



Beyond LEED: The Living Building Challenge

Thomas Brown, Architect



Getting Started:

The design process should involve an analysis of how to prioritize choices leading to higher levels of sustainability, breaking down

“design” choices

vs.

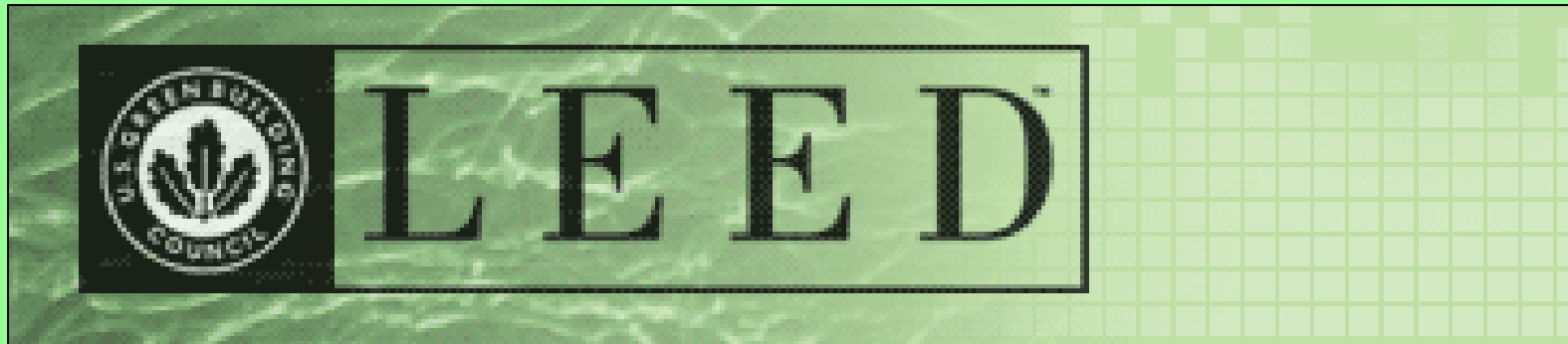
“materials and systems” choices

vs.

"methods" choices.

Green Building Rating Systems

- **LEED**
- **Green Globes**
- **Energy Star**
- **Green Built**
- **Net Zero Energy**
- **Passiv House**
- **Living Building Challenge**



**Leadership in
Energy and
Environmental
Design**



Reconfiguring the LEED criteria into Functional categories:

LEED Criteria Categories

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation & Design

Functional Categories

- Site issues
- Building Design issues
- Building Systems issues
- Building Materials issues
- Construction Method issues
- Wildcard Issues

CATEGORIES OF LEED RATINGS
FUTURE PROGRAMS

LEED-NC new construction

LEED-CI commercial interiors

LEED-EB existing buildings

LEED-CS core & shell

LEED-HOMES

LEED-ND neighborhood development

LEED application guides

- Healthcare
- Laboratories
- Schools
- Retail
- Multi-building Campuses




Build green. Everyone profits.

LEED for New Construction

LEED – NC -2009

- **Four levels of certification**
 - **LEED Certified** **40-49 points**
 - **Silver Level** **50-59 points**
 - **Gold Level** **60-79 points**
 - **Platinum Level** **80-110 points (110 possible)**

Green Globes Rating System









BRINGING GREEN TO THE MAINSTREAM

HOME ABOUT GREEN GLOBES TRAINING TECHNICAL COMMITTEE USE GREEN GLOBES CONTACT

Green Globes™ Ratings

Once an assessment is verified by a third party, properties achieving a score of 35% or more receive a Green Globes rating based on the percentage of total points (up to 1000) achieved.

85-100%		Reserved for select building designs which serve as national or world leaders in energy and environmental performance. The project introduces design practices that can be adopted and implemented by others.
70-84%		Demonstrates leadership in energy and environmental design practices and a commitment to continuous improvement and industry leadership.
55-69%		Demonstrates excellent progress in achieving eco-efficiency results through current best practices in energy and environmental design.
35-54%		Demonstrates movement beyond awareness and commitment to sound energy and environmental design practices by demonstrating good progress in reducing environmental impacts.



U.S. EPA Energy Star Homes Program

www.energystar.gov



Wisconsin Energy Star Homes Program

www.wifocusonenergy.com/Residential/New-Home



National Association Of Home Builders

www.nahbgreen.org



Wisconsin Green Built Homes Program

www.wi-ei.org/greenbuilt



U.S. Green Building Council LEED for Homes

www.greenhomeguide.org





<http://living-future.org/lbc>

LIVING BUILDING CHALLENGE™ 2.1

A Visionary Path to a Restorative Future

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INTERNATIONAL
LIVING FUTURE
INSTITUTE™

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The LBC Flower

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



WHY A CHALLENGE?

Infusing inspiration and poetry

Embracing the psychology of the 'end game'

Rewarding early adopters

Creating models for the future

Stirring the pot

Pulling the market forward



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**Types of Projects
("Typology")**



Renovation



Landscape + Infrastructure



Building



Neighborhood

FOUR TYPOLOGIES

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**Settings for Projects
("Transects")**



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

SIX "LIVING TRANSECT" CATEGORIES

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**Shared Resources & Infrastructure
("Scale Jumping")**



SCALE JUMPING

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7 “Petals”

20 “Imperatives”


(Prerequisites)

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The 7 Petals of the LBC Flower:

- **Site** (4 imperatives)
- **Water** (2 imperatives)
- **Energy** (1 imperative)
- **Health** (3 imperatives)
- **Materials** (5 imperatives)
- **Equity** (4 imperatives)
- **Beauty** (4 imperatives)

	NEIGHBORHOOD	BUILDING	LANDSCAPE + INFRASTRUCTURE	RENOVATION	 Imperative is optional for the corresponding Typology	<i>scale</i> Solutions beyond project area are permissible
SITE						LIMITS TO GROWTH
						URBAN AGRICULTURE
						HABITAT EXCHANGE
						CAR FREE LIVING
WATER						NET ZERO WATER
						ECOLOGICAL WATER FLOW
ENERGY						NET ZERO ENERGY
HEALTH						CIVILIZED ENVIRONMENT
						HEALTHY AIR
						BIOPHILIA
MATERIALS						RED LIST
						EMBODIED CARBON FOOTPRINT
						RESPONSIBLE INDUSTRY
						APPROPRIATE SOURCING
						CONSERVATION + REUSE
EQUITY						HUMAN SCALE + HUMANE PLACES
						DEMOCRACY + SOCIAL JUSTICE
						RIGHTS TO NATURE
BEAUTY						BEAUTY + SPIRIT
						INSPIRATION + EDUCATION

SUMMARY MATRIX

TWO RULES

1. All Imperatives assigned to a Typology are mandatory to earn 'Living' status.
2. Living Building Challenge certification is based on actual, rather than modeled or anticipated, performance.



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Petal 1 – Site



SITE

Restoring a healthy coexistence with nature



Petal 1 - Site

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Imperative 1 – Limits to Growth

01

LIMITS TO GROWTH



The project may only be constructed on previously developed sites, greyfields and/or brownfields that are not classified as any of the following:

- sensitive ecological habitats
(wetlands, primary dunes, old-growth forest, native prairie)
- prime farmland
- within the 100-year flood plain



01 LIMITS TO GROWTH

The Project team must document conditions prior to the start of work.

On-site landscape may only include native and/or naturalized species, planted in such a way that emulates density and biodiversity of indigenous ecosystems and supports succession.

plant succession The gradual evolution of vegetation over time. Also involved in plant community restoration. In *autogenic succession* the plants themselves are the genesis of change; succession is directed from within the ecosystem.



Petal 1 - Site

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Imperative 2 – Urban Agriculture

02

URBAN AGRICULTURE

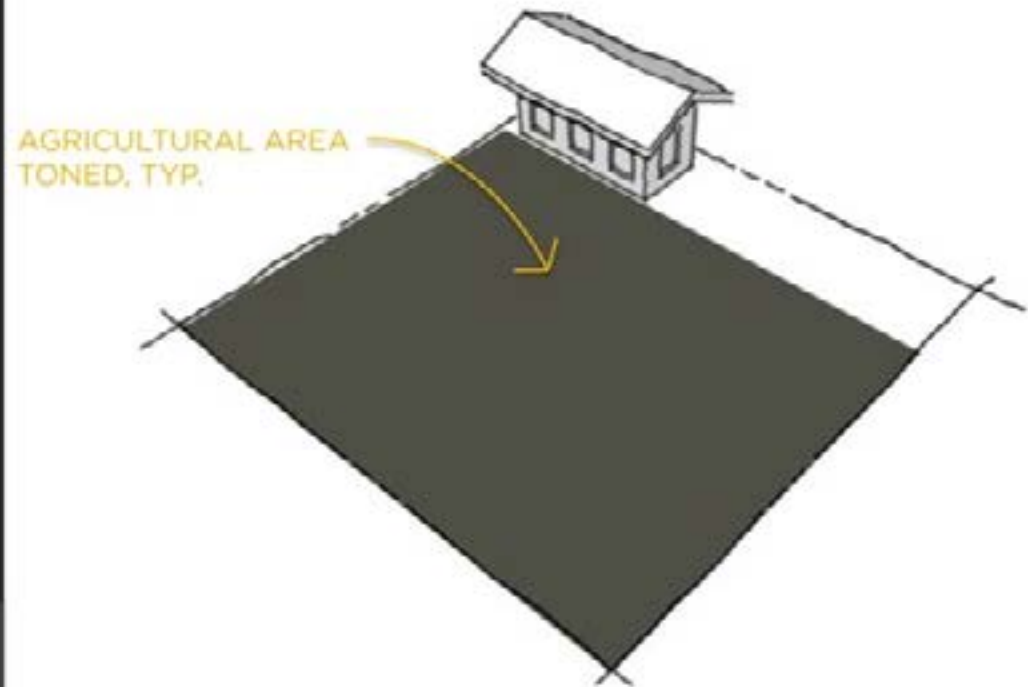


The project must integrate opportunities for agriculture appropriate to its scale and density using the Floor Area Ratio (F.A.R.) as a basis for calculation.

