



EARLY PROJECT GUIDANCE

JANUARY 2022

LIVING BUILDING
CHALLENGE 4.0 +
CORE GREEN BUILDING
CERTIFICATION



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Early Project Guidebook - Living Building Challenge and Core

1 — Last update: 1 August 2022

International Living Future Institute

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Early Project Guidebook – LBC and Core



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The International Living Future Institute is a non-profit organization offering green building and infrastructure solutions at every scale—from small renovations to neighborhoods or whole cities. The mission of the Institute is to lead and support the transformation toward communities that are socially just, culturally rich and ecologically restorative. The Institute administers the Living Building Challenge, the built environment’s most rigorous and ambitious performance standard, as well as additional initiatives and programs described on the Institute’s [website](#).

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Cover Photo: The Kendeda Building for Innovative Sustainable Design at the Georgia Institute of Technology in Atlanta, GA is pursuing Living Building certification. Photo courtesy of Georgia Tech

January 2022

The following Early Project Guide for the [Living Building Challenge 4.0](#) and [Core Green Building Certification](#), published January 15, 2022, is the current update of the Guide. Previous iterations of the Guide are available for download [here](#).

Introduction

The [Living Building Challenge](#) (LBC) is a certification program, advocacy tool, and philosophy defining the most advanced measure of sustainability in the built environment today. As a certification program, it addresses all buildings, landscapes, and infrastructure projects, at all scales, and is an inclusive tool for transformative design. Whether the project is a single building, a renovation, or a park, the Living Building Challenge provides a framework for design, construction, and improvement of the symbiotic relationship between people and all aspects of the built and natural environment.

The [Core Green Building CertificationSM](#) (Core) joins the Living Building Challenge as a simple yet holistic framework outlining the ten best-practice achievements that a building must obtain to be considered a green or sustainable building.


This Early Project Guidebook (Guidebook) highlights requirements that determine basic feasibility for LBC and Core projects and provides guidance on elements that classify the project for purposes of certification, including Typology, Project Area, and Living Transect designation. It is an online resource accessible with [ILFI membership](#).

How to Use this Guidebook

The Guidebook is meant to be used in conjunction with the [Petal Handbooks](#), which provide additional essential detail on compliance requirements and documentation for certification under the [Living Building Challenge 4.0](#) or [Core Green Building](#) Standards. The Petal Handbooks are accessible online with [ILFI membership](#).

Note that project teams must follow all rules in place at the time of their project registration with ILFI. Those rules are established through the Standards, the Petal Handbooks, and the [Dialogue](#). The Dialogue is the platform through which project teams request exceptions or clarifications or propose innovations. Rules for a given standard established after a project's registration date may be followed at the team's discretion. More information about the [Petal Handbooks and the Dialogue](#) is provided near the end of this Guidebook.

Where text in this Guidebook references Imperatives common to both Core and LBC, the numbers used in the respective Standards will be cited, followed by the Imperative name, which does not change between the Standards. The LBC numbers are preceded by the letter I and the Core numbers are preceded by the letter C, as in the example: I05/C3, Responsible Water Use.

 “The secret of getting ahead, is getting started.”
– *Mark Twain*

Assessing Feasibility

The [Living Building Challenge](#) and [Core Green Building Certification](#) are appropriate for buildings, renovations, landscapes, and infrastructure projects at any scale and in any location, within certain limitations explained in brief below. More information is provided in the [Petal Handbooks](#), available with [ILFI membership](#).

Core Imperatives

With the launch of [LBC 4.0](#) (LBC) and the introduction of the [Core Green Building Certification](#) (Core), all projects—whether pursuing Living, Petal, or Core certification—must comply with the requirements of all ten Core Imperatives as a part of certification. In previous versions of the LBC, projects could be recognized with Petal Certification through achievement within a limited scope of Imperatives across three or more Petals. Starting with LBC 4.0, projects must reach a basic level of achievement across all seven Petals. These Core Imperatives are identified in Table 1, in the Typology section of this document.

For more information about how the Core Imperatives relate to Petal and Living Certification, see the LBC 4.0 Standard available on the ILFI website and member pages. Detail on the requirements for the Core Imperatives is integrated into the [Petal Handbooks](#).

Prohibited Sites

The first Core Imperative, [I01/C1 Ecology of Place](#), identifies several place types on which projects may not be sited. These are: [pristine greenfield](#), [wilderness](#), [prime farmland](#), and [floodplain](#), unless the site qualifies for an [exception](#) listed in the Place Petal Handbook.

Projects must also protect [thriving vibrant ecological environments and habitats](#). These are habitats that have been subject to manmade disturbance, but which still retain valuable ecological function, such as a third-growth forest that has been left to regenerate. Though these habitats may occur over large expanses, they may also be found in smaller pockets on a portion of a larger site. Where a project site contains areas of both previously heavily impacted land and thriving ecological habitat, the site must be developed in a way that protects, and provides for restoration of, the thriving ecological habitat.

It should also be noted that any hazardous material on a site must be remediated prior to construction. More detail about site requirements as well as Exceptions, is provided under the [Ecological Clarifications](#) and [Ecology of Place Clarifications](#) in the Place Petal Handbook.

Combustion

Living Buildings are intended to be examples of the highest level of environmental performance currently possible. Combustion perpetuates the consumption of fossil fuels or biomass, has negative impacts on both

ecological services and air quality, and is a major contributor to climate change.

New construction projects pursuing certification under [Core](#) or the [Living Building Challenge](#) may not contain combustion-based equipment, unless they meet an exception. Note that this is also true for [Zero Energy](#) and [Zero Carbon](#) certifications.

Existing and Interior projects may retain existing combustion-based heating, ventilation, and air conditioning systems, where modification to the system is not in the project scope.

Additional detail on requirements and exceptions related to combustion can be found in the [Energy Petal Handbook](#). In some cases, limited presence or use of combustion-based systems and equipment is allowed in new construction. For example, combustion generators are allowed for emergency use at critical facilities, and fireplaces are allowed in certain situations within certain Living Transects. Project teams should carefully review their energy strategy to ensure that they can comply with this Imperative.

Determine Basic Project Information

Overview

In order to properly apply [LBC](#) and [Core](#) requirements, project teams will need to identify a project's [Typology](#), [Living Transect](#), and [Project Area](#). The Typology affects which Imperatives are required, and the project's Living Transect affects the applicability of certain requirements and exceptions. The Project Area is used to calculate thresholds of compliance for some Imperatives. Establishing these basic aspects of the project is an important step in understanding the requirements for pursuing the Living Building Challenge or Core.

Typology

Every project is classified as either New Building, Existing Building, Interior, or Landscape + Infrastructure Typology. The Typology designation determines which Imperatives apply to the project, with Imperatives not being required where the conditions are either not applicable or may compromise other critical needs. However, project teams are encouraged to integrate the optional Imperatives into their projects wherever possible.

The Summary Table from the [Living Building Challenge Standard](#), which lists the mandatory Imperatives for both LBC and Core under each project type, is provided in [Table 1](#). For guidance in identifying the project Typology, refer to [Figure 1, Typology Decision Matrix](#) and the following definitions.

NEW BUILDING

This Typology is for any project that encompasses the construction of a new building or a new addition to an existing building.

EXISTING BUILDING

This Typology is for any project that alters either the thermal envelope or the major systems of an existing building.

INTERIOR

This Typology is for any project that does not alter either the envelope and/or the major systems of a building. The base building may be newly constructed or existing, but to be considered Interior Typology, the project scope must not include modification to any of the building envelope or the base building systems, including: electrical, conditioning, ventilation, or water systems.

LANDSCAPE + INFRASTRUCTURE

This Typology is for any project that either does not include an enclosed structure as part of its primary

program, or includes an enclosed structure, but it is not considered [regularly occupied](#). Examples include parks, roads, bridges, plazas, sports facilities, trails, or utility structures.

While an enclosed structure is typically not the focus of the primary program, the overall scope of a Landscape and Infrastructure project may incorporate open-air “park-like” structures, restrooms, amphitheaters, or structures intended to provide weather protection to infrastructure.

MIXED TYPOLOGIES

Not all projects will fall entirely into one of the Typologies identified above. For example, a new addition to an existing building that is undergoing renovation, for which the intent is to certify the entire building, would be considered a Mixed Typology. In that example, the applicable Imperatives would be those identified for the New Building Typology, but the efficiency targets could be adjusted according to the proportion of New vs. Existing building area. See clarifications in the Petal Handbooks for Imperative 05/C3, Responsible Water Use and Imperative 06/C4, Energy and Carbon Reduction. To clarify requirements for other Typology combinations, project teams should contact lbc.support@living-future.org.

For more information on registering multiple buildings as a single project, see [Multiple Buildings](#).

