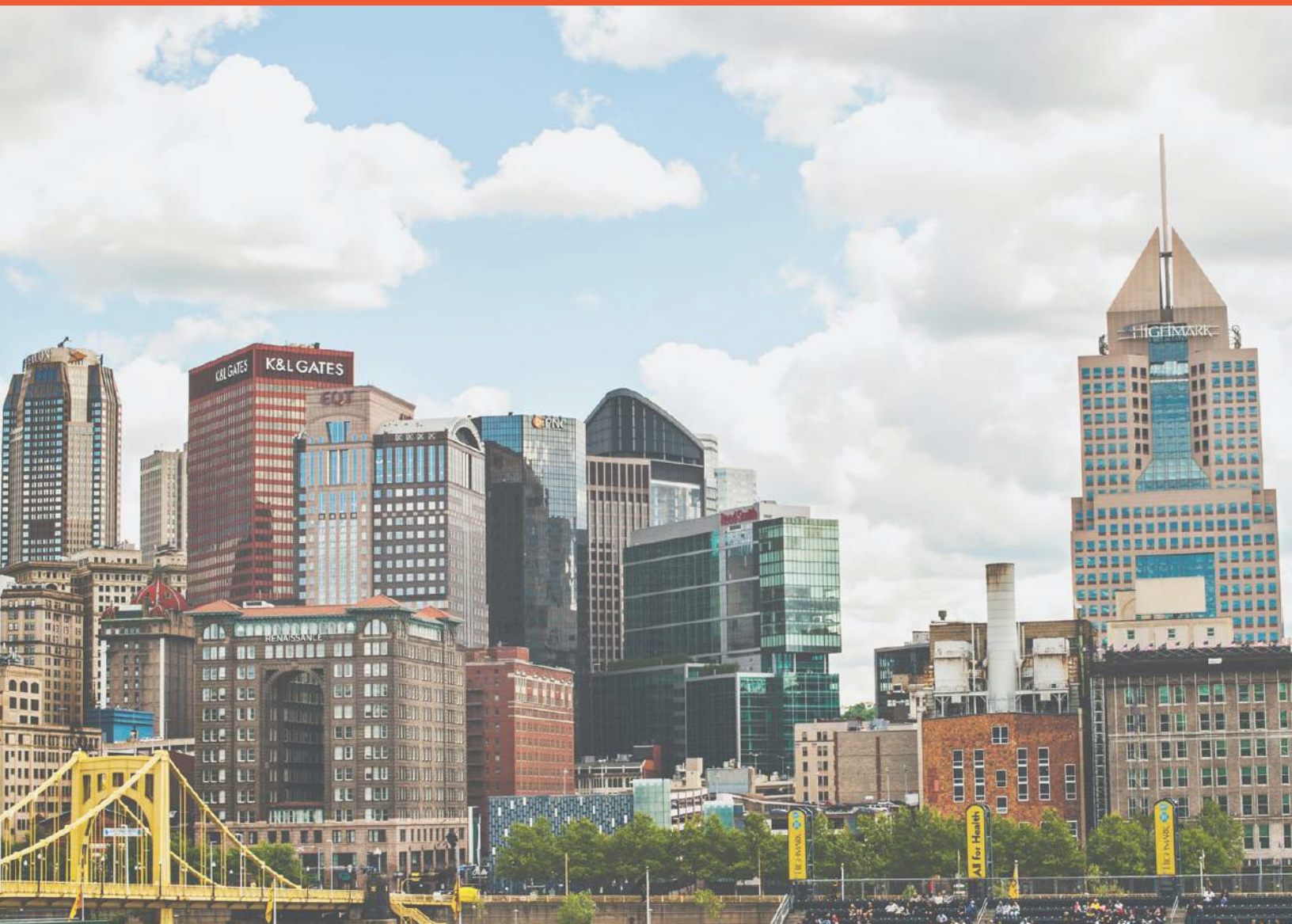


Pittsburgh Beacon Project

Assessment of Policies Related to Living Buildings and Sustainable Development

June 2023



Acknowledgements

Funded By

The Heinz Endowments

The [Heinz Endowments](#) seeks to help our region thrive as a whole and just community and, through that work, to model solutions to major national and global challenges. We are devoted to advancing our vision of southwestern Pennsylvania as a vibrant center of creativity, learning, and social, economic, and environmental sustainability. Our work is supported by reliable data based on equitable, results-focused goals to cultivate a world where all are treated with fairness and respect and have the opportunity to reach their fullest potential.

Project Team

Many International Living Future Institute staff members contributed to this work including:

Aubrie Christensen, Senior Manager, Innovation
Linda Kogan, Senior Director, Network Engagement
Kathleen Smith, Vice President, Programs + Innovation
Lindsay Baker, CEO
Benson Gabler, Vice President, Impact
Erin Rovalo, Vice President, Community

Additional Contributors

Kate Wise Knecht, Independent Consultant
Josh Wise, Independent Consultant

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Introduction

The International Living Future Institute's (ILFI or the Institute) mission is to cultivate a society that is socially just, culturally rich, and ecologically restorative. Our work is driven by a belief that a compelling vision for the future is needed to reconcile humanity's relationship with the natural world.

Over the past decade, the Institute has served as an incubator for more than 180 regenerative buildings that have achieved certification. Individually, these examples serve as beacons showing what is possible and as catalysts for change creating ripple effects far beyond the site boundaries. Collectively, these projects create a vision of a Living Future.

The [Living Building Challenge](#) (LBC) is a framework to help envision a Living Future. It is not just a certification system for buildings, it is a creative act of imagining the future, an advocacy tool to help push public and private policy as well as market transformation, and a certification system that allows us to celebrate achievements and showcase buildings as beacons for change.

In 2022, the Institute published a three year [strategic plan](#) outlining a new project to support our efforts to catalyze exponential impact towards a Living Future. The Living Building Beacon Project is a pilot project with the goal to work with select local communities to develop a replicable toolkit for using Living Buildings to catalyze and accelerate change. The Living Building Beacon Project will help ensure that exponential impact is realized anywhere a Living Building is planted.

Pittsburgh was identified as the first Living Building Beacon Project due to its concentration of Living Buildings, highly engaged regenerative building

community, shared history of working with the Institute, and a local funder (The Heinz Endowments) excited to support this new project. Pittsburgh has been a critical leader in the regenerative building movement. With three certified Living Buildings and several more in process, Pittsburgh provides a unique laboratory for understanding how Living Buildings can be used as beacons to catalyze and accelerate the adoption of regenerative building policies and practices in their local region.

Report Purpose and Methods

One of ILFI's stated commitments for the Pittsburgh Beacon Project is to:

Complete an assessment of current local and state policies related to Living Buildings and barriers to sustainable development.

This report documents at a high level those relevant policies, codes, programs, and incentives that help shape the regenerative building landscape in the City of Pittsburgh. Drawing upon insights and information gathered from independent research, group work sessions, and individual interviews with a range of stakeholders, this report summarizes the specific barriers and opportunities presented by local policy. The policy landscape across agencies and jurisdictions is dynamic and complex, and while not exhaustive, this report establishes a baseline understanding of relevant policy areas to support positioning the Living Building Challenge as a vehicle for catalyzing and accelerating the adoption of regenerative building policies and practices in Pittsburgh and beyond.