FAR < .05

80%

of the project area
must be used for
food production.

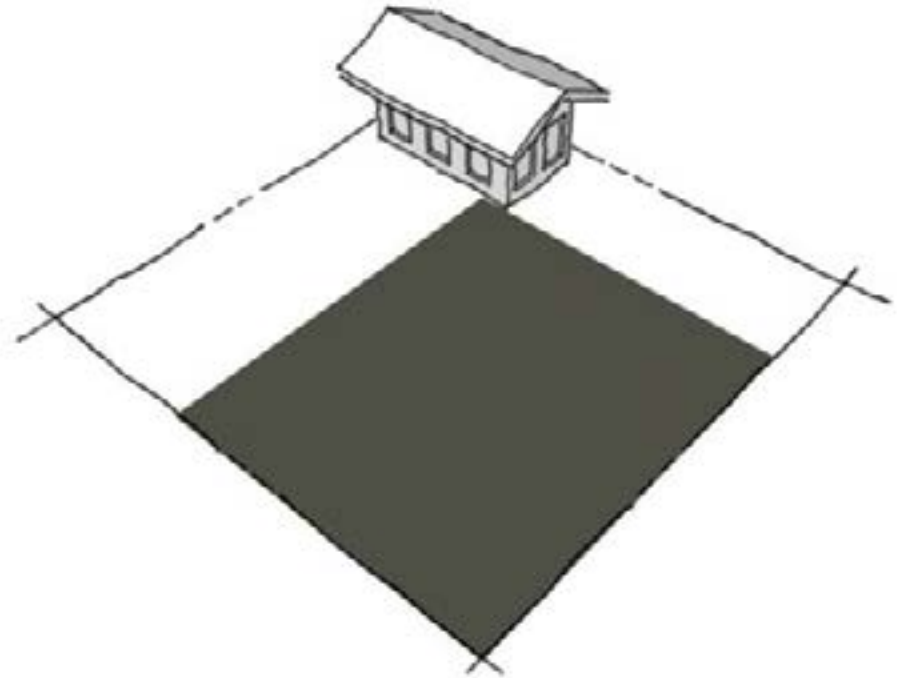


02 URBAN AGRICULTURE

FAR .05 - .09

50%

of the project area
must be used for
food production.

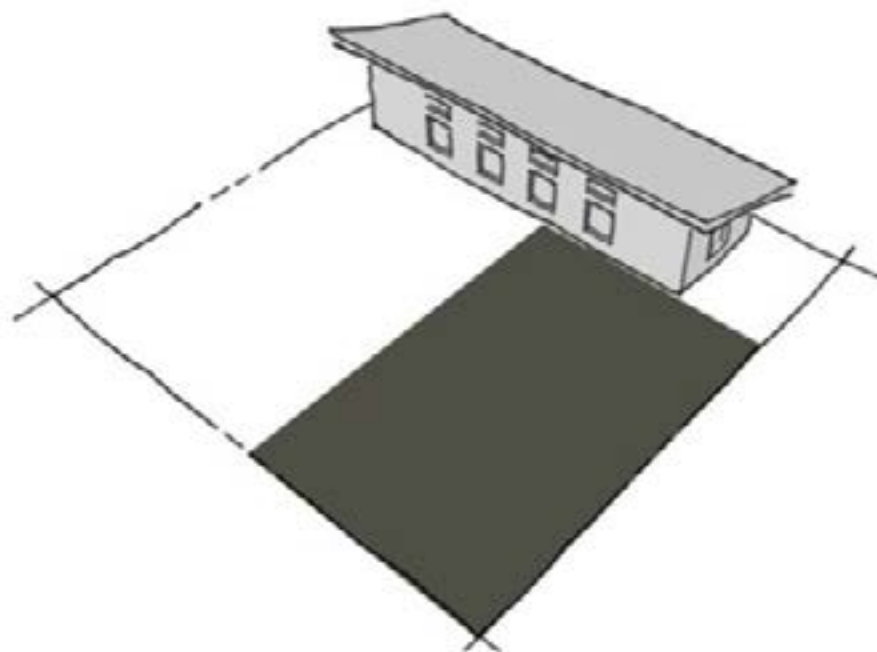


02 URBAN AGRICULTURE

FAR .10 - .24

35%

of the project area
must be used for
food production.

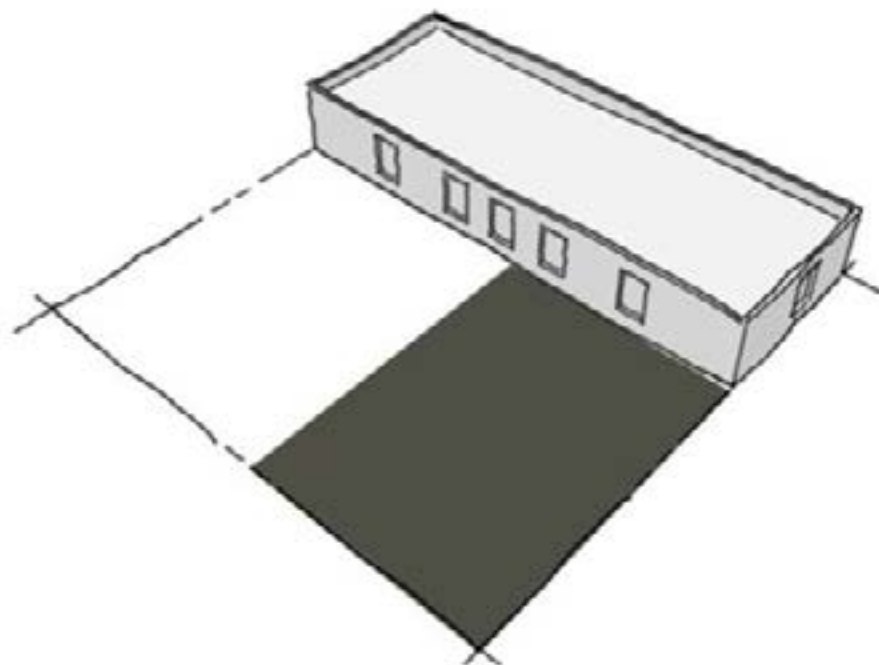


02 URBAN AGRICULTURE

FAR .25 - .49

30%

of the project area
must be used for
food production.

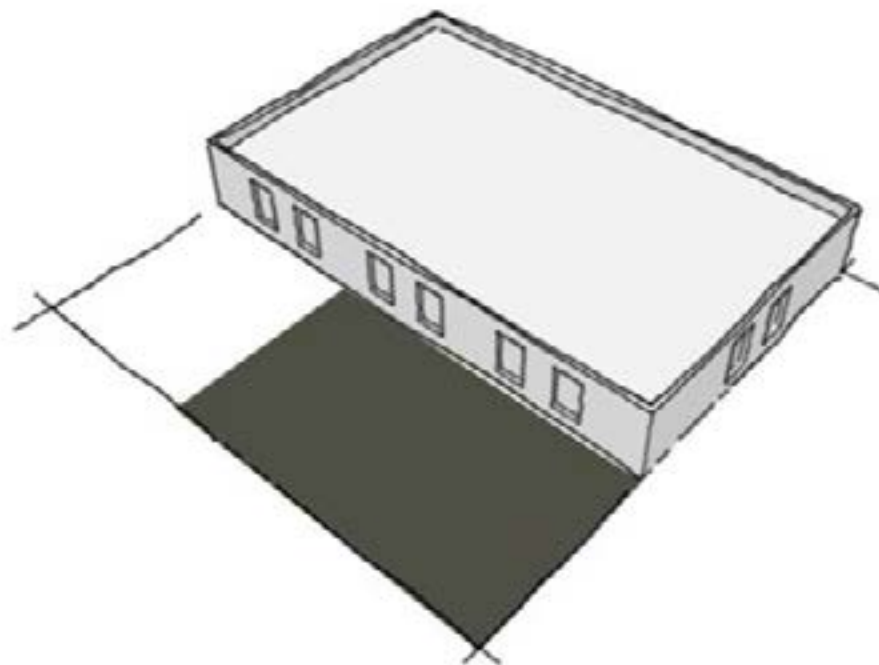


02 URBAN AGRICULTURE

FAR $.50 \geq .74$

25%

of the project area
must be used for
food production.

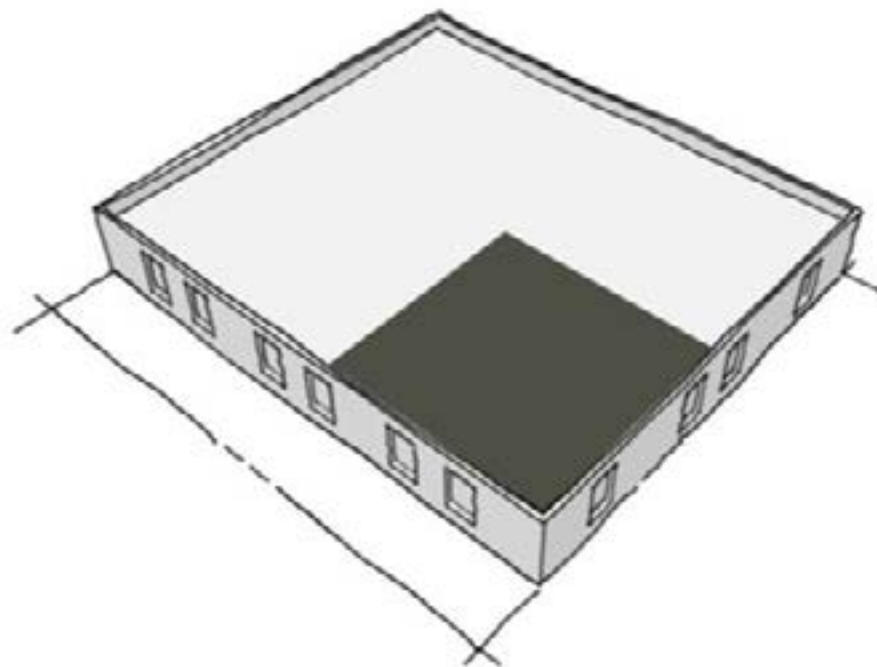


02 URBAN AGRICULTURE

FAR $.75 \geq .99$

20%

of the project area
must be used for
food production.