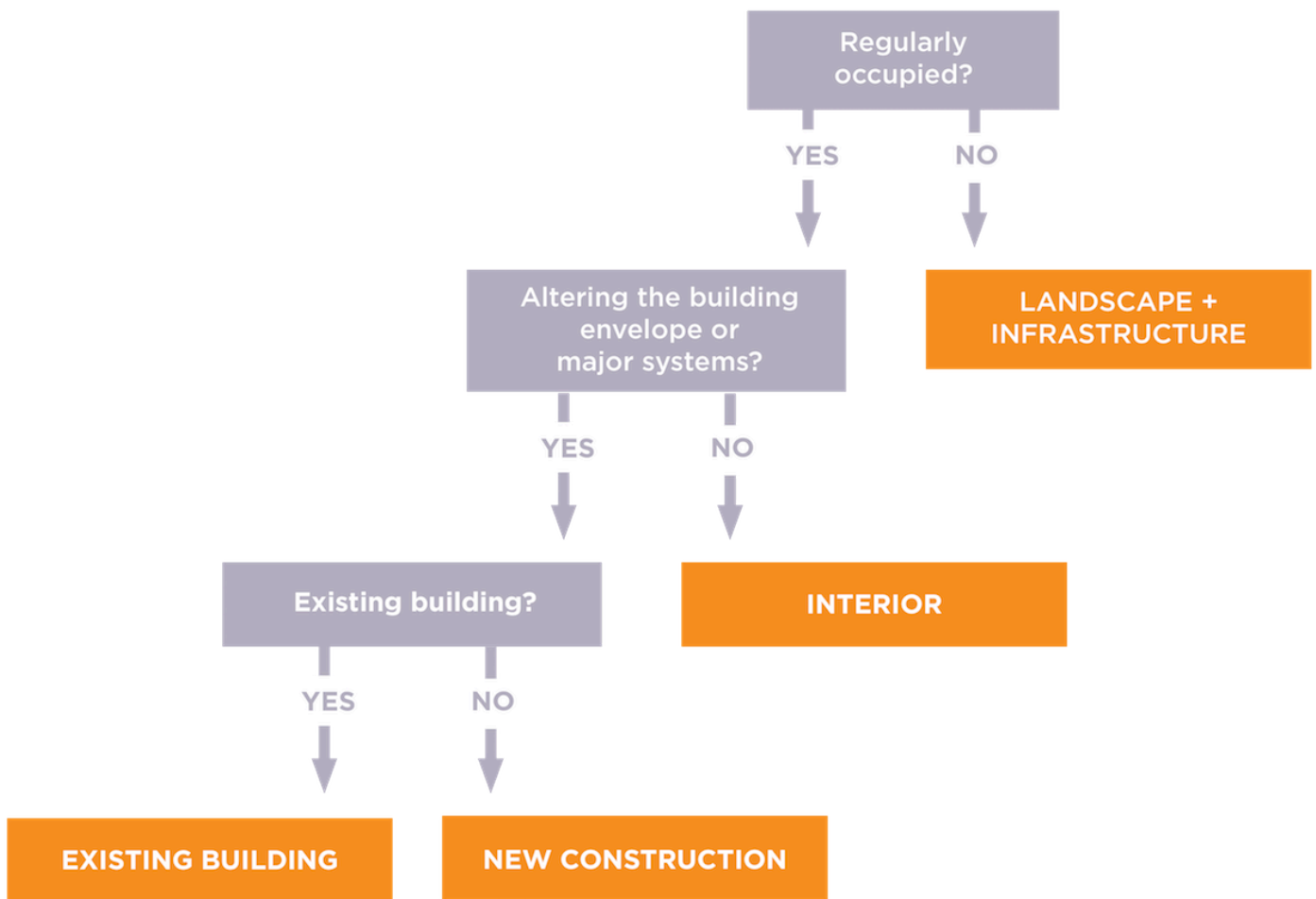


Figure 1. Typology Decision Matrix

Still Not Sure?

If your project doesn't fall under one of the above categories or if the Typology is unclear after following the above guidelines, please reach out to lbc.support@living-future.org.

Applicable Imperatives

For Existing Building, Interior, and Landscape + Infrastructure [Typologies](#), the requirements for certain Imperatives are dependent on the project scope, as indicated in Table 1. Additional information regarding scope-dependent requirements is provided for the relevant Imperatives in the [Petal Handbooks](#).

Table 1. LBC Imperative Summary Table

SUMMARY TABLE

The Living Building Challenge is composed of 20 Imperatives grouped into seven petals. Some Imperatives are not required for all Typologies.

PETAL	IMPERATIVE	TYPOLOGY			
		New Building	Existing Building	Interior	Landscape + Infrastructure
PLACE	01 Ecology of Place	Required	Scope Dependent	Required	Required
	02 Urban Agriculture	Required	Required	Required	Required
	03 Habitat Exchange	Required	Required	Required	Required
	04 Human Scaled Living	Required	Scope Dependent	Scope Dependent	Required
WATER	05 Responsible Water Use	Required	Required	Scope Dependent	Required
	06 Net Positive Water	Required	Required	Required	Required
ENERGY	07 Energy + Carbon Reduction	Required	Required	Scope Dependent	Required
	08 Net Positive Carbon	Required	Required	Required	Required
HEALTH + HAPPINESS	09 Healthy Interior Environment	Required	Required	Required	Required
	10 Healthy Interior Performance	Required	Required	Required	Required
	11 Access to Nature	Required	Required	Required	Required
MATERIALS	12 Responsible Materials	Required	Required	Required	Required
	13 Red List	Required	Required	Required	Required
	14 Responsible Sourcing	Required	Required	Required	Required
	15 Living Economy Sourcing	Required	Required	Required	Required
	16 Net Positive Waste	Required	Required	Required	Required
EQUITY	17 Universal Access	Required	Scope Dependent	Scope Dependent	Scope Dependent
	18 Inclusion	Required	Required	Required	Required
BEAUTY	19 Beauty + Biophilia	Required	Required	Required	Required
	20 Education + Inspiration	Required	Required	Required	Required

- CORE IMPERATIVE
- SCALE JUMPING ALLOWED
- HANDPRINTING IMPERATIVE
- IMPERATIVE REQUIRED FOR TYPOLOGY
- REQUIREMENT DEPENDENT ON SCOPE
- NOT REQUIRED FOR TYPOLOGY

Note that the table indicates required Imperatives for both Core and LBC certification. Though the Imperative numbers differ between the Standards, the content and Imperative name remain the same.

Project Area

Every project must have a Project Area that is consistent across all Imperatives. The Project Area is applied to a number of calculations within [Core](#) and [LBC](#). The Project Area must include all areas that are disturbed by the project work, including any areas used during construction, utility conveyance or staging. Any areas that include features used to help meet performance requirements of any Imperative must be included in the Project Area, except areas accessed through [Scale Jumping](#) or that are associated only with requirements to invest in third-party offsets (i.e. land contributing to I03 Habitat Exchange or I08 Carbon Offset). Please see Figure 3 for one example.

Typically, the Project Area will include the entire property. However, projects may exclude areas of their property either for ecological reasons or because the property is many times larger than the project itself, as is often the case in rural areas. Ecologically based reasons to exclude an undisturbed portion of the property from the Project Area may be allowed on a case-by-case basis. In such circumstances, the Project Area may include non-contiguous areas of land, as shown in Figure 2.

Additionally, existing surface parking may be excluded from the Project Area in some circumstances. For more information, see the [Surface Parking Clarification](#) in I04/C2 Human-Scaled Living.

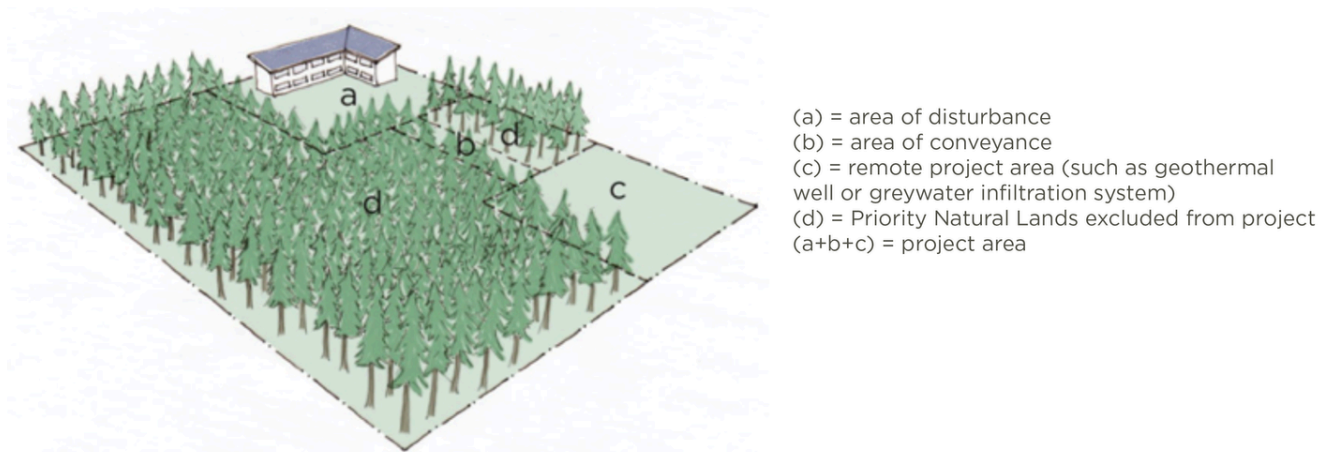


Figure 2. Project Area with ecological exclusion.

CAMPUS OR OTHER LARGE SITES UNDER SINGLE OWNERSHIP

Since the property lines of a campus, or other similarly large parcel of land owned by a single entity, may exceed the boundaries of a given construction scope, LBC or Core projects on campuses must determine a reasonable Project Area. LBC or Core projects on campuses must include all disturbed areas in the Project Area, including all land used for construction work, conveyance, or staging. Undisturbed areas that are clearly linked to the certifying project (e.g., an associated courtyard or parking area) must also be included.

