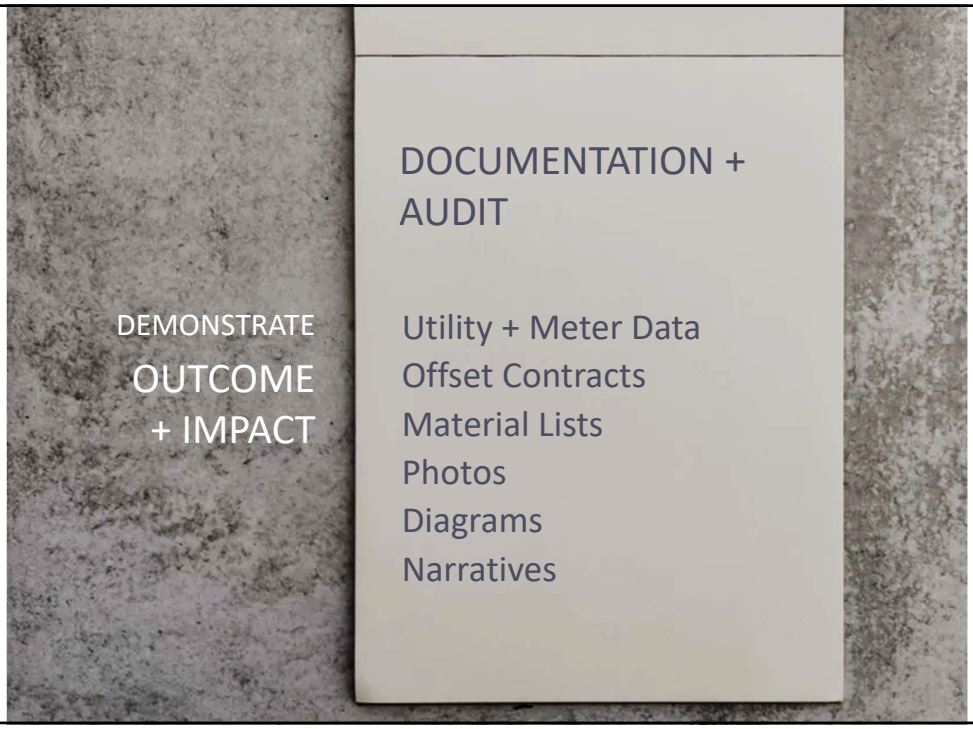

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VALUE OF ZERO CARBON

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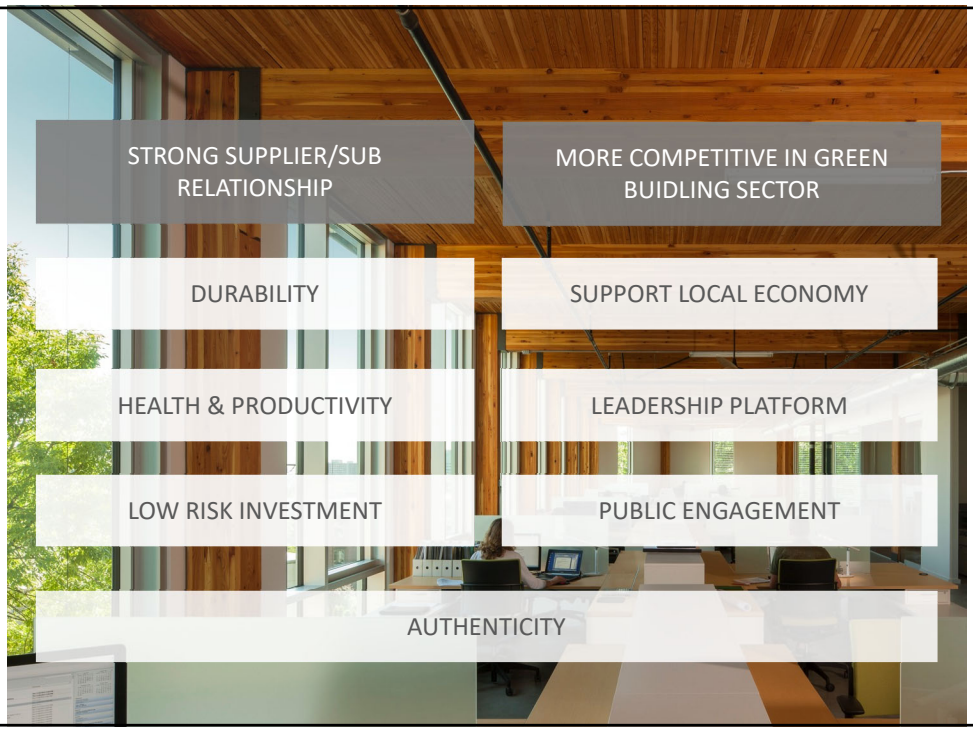