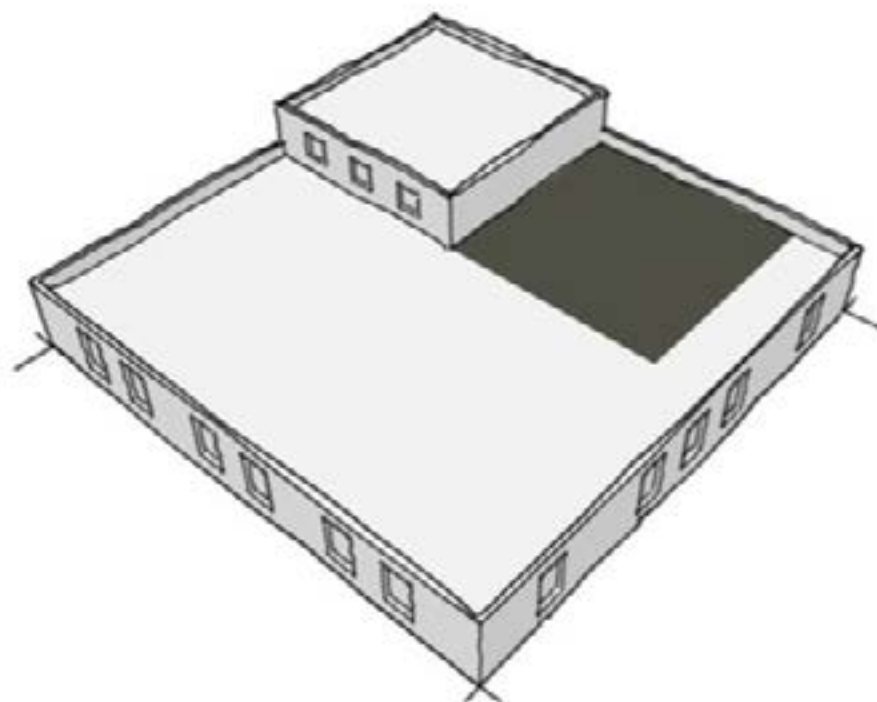


02 URBAN AGRICULTURE

FAR 1.0 \geq 1.49

15%

of the project area
must be used for
food production.

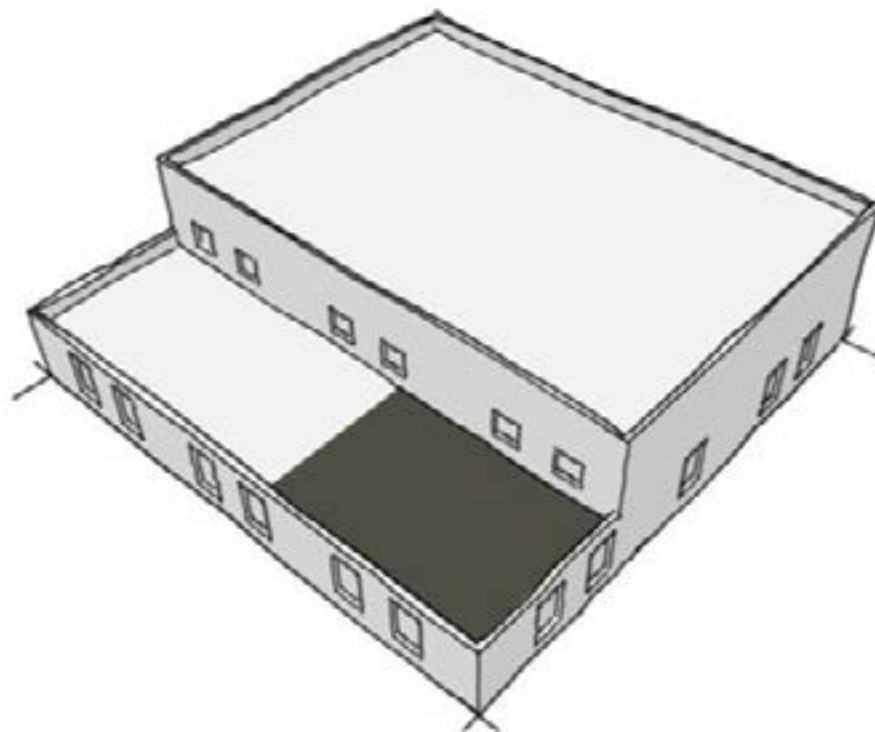


02 URBAN AGRICULTURE

FAR $1.5 \geq 1.99$

10%

of the project area
must be used for
food production.

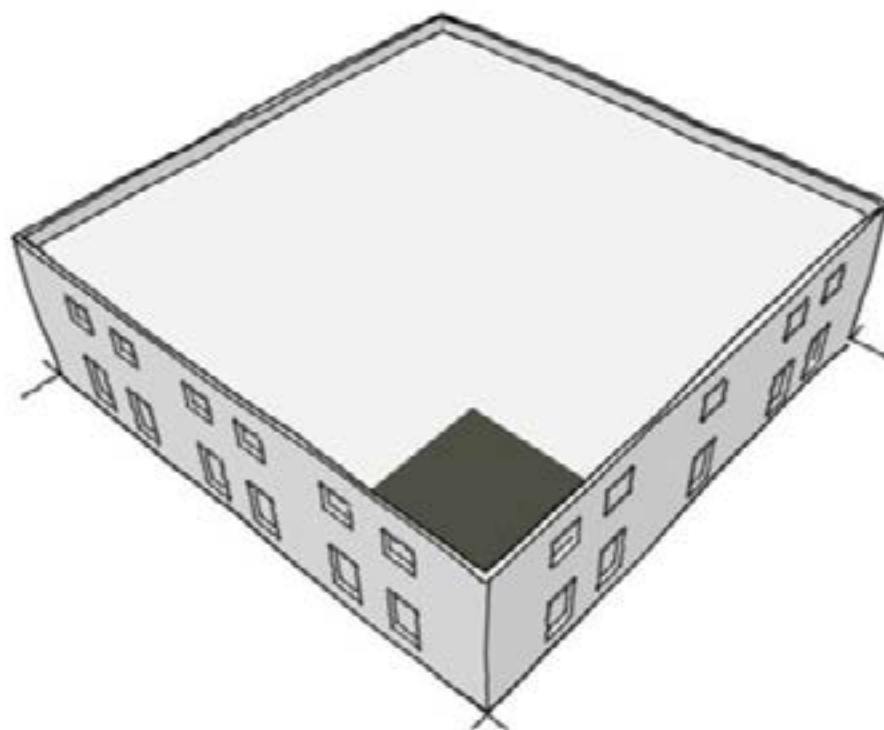


02 URBAN AGRICULTURE

FAR 2.0 \geq 2.99

5%

of the project area
must be used for
food production.

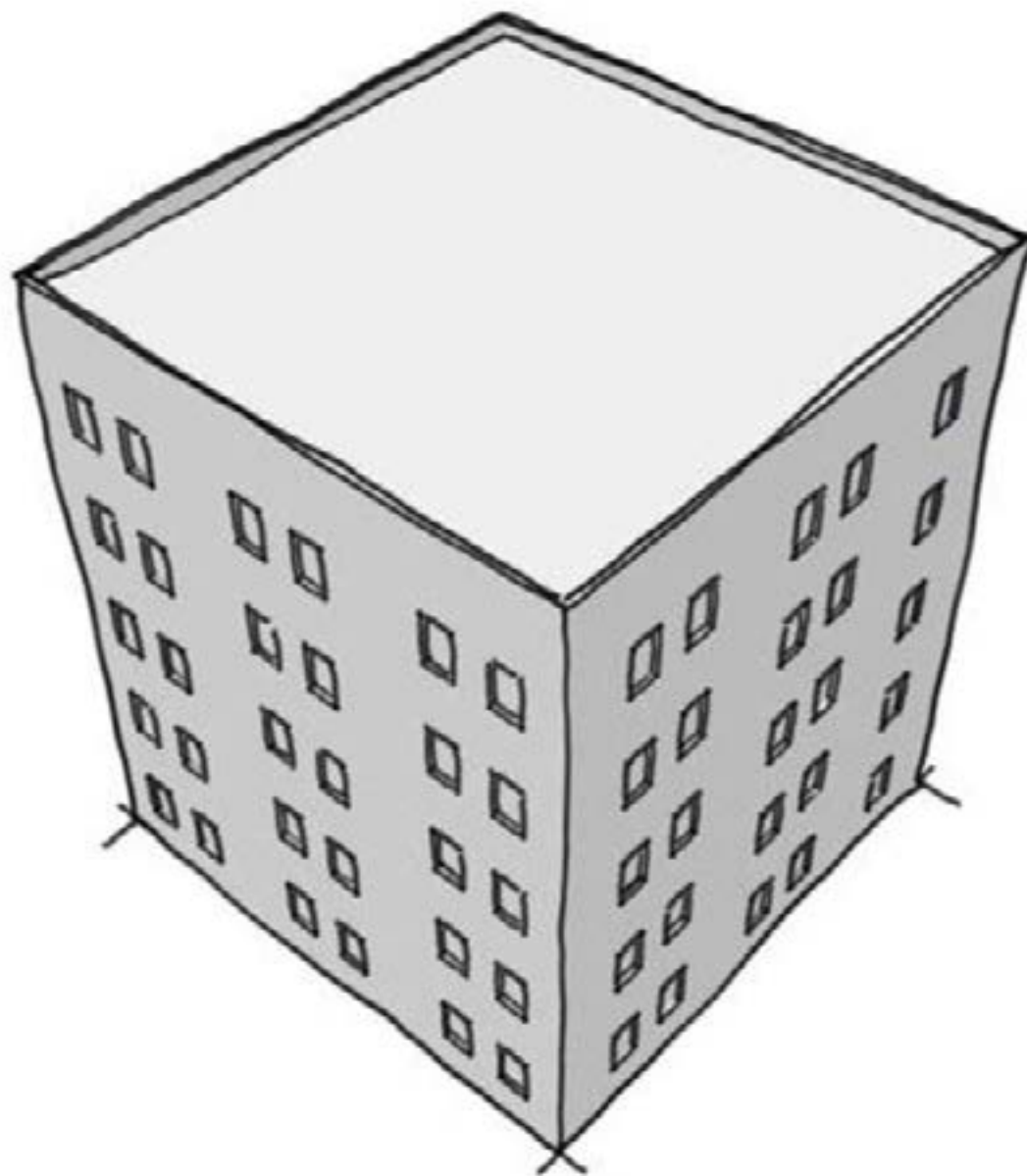


02 URBAN AGRICULTURE

FAR \geq 3.0

0%

of the project area
must be used for
food production.