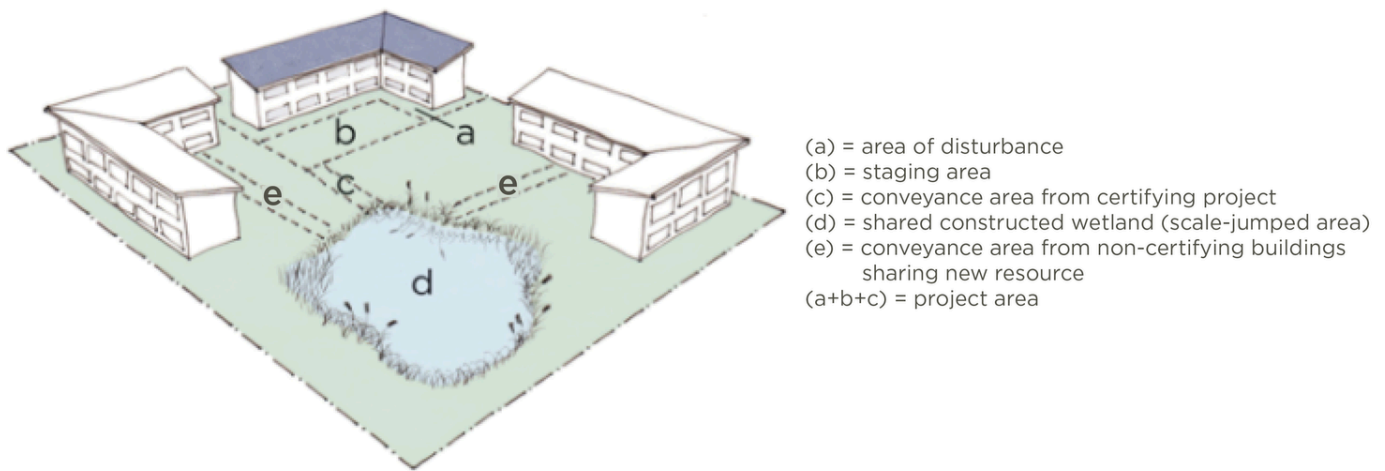


Figure 3. Campus Project Area

PARTIAL BUILDINGS

As a general rule, certification of only part of a new building is not an option. For example, Core and Shell projects are not eligible for certification.

However, exceptions to this rule exist for the Interior [Typology](#) and building additions. Further, project teams may seek required approval in advance to certify part of a new building, if the portion of the building to be certified meets all of the following conditions:

- It comprises at least 75% of the gross square footage of the new building;
- It is separately funded, owned, and operated;
- It is physically and visually distinguishable from the part of the building not pursuing certification, by for example, a clean horizontal or vertical break, or comprising an entire floor or floors;
- The Project Area must include the entirety of, and not pro-rate:
 - Shared systems or equipment, if they cannot be clearly separated by metering and
 - Portions of the site that are controlled or partially controlled by the certifying project owner, and that are integral to compliance or to the function of the certifying portion of the building.

Note that a distinction between occupancy types may also play a role in distinguishing the different portions of the building, but is not enough on its own.

In addition, any project using this certification path will need to work with ILFI to ensure that the certified project title accurately indicates which part of the building is certified.

To request advance approval for pursuing certification of a partial building, project teams should submit to the Dialogue with documentation demonstrating that the project meets the criteria listed above.

SCALE JUMPING



Scale Jumping is an alternative compliance strategy permitted for some Imperatives. Scale Jumping acknowledges that the optimal scale for solutions can vary based on environmental impacts, costs and community needs. Imperatives allowing the Scale Jumping strategy are identified in Table 1 and an explanation of the general concept follows here. Details regarding requirements and criteria for use are provided in the [Petal Handbooks](#).

Scale Jumping allows Imperative requirements to be met offsite by cooperating with the owners of the offsite location(s) in a way that extends the benefits of the Imperative. Scale-jumped land must have at least one of the following two attributes:

- It serves multiple buildings or projects, allowing them to operate in a cooperative state.
- It is outside of the project property and therefore requires cooperation with another property owner. Generally, projects are encouraged to meet all requirements on their own project site, but Scale Jumping offers flexibility where there is a constraint that makes on-site compliance particularly difficult, or there is an opportunity for additional benefits to the community or ecology.

[Figure 5-5](#) in the Water Petal Handbook provides a useful illustration of Scale Jumping that provides an economy of scale. Another approach to Scale Jumping that resulted in creation of a shared community resource is seen in the case of a [new building on a constrained site](#), in which the owners developed relationships with local organizations to establish 7,100 sf of urban agriculture at three different community gardens to provide not only a source of fresh produce, but also a teaching tool.

Land used as part of Scale Jumping does not typically need to be included within the Project Area. However, remote parking (i.e., parking constructed off-site specifically to serve the LBC project) is not considered Scale Jumping, and therefore is included within the Project Area. Parking that is shared with other projects should be included in the Project Area on a pro-rated basis. Additionally, offsite areas that are owned by the project are not considered part of Scale Jumping and must be included within the Project Area.

Land and system components added for project compliance through Scale Jumping must meet all Imperatives pursued by the project. Scale Jumping proposals should be confirmed through the Dialogue to ensure they are compliant.

HANDPRINTING



Handprinting is another compliance approach, allowed in some circumstances, to compliance that involves improvements installed outside the Project Area. The concept of a handprint is related to the concept of an ecological footprint, but where a footprint represents a negative impact, a handprint reflects a positive contribution. The reference point for that positive contribution is [Business As Usual](#) (BAU), which is essentially the typical way of doing something or the way it's been done in the past. A handprint results in an improved condition by preventing or reducing a footprint that would have occurred under BAU, or by creating a positive benefit that would not otherwise have occurred. An example of this idea is installing low-flow fixtures to reduce potable water use

at a school in the same watershed as a project that couldn't achieve its potable water reduction requirement onsite (also see [figure 5-4](#) in the Water Petal Handbook).

Handprinting is permitted as a strategy for all projects pursuing IO6, Net Positive Water when grey and black water treatment cannot be accomplished onsite. It is also available to affordable housing projects for meeting potable water reduction requirements in IO5/C3, Responsible Water Use and as a strategy for meeting water supply requirements in IO6, Net Positive Water.

More information on specific requirements related to Handprinting for LBC and Core is provided in the [Water Petal Handbook](#). For a deeper exploration of the thinking behind Handprinting, see the [LPC Handprinting Guide](#). Though developed to assist manufacturers apply the concept to the [Living Product Challenge](#), the expanded discussion may also help project teams identify possibilities for buildings.

The area where the Handprinting measure is carried out does not need to be included in the Project Area.

The Difference Between Scale Jumping and Handprinting

While there is overlap in the concepts of Scale Jumping and Handprinting given that both involve meeting Imperative intent by providing benefit outside the Project Area, the principle difference between the two approaches is that while Scale Jumping typically involves relocating offsite a strategy that would be permitted onsite, Handprinting generally adopts a different strategy altogether, providing an offset that occurs offsite to compensate for resource consumption onsite. In addition, the idea behind Scale Jumping is that it allows all parties to benefit from an efficiency of scale, as in the campus example shown in [Figure 5-5](#) in the Water Petal Handbook, and in the Urban Agriculture example cited above that resulted in a new communal asset.

Living Transect

The requirements of select Imperatives and some exceptions can vary depending upon a project's Living Transect (Transect). The Transect concept is based on the work of [Duany Plater-Zyberk and Company](#), but has been altered slightly to encourage [LBC](#) and [Core](#) teams to avoid a suburban development model that creates sprawl.

Determination of a project's Transect requires an understanding of the project site and the context around the project site. Some project teams will find that a simple review of the Transect descriptions below, and consideration of the density of the project area as well as the density and use type of the surrounding neighborhood, is sufficient to determine their project's Transect.

Other teams may find that their project defies easy classification. An inaccurate designation creates a risk that the project team may incorrectly apply Transect-based Imperative requirements. Project teams that are uncertain of their Transect are encouraged to reach out to lbc.support@living-future.org for confirmation. When doing so, please provide the project's site address, the proposed Transect designation, the rationale for the proposal, and any context documentation that might be helpful (e.g., [documents](#) for Imperative IO1/C1 Ecology of Place, aerial and street view images, maps, and/or planning documents).

The six Living Transects are described below. Many of the descriptions reference mixed-use development, the ideal result of which is walkable, dynamic communities. While this aligns with the intent that new construction not create sprawl, mixed-use isn't always a component of existing development and therefore not necessarily a defining characteristic of a surrounding Transect. This is particularly evident in areas that otherwise display the characteristics of Transect L3 and L4.

Project teams should be aware that there are some Transect-based prohibitions on development, and related exceptions, that can be found in the Place Petal Handbook under [Imperative 01/C1, Ecology of Place](#).

L1 Natural Habitat Preserve is comprised of land that is set aside as a nature preserve or that is defined as wilderness, pristine greenfield, or other thriving, vibrant ecological environments and habitats. It may not be developed except in limited circumstances related to the preservation or interpretation of the landscape, as outlined in the [Place Petal Handbook](#).