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CHARACTERISTICS OF ZERO CARBON

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OPERATIONAL CARBON

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EMBODIED CARBON

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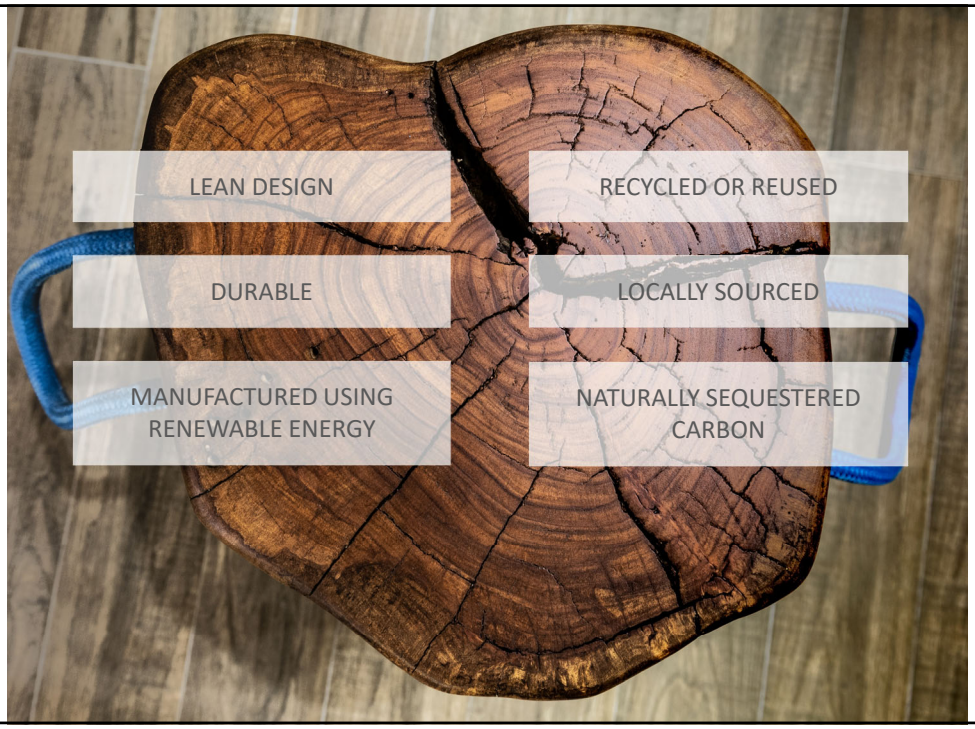

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ACHIEVING ZERO CARBON

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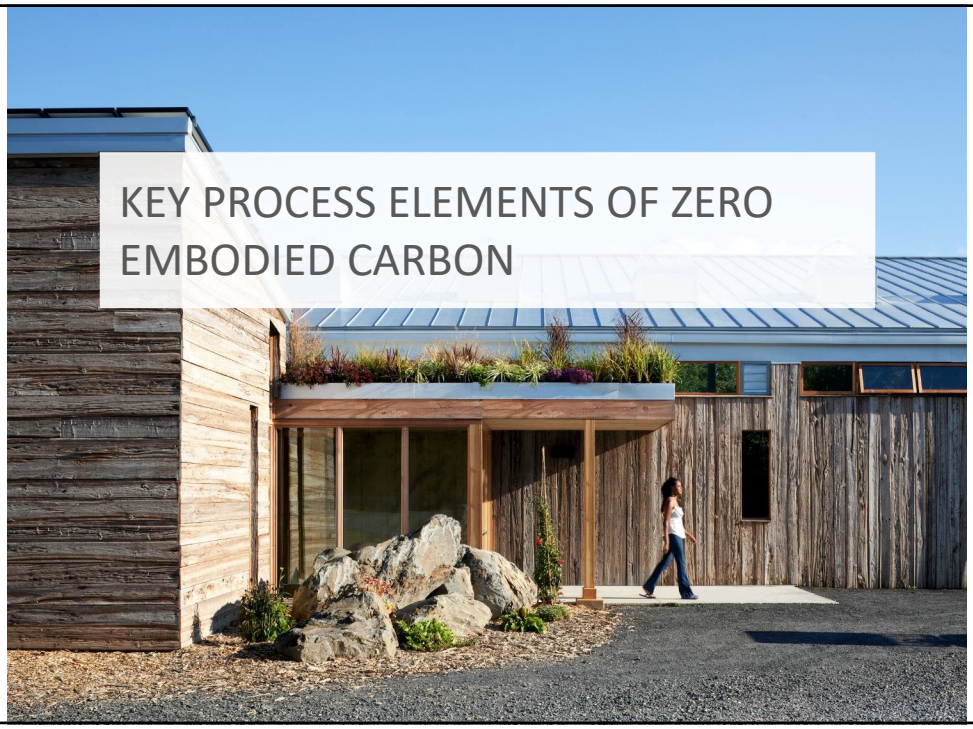