02 URBAN AGRICULTURE



Petal 1 - Site

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Imperative 3 – Habitat Exchange

03

HABITAT EXCHANGE



For each hectare of development, an equal amount of land away from the project site must be set aside in perpetuity as part of a habitat exchange.



The permanent easement or transfer of ownership must be to an official Land Trust organization to ensure proper safeguarding and long-term care.

land trust a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.



Petal 1 - Site

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Imperative 4 – Car-free Living

04

CAR FREE LIVING



The project should contribute to the creation of pedestrian-oriented communities.

Evaluate the potential for the project to enhance the ability of a community to support a car free lifestyle based on the ratio of the following occupancy types:

- a. Residential
- b. Commercial (Business or Mercantile), Assembly, Educational, Institutional
- c. Light Industrial (Factory, Storage)



Building or Neighborhood project: the proposed development may not lower the density of the existing site or the catchment area of the Transect.

Neighborhood projects: the proposed development also may not cause the predominant occupancy type within the catchment area to exceed the maximum percentage:

Transect	Maximum percentage of any single occupancy type within catchment area
L1	--
L2	--
L3	70%
L4	60%
L5	50%
L6	40%

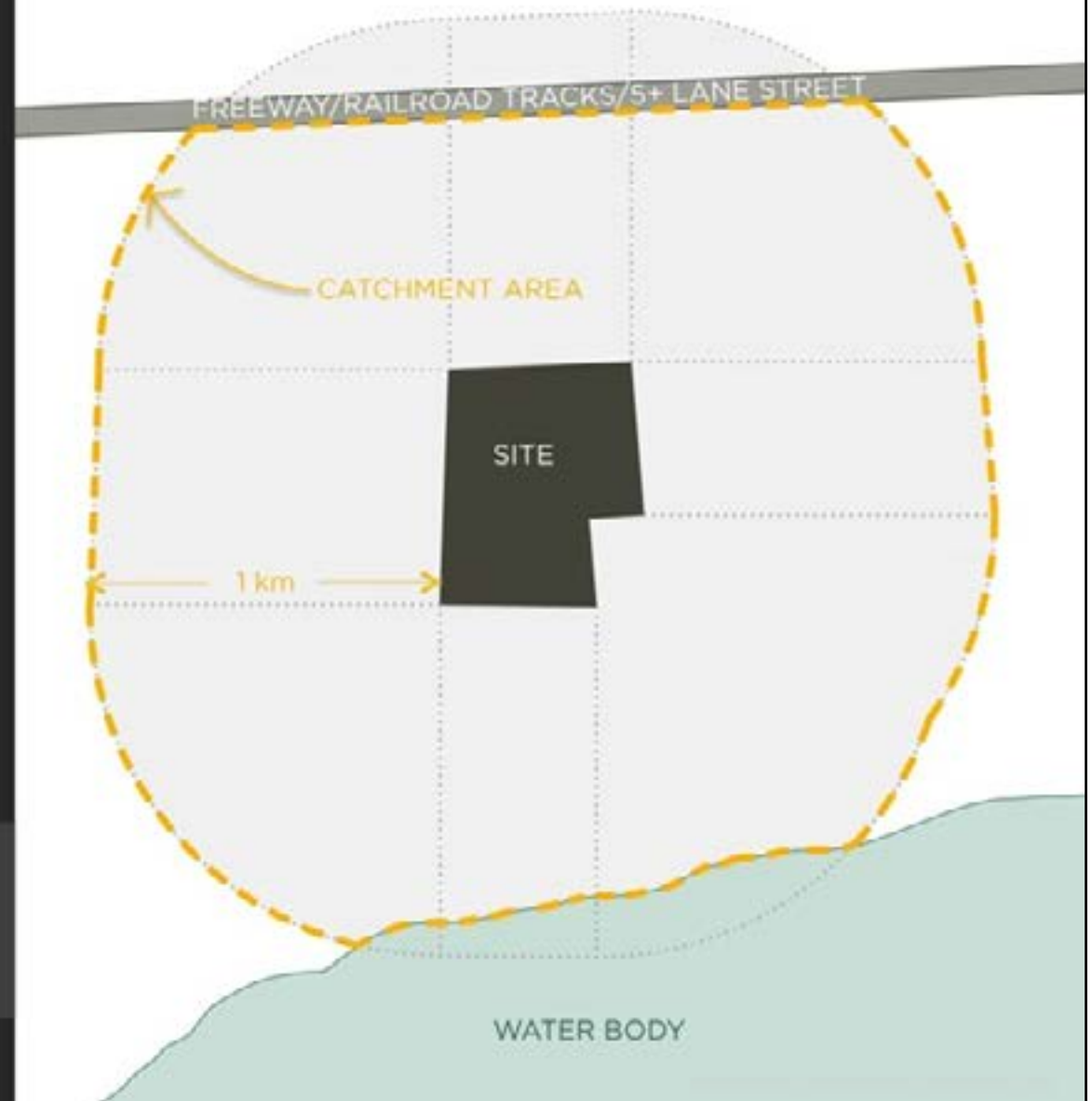
04 CAR FREE LIVING

Catchment Area

- 1 Survey the territory outside the project boundary that is an outline of its perimeter offset one kilometer.
- 2 Remove areas obstructed by:
 - bodies of water
 - a series of 2+ train tracks
 - freeways
 - streets that are 5+ lanes across

Catchment Area for a Neighborhood project also includes the proposed project itself.

04 CAR FREE LIVING



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Petal 2 – Water



WATER

Creating water independent sites, buildings + communities



Petal 2 - Water

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Imperative 5 – Net Zero Water

05

NET ZERO WATER



100% of the project's water needs must be supplied by captured precipitation or other natural closed loop water systems that account for downstream ecosystem impacts, or by re-cycling used project water. Water must be appropriately purified without the use of chemicals.



Petal 2 - Water

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Imperative 6 – Ecological Water Flow

06

ECOLOGICAL WATER FLOW



100% of storm water and used, project water discharge must be managed onsite to feed the project's internal water demands or released onto adjacent sites for management through acceptable natural time-scale surface flow, groundwater recharge, agricultural use or adjacent property needs.

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Petal 3 – Energy



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ENERGY

Relying only on current solar income

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Petal 3 - Energy

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Imperative 7 – Net Zero Energy

07

NET ZERO ENERGY

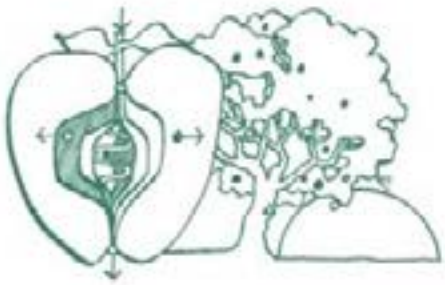


100% of the project's energy needs must be supplied by on-site renewable energy on a net annual basis.

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Petal 4 – Health



HEALTH

Maximizing physical and psychological health + well being



Petal 4 - Health

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Imperative 8 – Civilized Environment

08

CIVILIZED ENVIRONMENT



Every occupiable interior space of the project must have operable windows that provide access to fresh air and daylight.



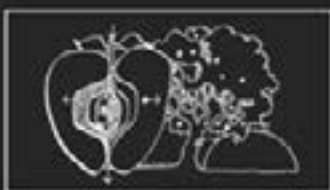
Petal 4 - Health

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Imperative 9 – Healthy Air

09

HEALTHY AIR



To promote good indoor air quality, a Renovation, Building, and building(s) completed as part of a Neighborhood project must comply with best practices.

Conduct air quality testing at pre-occupancy and after 9 months of occupancy to measure levels of Respirable Suspended Particulates (RSP) and Total Volatile Organic Compounds (TVOC).



09 HEALTHY AIR

- Entryways must have an external dirt track-in system and an internal dirt track-in system contained within a separate entry space.
- All kitchens, bathrooms, copy rooms, janitorial closets and chemical storage spaces must be separately ventilated and exhaust directly to outside air.
- Ventilation rates must be designed to comply with ASHRAE 62 and equipment must be installed to monitor levels of carbon dioxide (CO₂), temperature and humidity.
- Smoking must be prohibited within the project boundary.

Guideline for maximums in testing:

CO₂ 1000 ppm or 500+ outdoor level (L3-L6)

CO 9 ppm or 2+ outdoor level (L3-L6)

RSP 30 ug/m³ by mass measurement or
900,000 f³ by laser particle counter

TVOC 500 ug/m³ micrograms per cubic meter



Petal 4 - Health

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Imperative 10 – Biophilia

10

BIOPHILIA



The project must be designed to include elements that nurture the innate human attraction to natural systems and processes.