L2 Rural Agricultural Zone is comprised primarily of land that is used for agriculture and food production-based development, as well as the outlying areas of small towns and villages. The L2 Transect is sparsely populated.

L3 Village or Campus Zone is comprised of relatively low-density, mixed-use development found in rural villages and towns, and low-density neighborhoods on the margins of small or medium cities, and may also include college or university campuses. It is often, but not always, characterized by curvilinear streets and larger setbacks.

L4 General Urban Zone is comprised of light- to medium-density, mixed-use development found in larger villages, small towns, or at the edge of larger cities. Development that is primarily residential, with a high percentage of single family homes on roadways oriented on a grid, typifies an existing L4 community.

L5 Urban Center Zone is comprised of a medium- to high-density, mixed-use development found in small to mid-sized cities or in the first "ring" surrounding the core of a larger city. The L5 Transect is typically characterized by a diversity of uses, limited or no setbacks, multi-story buildings, and extensive impervious cover. Where there is residential development, it is typically multi-family. Not all small or mid-sized cities have sections with the requisite characteristics of L5, but where it does exist, it is the densest section of the city.

L6 Urban Core Zone is comprised of high-to very high-density mixed use development found in large cities and dense metropolitan areas. L6 areas are typically characterized by zero lot lines and extensive impervious cover, high rise buildings, which may include skyscrapers, and a high diversity of uses. While the L6 Transect encompasses a range of densities, with the downtown and financial districts of places like Manhattan, London, and Hong Kong being examples of the very high-density end of the range, the entry point is high density, which will only occur in larger cities and dense metropolitan areas.

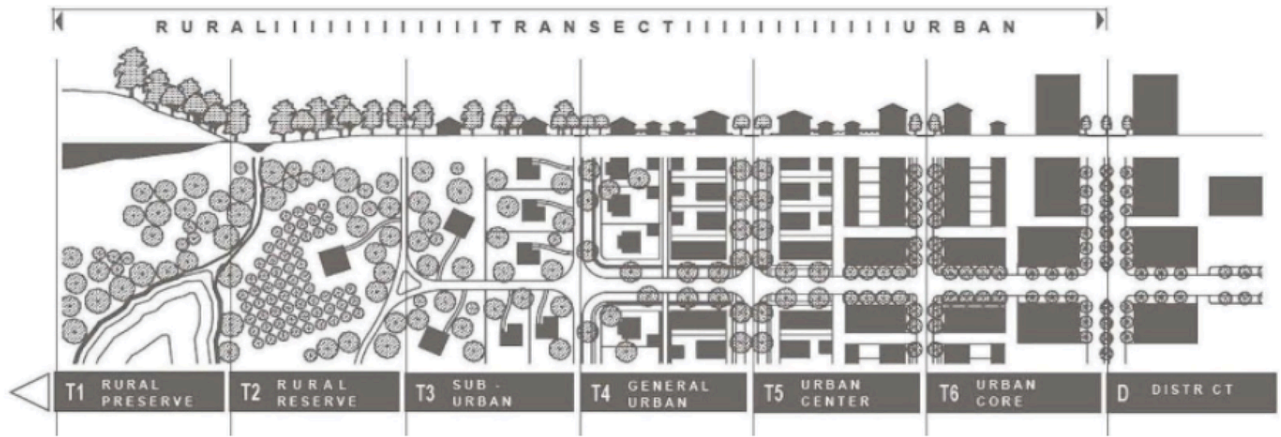


Figure 4. Duany Plater-Zyberk + Company Transects. A land development concept using Transects to describe a continuum from rural to urban, developed by Duany Plater-Zyberk + Company. This is the basis for the Transect system used within the LBC and Core.

Register a Project

Registration

Registration is the first step in the certification process for all ILFI building programs. While projects can register at any time, it is advantageous to start the process early to gain access to various resources and support that can guide the project towards successful achievement of the program requirements.

ILFI's [Project Registration Details](#) page outlines the program fees, benefits, and registration process. When a project team is ready to register or has questions about registration, they should email sales@living-future.org or [schedule a virtual meeting](#). ILFI's Sales team will then walk the team through the registration process.

Multiple Buildings

SINGLE REGISTRATION OF MULTIPLE BUILDINGS

Projects consisting of multiple buildings that have sufficient integration of design, schedule, and performance to be readily audited as a single project, have the option to register as such, if all of the following are true:

- The buildings are on a single clearly delineated site;
- Energy data are aggregated into one set of data;
- Water data are aggregated into one set of data;
- Materials and associated costs are aggregated into one set of data;
- All buildings within the project are of the same Typology, pursuing the same level of certification, which under Petal certification, means the same Petals. If the buildings represent more than one Typology, all buildings must meet the more comprehensive of the applicable suite of Imperatives. For example, if a project includes both New and Existing Buildings, the Existing Buildings, as well as the New Buildings, must achieve the Imperatives required under the New Building Typology;
- All buildings have the same performance period. The performance periods may not be staggered or phased;
- A cohesive design and construction effort with continuity of both project ownership and project management;
- If pursuing Imperative 08, Net Positive Carbon and using the EC-12 Off-Site Renewables Exception, documentation for the project is provided in aggregate; and
- The name of the project accurately reflects the certified project scope. For example, if any buildings within a complex are excluded, the name must not imply that the excluded buildings are also certified.

Data Aggregation

Project teams should note that while data must be aggregated when submitting documentation for a single certification covering multiple buildings, all metering/submetering and documentation requirements identified

in the Petal Handbooks for the Imperatives being pursued, still apply.

The aggregation of water and energy data means that readings from all buildings are combined, which enables review as a single set. It also means that the required efficiency and/or net positive balance, depending on the certification being pursued, does not need to be achieved by each individual building, as long as it is met overall. In other words, if some buildings do not achieve the applicable requirements, but those shortfalls are matched or exceeded by better performance in other buildings so that when taken together the target is met, the requirement would be achieved.

ADDITIONAL CERTIFICATION PATHS

For projects that don't meet the criteria for registration as a single project, including those that encompass a portfolio of sites, project teams are encouraged to contact sales@living-future.org to discuss additional options.



“The living building challenge has pushed me and my colleagues to grow in new and unexpected ways, far outside of our comfort zones. It has expanded the boundaries of our knowledge and experience, testifying to the importance of the word “challenge” in its title. It is also pushing us all into new ways of thinking and doing and is influencing every other project that we touch.”

– *Sandy Wiggins (project team member)*

Resources

AFFORDABLE HOUSING

ILFI has a variety of strategies for supporting Affordable Housing projects interested in achieving any of its building certifications. These include technical support documents and online curriculum tailored to Affordable Housing projects, case studies, and periodic solicitation of a cohort of projects committed to certification, that receives comprehensive technical support over a three-year period. For more information about the Institute's Affordable Housing Program, please visit the Affordable Housing page on the Institute's website or email affordablehousing@living-future.org.

CUSTOMER SERVICE

Project teams that have general questions about LBC or Core, or about how the Standards might apply to an unregistered project, are encouraged to contact sales@living-future.org. Registered project teams with general or specific questions are encouraged to e-mail lbc.support@living-future.org. Requests regarding unusual situations or strategies that aren't addressed in the [Petal Handbooks](#) should be posted to the Dialogue (see following section).

THE DIALOGUE

The Dialogue is the online forum for requesting precedent-setting clarifications, exceptions, and definitions related to program requirements. In responding to those requests, ILFI provides guidance on situations, devised strategies, or innovations that were not contemplated by the rule set articulated in the Petal Handbooks. Anyone can review the posted questions and rulings, but only registered project teams can submit posts to the Dialogue. The searchable Dialogue can be found at <https://support.living-future.org/collection/43-lbc-dialogue-and-instructions> and instructions for registered project teams to submit posts to the Dialogue can be found at <https://support.living-future.org/article/1008-about-the-dialogue-and-how-to-post>.

PETAL HANDBOOKS

Project teams are strongly encouraged to review the full suite of [Petal Handbooks](#) early in the project. The handbooks contain essential detail about Imperative requirements, including important clarifications and exceptions, and specifics on how to demonstrate compliance. The handbooks define the requirements for each Petal as of the date of issue, and are updated quarterly (beginning each January) to reflect additional clarifications, exceptions, and definitions, including precedent-setting rulings from the Dialogue. Dialogue posts incorporated into the handbooks also remain searchable online.

Project teams are held to the Petal Handbook information that is current on the date of project registration, but may elect to incorporate rulings from subsequent Dialogue posts and Petal Handbook updates at their discretion. Project teams are encouraged to check the Dialogue and later editions of the Petal Handbooks to remain up-to-date on new information. Access to the Petal Handbooks is available with an ILFI membership.

TECHNICAL ASSISTANCE

Customized assistance is offered by the Institute to support a project team's process of adopting the principles of LBC and Core. Optional fee-based technical services from ILFI may include custom education, charrette facilitation, feasibility studies, workshops, organizational standards and policy reviews, or other customized consultations. Project teams interested in learning more about technical assistance are encouraged to contact lbc.support@living-future.

WEBSITE

The ILFI website has many additional resources for project teams. It has up-to-date registration and certification fee schedules, case studies of all certified projects, research papers, policy documents, tracking tools, and templates for project teams. Here are some links that project teams may find helpful:

- [Policy + Advocacy](#)
- [Research Studies](#)
- [Project Team Resources](#)
- [Certified Project Case Studies](#)

OTHER ILFI PROGRAMS

ILFI offers a number of additional certifications and labels for buildings, products, and businesses. A brief overview of each can be found in the [Introduction of the Petal Handbooks](#), with additional information provided on the [ILFI website](#).