For the purposes of this report, “policy” includes ordinances and regulations that govern procedures, practices, and protocols of a jurisdiction. These policies may also include incentives or programs that promote specific methods or practices, but are not legally required. State and local building codes, on the other hand, are adopted by law and may include amendments, and govern health, safety, and energy efficiency standards of the built environment. Building Codes, or “codes” herein, are typically enforced by the local city or county building department.

In Pittsburgh, per state law, the building codes are those adopted by the state of Pennsylvania and are based on the national standard UCC (Uniform Construction Code), which is based on the international standard ICC (International Code Council) codes, including Building, Mechanical, Electrical, Plumbing, and Energy Conservation Codes (IBC,IMC,IEC,IPC, and IECC, respectively). Per [Pennsylvania state law](#), due to its population being less than one million, Pittsburgh must abide by the adopted state codes and is not permitted, as is the state's only “First Class” city, Philadelphia, to adopt more

stringent codes (often known as stretch codes). As such, the City of Pittsburgh is prohibited from requiring increased sustainability measures or higher building performance in its building codes, and therefore can only promote regenerative building practices through city policies (such as sustainability requirements for City-owned buildings) or incentives (such as increased density allowed for buildings achieving energy savings beyond that required by the state-adopted code) which are largely included in the city's zoning code.

In setting the context for this review of Pittsburgh policy and code, key Federal, State, County, and City-level sustainability and climate legislation, commitments and programs were examined that inform the current regenerative building landscape in Pittsburgh. These include, but are not limited to:

Federal

- [The US National Climate Taskforce](#)
- [The US Inflation Reduction Act of 2022](#)

State

- [The Pennsylvania Climate Action Plan 2021](#)

County

- [Allegheny County Sustainability Report 2022](#)

City

- [Pittsburgh 2030 District Commitment](#)
- [City of Pittsburgh's Climate Action plan](#) (version 3.0 released in 2018)
- [Pittsburgh's P4 partnership](#) between the City and The Heinz Endowments
- [OnePGH](#) (the City's resilience strategy)
- [Pittsburgh's Eco Innovation District](#) (announced in 2017)
- [City of Pittsburgh UN SDG adoption](#)
- [City of Pittsburgh Energy Strategy](#)

The Living Building Challenge (LBC) Petal and Imperative framework is used to structure the report findings in order to map relevant existing policies against the specific areas of impact detailed in the LBC version 4.0. For each Imperative, there is a brief overview of findings as well as notable policy opportunities and barriers to achieving the requirements.

The hope is to provide a document for those working toward a more regenerative future to understand the effect of policy on the ability to achieve that future, and, more specifically, to understand where existing policy is helping or hindering regenerative practices. This analysis of the existing policy landscape is necessary in understanding how policy might be changed or better deployed to help achieve the climate, health, culture, and equity goals of the Living Building Challenge.

Pittsburgh Land Acknowledgement

We recognize that the City of Pittsburgh occupies the ancestral land of the [Adena culture](#), [Hopewell culture](#), and Monongahela peoples, who were later joined by refugees of other tribes (including the Delaware, Shawnee, and Haudenosaunee), driven here from their homelands by colonizers. We honor these traditional Native inhabitants of this place and uplift their historic, unique, and enduring relationship with this land, which is their ancestral territory. We pay our respects to their Elders and their past, present, and future people, community, and culture. While we cannot change the past, we commit to continued gratitude for the gifts of nature, along with ongoing respect, care, and stewardship of the land, each other, and future generations.

[Land acknowledgement language courtesy of the University of Pittsburgh](#)

Pittsburgh City Overview

The lands of the Western Allegheny Plateau, around present-day Pittsburgh, were home to some of the earliest human communities in North America. The same natural abundance that nourished and sheltered native peoples for thousands of years eventually attracted European trappers, traders, and colonists to the territory in the 17th century. A French (and then English) fort grew into a small frontier village and eventually became the fledgling city of Pittsburgh. Over the centuries, a rich confluence of natural systems, human cultures, and commercial and financial forces contributed to Pittsburgh's rise, fall, and eventual re-emergence as a progressive 21st century urban center and beacon of regenerative building.

In the past 15 years, [numerous national and international ranking bodies](#) have placed Pittsburgh in the top ten most livable cities in the United States (US). This is an extraordinary validation for a city that reached its industrial peak and maximum population in the years just after World War II before entering a period of steep economic and social decline. Pittsburgh is now home to a unique blend of dedicated building professionals and nonprofits, city institutions led by champions of sustainability, agency officials committed to regeneration, academic institutions cultivating innovation and thought

leadership, and philanthropic organizations lending guidance and financial support to local efforts that address global crises.

In many ways, the policies and programs detailed in the pages that follow can be read as stemming from various agencies and interests working to address the significant environmental and social challenges, and opportunities for regeneration, left behind by a once-thriving, but highly extractive industrial economy.

DOWNTOWN PITTSBURGH. IMAGE COURTESY OF R.D. SMITH.





PHIPPS CONSERVATORY AND BOTANICAL GARDENS. IMAGE COURTESY OF DENMARSH PHOTOGRAPHY, INC.

Key Findings

This report documents at a high level those relevant policies, incentives, and programs that help shape the regenerative building landscape in the City of Pittsburgh. Drawing upon insights and information gathered from independent research, group work sessions, and individual interviews with a range of stakeholders, this report summarizes the specific barriers and opportunities presented by local policy through the lens of the Living Building Challenge (LBC) 4.0 Standard.

Key Policy Takeaways

The key policy takeaways of this report are listed below and explained in further detail in this section:

- There are few specific policy barriers to regenerative building in the City of Pittsburgh.
- There is a corresponding absence of minimum sustainability standards that could raise the bar for all buildings in the City.
- Pittsburgh benefits from a high level of buy-in and support for sustainability within the city government and across city agencies.
- Sustainable building innovation in Pittsburgh is often pursued via local public/private incentives and programs in the Pittsburgh zoning code that face few local barriers to implementation but result in difficult-to-administer workarounds to State-adopted codes.
- Sustainability in the built environment is often emphasized over equity, inclusion, or education around the built environment in Pittsburgh.

Overall, **there are few specific policy barriers to regenerative building in the City of Pittsburgh.** This finding is supported by both extensive review of available documentation as well as broad feedback from stakeholders. That said, while very few explicit examples of regulations or requirements that overtly inhibit regenerative building and innovation were found, **there is also a corresponding absence of minimum sustainability standards that could raise the bar for all buildings in the City.**

In general, research shows that **Pittsburgh benefits from a high level of buy-in and support for sustainability within the city government and across city agencies** where planning and building codes are administered. However, these agencies often lack the resourcing, staff training, systems, and coordination to effectively enforce and deliver on the intent of code promoting sustainable practices or to advocate for new codes, policies, and programs that would enable and encourage more regenerative buildings.