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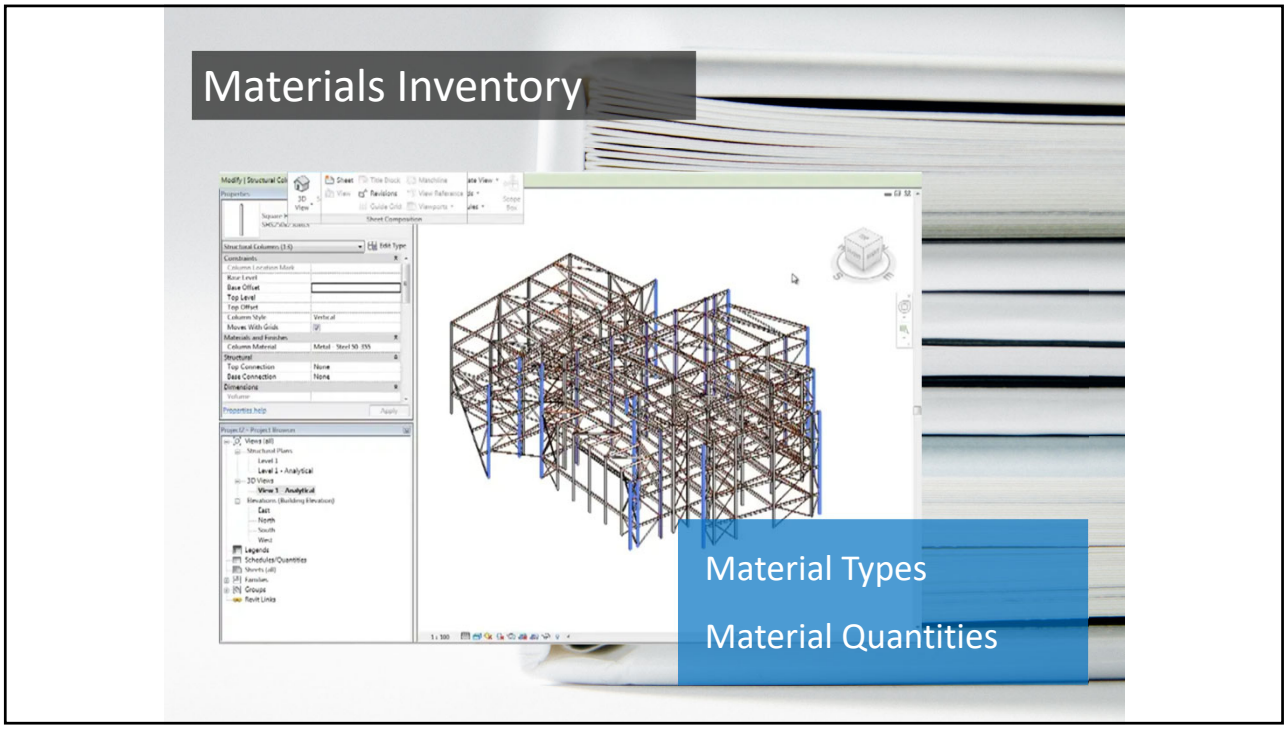
Materials Inventory
Material Types
Material Quantities