Environmental features • Natural shapes and forms • Natural patterns and processes
Light and space • Place-based relationships • Evolved human-nature relationships

Environmental features

Color
Water
Air
Sunlight
Plants
Animals
Natural materials
Views and vistas
Façade greening
Geology and landscape
Habitats and ecosystems
Fire

Natural shapes and forms

Botanical motifs
Tree and columnar supports
Animal (mainly vertebrate) motifs
Shells and spirals
Egg, oval, and tubular forms
Arches, vaults, domes
Shapes resisting straight lines and right angles
Simulation of natural features
Biomorphy
Geomorphology
Biomimicry

Natural patterns and processes

Sensory variability
Information richness
Age, change, and the patina of time
Growth and efflorescence
Central focal point
Patterned wholes
Bounded spaces
Transitional spaces
Linked series and chains
Integration of parts to wholes
Complementary contrasts
Dynamic balance and tension
Fractals
Hierarchically organized ratios and scales

Light and space

Natural light
Filtered and diffused light
Light and shadow
Reflected light
Light pools
Warm light
Light as shape and form
Spaciousness
Spatial variability
Space as shape and form
Spatial harmony
Inside-outside spaces

Place-based relationships

Geographic connection to place
Historic connection to place
Ecological connection to place
Cultural connection to place
Indigenous materials
Landscape orientation
Landscape features that define building form
Landscape ecology
Integration of culture and ecology
Spirit of place
Avoiding placelessness

Evolved human-nature relationships

Prospect and refuge
Order and complexity
Curiosity and enticement
Change and metamorphosis
Security and protection
Mastery and control
Affection and attachment
Attraction and beauty
Exploration and discovery
Information and cognition
Fear and awe
Reverence and spirituality

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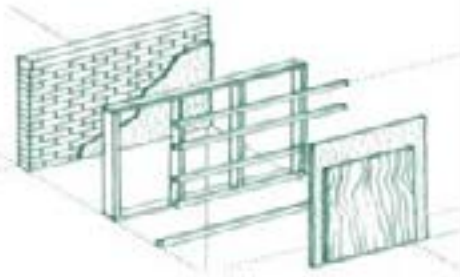
10 BIOPHILIA

The Six Biophilic Design Elements

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Petal 5 – Materials



MATERIALS

Endorsing products + processes that are safe for all species through time



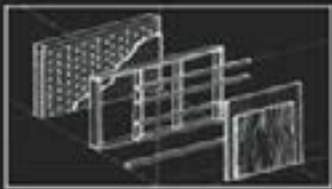
Petal 5 - Materials

The Living Building Challenge

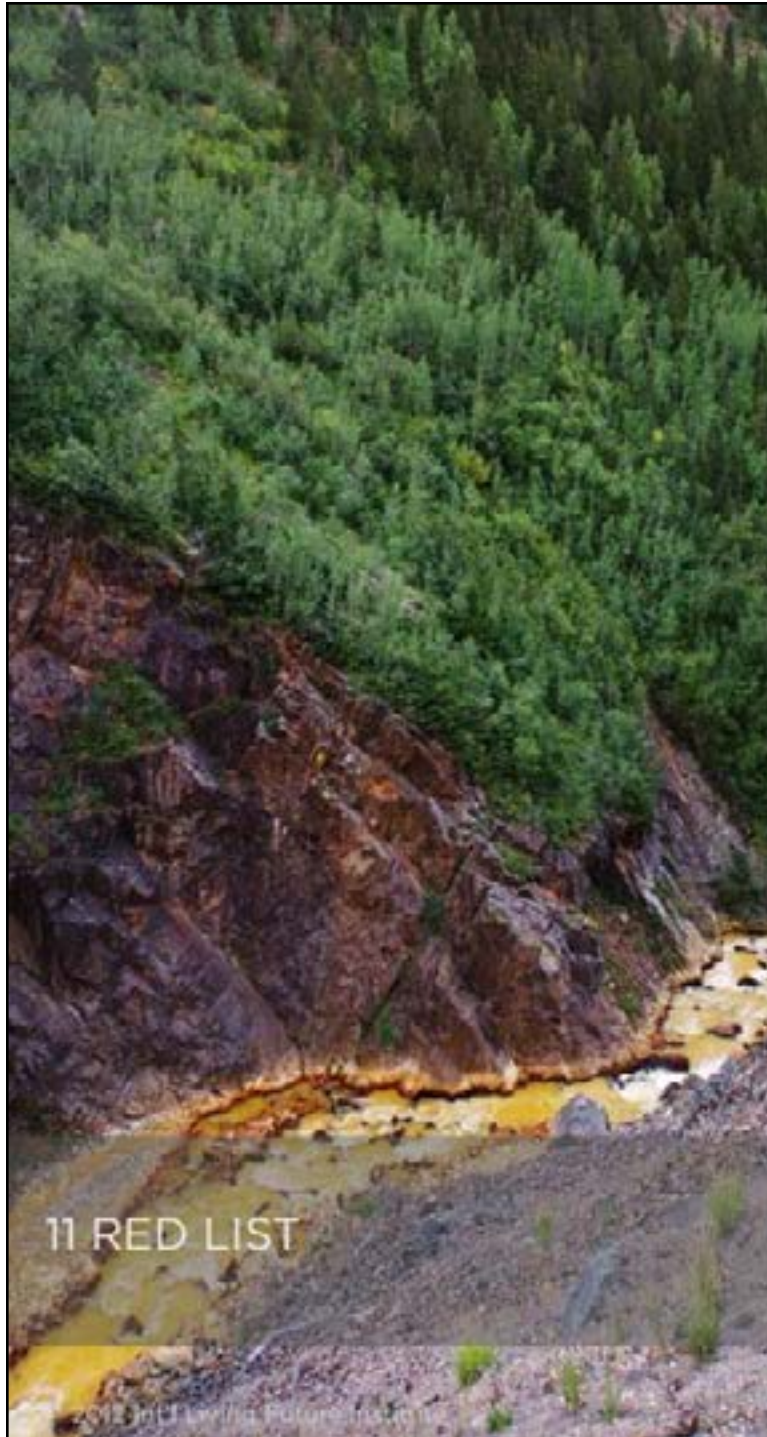
Imperative 11 – Red List

11

RED LIST



The project cannot contain the identified worst-in-class materials or chemicals, which include carcinogens, persistent organic pollutants, bioaccumulative toxins, and endocrine disruptors.



Asbestos

Cadmium

Chlorinated Polyethylene and Chlorosulfonated Polyethylene

Chlorofluorocarbons (CFCs)

Chloroprene (Neoprene)

Formaldehyde (added)

Halogenated Flame Retardants

Hydrochlorofluorocarbons (HCFCs)

Lead (added)

Mercury

Petrochemical Fertilizers and Pesticides

Phthalates

Polyvinyl Chloride (PVC)

Wood treatments containing Creosote, Arsenic or Pentachlorophenol

11 RED LIST



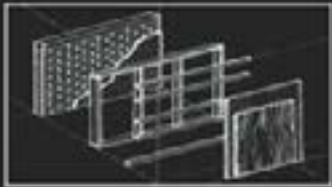
Petal 5 - Materials

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Imperative 12 – Embodied Carbon Footprint

12

EMBODIED CARBON FOOTPRINT



The project must account for the total footprint of embodied carbon (tCO₂e) from its construction through a one-time carbon offset tied to the project boundary.



12 EMBODIED CARBON FOOTPRINT

Offsets may only be from renewable energy projects that ensure real, verifiable, permanent carbon reductions.

Also consider:

- Meet/exceed criteria of: Gold Standard, VCS, Climate Action Reserve, Green-e Climate Protocol
- Green-e certified (3rd party verification)
- Additionality
- Forecasted performance
- Unique Recipients
- Transparency / Education to buyers
- Social co-benefits
- Minimal environmental impacts



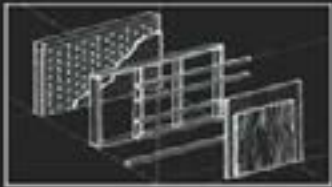
Petal 5 - Materials

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Imperative 13 – Responsible Industry

13

RESPONSIBLE INDUSTRY



The project must advocate for the creation and adoption of third-party certified standards for sustainable resource extraction and fair labor practices. Applicable raw materials include stone and rock, metal, minerals and timber.



For timber, all wood must be certified to Forest Stewardship Council (FSC) 100% labeling standards, from salvaged sources, or from the intentional harvest of timber onsite for the purpose of clearing the area for construction or restoring/maintaining the continued ecological function of the onsite bionetwork.

WHY FSC?

- Triple bottom line: social, economic, environmental interests
- Supports health and long-term integrity of forests (biodiversity, habitat) and communities
- Provides strict management and monitoring procedures
- Chain of Custody + independent verification

13 RESPONSIBLE INDUSTRY



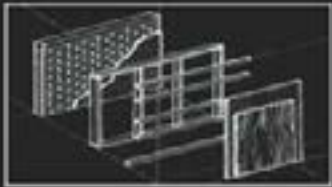
Petal 5 - Materials

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Imperative 14 – Appropriate Sourcing

14

APPROPRIATE SOURCING



The project must incorporate place-based solutions and contribute to the expansion of a regional economy rooted in sustainable practices, products and services.

14 APPROPRIATE SOURCING

Source locations for materials and services must adhere to the following restrictions:

ZONE	MAX DISTANCE	MATERIALS/SERVICES	MASTERFORMAT CLASSIFICATION
7	20,004 km	Ideas	-
6	15,000 km	Renewable Technologies	Divisions: 42, 48
5	5,000 km	Assemblies that actively contribute to project performance + adaptable reuse once installed	Divisions: 08 (exterior), 11, 14, 22, 23, 26, 33, 44 Sections: 07 50 00, 10 21 23, 10 22 00, 10 70 00, 44 40 00
4	2,500 km	Consultant Travel	-
3	2,000 km	Light or low-density materials	Sections: 07 31 00, 07 33 00, 07 40 00, 09 50 00, 09 60 00
2	1,000 km	Medium weight or density materials	Divisions: 06, 08 (interior) Sections: 07 32 00, 09 20 00, 09 30 00, 12 30 00
1	500 km	Heavy or high-density materials	Divisions: 03, 04, 05, 31, 32



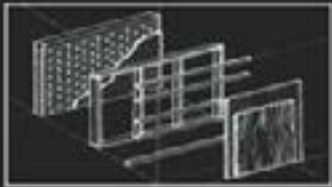
Petal 5 - Materials

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Imperative 15 – Conservation + Reuse

15

CONSERVATION + REUSE



The project team must strive to reduce or eliminate the production of waste during design, construction, operation, and end of life in order to conserve natural resources.