In those areas where codes, policy, and programs could be created to enable and encourage more regenerative buildings, the stakeholders interviewed identified several dynamics that deter these kinds of changes from happening, or that make innovation in these areas much more difficult to achieve:

- State-governed construction codes (adopted Uniform Construction Codes [UCCs] based on the International Code Council's [ICCs] - International Building, Plumbing, Electrical, Energy Conservation, and Mechanical Codes [IBC, IPC, IEC, IECC, IMC] are very difficult to modify, and some newer, more progressive, codes (such as the 2021 IECC) are not adopted by the state until years after they are published.
- When codes are changed, the changes are often influenced by powerful lobbyists, such as the Home Builders' Association, whose agendas may conflict with sustainable practices, rather than by experts or local authorities who are well-versed in the City's sustainability, health, and equity needs and goals.
- When new codes are adopted, inspectors in all departments often struggle to enforce them due to capacity (human power), scale (number of applications that must be processed each week/month/year), and knowledge and training (significant ongoing education is often required to adequately implement and enforce new codes or updates).

Because of the above constraints, **sustainable building innovation in Pittsburgh is often pursued via local public/private programs in the Pittsburgh zoning code that face few local barriers to implementation but result in difficult-to-administer workarounds to State-adopted building codes.** As a result, the most innovative and ambitious regenerative programs in the city often: apply only to projects on city-owned property or to specific overlay districts; are voluntary; do not benefit from broad visibility; or lack sufficient resourcing to effectively promote their implementation. Examples include "Sustainable Development Bonuses" in the Pittsburgh [Zoning Code](#) available for LEED-certified buildings as well as the ambitious [Performance Point System](#) of incentives which are referenced frequently in this report.

Lastly, both research and stakeholder feedback indicate that **sustainability in the built environment is often emphasized over equity, inclusion or education** in the city's policies and programs, as is evidenced in the City's 2017 "[Pittsburgh Equity Indicators](#)" report. Historically under-represented and economically-challenged populations suffer from lack of access to, education about, and representation in the forums where policy that directly impacts them is shaped, and the effects of redlining remain visible in Pittsburgh's geographic divides.

Key Education and Advocacy Takeaways

In addition to the above takeaways concerning the policy landscape of Pittsburgh, research and stakeholder feedback also indicated several key areas where education and advocacy related to policy would be beneficial. These key education and advocacy takeaways are listed below.

- There is very little education around existing beneficial policies and incentives in underrepresented neighborhoods and populations. This creates a barrier to equity in understanding and deploying these policies and incentives. More concerted effort should be made to engage these groups in understanding what policies would benefit them the most.
- Further, there is limited capacity for underrepresented populations to influence policy. Consider thoughtful ways to meet stakeholders where they are - e.g., providing childcare, meals, transportation, or other accommodations to enable participation in planning meetings, community charrettes, or public feedback sessions.
- Advocacy efforts can be maximized when aligned with state and local election cycles. Periods when candidates are running for elected office present unique opportunities to influence their candidate platforms, public messaging, and policy agendas and to gauge their commitments to issues around regenerative buildings and communities through methods such as candidate surveys and public forums.
- Project teams and building department staff will benefit from concise guidance and education on existing code-compliant possibilities to reduce friction, ease workload, and accelerate approvals. Examples could include:
 - A materials database specific to Pittsburgh;
 - Examples of approved water re-use systems; and
 - Precedents for responsible waste management.
- Several Policy Meeting stakeholders suggested that Pittsburgh consider joint advocacy with other Pennsylvania cities who cannot take advantage of the first-class city exemption in order to collectively advocate for the ability to introduce stretch codes - codes that would allow for higher minimum sustainability requirements in their respective city building codes and thus help catalyze regenerative building in their cities. (Based on the State of Pennsylvania's [City Classification Law](#), only Philadelphia meets the First Class threshold of one million inhabitants minimum. Pittsburgh, on the other hand, with

a population of just over 300,000, falls into the category of Second Class city. Because only First Class cities can adopt stretch codes to supersede Pennsylvania State-adopted building codes, Second Class cities like Pittsburgh are not able to introduce more stringent sustainability requirements in their city building codes.)

- Freely and publicly accessible local exemplars of regenerative building (such as the Frick Environmental Center and the Phipps Center for Sustainable landscape) could look at ways to expand their accessibility and audience, including:
 - Take regenerative building education to underrepresented communities (to community centers, churches, farmers' markets, etc.), or facilitate bringing those communities to these exemplar buildings in a way that works for them (by providing transportation, meals, childcare, etc.)
 - Provide professional education (and professional continuing education credits) for informational tours of and education about these buildings and how they achieved LBC certification. Education could be specific to targeted audiences, from developers to engineers; from architects to lenders.

NATURE LAB AT PHIPPS CONSERVATORY AND BOTANICAL GARDENS. IMAGE COURTESY OF PAUL G. WIEGMAN, BANCO MEDIA.





Policy Findings

This section examines existing codes and policies in Pittsburgh through the lens of the Living Building Challenge (LBC) 4.0 Standard. Each of the LBC 4.0's seven Petals (Place, Water, Energy, Health+Happiness, Materials, Equity, and Beauty) is broken into its associated Imperatives (twenty total) that are listed sequentially and described in snapshots from the LBC 4.0 Standard. After each Imperative description is an Overview of the Policy Landscape in Pittsburgh as it relates to that Imperative, followed by Policy Opportunities for and Policy Barriers to achieving that particular Imperative in Pittsburgh.

Place Petal	Ecology of Place Urban Agriculture Habitat Exchange Human Scaled Living
Water Petal	Responsible Water Use Net Positive Water
Energy Petal	Energy + Carbon Reduction Net Positive Energy
Health + Happiness Petal	Healthy Interior Environment Healthy Interior Performance Access to Nature
Materials Petal	Responsible Materials Red List Responsible Sourcing Living Economy Sourcing Net Positive Waste
Equity Petal	Universal Access Inclusion
Beauty Petal	Beauty + Biophilia Education + Inspiration

Place Petal

CORE IMPERATIVE

01

Ecology of Place



SCALE JUMPING PERMITTED

OVERVIEW

As a city formerly driven by an industrial economy and characterized by a dense urban fabric, Pittsburgh lacks significant greenfield, wilderness, or prime farmland. The undeveloped land within city limits is primarily in the form of [parks](#), of which there are 176 totalling over 3800 acres. Thus meeting the requirement of this Imperative to avoid building on ecologically significant places is not difficult within the city limits of Pittsburgh.

Due to Pittsburgh's location at the confluence of three rivers and its significant seasonal rain events, floods are a significant property and life safety issue in the City, and will only become more so in the face of climate change. Consistent with Imperative requirements, the Pittsburgh Zoning Code prohibits building in the floodplain (in [Section 906.02 "Flood Plain Overlay District"](#)) and city regulations are intended to implement and ensure consistency with the [Pennsylvania Flood Plain Management Act](#) and [FEMA's National Flood Insurance Program](#).

The Pittsburgh Zoning Code additionally includes a [Riverfront Special Purpose District](#), which establishes rules around Riverfront development and building intended to achieve attributes related to the Ecology of Place Imperative, including acknowledging the historic diversity of uses, strengthening neighborhood and pedestrian connections to the riverfront, promoting sustainable development, improving the ecological health of the rivers, conserving and restoring native riverbank and aquatic plant life, and improving river ecosystem health and supporting biodiversity.