Summary of Changes

The Guidebook is updated quarterly to reflect new Clarifications and Exceptions resulting from Dialogue posts, add clarifying text, tables or graphics, and make other amendments or additions that improve the clarity and content of the guidebook. Quarterly updates will occur in January, April, July, and October of each year, at which time this Early Project Guidebook will be revised and the cover page time stamped with the latest revision date. See Previous Versions of the Guidebook in the Table of Contents for a link to download pdf's of previous versions.

At each update, a summary of the substantive changes is provided here.

January 2022 Updates – Early Project

This summary lists by section heading, the January 2022 updates to the Early Project Guide originally published February 2021. Corrections made throughout for grammar, punctuation, nomenclature, typos, and links are not included.

Changes to the Introduction – Early Project (Q4/21)

January 2022

No changes

Changes to How to Use this Guidebook (Q4/21)

January 2022

No changes

Changes to Assessing Feasibility (Q4/21)

January 2022

CORE IMPERATIVES

No changes.

PROHIBITED SITES

No changes.

COMBUSTION

No changes.

Changes to Determine Basic Project Information (Q4/21)

January 2022

PROJECT AREA

- Multiple Buildings
 - Partial Building
 - Criteria added stipulating that the certifying portion of the building must constitute at least 75% of the gross square footage.
 - Edits made for consistency and clarity of meaning.

Changes to Register a Project (Q4/21)

January 2022

No changes

Changes to Resources (Q4/21)

January 2022

No changes

Previous Versions of the Guidebook

Early Project Guidebook

[Publish date January 29, 2021](#)

ILFI Program Glossary

A-G Terms

100-Year Flood

A flood having a one percent chance of being equaled or exceeded in magnitude in any given year (not a flood occurring once every 100 years).

100-Year Floodplain

The area adjoining a river, stream, or watercourse covered by water in the event of a 100-year flood.

Adaptive Management

An ongoing process for improving management policies and practices by applying knowledge learned through assessment of previously employed policies and practices to future projects and programs. Also, the practice of revisiting management decisions and revising them in the light of new information.

Adaptive Plan

An Adaptive Plan is a plan for improving the ecological function of a site based on the principles of Adaptive Management, establishing the vision, goals, objectives, and quantitative metrics, as well as the monitoring and maintenance strategies, to be applied to a project.

Adaptive Reuse

The process of reusing a site or building for a purpose other than the original purpose for which it was built or designed.

Adjacent Properties

Properties or developments that share a property line with the project.

Affordable Housing

A project that is financially accessible (<30 percent of household income for gross housing costs, including utilities) to renters who make <60% of median family income (MFI) or unit owners who make <80% of median family income (MFI). The project must retain its affordable status for at least 40 years.

Agriculture

The science and art of cultivating the soil; including the allied pursuits of gathering in the crops and rearing livestock; tillage, husbandry, farming.

Agroforestry

A system of land use in which harvestable trees or shrubs are grown among or around crops or on pastureland as a means of preserving or enhancing the productivity of the land.

Alley

A narrow lane or passage, especially one between or behind buildings.

Alternative Daily Cover (ADC)

Material other than earthen material placed on the surface of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging.

Apiary

A place in which a colony or colonies of bees are kept, such as a stand or shed for beehives or a bee house containing a number of beehives.

Appropriate Durability

Designing or selecting products that last only as long as they need to function in the project, and can then be composted or recycled.

Aquaculture

The active cultivation (maintenance or production) of marine and freshwater aquatic organisms (plants and animals) under controlled conditions.

Aquaponics

A sustainable food production system that combines traditional aquaculture (raising aquatic animals such as snails, fish, crayfish, or prawns in tanks) with hydroponics (cultivating plants in water) in a symbiotic environment.

Area of Disturbance

The area of land altered by the project, including land used for construction staging or any construction activities, including tunneling or conveyance.

Authority Having Jurisdiction (AHJ)

The organization, office, or individual responsible for permitting and enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

Baseline Condition

A description of current biotic and abiotic elements of site prior to restoration, including its structural,

functional and compositional attributes and current condition (per Society for Ecological Restoration, SER 2004).

Biomimicry

The imitation of natural biological designs or processes in engineering or invention.

Biomorph

A painted, drawn, or sculptured free form or design suggestive in shape of a living organism, especially an ameba or protozoan. Adjective: Biomorphic.

Biomorphy

The act of creating a biomorph.

Biophilia

The innate, evolutionary connection between human beings and nature and other living organisms.

Biosolids

The nutrient-rich organic material (byproduct) made from the stabilized sewage sludge from a composting toilet, other sewage treatment, or resource recovery facility. Biosolids can typically be recycled as a soil amendment for crops.

Black water

Discharged water containing solid and liquid human wastes from toilets and urinals. Also, called Sewage.

Brownfield

With certain legal exclusions and additions, the term “brownfield site” means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfields are designated as such by the US Environmental Protection Agency (EPA) or equivalent state, county, or other jurisdictional body.

Business as usual (BAU)

Business as usual (BAU) is the baseline reference point for handprinting. In simplest terms, BAU refers to a repeat of past practices from the year before. More formally, it refers to: responding to this year’s external forces with last year’s approach. For companies that sell goods or services, BAU is: responding to this year’s demand, with last year’s products and processes. For projects, BAU is addressing current demands based on typical fixtures, materials, or processes.

Campus

Multiple buildings that are legally bound through ownership or contract and occupy a generally continuous

area of land.

Car Sharing

Any on-demand mode that offers transport to more than one passenger at a time, or that facilitates independence from single occupancy vehicle (SOV) transport, including employer fleet vehicles, shuttle services, pay-as-you-go car sharing programs such as Car to Go or Zipcar, or scooter or bike shares.

Carcinogenic, Mutagenic, Reprotoxic (CMR)

Toxicity classification given to substances that cause or promote cancers, genetic mutations, and/or damage to reproductive systems.

Chain of Custody (COC)

COC certification traces the path of wood from forests through the supply chain, verifying that FSC-certified material is identified and separated from non-certified and non-controlled material as it makes its way from the forest to the market. The COC process ensures every stage of processing, manufacturing, and distribution is FSC certified.

Charitable Donation

An act or instance of presenting something as a gift, grant, or contribution to a charitable entity.

Charitable Entity

All entities (charitable organizations, religious institutions, non-profits, and private foundations) that meet the criteria for tax exemption under US Internal Revenue Code (IRC) 501© (3) and their international equivalents.

Chemical Abstracts Service Registry Numbers (CASRN)

A unique numerical identifier for nearly every known chemical, compound, or organic substance. as assigned by the Chemical Abstracts Service, a division of the American Chemical Society.

Cisgender

Cisgender refers to an individual whose gender identity aligns with the one associated with the sex assigned to them at birth. For further information regarding gender-based and other identities, visit [Outright International](#) or [pflag](#).

Closed-Loop Water Systems

Systems in which all water used on a project is captured, treated, used/reused, and/or released within a designated boundary, such as the Project Area.

Combined Sewer Systems

Combined sewer systems are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial sewage in the same pipe.

Combustion

Any burning or combustion of fossil fuels or wood products.

Commingled Waste

All relevant project waste streams, with the exception of soil and biomass, that are mixed together instead of being separated on site. Commingled waste will need to be separated for re-use, recycling or other processing, and is typically taken to an off-site facility to be sorted into individual waste streams prior to recycling.

Commodity Products

Commodities are homogenous goods that are traded in bulk on a commodity exchange. Commodity prices are subject to supply and demand; and therefore are determined by their market as a whole. These types of products include agricultural goods, lumber, metals and fuels.

Conservation Easement

A deeded transfer of an interest in real property for the purpose of conserving or protecting the land or its resources for future generations. A conservation easement is legally binding and its restrictions are permanent and run with the land, meaning that not only the original owner but all subsequent owners are subject to its terms.

Construction Waste Material

Construction waste material includes all products and materials that are on the site of, purchased for, or used for the project, but not permanently installed in the final project, and may include demolition waste, temporary materials that are disposed of during or at the end of the construction period, and excess materials purchased for but not installed in the project.

Consumables

Non-durable goods that are likely to be used up or depleted quickly. Examples include office supplies, packaging and containers, paper and paper products, batteries, and cleaning products.

Continuous Simulation Model

A stormwater modeling approach that accounts for many sizes and intensities of storms, as well as variation in the time between storms. Typically based on long-term rainfall records rather than synthetic design storms, such models provide a more accurate representation of infiltration, evapotranspiration, and stormwater control measures than other forms of storm modeling.

Contract Manufacturing

A practice of manufacturing products on behalf of a firm or manufacturer that has provided designs, formulas and/or specifications for the purpose of producing a product as determined by contract.

Contract Worker

A person engaged to perform work on a contractual basis that is specified by timeframes and deliverables.

Copy Room

A dedicated room in a school or business containing two or more copy machines, multifunction copiers, large format printers, or similar commercial scale copy or printing equipment.

Core

Core, short for ILFI's Core Green Building Certification, is a simple framework that outlines the 10 best practice achievements (Imperatives) that a building must obtain to be considered a green or sustainable building.