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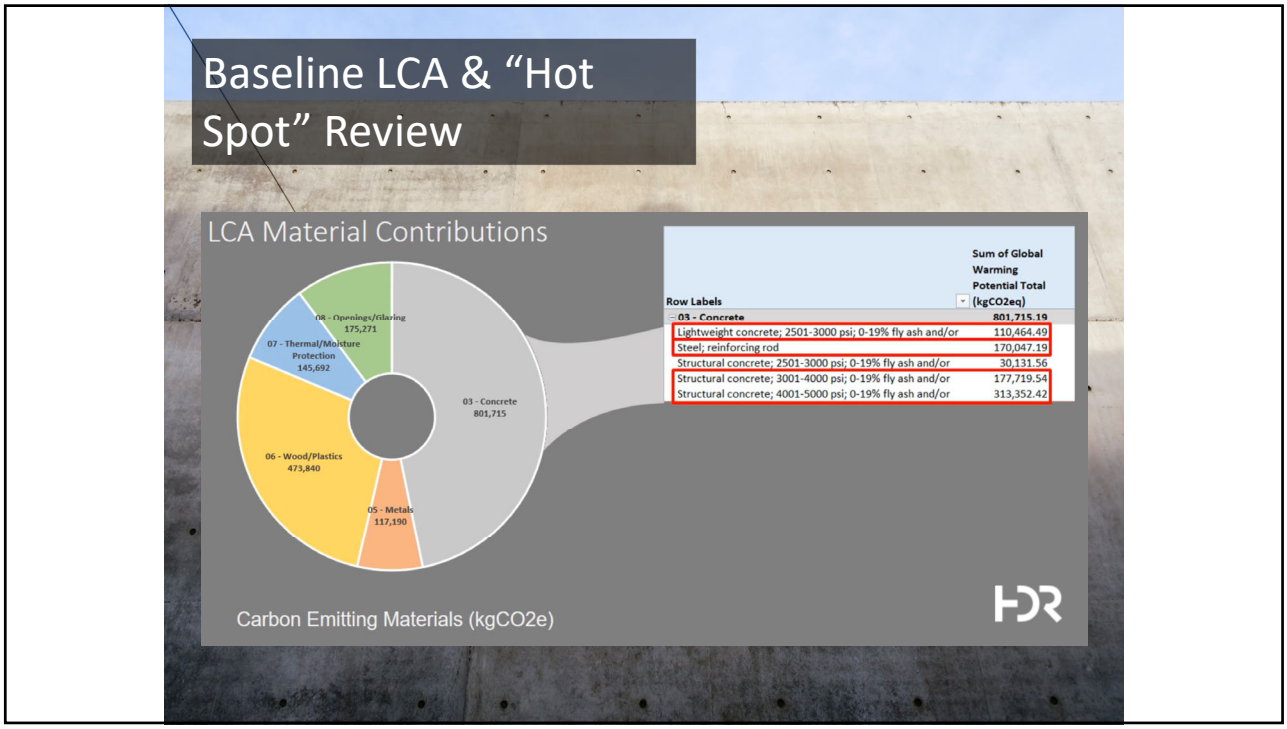
Baseline LCA & "Hot Spot" Review
LCA Material Contributions
08 - Openings/Glazing 175,271
07 - Thermal/Moisture Protection 145,692
03 - Concrete 801,715
06 - Wood/Plastics 473,840
05 - Metals 117,190
Carbon Emitting Materials (kgCO2e)
Row Labels
Sum of Global Warming Potential Total (kgCO2eq)
03 - Concrete 801,715.19
Lightweight concrete; 2501-3000 psi; 0-19% fly ash and/or 110,464.49
Steel; reinforcing rod 170,047.19
Structural concrete; 2501-3000 psi; 0-19% fly ash and/or 30,131.56
Structural concrete; 3001-4000 psi; 0-19% fly ash and/or 177,719.54
Structural concrete; 4001-5000 psi; 0-19% fly ash and/or 313,352.42

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Low-Embodied Carbon Materials Procurement
Specify carbon as selection criteria
Request product-specific EPDs