The project team must create a Material Conservation Management Plan that explains how the project optimizes materials in each of the following phases:

- Design Phase
- Construction Phase
- Operation Phase
- End of Life Phase

During construction, teams must divert wasted materials from landfills:

Material	Minimum Diverted/Weight
Metals	95 %
Paper and Cardboard	95 %
Soil, and biomass	100 %
Rigid Foam, carpet & insulation	90 %
All others - combined weighted average	80 %

Hazardous materials in demolition waste are exempt from percentage calculations.

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Petal 6 – Equity



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EQUITY

Supporting a just, equitable world

www.livingbuildingchallenge.org



Petal 6 - Equity

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Imperative 16 – Human Scale + Humane Places

16

HUMAN SCALE + HUMANE PLACES



The project must be designed to create human-scaled rather than automobile-scaled places, so that the experience brings out the best in humanity and promotes culture and interaction.



16 HUMAN SCALE + HUMANE PLACES

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In context of the character of each Transect, there are specific design requirements that contribute to livable places.

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Petal 6 - Equity

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Imperative 17 – Democracy + Social Justice

17

DEMOCRACY + SOCIAL JUSTICE



All primary transportation, roads and non-building infrastructure that are considered externally focused must be equally accessible to all members of the public regardless of background, age and socioeconomic class – including the homeless – with reasonable steps taken to ensure that all people can benefit from the project's creation.

Access for those with physical disabilities must be safeguarded through designs meeting the Americans with Disabilities Act (ADA).





Petal 6 - Equity

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Imperative 18 – Rights to Nature

18

RIGHTS TO NATURE



The project may not block access to, nor diminish the quality of, fresh air, sunlight and natural waterways for any member of society or adjacent developments.

An aerial photograph of a residential neighborhood during autumn. The trees are in various shades of orange, yellow, and green. In the foreground, there are several houses with grey roofs. The sky is a pale, hazy blue.

Fresh Air

The project must be designed to protect adjacent properties from any noxious emissions that would compromise its ability to use natural ventilation.

Sunlight

The project may not block sunlight to adjacent building façades and rooftops such that they are shaded in such a way to preclude access to daylight or use of renewable energy technologies.

Natural Waterways

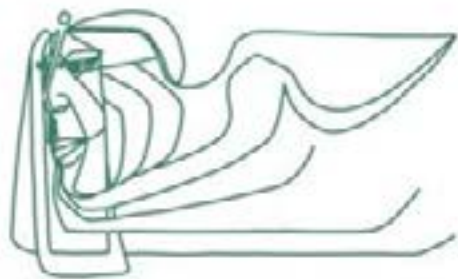
The project may not restrict access to the edge of any natural waterway, assume ownership of water contained in these bodies or compromise the quality or quantity that flows downstream.

18 RIGHTS TO NATURE

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Petal 7 – Beauty



BEAUTY

Celebrating design that creates transformative change



Petal 7 - Beauty

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Imperative 19 – Beauty + Spirit

19

BEAUTY + SPIRIT



The project must contain design features intended solely for human delight and the celebration of culture, spirit and place appropriate to its function.



Petal 7 - Beauty

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Imperative 20 – Inspiration + Education

20

INSPIRATION + EDUCATION




Educational materials about the performance and operation of the project must be provided to the public to share successful solutions and to motivate others to make change.

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The 7 Petals of the LBC Flower:

- **Site** (4 imperatives)
- **Water** (2 imperatives)
- **Energy** (1 imperative)
- **Health** (3 imperatives)
- **Materials** (5 imperatives)
- **Equity** (4 imperatives)
- **Beauty** (4 imperatives)

	NEIGHBORHOOD	BUILDING	LANDSCAPE + INFRASTRUCTURE	RENOVATION	 Imperative is optional for the corresponding Typology	<i>scale</i> Solutions beyond project area are permissible
SITE						LIMITS TO GROWTH
						URBAN AGRICULTURE
						HABITAT EXCHANGE
						CAR FREE LIVING
WATER						NET ZERO WATER
						ECOLOGICAL WATER FLOW
ENERGY						NET ZERO ENERGY
HEALTH						CIVILIZED ENVIRONMENT
						HEALTHY AIR
						BIOPHILIA
MATERIALS						RED LIST
						EMBODIED CARBON FOOTPRINT
						RESPONSIBLE INDUSTRY
						APPROPRIATE SOURCING
						CONSERVATION + REUSE
EQUITY						HUMAN SCALE + HUMANE PLACES
						DEMOCRACY + SOCIAL JUSTICE
						RIGHTS TO NATURE
BEAUTY						BEAUTY + SPIRIT
						INSPIRATION + EDUCATION

SUMMARY MATRIX

The Living Building Challenge



Program Certifications

- “Living” (7 petals)
- “Petal” (3 petals)
- “Net Zero Energy”



PROGRAM CERTIFICATIONS - "LIVING" STATUS



IF YOU'VE GOT IT, FLAUNT IT!

PETAL RECOGNITION: 3 MINIMUM (INCL. WATER, ENERGY OR MATERIALS)



NETZERO

ENERGY BUILDING
CERTIFICATIONSM



PROVEN PERFORMANCE • INDEPENDENT AUDITS • TRANSPARENT RESULTS

WWW.LIVING-FUTURE.ORG/NETZERO

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Technical Assistance & Resources

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Living Building Standard version 2.1

<http://living-future.org/lbc/about>

The Living Building Challenge

01

LIMITS TO GROWTH



The project may only be constructed on previously developed¹⁰ sites, greyfields and/or brownfields that are not classified as any of the following:

- sensitive ecological habitats¹¹ such as:
 - wetlands¹²: maintain at least 15 meters, and up to 30 meters¹³ of separation
 - primary dunes¹⁴: maintain at least 40 meters of separation
 - old-growth forest¹⁵: maintain at least 60 meters of separation
 - native prairie¹⁶: maintain at least 30 meters of separation
- prime farmland¹⁷
- within the 100-year flood plain¹⁸

The project team must document conditions prior to the start of work.

On-site landscape¹⁹ may only include native and/or naturalized species planted in such a way that emulates density and biodiversity of indigenous ecosystems and supports succession²⁰.

- 10 Sites that qualify must have been allowed from a greenfield prior to December 31, 2007. There is an exception for a project whose primary purpose is related to the protection or interpretation of the land, as well as for some greenfield sites surrounded by existing development that abuts at least 75% of the project boundary. There is also a temporary exception that allows a neighborhood project to be constructed on a greenfield site if that developed, newly redeveloped or other context with a low Human Development Index rating where it can be clearly demonstrated that predominant societal land-use pressures require the allowance of partial development as a condition to preserve the majority of the property as a conservation area. Additional considerations for Incentive 03, Incentive Exchange and Incentive 24 can apply (visit [lbc.org](#) for more information).
- 11 Increased setbacks may be appropriate on specific sites. The following are minimum distances to preserve the boundaries. Refer to the Dialogue for the definition of Sensitive Ecological Habitats and other terms used herein.
- 12 There is an exception for a project whose primary purpose is related to wetland protection or interpretation and demonstrates that the site's ecological systems are not disturbed.
- 13 Minimum buffer widths vary depending on the wetland classification. Refer to the Dialogue for more information.
- 14 There is an exception for a project whose primary purpose is related to primary dune protection or interpretation and demonstrates that the site's ecological systems are not disturbed.
- 15 There is an exception for a project whose primary purpose is related to old-growth forest protection or interpretation and demonstrates that the site's ecological systems are not disturbed.
- 16 There is an exception for a project whose primary purpose is related to native prairie protection or interpretation and demonstrates that the site's ecological systems are not disturbed.
- 17 There is an exception a project whose primary purpose is related to farming or is a working farm/farmhouse.
- 18 There is an exception for an operational port, dock and any landscape or infrastructure project, as well as a project whose primary purpose is related to fishing. There is also an exception for a project that is part of an existing historic community developed prior to 1945 or is a neighborhood that meets the density threshold of Living Standard 1.3 or 1.8.
- 19 In this context, "landscape" is considered to be planted area outside of the square meters of agricultural cover required per Incentive 3 (Urban Agriculture). Though experimental solutions are not required to be mutually exclusive or physically separated.
- 20 Refer to the Dialogue to learn more about plant succession.