Cradle-to-Gate

Cradle-to-gate refers to a scope (or boundary) of a life cycle assessment. This scope usually represents the life cycle stages from raw material extraction through material processing and product manufacturing, before the product leaves the manufacturer "gate" at the final manufacturing facility or assembly location.

Cradle-to-Grave

Cradle-to-grave refers to a scope (or boundary) of a life cycle assessment. A cradle-to-grave assessment addresses a full product life cycle from resource extraction (cradle) to the end-of-use fate. The use phase and disposal phase of the product are included in this case. Cradle-to-grave assessments are sometimes the basis for environmental product declarations.

Deconstruction

The systematic removal of materials from a project (building and site) for the purpose of salvage, reuse, and/or recycling.

Defined Benefit Pension Plan

Defined benefit plans provide a fixed, pre-established benefit for employees at retirement.

Disadvantaged Business Enterprise (DBE)

DBE is a Federal certification program administered by the US Department of Transportation. The DBE certification applies to for-profit small business concerns where socially and economically disadvantaged individuals own at least a 51% interest and also control management and daily business operations. See <https://www.transportation.gov/civil-rights/disadvantaged-business-enterprise> for more information.

Disadvantaged Population

Socially or Economically disadvantaged populations include, according to the US Code of Federal Regulations, those who have been subjected to racial or ethnic prejudice or cultural bias within American society because of their identities as members of groups and without regard to their individual qualities and/or socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same or similar line of business who are not socially disadvantaged.

Diverted Materials

Diverted materials are those that are recycled, reused, salvaged, composted, or otherwise diverted from landfills or incineration.

Diverted Waste

All items removed from the project that are then recycled, reused, salvaged, composted, or otherwise diverted from landfills or incineration.

Dune

A sand hill or sand ridge formed by the wind, usually in desert regions or near lakes and oceans.

Durables

Goods that have utility over time, rather than being depleted quickly through use. Examples include appliances, electronic equipment, mobile phones, and furniture.

Ecological Restoration

Any activity whose aim it is to ultimately achieve ecosystem recovery, insofar as possible and relative to an appropriate local Reference Habitat, regardless of the period of time required to achieve the recovery outcome (per Society for Ecological Restoration, International Standards for the Practice of Ecological Restoration).

Embodied Carbon Emissions

The greenhouse gas emissions associated with the raw material extraction, manufacturing and processing, transportation, and installation of a building material.

Energy Needs

All electricity, heating, and cooling requirements, including resilience strategies, of either grid-tied or off-grid systems. Backup generators are excluded.

Energy Use Intensity (EUI)

Energy use intensity expresses a building's energy use as a function of its size or other characteristics, and

is often expressed as energy (BTUs) per square foot per year.

Environmental Product Declaration (EPD)

A transparent and objective report that communicates what a product is made of and how it impacts the environment across its entire life cycle. EPDs can be completed to various scopes (e.g. product-specific, facility-specific, industry-wide) based on availability of data. EPDs satisfy all of the requirements of relevant Product Category Rules (PCRs) for a given product category or type and follow international standards, including ISO 14044, ISO 14025, ISO 21930 and EN 15804.

Equity

The just and fair inclusion into a society in which all can participate, prosper, and reach their full potential (per PolicyLink's "Equity Manifesto").

Ethnobotanicals

Indigenous plants used by people of a particular culture and region. For ILFI Program Imperatives, ethnobotanicals must be used as food or medicine to count as agriculture.

Evapotranspiration

The process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants. Evapotranspiration is measured as the sum of evaporation and plant transpiration from earth's surface into the atmosphere and is typically reported in millimeters per unit of time (i.e. mm/day).

Existing Historic Community

A community established and occupied before 1945, when the proliferation of suburban areas began.

Facade

The face of a building, especially the primary or front elevation.

Fit-for-Purpose Water

Water of a quality that is appropriate to the use/demand in question – neither over nor under purified.

Floodplain

A flat or nearly flat area of land adjacent to a river or stream that naturally experiences periodic flooding.

Floor Area Ratio (FAR)

The measurement of a building's gross floor area in relation to the size of the lot or parcel the building is located on (FAR = Gross Floor Area / Total Project Area).

Flow Duration Curve

A flow duration curve is a plotted graph of discharge in relation to percentage of time. In the case of stormwater, a flow duration curve shows the rate of runoff in relation to the duration of those rates.

Footprint

Any human impact on a site, usually with negative ecological implication. Note that this is not the same as the building footprint.

(LPC) A measure of negative impacts, generally those caused by either the operations and supply chain of an organization or the production and supply chain for a product.

Forest Stewardship Council (FSC)

An independent, non-profit, membership-led organization that protects forests for future generations and sets standards under which forests and companies are certified. Certification consists of three equally weighted principles — environmental, economic, and social — to ensure balance and the highest level of integrity.

Fractals

A figure or surface generated by successive subdivisions of a simpler polygon or polyhedron, according to some iterative process.

FSC 100%

The Forest Stewardship Council (FSC) 100% – or FSC 100% – label means that the wood within the product comes entirely from FSC-certified, well managed forests. The wood in the product has not been mixed with material of another material category throughout the supply chain.

FSC Mix

The Forest Stewardship Council (FSC) Mix – or FSC Mix – label means the wood within the product is from FSC-certified forests, recycled material, or controlled wood. The FSC Mix label is supplied with a percentage claim based on the volume of wood in the product.

Full-Time Equivalent (FTE)

The hours worked by one employee on a full-time basis. Used to convert the hours worked by several part-time employees into the number of equivalent full-time employees.

Fully Occupied

To account for vacancy rates, a building is considered to be fully occupied when it is at 85% of full capacity and intended use.

Furniture, Fixtures and Equipment (FF&E)

Furniture, fixtures or other equipment that has no permanent connection to the structure of a building or utilities and is not part of office systems furniture.

Gender Identity

The internal knowledge of one's identity as a particular gender, including but not limited to transgender woman, transgender man, cisgender woman, cisgender man, or of belonging to a non-binary identity such as agender, genderfluid, genderqueer, or others. For further information regarding gender-based and other identities, visit [Outright International](#) or [pflag](#).

Geomorphology

The study of the characteristics, origin, and development of landforms.

Greenfield

Land that was not previously developed or polluted.

Greywater

Water discharged from fixtures such as sinks, showers, laundry, drinking fountains, etc., but not including water discharged from toilets and urinals.

Gross Building Area

The sum of all areas on all floors of a building included within the outside faces of its exterior walls, including all vertical penetration areas, areas for circulation, and shaft areas that connect one floor to another. Gross building area also includes structured parking, but does NOT include unenclosed exterior spaces such as decks, patios, or balconies, or exterior surface parking.

Gross Revenue

Gross revenue is a figure that includes all income occurring during a particular time frame, before any expenses are deducted.

Groundwater

Fresh water supply that is located beneath the surface of the ground and is typically of suitable quality for potable and non-potable uses.

H-P Terms

Halogenated Flame Retardants (HFRs)

HFRs include PBDE, TBBPA, HBCD, Deca-BDE, TCPP, TCEP, Dechlorane Plus and other flame retardants

with bromine or chlorine.

Handprinting

Handprinting is a compliance pathway that acknowledges the net positive impacts a project can create beyond the boundaries of the project site.

Handprints

Handprints are beneficial changes to environmental and social impacts. They are reported in positive numbers to represent positive impacts, in contrast to so-called footprints, which represent negative impacts. The reference point for the positive contribution is Business As Usual (BAU), which is essentially the typical way of doing something or the way it's been done in the past.

Additional information on handprinting can be found in the [Living Product Challenge 2.0 Handbook](#), and for building project teams, also in the [Early Project Guidebook](#).

Harvest On-Site

The removal of natural products from the project property with the intention to use them in the project.

Hazardous Materials

Materials that have been deemed dangerous or carcinogenic for humans or the environment and/ or materials that exhibit one or more of the following properties: ignitibility, corrosivity, reactivity, or toxicity. Hazardous materials include asbestos, lead paint, or materials producing ionizing radiation, and must be disposed of in a specific manner, in accordance with local regulations.

Hazardous Waste

Waste that includes hazardous materials. Hazardous waste is required to be processed by a hazardous waste facility.

Homogenous Materials

A uniform solid, liquid or gas composed of one or more substances that cannot be mechanically disjointed, in principle. It may be a chemical formulation or compound; a substance of unknown or variable composition, complex reaction product, or biological material (UVCB); or a combination of the two. Coatings and finishes such as plating, powder coats, enamels, etc., are considered unique homogenous materials” (Clean Production Action, 2015).

Human-Powered Lifestyle

A way of living that relies primarily on the power of human muscles to transport people and goods.

Human Scaled

Human scale is about the experience of a space as a pedestrian, rather than as a motorist. A built environment at human scale is “legible” when one is on foot or up close, and detail and texture can be perceived by sight or touch.

Hydroponics

A subset of hydroculture: a method of growing plants using mineral nutrient solutions, in water, without soil.

Infiltration

The process by which liquids, typically stormwater runoff, flows into and through the subsurface soil.

Ingredient

A discrete chemical, polymer, metal, bio-based material or other substance that exists in the finished product as delivered to site.