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RESOURCES

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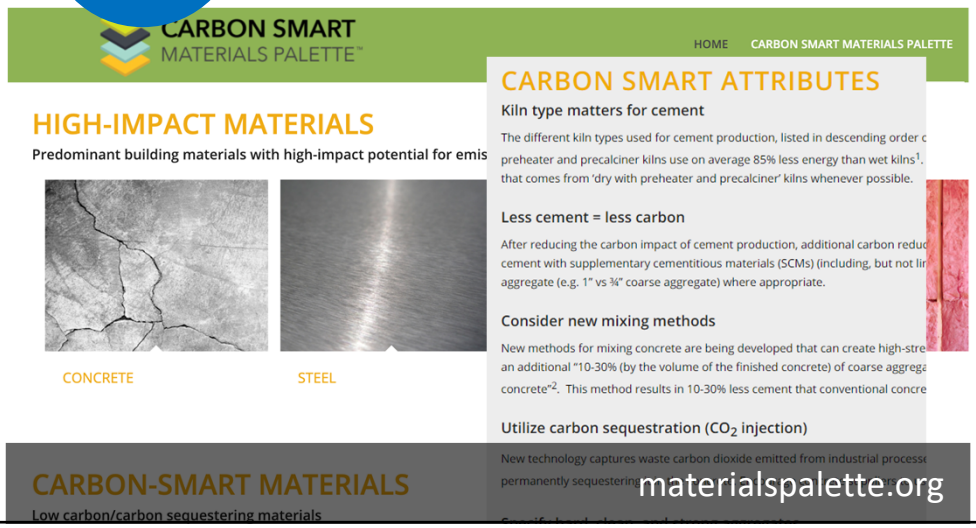
RESOURCE

CARBON-SMART MATERIALS



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RESOURCE

EMBODIED CARBON RESEARCH, TOOLS & GUIDANCE

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ZE TOOLKIT FOR WA STATE

Link Available at commerce.wa.gov/seep under “Additional Resources”

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EMBODIED CARBON GUIDANCE

Link living-future.org/zero-carbon-certification/

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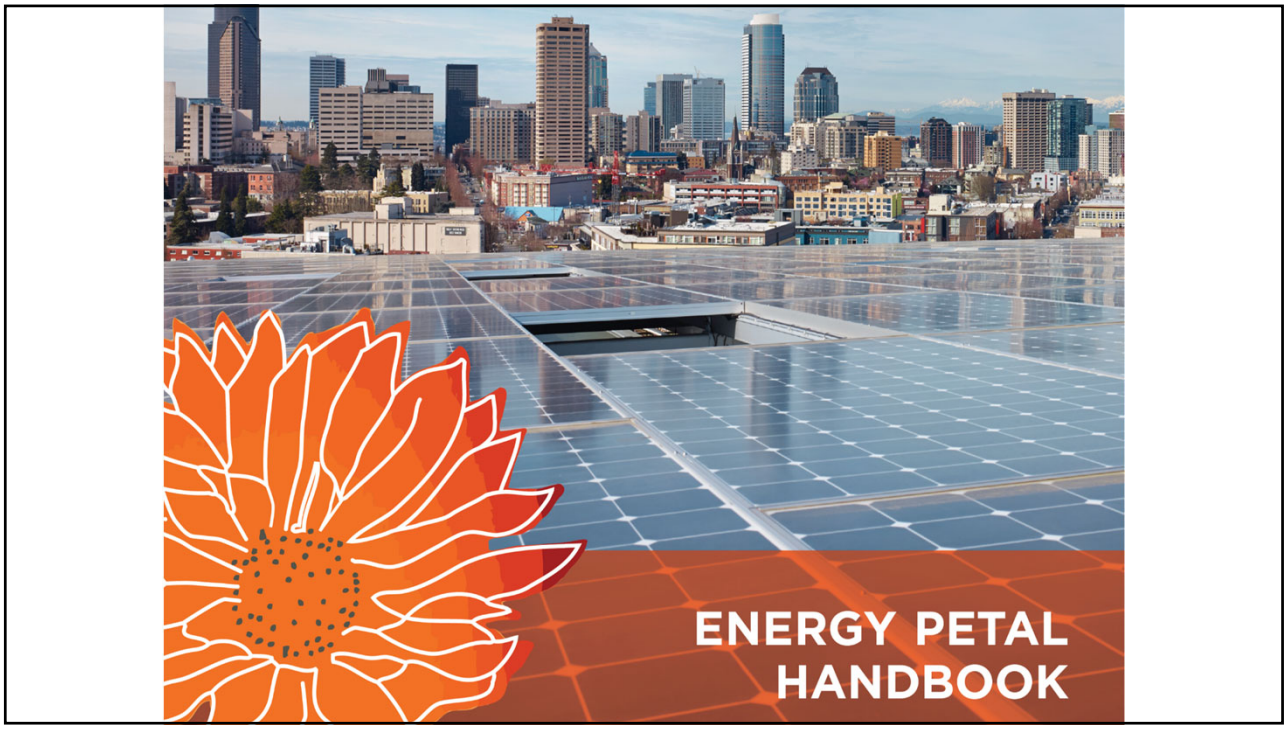
ENERGY PETAL
HANDBOOK