The intent of this Imperative is to protect wild and ecologically significant places and encourage ecological regeneration and enhanced function of the communities and places where projects are built.

- All projects must avoid building on pristine greenfield, wilderness, prime farmland or in a floodplain unless they meet an exception.
- Project must preserve thriving vibrant ecological environments and habitats.
- All project teams must document site and community conditions prior to the start of work, including but not limited to identification of the project's "reference habitat(s)."
- All projects must demonstrate that they contribute positively to the ecology of their place and restore or enhance the ecological performance of the site towards a healthy ecological baseline
- On-site landscape must be designed to mature and evolve, and emulate the functionality of the reference habitat, as appropriate to the project's Transect.
- All project teams must assess cultural and social equity factors and needs in the community and consider those identified needs to inform design and process decisions.
- No petrochemical fertilizers and pesticides can be used for the operation and maintenance of the on-site landscape, including urban agriculture.

The Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects for responsible management of stormwater, and requires the use of 50% native plants in vegetated green infrastructure. The Performance Point System also includes incentives for cultural and social equity factors - all of which contribute to the achievement of this Imperative.

The Pennsylvania Department of Agriculture and the Allegheny County Health Department regulate pesticides and fertilizer, and there are no significant rules banning pesticides or eliminating petrochemicals in fertilizers in the state or county. However, in 2020 Pittsburgh's Department of Public Works (DPW) announced that "[seven city parks would be maintained under a Green/Eco Landscaping Contract, providing organic and/or natural landscaping without the use of chemical fertilizers or pesticides](#)," providing a pilot for maintenance of public land without the use of petrochemical fertilizers or pesticides and serving as a precedent for achievement of this Imperative.

POLICY OPPORTUNITIES

- The Zoning Code's [Riverfront Special Purpose District](#) establishes a thorough and thoughtful precedent for all other city districts, providing a replicable template for code inclusion of ecological maintenance and restoration as well as the community, cultural, and social equity considerations required in this Imperative.
- Pittsburgh's [DPW pilot project](#), requiring select public parks be maintained without the use of chemical fertilizers or pesticides, could be expanded to become a city-wide requirement for the maintenance of public properties and could serve as precedent for public and private projects alike in achievement of this Imperative.
- The incentives around native plants and social and cultural equity that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront ([RIV](#)) and the Uptown Public Realm District ([UPR](#)) zones) could be expanded to other districts to contribute to achievement of this Imperative .

POLICY BARRIERS

- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

PLACE

IMPERATIVE

02

Urban Agriculture



SCALE JUMPING PERMITTED

OVERVIEW

According to [Just Harvest](#), a nonprofit that partners with the City of Pittsburgh in equitable food access, Pittsburgh leads the nation's cities in the number of residents that live in a food desert, with 47% of its residents experiencing low access to fresh, affordable food. The [City of Pittsburgh](#) [further indicates](#) that 1 in 5 city residents experience food insecurity, and proposes that local food production and distribution, similar to that required in this Imperative, is a critical component in alleviating food insecurity of its citizens.

Urban agriculture, while not required through any specific regulation or policy, is encouraged through Pittsburgh's ["Adopt-A-Lot" Program](#) which allows residents and communities to utilize city-owned vacant land for gardens and provides them with resources such as sample garden site plans, step-by-step instructions for obtaining a lease from the city, and links to local nonprofits that can assist in setting up an adopted lot garden. The City's Department of Public Works also oversees several [dedicated community gardens](#) wherein community members can rent a plot within the city limits. Both of these programs provide both resources and precedent for the achievement of this Imperative.

There are multiple [local farmers markets and Community Supported Agriculture \(CSA\) opportunities](#) in Pittsburgh reflecting the requirements of this Imperative, with five Farmers' Markets operated by the City of Pittsburgh and over 25 markets within city limits during growing season. The city-

The intent of this Imperative is to integrate opportunities for connecting the community to locally grown fresh food.

- All projects must dedicate a portion of their total project area to growing food, or they must dedicate a smaller portion of their total project area to growing food and must also directly provide weekly community access to healthy local food that address a community need, through farmers markets, CSA programs, or other local food producers.
- Scale jumping can be used as the means to expand the availability of healthy, local food (through agriculture or other means) to a specific population or the community in general via an offsite location such as a food bank, school, or other community resource.

Resilience Strategy

- All projects (except residential projects) must provide access to food for 75% of FTE occupants for a minimum of three days during an emergency.
- Residential projects must demonstrate the capacity to store at least a two-week supply of food.

LIVING TRANSECT	PERCENT OF TOTAL PROJECT AREA FOR AGRICULTURE	
	Pathway 1: Agriculture only	Pathway 2: Agriculture + food access
1	5%	2% + weekly access
2	20%	10% + weekly access
3	15%	7% + weekly access
4	10%	5% + weekly access
5	5%	2% + weekly access
6	2%	0% + weekly access

operated markets [accept food stamps, as well as credit and debit cards, as part of the City's "Just Harvest Fresh Access" program](#). In 2019, the City commissioned a [report on the existing Farmers' Markets](#) which documented current conditions of markets throughout the city and proposed a plan for expanding markets to "improve equitable access to fresh, affordable and culturally appropriate food, support our regional food producers, and promote healthy eating choices for all residents."

Consistent with this Imperative, the Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects providing fresh food access, with parameters set around sales, display, and inventory of perishable foods and fruits and vegetables.

POLICY OPPORTUNITIES

- The incentives around fresh food access that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront (RIV) and the Uptown Public Realm District (UPR) zones) could be expanded to other districts - particularly to those districts identified as most affected by food insecurity and food deserts - to contribute to achievement of this Imperative.
- [Pittsburgh's EcoInnovation District Plan](#), which was formally adopted by the City Planning Commission in 2017, provides a model for neighborhood revitalization that is consistent with this Imperative, including addressing food deserts and insecurity and providing urban agriculture, which could be replicated for other neighborhoods.

POLICY BARRIERS

- Per the working group, urban agriculture in the form of neighborhood gardens and pea patches, particularly in historically underrepresented and economically depressed communities, are indeed created on vacant lots, though knowledge of the "Adopt-a-Lot" program and the resources it provides is not widespread.
- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

PLACE

IMPERATIVE

03

Habitat Exchange

OVERVIEW

The requirements of this Imperative, while not prohibited or discouraged by any existing regulation or policy, would be difficult to incorporate into or encourage within Federal, State, or Local codes. The Pittsburgh City Planning department's [OpenSpacePGH program](#) aims to create “a system of green that advances stewardship, equity, and our economy” and includes priorities around protecting urban wilderness, yet still prioritizes human access and thus does not meet the intent of this Imperative.

POLICY OPPORTUNITIES

- The requirements of this Imperative could potentially be incentivized through the City's Zoning Code.

POLICY BARRIERS

- None noted.

The intent of this Imperative is to protect land for other species as more and more land is taken for human use.