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The project must implement the following design guidelines:

Category	L1	L2	L3	L4	L5	L6
Surface Cover	Maximum dimension of surface parking lot before a separation is required on all four sides (e.g. landscaping or 1.4m wide minimum paved median or barrier)	7 m x 10 m				
	Total area of surface parking lot allowed. All other parking requirements must be handled in structured or underground parking.	63 m ²	270 m ²	96 m ²	120 m ²	66 m ²
Street & Intersection	Maximum street width, measured either shoulder-to-shoulder or curb-to-curb	8 m	11.5 m	10 m	16 m	22.5 m
	Maximum street width before driving lanes must be separated by a partition strip and planting median (median area may be counted on the other side of median's maximum of 21.2 m wide width of driving area)	Not Applicable	6 m			
	Maximum street width before tree plantings and sidewalks are required on both sides	Development of this kind is not permitted in a Historical, Natural Reserve or Rural Agricultural Zone	7.5 m			
	Maximum street width of sidewalks and planted median	Development of this kind is not permitted in a Historical, Natural Reserve or Rural Agricultural Zone	1/3 street width			
	Maximum distance between trees of furnishing zone and planted median	Development of this kind is not permitted in a Historical, Natural Reserve or Rural Agricultural Zone	8 m			
	Maximum distance between circulation routes (these are not to be taken account of)	Development of this kind is not permitted in a Historical, Natural Reserve or Rural Agricultural Zone	42 m	60 m		
Signage	Maximum street block size (Note: Providing longer pedestrian/cyclist circulation routes with a block increases the accessibility of urban areas)	60 m x 120 m		100 m x 120 m		
	Number of free standing signs per development	1				
	Maximum dimension of free standing sign(s)	2 m x 2.5 m	2 m x 3 m	3.5 m x 3 m		
	Maximum elevation of sign's bottom edge above ground	2 m	3 m	5 m	9 m	12 m
Project Area	Maximum distance between facade openings (to doors and windows)	N/A	30 m			
	Maximum footprint for any building with a single use, single tenor or single tenant (measured to outside address face area to obtain an accurate footprint)	1700 m ² (includes floor area of atriums, stairwells and display shafts)				

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Living Building Standard version 2.1

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“Declare” website

<http://www.declareproducts.com>

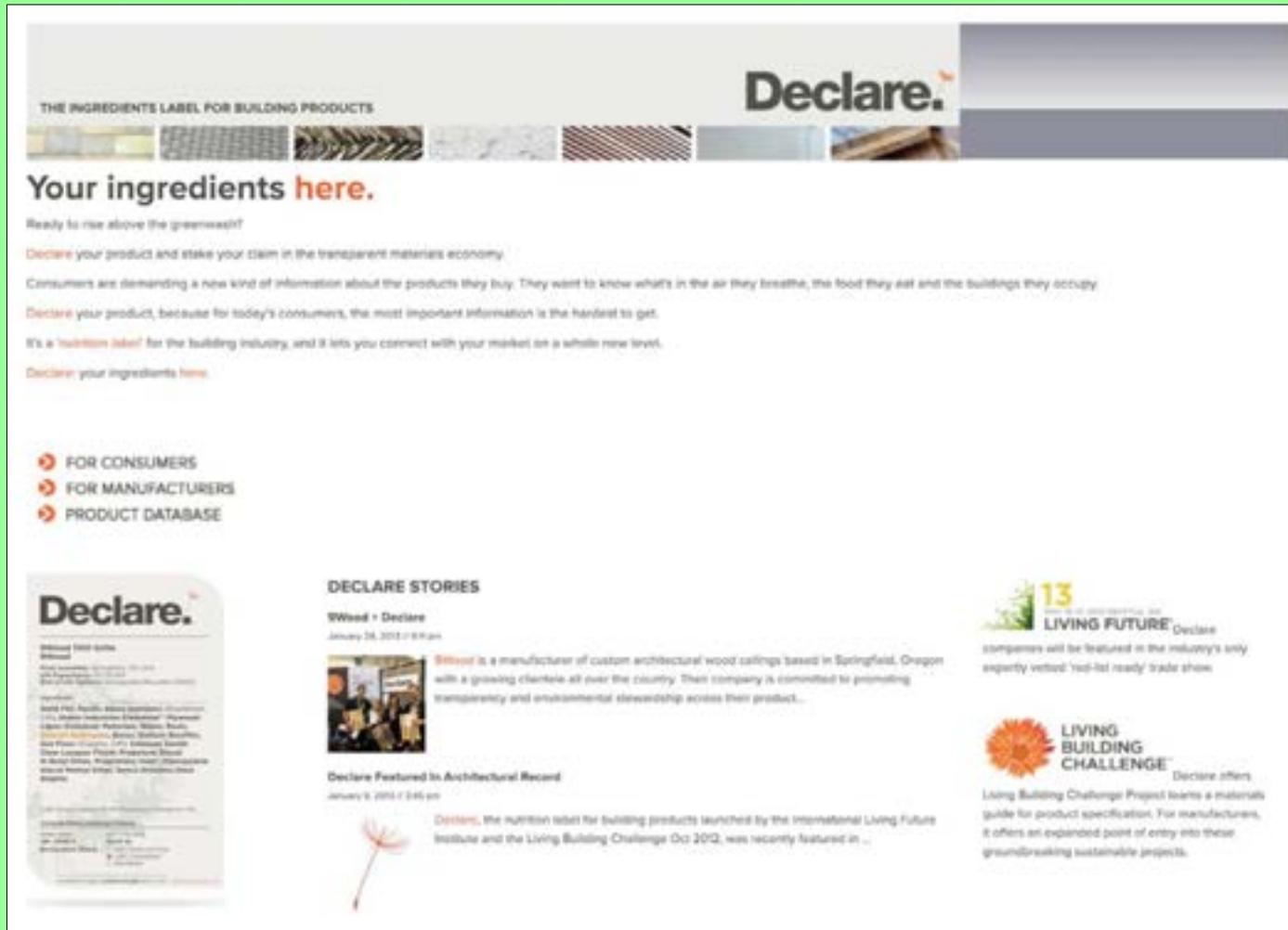


Your ingredients **here.**

Introducing Declare, the ingredients label for building products. **Declare your product and stake your claim in the transparent materials economy.**

WWW.DECLEARPRODUCTS.COM

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THE INGREDIENTS LABEL FOR BUILDING PRODUCTS

Declare.

Your ingredients here.

Ready to rise above the greenwash?

Declare your product and stake your claim in the transparent materials economy.

Consumers are demanding a new kind of information about the products they buy. They want to know what's in the air they breathe, the food they eat and the buildings they occupy.

Declare your product, because for today's consumers, the most important information is the hardest to get.


It's a "nutrition label" for the building industry, and it lets you connect with your market on a whole new level.

Declare your ingredients [here](#).


- FOR CONSUMERS
- FOR MANUFACTURERS
- PRODUCT DATABASE

DECLARE STORIES

Wood + Declare
January 26, 2013 11:49 pm

 **Wood+** is a manufacturer of custom architectural wood ceilings based in Springfield, Oregon with a growing clientele all over the country. Their company is committed to promoting transparency and environmental stewardship across their product...

Declare Featured in Architectural Record
January 9, 2013 11:45 pm

 **Declare**, the nutrition label for building products launched by the International Living Future Institute and the Living Building Challenge Oct 2012, was recently featured in ...

13 COMPANIES PARTICIPATING IN LIVING FUTURE Declare
companies will be featured in the industry's only expertly vetted "red-hot ready" trade show

LIVING BUILDING CHALLENGE Declare offers Living Building Challenge Project teams a materials guide for product specification. For manufacturers, it offers an expanded point of entry into these groundbreaking sustainable projects.

“Declare” website

The Living Building Challenge

THE INGREDIENTS LABEL FOR BUILDING PRODUCTS

Declare.

Product Database

HOW TO USE THE DECLARE DATABASE
Products are listed by CSI division number and are filtered by CSI division. Each product has a Declare label that can be viewed by clicking on the product name.

DECLARE LABEL EXPLANATION

Select a division to refine your listing: Any

Select a State/Province: Apply Reset

Declare ID	Product Name	CSI Master Format Division	Manufacturer Name	City	State/Province	Country	LBC Red List Status
88P-0001, 88P-0002, 88P-0003, 88P-0004, 88P-0005, 88P-0006, 88P-0007	GreenFiber Cellulose Insulation	Division 7 - Thermal and Moisture Protection	US GreenFiber LLC (GreenFiber)	Durham, Hoganset, North, Phoenix, Salt Lake City, Texas, Wisco	OH, NY, NE, AZ, UT, FL, TX	USA	LBC Red List Free
448-0001	Modular Caseworks	Division 12 - Furnishings	Harrison Sarker	Fairfield	OH	USA	Red List Compliant
40C-0003 40C-0004	AquaCell B	Division 48 - Water and Wastewater Equipment	AquaCell Water Recycling Systems	Louisville, Sydney	NY, NSW	USA, AU	LBC Compliant
13A-0006	Cold Spring Dimensional Limestone	Division 4 - Masonry	Cold Spring Granite	Cold Spring	NY	USA	Red List Free
13A-0007 13A-0002 13A-0008 13A-0009 13A-0005	Cold Spring Dimensional Granite	Division 4 - Masonry	Cold Spring Granite	Baymond, Cold Spring, Au Sable Park, Marble Falls, Los Osos	CA, MN, WI, TX, ME	USA, CA	Red List Free
88D-0001	Ecobrite	Division 9 - Finishes	Wilson	Springfield	OR	USA	LBC Compliant
88D-0004 88D-0005	2100 Panelized Linear	Division 9 - Finishes	Wilson	Springfield	OR	USA	LBC Compliant
1004-0001	Ballasted Insulated Rammed Earth	Division 10 - Special Construction	Earth Dwell Ltd	On Project Site	On Project Site	On Project Site	LBC Compliant Site
88D-0002 88D-0003	1500 Cross Floor Gills	Division 9 - Finishes	Wilson	Springfield	OR	USA	LBC Compliant
88C-0004	Naturally Northwest	Division 6 - Wood and Plastics	Nati Kally Cabinets	Portland	OR	USA	LBC Compliant
100-0001	BRENDA (Steeldeck Insulated Rammed Earth)	Division 10 - Special Construction	BRENDA, Inc.	On Project Site	On Project Site	On Project Site	LBC Compliant Site
40C-0001 40C-0002	AquaCell B	Division 48 - Water and Wastewater Equipment	AquaCell Water Recycling Systems	Louisville, Sydney	NY, NSW	USA, AU	LBC Compliant
100T-0001	Advanced Vegetative Roof System Bay	Division 7 - Thermal and Moisture Protection	Columbia Green Technologies	Washougal	WA	USA	Red List Free

FOR CONSUMERS
FOR MANUFACTURERS
PRODUCT DATABASE

“Declare” website

IN-HOUSE WORKSHOPS

Designed for
your needs,
delivered to
you.

CHARRETTE FACILITATION

The early
bird gets
the worm.

DESIGN GUIDANCE

Measure
twice, cut
once.