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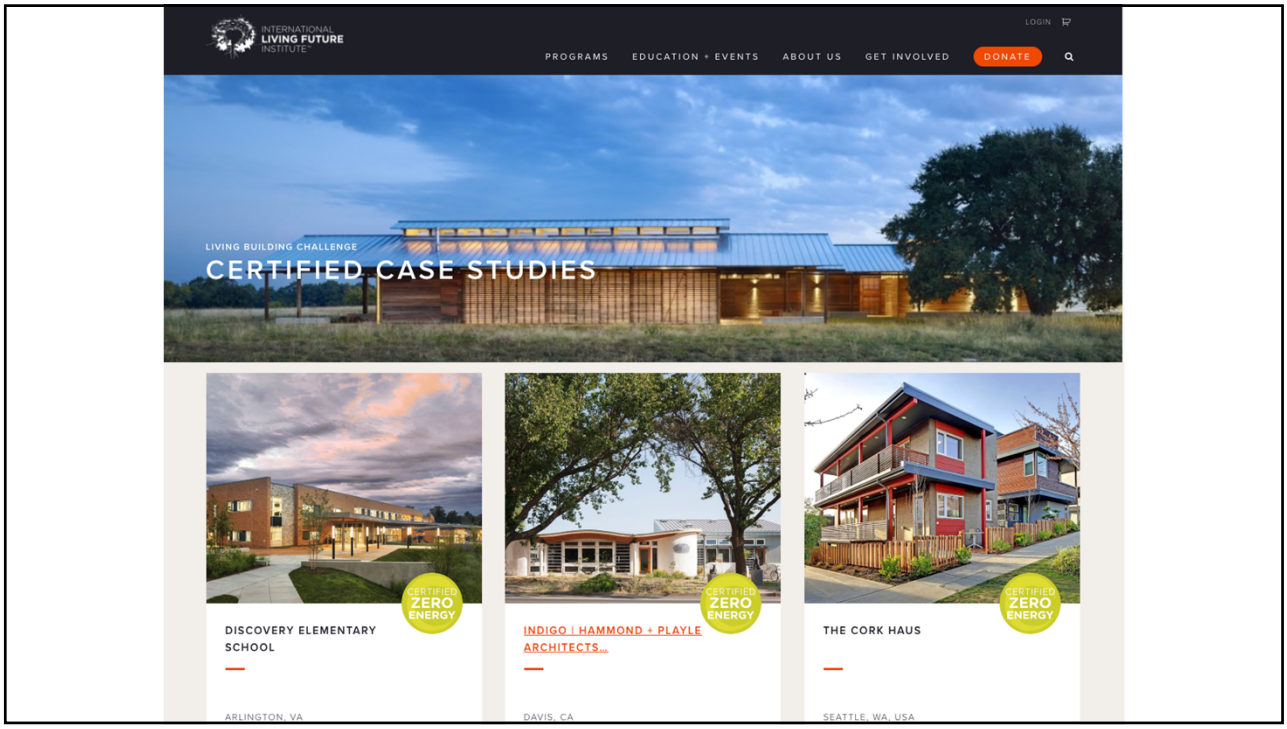
INTERNATIONAL LIVING FUTURE INSTITUTE
LOGIN
PROGRAMS
EDUCATION + EVENTS
ABOUT US
GET INVOLVED
DONATE
LIVING BUILDING CHALLENGE
CERTIFIED CASE STUDIES
CERTIFIED ZERO ENERGY
DISCOVERY ELEMENTARY SCHOOL
ARLINGTON, VA
CERTIFIED ZERO ENERGY
INDIGO | HAMMOND + PLAYLE ARCHITECTS...
DAVIS, CA
CERTIFIED ZERO ENERGY
THE CORK HAUS
SEATTLE, WA, USA

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NEXT STEPS
1. Talk about carbon and use it as a metric for decision making.
2. Work towards transparency when it comes to material selection in both design and procurement.
3. Contact zc.support@living-future.org for additional support.

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THANK YOU!
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Senior Specialist,
Energy + Carbon
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zc.support@living-future.org

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