All projects must set aside land equal to the project area (or 0.4 hectares/1 acre, whichever is greater) away from the project site, in perpetuity, through an approved land trust organization or the Institute's Living Future Habitat Exchange Program.

FRICK ENVIRONMENTAL CENTER, PHOTO CREDIT BOHLIN CYWINSKI JACKSON



PLACE

CORE IMPERATIVE

04

Human-Scaled Living

SCALE JUMPING PERMITTED

OVERVIEW

Subsequent to a Mayoral executive order in 2015, a plan was developed for the City to create an [integrated transportation plan](#) to guide the design, construction, maintenance, and use of streets, sidewalks and other infrastructure to accommodate all ages and incomes, and abilities, “[whether by driving, walking, bicycling, using public transportation, or providing emergency services](#)”.

Since then, the City of Pittsburgh has initiated and continued various programs and policies dedicated to increasing the walk- and bike-ability of the City, consistent with the requirements of this Imperative. According to published articles and working group members, the number of bikers appears to be increasing from the reported estimate of [1100 bike commuters as of 2020](#).

The City is actively working to further expand bike paths within its limits per the City of Pittsburgh’s ten-year “[Bike+ Plan](#)” which was finalized in 2020 and “lays out a vision for a safe and connected network of on-street and off-street facilities that will enable people of all ages and abilities to travel by bicycle and other small mobility modes to access the needs of daily life including grocery stores, parks, schools, and places of employment.”

[Bicycle racks are provided by the City](#) throughout all districts, consistent with this Imperative’s requirements, and the city welcomes requests for additional bike racks or storage. Several City departments are involved in the determination, design, and location of bike racks, including The Department of

The intent of this Imperative is to contribute toward the creation of walkable, pedestrian-oriented communities that reduce the use of fossil fuel vehicles.

All projects must maintain or increase the density of the site and support a human-powered lifestyle.

All projects (except single family residential) must also:

- Be built to a human scale that is appropriate for the neighborhood
- Provide places for occupants to gather and connect with the community
- Provide sufficient secure, weather-protected storage for human-powered vehicles and facilities, such as showers and lockers to encourage biking
- Provide at least two EV charging stations or one per thirty spaces, whichever is greater.
- Minimize impervious surface parking to no more than 20% (Transects 1-3), 15% (Transect 4), 5% (Transect 5), and 0% (Transect 6) of the Project Area and ensure that any surface parking area larger than 20m X 30M is separated with planted areas. Either reduce single-occupancy vehicle (SOV) trips and trips by fossil fuel-based vehicles by 30% over an established baseline relevant to the project’s region and occupancy type, OR
- Implement at least four of the following best practices:
 - Consideration and enhancement of pedestrian routes, including weather protection on street frontages.
 - Advocacy in the community to facilitate the uptake of human-powered and public transportation.
 - A transit subsidy for all occupants of the building (if owner occupied) or requirement for tenant employers to provide a subsidy.
 - Carpool coordination assistance.
 - Access to either subsidized car sharing and/or hybrid or EV fleet vehicles.
 - Regular survey of occupants to determine current fossil-fuel based SOV trip.

City Planning (DCP), the Art Commission, and the Department of Public Works (DPW). There are also multiple local advocacy and community groups that promote cycling and the continued creation of cycling infrastructure. In 2021 Pittsburgh announced the [Pittsburgh Bike Share Electrification and Mobility Hubs Project](#), intended to add electrified bikes and bike stations to the existing [Pittsburgh Bike Share program](#) called “POGOH”.

Pittsburgh is also committed to expanding the city’s Electric Vehicle (EV) infrastructure, also consistent with the requirements of this Imperative. In 2021, the Department of City Planning (in collaboration with the Bloomberg Philanthropies American Cities Climate Challenge and the Pittsburgh Parking Authority) published an [Electric Charging Strategic Plan](#) that provides a strategy and targets for expanding public EV charging access by 2026. This effort is intended to help the City meet its 2030 Challenge goal of reducing greenhouse gas emissions from transportation by 50% by 2030. As of 2021, the City had 35 existing public EV charging plugs. The EV Strategic Plan outlines expansion to over 200 new public charging plugs, with a minimum of 4 plugs in each of its 9 Council Districts. The plan additionally outlines partnering with outside stakeholders to increase the total number of public charging plugs to over 2,000 across the City.

Additionally, per [Title 4, Chapter 489 of the Code of Ordinances](#), all new buildings, major renovations, and parking facilities on City-owned property must be provided with EV-ready spaces, a step toward the requirements of this Imperative. The [Zoning Code Section 908](#) indicates that EV parking stations (along with bike sharing stations, secure bike storage, and other energy and recycling pathways) are optional site features that can be provided in order to meet Special Exception requirements in certain districts of the City - but are not REQUIRED outside City-owned properties. And in 2021 the [City received a 3-year \\$3.8 million grant](#) from the U.S. Department of Energy to study business district curb use and policies that accelerate electric vehicle (EV) adoption by commercial fleets. This grant was awarded to 3 cities - Pittsburgh, Los Angeles, and Santa Monica - in an effort to create models that can be replicated in other US cities.

The Pittsburgh Zoning Code’s [Performance Points System](#), applicable to select districts, provides incentives to projects providing walkable access to transit routes and those that provide on-site transit stations, which is consistent with the Human-Scaled Living Imperative requirements.

POLICY OPPORTUNITIES

- The Pittsburgh Zoning Code's [Riverfront Special Purpose District](#) establishes rules for enhancing multi-modal transportation and sustainable development—provisions directly related to the Human-Scaled Living Imperative. These rules could be expanded to other special use districts or throughout the Zoning Code to magnify the impact.
- Per [Pittsburgh's Bicycle Parking Guide](#), neighborhoods or districts may purchase bicycle racks (minimum quantity of 50, due to coordination required) for an area and gift them to the Department of Public Works (DPW) to own, install, and maintain. If neighborhoods, organizations, or individuals were not required to come up with the large sum required to purchase a minimum 50 racks, but rather were able to contribute to a cumulative fund or similar arrangement, then the provision of additive bike racks might be easier to accomplish in underserved neighborhoods.
- The incentives around walkability and access to transit that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront ([RIV](#)) and the Uptown Public Realm District ([UPR](#)) zones) could be expanded to other districts, particularly those with more difficult access to transit routes, to contribute to achievement of this Imperative.
- The Zoning Code's requirement to provide EV infrastructure in City-owned projects could be expanded to be a requirement for all projects - not only those that are City-owned - to contribute to the requirements of this Imperative.

POLICY BARRIERS

- While City initiatives promote bike usage in multiple ways as elaborated above, the city's bike share stations do not appear to be uniformly distributed through the city, per the [city's bikeshare \(POGOH\) map](#).
- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

Water Petal

CORE IMPERATIVE

05

Responsible Water Use

 SCALE JUMPING PERMITTED

OVERVIEW

In Pittsburgh, home of three rivers and significant rain events, water is a seemingly bountiful resource. However, with this volume of water come problems of preservation and management. As such, stormwater management in an aging infrastructure appears to outweigh water conservation in conversations around water policy.