In Situ Materials

Existing materials in their original position on a project site that are fit for reuse or will be encapsulated or otherwise covered from view. In-situ materials do not require re-installation and may or may not require refurbishment.

Interior Materials

Permanently installed materials included in the wall, floor, and ceiling finishes of the building. This does not include miscellaneous items or moveable components such as furnishings, fixtures, or equipment.

Invasive Species

A species that is non-native to the ecosystem under consideration and whose presence harms human or ecosystem health.

Just Label

A label for organizations to disclose social equity ratings attained through the Just program.

Just Program

A voluntary disclosure tool and transparency platform for organizations to disclose social equity information.

Just Self-Assessment

A tool to help organizations social equity performance based on the Just program standard. This tool is meant for internal use not for public disclosure like the Just label.

Key Ecosystem Attributes

Broad categories developed as part of restoration standards to assist practitioners with evaluating the degree to which biotic and abiotic properties and functions of an ecosystem are recovering. In the Society for Ecological Restoration (SER) Guidelines. Includes six identified categories: absence of threats, physical conditions, species composition, community structure, ecosystem functionality, and external exchanges. Complexity, self-organization, resilience, and sustainability of ecosystems typically increase with the attainment of these attributes.

Landscape Remnant

A pre-settlement native plant community or a plant community that has survived on a site to the present day.

Landscape Restoration

Reversion of a plant community back to a pre-determined state (such as pre-settlement) through management. Restorations usually involve removing a plant community that has taken over a native ecosystem or remnant and are often supplemented with seeds from plants that are native to the site.

Landscape Succession

The gradual evolution of vegetation toward a more complex and ecologically appropriate state.

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.

Leachate

The liquid that is leftover after the composting of organic waste.

LGBT Business Enterprise (LGBTBE)

LGBTBE is a certification program administered by the National LGBT Chamber of Commerce (NGLCC) for eligible businesses that are majority-owned by lesbian, gay, bisexual, and transgender (LGBT) individuals. See <https://www.nglcc.org/get-certified> for more information.

Life Cycle Assessment (LCA)

A method to assess environmental impacts associated with all the stages of a product's life cycle (i.e., from raw material extraction through materials processing, manufacture, distribution, use, repair, maintenance, and disposal or recycling). Defined as compliant with the International Organization for Standardization's ISO 14044 standards.

Livestock

Animals kept or raised for food production, including cattle, sheep, bees, and similar animals.

Local

Of, relating to, or characteristic of a particular place: not general or widespread; primarily serving the needs of a particular limited district. ILFI programs may have more delimited definitions (e.g., of certain distances or qualities) articulated in program requirements.

Low Risk Wood

Low risk is defined as a source country with a score of 80 or higher as reported on the The Nature, Economy and People Connected tool, where the country has laws and a low rating for both the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and Protected Sites and Species Sub-categories, and laws in at least 13 additional Sub-categories, including one law in each of the five Legal Categories. Reference tool: <https://www.nepcon.org/sourcinghub/timber>

Manufacturer

A person or company that makes goods for sale. Items used in manufacture may be raw materials, assemblies or component parts of a larger product.

Manufacturer Location (“Final Facility”, “Final Assembly Location”)

The final point of assembly, fabrication or manufacture of a system, product or building material.

Materials Construction Budget

The total cost of all permanently installed materials and systems furniture delivered to the site, excluding labor, soft costs and land.

Minority-Owned Business Enterprise (MBE)

MBE is a certification program administered by NWBOC for eligible businesses that are majority-owned by a racial or ethnic minority. See <https://www.nwboc.org/basicinfo.html> for more information.

Miscellaneous Hardware

Miscellaneous hardware is a single component or very simple assembly, that requires no on-site assembly, often aids in the installation of a larger product or system onsite, and is able to be quickly installed by a single tradesperson.

Municipal Potable Water

Water supplied by a city or town, or other large- scaled water systems operating at a similar scale to a municipal water system.

National Women Business Owners Corporation (NWBOC)

NWBOC is a third-party business certifying entity that administers certifications such as women-owned business enterprise (WBE), minority-owned business enterprise (MBE), and veteran-owned business

enterprise (VBE). See <https://www.nwbo.org/> for additional information.

Native Prairies

Diverse ecosystems dominated by grasses and other flowering plants called forbs; for the LBC native prairies can be either “landscape remnants” or “landscape restorations.”

Naturalized Plant

A plant that was introduced, but is established as if native: that is, having established sufficient population size to maintain itself in the environment, but not so abundant that it becomes invasive, dominating the system and outcompeting native species. Invasive plants that endanger native plants or ecosystems, that function without meaningful ecological checks on their abundance, are not considered naturalized for the purposes of the LBC.

Natural Lands Conservation

Natural Lands Conservation seeks the sustainable use of nature by humans, which could allow, for example, extraction of natural resources if done in a manner that permits their persistence for future generations. It includes maintaining diversity of species, genes, and ecosystems, as well as functions of the environment, such as nutrient cycling.

Natural Lands Preservation

Natural Lands Preservation prevents human use of a site for the protection of its biodiversity and the quality of ecosystem functions.

Net Operating Income

Net operating income is the measurement of an organization’s available income once operating expenses have been subtracted from its gross revenues. For the purposes of ILFI programs, this figure excludes debt payments with associated interest and capital expenditures. This figure may not include depreciation, owner draws/owner distribution payments, or equity payments.

Non-binary

The term non-binary is widely used to describe a gender identity that cannot be categorized as either masculine or feminine. Non-binary covers a wide range of gender experience; people identifying as non-binary could experience their gender as a combination of male and female, neither male nor female, or as something completely independent of notions of conventional gender identities. For further information regarding gender-based and other identities, visit [Outright International](#) or [pflag](#).

Non-governmental Organization (NGO)

A nonprofit organization that operates independently of any government, typically one whose purpose is to address a social or political issue.

Non-potable Water

Water that does not meet state and federal drinking water standards for human consumption, but is suitable for other low risk uses, such as toilet flushing, irrigation or laundry. The following uses are considered non-potable for purposes of compliance with I06 Net Positive Water: toilet and urinal flushing, landscape irrigation, cooling tower makeup supply, laundry, miscellaneous processes (e.g., equipment washing, dust prevention, etc.)

Oceania

For purposes of ILFI programs, Oceania is defined as Australia, New Zealand, Melanesia, Micronesia, and Polynesia.

Old-Growth Forest

Natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbance such as a fire, windstorm, or logging. Ecosystems distinguished by old trees and related structural attributes that may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function.

On-Site Harvest

On-site harvest is the removal of natural products from the project property with the intention to use them in the project.

On-Site Landscape

The planted area not used to comply with the requirements of Imperative 02, Urban Agriculture.

Operational Carbon

The greenhouse gas emissions associated with the operational energy use of a building, or life cycle stage (B6 as defined by EN 15798).

Operational Energy

The energy used during the service life of a structure to power base systems, such as lighting, heating, cooling, and ventilating systems. Operational Energy is differentiated from [Process Energy](#), which is energy used to support a manufacturing, industrial, or commercial process that may be housed in a building.

Operations and Maintenance Manual

A document containing information about the building's various systems, including any ongoing actions the owner or property manager must take to ensure continuous optimization of the building's function and performance.

Part-Time Employment

Part-time employment is ongoing, but for fewer than 30 hours per week.

Performance Period

A continuous 12-month period used for evaluating project performance. The performance period does not have to commence at the beginning of occupancy.

Permaculture

The conscious design and maintenance of agriculturally productive ecosystems that have the diversity, stability, and resilience of natural ecosystems. Permaculture is a philosophy of working with, rather than against, nature; of protracted and thoughtful observation; of looking at plants and animals in all their functions, rather than treating any area as a single-product system.

Persistent Bioaccumulative Toxins (PBTs)

Substances that do not easily break down in nature and tend to accumulate in species. As a result, they may be highly problematic even at low levels of release into the environment, as they bioaccumulate up the food chain leaving top predators with problematic levels of toxins in their bodies and causing irreversible harm.

Polyculture

Agriculture using multiple crops in the same space, in imitation of the diversity of natural ecosystems, and avoiding large stands of single crops, or monoculture.

Portfolio

For the purposes of the Living Building Challenge, a portfolio is multiple buildings that are owned by the same entity, but are spread out through a community or larger area.

Potable Water

Water that is fit for human consumption. In the US, potable water typically meets state and federal drinking water standards.

Pre-Development Hydrology

The combination of runoff, infiltration, and evapotranspiration rates and volumes that typically existed on a site before human-induced land disturbance occurred.

Previously Developed

A site with existing or historic structures or on-site infrastructure, or a site that has experienced disturbance related to building activity, including monoculture agriculture. Roads built for natural resource extraction (e.g., logging roads or mining areas) do not qualify a site as previously developed.

Primary Dune

A continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

Primary Materials

The permanently installed building components that make up the majority of the structural, foundation and enclosure systems of a building.

Prime Farmland

Land that has been used for agricultural production at some time during the four years prior to the relevant Important Farmland Map date, or in the four years prior to the project, and where the soil meets the physical and chemical criteria for prime farmland or farmland of statewide importance as determined by the USDA Natural Resources Conservation Service (NRCS).

Priority Natural Lands

Priority Natural Lands include Pristine Greenfields, Wilderness, Prime Farmland, the 100-year Floodplain, and Thriving Vibrant Ecological Habitats and Environments.