TECHNICAL ASSISTANCE FOR PROJECT TEAMS

The Living Building Challenge



Policy

- 
1. BAINBRIDGE ISLAND, WA
Ordinance 2009-06
2. SEATTLE, WA
**Living Building Pilot
Green Q**
3. CLARK COUNTY, WA
Sustainable Communities Pilot Program
4. PORTLAND, OR
Green Building Policy (proposed)
5. STATE OF OREGON
House Bill 2080
6. EUGENE, OR
Guide 2 Green

REGULATORY INCENTIVES + ORDINANCES

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Case Studies



THERE ARE DOZENS OF PROJECTS IN PURSUIT OF THE CHALLENGE...



TAH MAH LAH - PORTOLA VALLEY, CA
© Mike Martuscello, MGM Construction



SUSTAINABLE BUILDING RESEARCH CENTRE - WOLLONGONG, AUS
© Cox Richardson



PAINTER'S HALL - SALEM, OR
© Pringle Creek Community



HAWAII PREPARATORY ACADEMY ENERGY LAB - WAIMEA, HI
© Matthew Millman Photography, courtesy of Flansburgh Architects



CENTER FOR SUSTAINABLE LANDSCAPES - PITTSBURGH, PA
© Andropogon and The Design Alliance Architects

EXAMPLES OF COMPLETED + IN-PROGRESS PROJECTS PURSUING 'LIVING' STATUS, PETAL RECOGNITION + NET ZERO ENERGY BUILDING CERTIFICATION



EXAMPLES OF COMPLETED + IN-PROGRESS PROJECTS PURSUING 'LIVING' STATUS,
PETAL RECOGNITION + NET ZERO ENERGY BUILDING CERTIFICATION



EXAMPLES OF COMPLETED + IN-PROGRESS PROJECTS PURSUING 'LIVING' STATUS, PETAL RECOGNITION + NET ZERO ENERGY BUILDING CERTIFICATION



EXAMPLES OF COMPLETED + IN-PROGRESS PROJECTS PURSUING 'LIVING' STATUS,
PETAL RECOGNITION + NET ZERO ENERGY BUILDING CERTIFICATION

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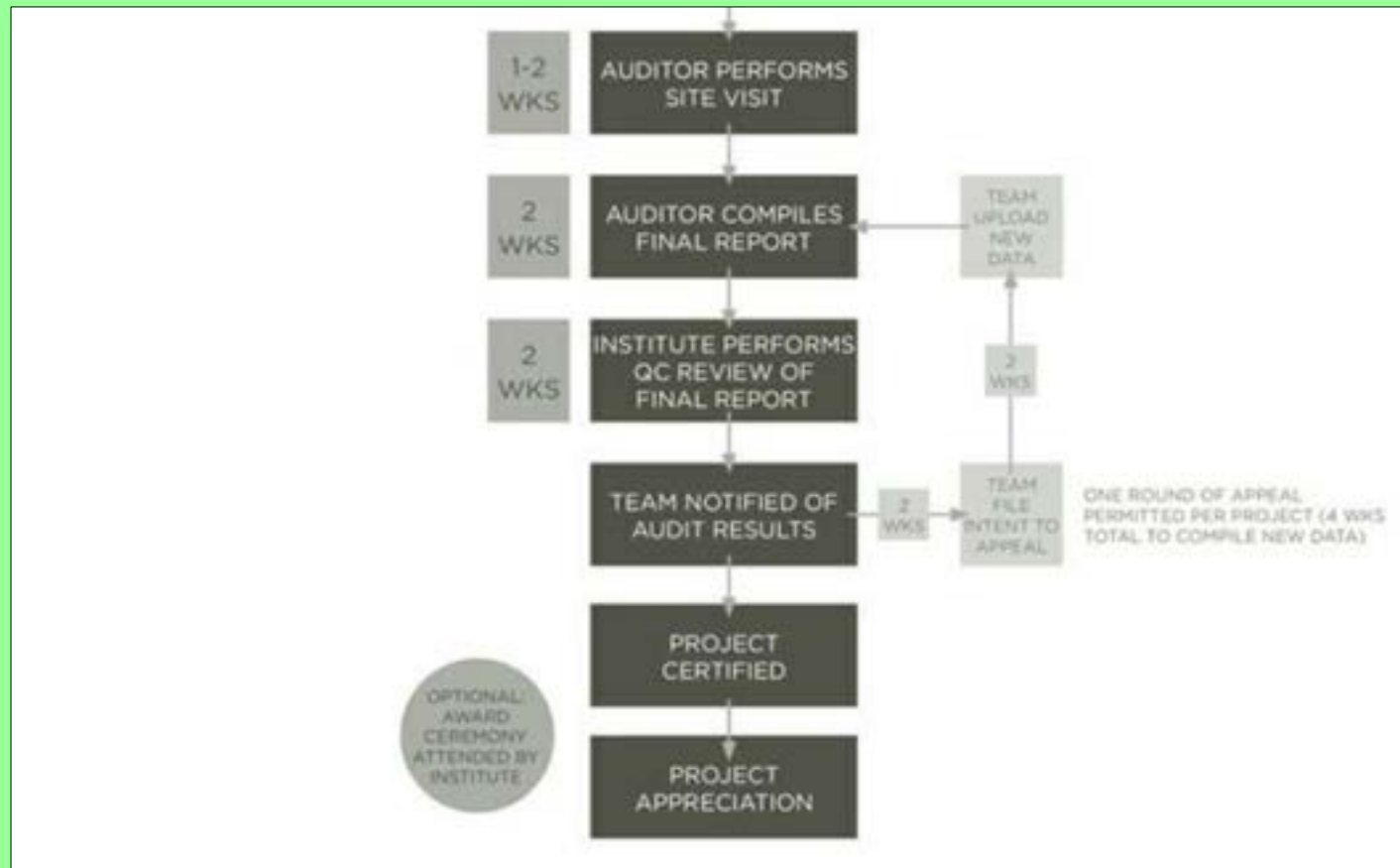
Certification Process

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Certification Process

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Certification Process

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Certification Fees

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Registration is the first step toward earning Living Building Challenge certification or Petal* recognition for your project and is based on its Typology:

- \$500 : Renovation
- \$900 : Landscape + Infrastructure and Building
- \$1200 : Neighborhood

Review the **Process Diagram** for details on the full certification process for registered projects.

Registration Fees

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SINGLE FAMILY RESIDENTIAL

Project Size (sq m)	(sq ft) - approx.	Petal Recognition* (US \$)	Each Add'l Petal (US \$)	Full Certification (US \$)
< 230	<2,475	1,250	250	1,750
230 - 425	2,475 - 4,575	1,500	500	2,500

ALL OTHER PROJECTS

Project Size (sq m)	(sq ft) - approx.	Petal Recognition* (US \$)	Each Add'l Petal (US \$)	Full Certification (US \$)
<500	< 5,380	1,500	500	2,500
500 - 999	5,380 - 10,764	2,000	1,000	5,000
1,000 - 2,999	10,765 - 32,289	3,000	1,500	7,500
3,000 - 4,999	32,290 - 53,819	6,000	2,000	10,000
5,000 - 9,999	53,820 - 107,639	9,000	3,000	15,000
10,000 - 49,999	107,640 - 538,194	12,000	4,000	20,000
50,000 +	538,195 +	15,000	5,000	25,000

Certification Fees

The Living Building Challenge



Annual Conference

LIVING FUTURE® 2013

MAY 15-17, 2013 | SEATTLE, WA
SEATTLE WESTIN

RESILIENCE & REGENERATION

We are a resilient species. It's time we start building like it.



INTERNATIONAL
LIVING FUTURE
INSTITUTE™

At Living Future 2013, we'll create best practices for achieving resilience and regeneration in a changing climate.

KEYNOTES INCLUDE:



David Suzuki, Award-winning Scientist, Environmentalist and Broadcaster



Jason F. McLennan, Buckminster Fuller Prize Winner, Creator of the Living Building Challenge

LIVING FUTURE® 2013

MAY 15-17, 2013 | SEATTLE, WA
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living-future.org/unconference2013



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JOIN.

Access the tools, research and technical resources that guide the construction of Living Buildings, Sites and Communities.



CONNECT.

We all have a role in creating a restorative future. Learn ways to initiate necessary change in your neighborhood.



STRIVE.

Competitions draw forth the brilliant solutions we so urgently need. Share your ideas and see what others have in mind.



REPRESENT.

Let the world know that you are an Ambassador of the Living Building Challenge. Help spread the word and

International Living Building Institute (ILBI) on Facebook
of Like You like this.

International Living Building Institute (ILBI) Who's excited to find out the results of the Living City Design Competition? If you don't know about the competition yet, check it out. <http://ilbi.org/lcdc>

Winner of Living City Design Competition to be Announced at Living Future — ILBI
bit.ly
Design by so|firm | powered by Phone | site by Groundwire

8 hours ago

International Living Building Institute (ILBI) What if a combination office and waste treatment plant that uses methane generated from waste to heat the building directly broke free from conventional aversion to waste treatment and offered hours of the plant to the public?

Wastewater Innovation doesn't have to be hidden from view | Sustainable Industries sustainableindustries.com

The American Institute of Architects and its Committee on the Environment released its top ten green projects of the last year, praising designers' brave ideas during a

1,763 people like International Living Building Institute (ILBI).

Marjorie Neil Cameron Isaac Lewis Frances Anne Tala

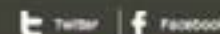
Facebook social page



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JOIN OR START A COLLABORATIVE IN YOUR COMMUNITY

livingbuildingchallenge.org/facilitate



BECOME A VOLUNTEER PRESENTER IN THE AMBASSADOR NETWORK
livingbuildingchallenge.org/presenter



A CALL TO ACTION:

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Thank You



Thomas Brown

A R C H I T E C T

Environmentally-responsive design

1052 Main Street Stevens Point, WI 54481 715.341.9596

LEED ACCREDITED PROFESSIONAL

tbrownarch@gmail.com www.tombrownarchitect.com