While [Pittsburgh's 2030 Challenge goals](#) include reducing water consumption, formalized requirements around water conservation are minimal. As of 2018, the City of Pittsburgh's Department of City Planning requires [annual benchmark reporting](#) of energy and water use for all non-residential buildings over 50,000sf in order to better understand energy use and help owners make strategic decisions regarding water and energy conservation, which is a step toward achieving this Imperative at scale.

Additionally, planning for the re-use of greywater has been made easier recently with Allegheny County's adoption of [2015 International Plumbing Code amendments](#) (adopted in 2023), that include regulations for residential and commercial rainwater and greywater capture, storage, treatment, and distribution. Greywater re-use guidelines for Pennsylvania are also outlined in the "[Reuse of Treated Wastewater Guidance Manual](#)" of 2012. However, the approved uses for captured and treated greywater remain difficult to determine, as the construction codes and regulations point to the [local jurisdiction](#) as the authority on acceptable greywater re-uses, and in Pittsburgh that local jurisdiction is an overlap of the Allegheny County Health

The intent of this Imperative is to encourage projects to treat water like a precious resource, minimizing waste and the use of potable water, while avoiding downstream impacts and pollution.

All projects must not use potable water for irrigation, and use less water for the project's other needs than a baseline regional building of the same type at the following rates:

- New Building: 50%
- Existing Building and Interiors: 30%

Affordable housing projects can use water handprinting combined with project efficiency to meet water savings goals.

All projects must treat all stormwater on site, through natural or mechanical means and without chemicals, and manage all stormwater based on both pre-development hydrology and current ecological conditions, as determined by a qualified professional.

All projects on a Combined Sewer Overflow (CSO) system, or in a floodplain (based on an exception), must incorporate stormwater detention and avoid sheet flow off the site.

Department, the Pittsburgh Water and Sewer Authority (PWSA), and the [Pennsylvania Department of Environmental Protection](#).

Stormwater is an enormous issue in Pittsburgh, not only due to issues around sustainability and discharge into rivers, but also as an issue of life safety. Outdated infrastructure, including combined sewer and runoff, exacerbates problems. [Per the city](#), "Aging infrastructure and the impacts of climate change have created challenges for stormwater management in Pittsburgh. The increasingly frequent and intense rain causes the combined sewer system to overflow into rivers and streams, flood streets, and cause property damage and health concerns when basements back up with raw sewage." To address these issues, PWSA and the City (With support from the Heinz Endowments, the Richard King Mellon Foundation, and the Hillman Foundation) along with Penn Praxis and The Water Center at Penn and other subconsultants created a cross-departmental [Strategic Plan for Stormwater](#) that is in the public comment period until June 30, 2023 and contains on-site stormwater strategies that would contribute to achievement of this Imperative. The Strategic Plan builds on past stormwater and infrastructure efforts (such as the [One Water Green infrastructure Action Guide](#) and the [Citywide Green First Plan](#)) and identifies the priorities and provides milestones to be implemented within the next five years.

Additionally, The [Stormwater Code and Ordinance Review Updates \(SCORU\) were adopted in March](#) 2023 and include policy, process, and guidance materials aligning with many important City initiatives regarding green stormwater infrastructure, complete streets, and resiliency. Updates were the result of collaboration between the Department of City Planning, the Pittsburgh Water and Sewer Authority (PWSA), and multiple stakeholder groups that conducted analyses and community engagement and which provides tools to aid in achieving the stormwater requirements of this Imperative.

Stormwater runoff requirements are also elaborated in the [Zoning Code's Title Thirteen - Stormwater Management](#) which encourages preservation of natural drainage systems, reduction of runoff, and working within a site's pre-development hydrology - all of which are consistent with the requirements of this Imperative.

The Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects that capture runoff from impervious surfaces and reuse it on site or manage it using Preferred Stormwater Management Technology.

POLICY OPPORTUNITIES

- It was suggested in the working group that the City's existing, outdated stormwater infrastructure, when combined with the city's natural drainage patterns and extensive parks and open spaces, could be seen as an opportunity rather than a barrier to stormwater management. As such, the City could require and/or incentivize improvements to existing infrastructure that would be consistent with this Imperative's requirements, such as additive stormwater retention or detention areas to be provided on-site or in adjacent open spaces and parks, or other stormwater management strategies as part of the planning and zoning requirements.
- The incentives around rainwater management that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront (RIV) and the Uptown Public Realm District (UPR) zones) could be expanded to other districts to contribute to achievement of this Imperative .

POLICY BARRIERS

- While efforts are underway to provide a coordinated Water strategy in Pittsburgh (as described above in the overview), according to Working Group members, the rules and regulations amongst the city and county jurisdictions regulating water remain difficult to navigate.
- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

WATER

IMPERATIVE

06

Net Positive Water



SCALE JUMPING PERMITTED

OVERVIEW

- See Imperative 05.

POLICY OPPORTUNITIES

- See Imperative 05.

POLICY BARRIERS

- See Imperative 05.

The intent of this Imperative is for project water use and release to work in harmony with the natural water flows of the site and its surroundings.

All projects must supply one hundred percent of the project's water needs through captured precipitation or other natural closed-loop water systems, and/or through recycling used project water, and all water must be purified as needed without the use of chemicals.

Affordable housing projects can use water handprinting in lieu of on-site systems to meet the project's water needs.

No potable water may be used for non-potable uses.

All projects must address all grey and blackwater through on-site treatment and management through reuse, a closed loop system, or infiltration. Projects that are not able to treat and manage on site may use handprinting within their watershed and community.

Scale jumping strategies are allowed with some limitations. For example, connecting to a community or municipal facility is allowed only if the facility treats waste to tertiary levels, reuses or infiltrates all water in balance with the watershed, and has a biologically based treatment process with no chemicals. For all scale jumping, pump energy must be accounted for through renewable energy sources.

All projects must incorporate a resilience strategy to provide drinking water for up to a week for all regular building occupants through water storage on site.



Energy Petal

CORE IMPERATIVE

07

Energy + Carbon Reduction

 SCALE JUMPING PERMITTED

OVERVIEW

While the City of Pittsburgh has, in keeping with the requirements of this Imperative, committed to minimizing energy-related carbon emissions through commitments such as [Pittsburgh's 2030 District goals](#), the city has been limited in its ability to require similar commitments in its building codes, due to being governed by state energy codes. In 2018 Pennsylvania adopted the [2015 International Energy Conservation Code](#), increasing energy conservation requirements from the previously adopted 2009 IECC and setting a more aggressive baseline for reducing residential and commercial buildings' energy usage and carbon footprints. However, while Philadelphia has been able, as a PA class one city (population greater than one million), to adopt the even more aggressive 2018 IECC, Pittsburgh is [disallowed by the state](#) from adopting such a stretch code, due to its population being less than one million.

In 2019, the City of Pittsburgh (in partnership with the 100 Resilient Cities Program) completed the Siemens City Performance Tool Analysis (CYPT), studying strategic infrastructure investments that would best contribute to emissions reduction, increased resilience, and economic development. District heating and rooftop photovoltaic arrays were identified as the [most effective investments](#) due to their contributions to climate targets, air quality improvements, and job creation.

The intent of this Imperative is to treat energy as a precious resource and minimize energy-related carbon emissions that contribute to climate change.