Pristine Greenfield

Land that has not been impacted by humans and maintains thriving, viable habitat. Land that has not been developed, but has been altered and degraded through ranching, mono-culture agriculture, crowding, pollution or other means is not considered pristine greenfield.

Process Chemical

Process chemicals are defined as chemicals used in the manufacturing process in the final manufacturing facility that come into contact with the product pursuing certification. For example, surfactants, solvents and lubricants in the product manufacture are to be considered. General cleaning products used in the facility are not included.

Process Energy

Energy consumed to support a manufacturing, industrial, or commercial process. This is in contrast to [Operational Energy](#) which is energy used during the service life of a structure to power base systems, such as lighting, heating, cooling, and ventilating systems.

Process Water

Water required to produce the product at the final facility, including but not limited to water used for material production, machine operation, and rinsing.

Product

A finished good composed of one or more homogeneous materials that are in turn made up of chemical substances, or a combination of one or more materials and substance(s), or one or more substances. A product may be made of one or more homogeneous materials. A product may also be organized into parts, which are in turn made up of one or more homogeneous materials. A product may also function as part of another product (Health Product Declaration Collaborative).

Product Category Rules (PCR)

A set of defined rules necessary for developing an Environmental Product Declaration (EPD) for products fulfilling the same function. PCRs follow international standards such as ISO 14025 and enable transparency and comparability between product EPDs.

Product Share Pathway

The Product Share pathway allows a manufacturer to certify a product, or products, that require(s) only a limited fraction of a facility's production capacity. This pathway requires a manufacturer to offset only the impact of the product pursuing certification on-site, when the production of that product accounts for less than 75% of the facility's total output by dollar value or weight. A Product Share of Net Positive Energy, Water and Waste includes all process energy used to make the product as well as its share of facility lighting, heating and cooling. Worker water usage, waste treatment, administrative office energy and water use and facility-wide stormwater management are excluded from the Product Share certification requirements.

Project Area

The entire scope of the project and all areas disturbed by the project work including areas of construction, staging and conveyance, which is typically, but not necessarily, all land within the property line. Project Area must be consistent across all Imperatives.

Project Water Discharge

All water leaving the building or site including stormwater, greywater, and black water.

Public Art

Art displayed for the benefit of the general public.

Q-Z Terms

Reclaimed Water

Reclaimed or recycled water, also referred to as wastewater reuse, water reclamation, or purple pipe, is the process of diverting greywater and/or domestic sewage into a system where it can be used for non-potable applications.

Recycled Materials

Post-industrial or post-consumer materials that have been significantly processed or altered from their previous form before reaching their current form.

Red List

The Red List contains twenty-two classes of harmful and polluting chemicals considered to be the worst in class in the building industry. Each chemical class contains a multitude of individual chemicals, identified by their Chemical Abstract Services Registry Number, or CASRN. Taken together, these classes comprise nearly eight hundred individual ingredients. The Red List is a resource to show manufacturers precisely which ingredients are prohibited from inclusion in Living Buildings.

Reference Habitat

An intact habitat containing similar structure and function as the ecosystem that would have naturally occurred on the site, acknowledging that ecosystems are dynamic, and adapt and evolve over time in response to changing environmental conditions.

Regularly Occupied Space

A space used by a full-time employee, part-time employee, resident, extended period visitor, or any other person for 4 or more hours per day for 2 or more days in a week.

Regular Occupant

A full-time employee, part-time employee, resident, extended period visitor, or any other person who uses a project space for 4 or more hours per day for 2 or more days in a week.

Renewable Energy

Energy generated through passive solar, photovoltaics, solar thermal, wind turbines, water-powered microturbines, direct geothermal or fuel cells powered by hydrogen generated from renewably powered electrolysis. Nuclear energy is not considered renewable for purposes of LBC or Core. Combustion-based sources are also neither renewable nor allowed in LBC/ Core projects without an Exception.

Renewable Energy Certificate (REC)

Renewable Energy Certificates (RECs) are proof that energy has been generated from renewable sources and are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy resource.

Reprotoxin

Substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may produce or increase the incidence of non-heritable adverse effects in the progeny and/or impairment of male or female reproductive functions or capacity.

Salvaged Materials

Used building materials that can be repurposed wholly in their current form or with slight refurbishment or alterations. Salvaged consumer goods that are reused as building, finish, or furniture at the end of their life may contribute to a project's salvaged count. Salvaged large furniture items or art elements listed in the specifications can count toward salvaged count when the product is being reused as a salvaged material.

Sensitive Ecological Habitat

Habitat that is threatened, endangered, or particularly vulnerable to changes in the local ecology. Examples include, but are not limited to, wetlands, dunes, old-growth forests, and native prairies.

Service-Disabled Veteran-Owned Small Business (SDVOSB)

SDVOSB is a certification program administered by the Government Services Exchange for eligible businesses that are majority-owned by veteran US citizens. See <https://governmentsexchange.com/services/veteran-owned-small-business-certifications/> for more information.

Sewage

Sometimes called "black water," sewage is discharged water containing solid and human wastes from toilets, urinals and sometimes sinks.

Single-Event Models

Single-event stormwater models are limited to a single design storm event, e.g., a 50-year storm. They are typically used to estimate the expected volume, rate, or quality of stormwater, to design best management practices and hydraulic structures, and to evaluate the effectiveness of water quality treatment of stormwater control measures.

Small Mechanical Component

Part of a complex mechanical product composed of at least 10 parts that is no more than 10% of the total product assembly by weight and volume.

Smoking

Smoking is generally defined as inhaling and exhaling the fumes of burning plant material. For purposes of ILFI requirements, smoking includes combustion of tobacco, cannabis, and controlled substances, and generation of emissions produced by electronic smoking devices.

Social Handprints

Beneficial changes to social impacts (also see [Handprints](#)).

Stormwater

Precipitation that falls on the ground surfaces of a property.

Stormwater Detention

Stormwater detention is an area where stormwater is temporarily stored, or detained, and is eventually allowed to drain slowly when water levels recede in the receiving channel.

Stormwater Retention

Stormwater retention holds, or retains, stormwater. With the exception of the water lost to evaporation and to absorption by the soil, retention infrastructure is able to store water for indefinite periods.

Stormwater Runoff

Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground.

Structured Parking

Parking that has at least one level of vehicles not at grade; either elevated, underground, or under a building or other space built to be occupied by humans.

Surplus Materials

Excess materials available as a result of unintentional over-purchasing or incorrect specifications that are available for installation on a separate project.

Systems Furniture

A modular furniture system that might include work surfaces, cabinetry, file systems, and flexible partitions to create or furnish a series of office workspaces.

Thriving Vibrant Ecological Environments and Habitats

For purposes of the LBC and Core standards, “thriving, vibrant ecological environments and habitats” are one class of [Priority Natural Land](#) which includes places with high-quality or important ecological function, and/or critical ecology, that may not meet the definition of [wilderness](#) or [pristine greenfield](#). Also see guidance under [Ecological Clarifications](#) in Ecology of Place.

Total Site Area

The area of land in the Project Area, minus any sensitive ecological areas.

Transgender

Transgender refers to those whose gender identity does not align with the sex or gender ascribed at birth. For further information regarding gender-based and other identities, visit [Outright International](#) or [pflag](#).

Transit

Formal or informal multi-rider service that travels between regular, designated stops. Single-occupancy ride-hailing services are not considered transit.

Vernacular

Elements that are of, relating to, or characteristic of a period, place, or group. Domestic, native architecture, or other anthropogenic environments, giving a sense of belonging that is unique to the locality.

Volatile Organic Compound

A volatile organic compound (VOC) is any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. As gases, VOCs are emitted into the air from products or processes and are often harmful to human health and to the environment by themselves, as well as by reacting with other gases to form other air pollutants after they are in the air.

Water Balance

A numerical account of how much water enters and leaves a set boundary over a specified period.

Wetlands

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Facility Pathway

When the dollar value of the output of Living Product(s) exceeds 75% of the dollar value or weight of the facility's total output, a manufacturer must pursue the Whole Facility compliance path, which requires that the entire manufacturing facility meet the on-site requirements of LPC. Whole Facility compliance simplifies the certification process since Product Share of impact does not need to be calculated for each product individually. Every product produced at a facility that has pursued the Whole Facility path will be understood to be Net Positive within LPC for Energy, Water and Waste.

Wilderness

A wild and uncultivated region, as of forest or desert, largely undisturbed by human activity, that retains ecological functions and biodiversity characteristic of the ecosystem in its natural state; and/or a tract of land officially designated as wilderness and protected by the U.S. government. Within this definition, traditional practices of indigenous communities are not considered disturbance.

Women-Owned Business Enterprise (WBE)

WBE is a certification program administered by NWBOC for eligible businesses that are majority-owned by women. See <https://www.nwboc.org/basicinfo.html> for more information.

Wood Containing Product

Any product containing wood at greater than or equal to 5-10% by weight or characterized by obvious visual wood components. The wood portion of wood-containing products must be included in FSC wood calculations.

Worker Cooperative

A worker cooperative, also known as a cooperative-based organization, is an enterprise that involves one or more classes of membership, in which worker members participate in the profits, oversight, and often management of the enterprise using democratic practices, and in which there are clear criteria for becoming a worker-owner.

Working Port

A harbor town or city where ships may take on or discharge cargo.