All projects must achieve a specified reduction in total net annual energy consumption as compared to a typical existing building with comparable climate, size, use, and occupancy, and combustion must be limited as follows.

- All projects must meter energy used by the project.
- New and Existing Building projects must demonstrate a twenty percent reduction in the embodied carbon of primary materials compared to an equivalent baseline. Existing Buildings may count in-situ materials against the required twenty percent.
- All projects (except Landscape + Infrastructure must select interior materials with a lower than industry average carbon footprint for product categories for which embodied carbon data is readily available.
- All projects must be designed to be "zero ready" through strategies such as designing area(s) and pre-installing wiring and connections for both electric vehicle charging and future installation of renewable energy systems.

	NEW BUILDING	EXISTING BUILDING	INTERIOR
ENERGY PERFORMANCE REQUIREMENT	70% reduction from an equivalent building baseline	50% reduction from an equivalent building baseline	35% reduction from an equivalent building baseline
COMBUSTION LIMITS*	Not Allowed (except through existing exceptions)	Allowed for HVAC systems that are not in project scope. Phase out plan and advocacy are required.	
RENEWABLES	Must be on-site to count towards the efficiencies above.		

* The allowance for Existing Buildings & Interiors is only for Imperative 07.

Additionally, in 2021 Pittsburgh's Department of City Planning created a [City Energy Strategy Report](#) as a tool for reaching goals outlined in the Climate Action Plan and for integrating greenhouse gas reduction considerations into the Department of City Planning's project review processes. The Energy Strategy lays out a four-year coordinated plan that includes lowering carbon emissions while also providing equitable access to safe, clean, and reliable energy and transportation resources.

The City of Pittsburgh is also, as of 2021, [partnering with Clearway Community Energy](#) - an expert in district energy, combined heat and power, and microgrids - to create a plan for transitioning the downtown's current steam service to a more sustainable and resilient district energy system. This transition to district-scale heating and energy provides a clear precedent and pathway for the establishment of on-site and district-scale carbon-free, renewable energy solutions which would aid in the achievement of this Imperative

The Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects that, in keeping with the requirements of this Imperative, reduce energy-related carbon emissions through measures including high performance energy-conserving designs, generation of on-site energy, building re-use and provision of parking shaded with solar panels.

The City of Pittsburgh sets a high bar for its own buildings and operations in terms of preparing them for energy conservation and carbon reduction through its Zoning Code. According to the [Zoning Code Section 915](#), all new building construction and major renovations on City-owned property must achieve net-zero-energy-ready building performance yet, per stakeholder feedback, the City does not necessarily follow through to achieve the net-zero energy building performance intended by these commitments.

POLICY OPPORTUNITIES

- Policy stakeholders called out ways to expand two-way energy infrastructure to support net positive projects' equitably. For example, Duquesne Light Company's [SEED](#) (Smart Energy Electrical Districts) initiative, if approved, might provide a replicable and scalable model.
- The incentives around energy and carbon reduction that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront ([RIV](#)) and the Uptown Public Realm District ([UPR](#)) zones) could be expanded to other districts to contribute to achievement of this Imperative.

- The City of Pittsburgh could lobby the state to be allowed to implement stretch codes that require greater energy and carbon reduction in all new construction or, alternately, could advocate for state adoption of the most recent [IECC](#) that sets a higher baseline for building energy performance.

POLICY BARRIERS

- Per stakeholder feedback, the opportunity for reducing carbon footprint through building adaptive re-use is very much under-recognized and under-utilized in Pittsburgh. This widespread, often lower-cost, opportunity within the city supported by the Performance Points system could be more directly linked to the possibility of achieving Net Zero energy or carbon.
- Incentives such as the [Federal Solar Tax Credit](#) are not always achievable within the dense, downtown context, per Working Group feedback.
- Where solar arrays might be deployed there is often, per stakeholder feedback, opposition from historic prese to both panels installed on historic buildings and to visible solar panels on new construction in historic neighborhoods.
- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and to the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

PHIPPPS CONSERVATORY AND BOTANICAL GARDENS.
PHOTO CREDIT: DENMARSH PHOTOGRAPHY, INC.



ENERGY

IMPERATIVE

08

Net Positive Carbon



SCALE JUMPING PERMITTED

OVERVIEW

In addition to the energy and carbon reduction policies and incentives outlined above in Imperative 07, Pittsburgh has several regulations that go even further toward Net Positive Carbon and pertain to the requirements of this Imperative.

The City's [Zoning Code](#) requires that all large-scale construction or renovation projects (those required to go through Project Development Plan review) submit a Whole-Building Life-Cycle Assessment (LCA) identifying pathways to reducing the net carbon emissions from the project to zero. The project's LCA must show which pathways and recommendations from the study are being incorporated into the project, which are not, and why, and must include evaluation of embodied carbon in existing structures, carbon capture value of existing trees on the site, and pathways through which the project's construction and operation can result in zero net carbon emissions.

In addition, as of 2018, the City of Pittsburgh's Department of City Planning requires [annual benchmark reporting](#) of energy and water use for all non-residential buildings over 50,000sf.

POLICY OPPORTUNITIES

- See Imperative 07 for opportunities related to energy and carbon reduction that could help pave the path for Net Positive Carbon.

POLICY BARRIERS

- See Imperative 07 for barriers related to energy and carbon reduction that could impede the achievement of Net Positive Carbon.

The intent of this Imperative is to foster the development and use of carbon-free renewable energy resources while avoiding the negative impacts of fossil fuel use, primarily the emissions that contribute to global climate change.

All projects must supply one hundred and five percent of their project's energy needs through on-site renewable energy on a net annual basis, without the use of consumption.

All projects (except single-family residential) must sub-meter major energy uses.

All single-family residential projects must develop a method to understand and trouble shoot energy use.

All projects must account for total embodied carbon emissions (tCO₂e) from its construction (including the energy consumed during construction) through the utilization of carbon-sequestering materials and/or through a one-time carbon offset purchase through an ILFI-approved carbon offset provider.

All projects must develop and incorporate a resilience strategy to allow the building to be habitable for one week, or otherwise participate in the support for the local community in a disaster, through the use of batteries, storage, etc.

Health + Happiness Petal

 CORE IMPERATIVE

09

Healthy Interior Environment

OVERVIEW

Although Indoor Air Quality (IAQ) improvement was added to [Pittsburgh's 2030 Challenge goals](#), there are few explicit regulations around a healthy interior environment, outside of those required in the state code. The PA-adopted 2018 International Mechanical Code (IMC), does however require direct exhaust of bathrooms, kitchen cooking appliances, and any other area where contaminants might be harmful to health, which is consistent with the requirements of this. Numerous working group participants called out the fact that, with the exception of standard IMC requirements and smoking ([Pennsylvania Clean Indoor Air Act](#) requires smoke-free public places and workplaces), indoor air quality is not currently regulated and that even the specific guidance stemming from response to the COVID-19 virus is voluntary.

While interior requirements around outside views and daylight, as included in this Imperative, are not included in any regulations or codes, the Zoning Code does take into consideration views from public spaces in its [View Protection Overlay District](#) which limits development that would block scenic views from designated public places.

Additionally, cleaning protocols for City-owned properties are addressed in the City's Code of Ordinances in [Section 161.39 "Sustainable and Socially Responsible Procurement."](#) Per this section, certified green cleaning products and supplies are specified and outlined, and non-green cleaning products are prohibited unless no green product exists that meets performance requirements. Low VOC-emitting cleaning equipment is further indicated as a procurement priority for all City-owned buildings.

The intent of this Imperative is to promote good indoor air quality and a healthy interior environment for project occupants.

All projects must:

- Comply with the current version of ASHRAE 62, or international equivalent.
- Prohibit smoking within any buildings or enclosed spaces and within 25 feet of building opening, including air supply vents.
- Develop a Healthy Indoor Environment Plan specific to the project's building type and location. The plan must address cleaning protocols, the prevention of particulates and toxir through an entry approach, and implementation of at least one strategy to improve air quality.
- Provide views outside and daylight for 75% of occupants.
- Provide direct exhaust for kitchen, bathroom, and ianitorial areas.

POLICY OPPORTUNITIES

- The Pennsylvania Department of Health offers detailed [Indoor Air Quality Guidelines for Pennsylvania Schools](#) that set guidance for Carbon Monoxide, Carbon Dioxide, lead, mercury, Radon, and VOC's as well as standards for HVAC system performance and filtration. As a step toward achieving the IAQ requirements of this Imperative, these guidelines could be incorporated into the Zoning Code for buildings of specific use types or added as an incentive in the Zoning Code's [Performance Points System](#).
- The Pennsylvania Department of Health's [Clean Indoor Air Act](#) creates enforceable regulations around smoking in relation to public spaces, transportation, and "workplaces" in Pennsylvania (with the exception of Philadelphia). The Act does not address the restriction of smoking within 25 feet of the building opening as called out in this Imperative. However, the "Clean Indoor Air Act" may provide an opportunity for expansion to include other requirements.
- The Zoning Code's requirements around cleaning products in [Section 161.39 "Sustainable and Socially Responsible Procurement"](#) could be added into the Zoning Code's [Performance Points System](#), wherein projects can earn points that increase their density by incorporating City of Pittsburgh and community priorities.

POLICY BARRIERS

- The Pennsylvania Department of Environmental Protection stemming from the [US Clean Air Act](#) lists enforceable primary and secondary standards for ambient outdoor air quality related to public health and public welfare, but no specific standard for indoor air quality.
- [Allegheny County Health Department Article XXI Air Pollution Control](#) addresses only outdoor emissions and associated regulations and permitting requirements.
- Several stakeholders cited barriers to enforceability (such as increased staffing and associated costs required to inspect and monitor building interior air quality on an ongoing basis) even if IAQ standards could be codified.

HEALTH + HAPPINESS

IMPERATIVE

10

Healthy Interior Performance

OVERVIEW

- See Imperative 09.

POLICY OPPORTUNITIES

- See Imperative 09.

POLICY BARRIERS

- See Imperative 09.

The intent of this Imperative is to demonstrate ongoing high-quality indoor air and a healthy indoor environment.

To promote good indoor air quality performance, all projects must:

- Provide the results from an Indoor Air Quality Test one to six months after occupancy, or provide readings from an ILFI-approved continuously monitored indoor air quality system.
- Comply with the CDPH Standard Method v1.1-2010 (or international equivalent) for 90% of interior building products that have the potential to emit volatile organic compounds (VOCs).
- Implement a cleaning protocol that uses cleaning products that comply with the EPA Safer Choice label (or international equivalent, such as Globally Harmonized System [GHS]).

All projects must provide 95% of regularly occupied spaces with access to views and daylight and opportunities for the remaining five percent of occupants to move to compliant spaces for a portion of their days.

In addition, all projects must provide at least two of the following:

- Sufficient operable windows to provide natural ventilation for at least six months of the year.
- Ability for the occupants to influence their local airflow and temperature through direct input or controls.
- Flexible options for working and learning such as sit/stand options and/or varied sensory experiences for living, working, or learning.

Residential projects must provide operable windows for 100% of the project occupants.

FRICK ENVIRONMENTAL CENTER, PHOTO CREDIT BOHLIN CYWINSKI JACKSON



HEALTH + HAPPINESS

IMPERATIVE

11

Access to Nature

OVERVIEW

While the City of Pittsburgh is known for its riverfronts, extensive parks, and significant urban tree canopy, it lacks codified requirements for directly connecting all building inhabitants to these or other exterior or interior nature interactions, as required by this Imperative. However, the Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects that provide access to nature via riverfront public access, trails, and amenities. Additionally, the City's Zoning Code outlines a [Riverfront Zoning District](#) that promotes development that "maintains and creates connections between the riverfronts and neighborhoods within the City" and "improves the scenic qualities and the public's enjoyment of riverfronts by preserving, creating, and enhancing public views and access to the riverfronts."

The City Planning Department's [OpenSpace PGH](#), a component of Pittsburgh's Comprehensive Plan, was adopted in 2013 as a guide to the optimal use of the city's open spaces, parks, and recreation areas, and includes goals around equal access for and enhancing the relationship between nature and the built environment, in keeping with the intent of this Imperative.

POLICY OPPORTUNITIES

- The incentives around riverfront public access, trails, and amenities that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront ([RIV](#)) and the Uptown Public Realm District ([UPR](#)) zones) could be expanded to other districts and expanded to include access to other natural spaces such as parks in order to increase a local building inhabitants' connection to nature and to contribute to achievement of this Imperative.

The intent of this Imperative is to provide opportunities for project occupants to directly connect to nature, and to assess the success of the Health + Happiness Imperatives.

All projects must connect people and nature through the provision of sufficient and frequent human-nature interactions in both the interior and exterior of the project to connect the majority of occupants to nature directly.

All projects must complete a post-occupancy evaluation that addresses the health benefits of the project, including the benefits of daylight, fresh air, and access to nature at least once within six to twelve months of occupancy.

POLICY BARRIERS

- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

PHIPPPS CONSERVATORY AND BOTANICAL GARDENS.
PHOTO CREDIT: DENMARSH PHOTOGRAPHY, INC.



Materials Petal

 CORE IMPERATIVE

12

Responsible Materials

OVERVIEW

Requirements around responsible materials are historically difficult to codify, yet [in 2021 Pittsburgh introduced Sustainable and Socially Responsible Procurement ordinances](#) that “(codified) the City’s procurement practices, ensuring that tax dollars are used to support environmentally and socially responsible vendors”. The resulting [Section 161.39 “Sustainable and Socially Responsible Procurement”](#) requires that all City departments and offices “identify and purchase the most environmentally responsible products and services that are practicable. Factors that should be considered when determining environmentally preferable goods and services include, but are not limited to:

- Support companies that focus on reducing consumption and/or perform eco-labeling by buying products with such labels in preference to others.
- All wood and wood contained within purchased products shall meet standards equivalent to, or stricter than, those of the Forest Stewardship Council certification.
- Purchase or use of previously used or salvaged wood products shall be performed when practicable.
- Reduction in transportation distance to reduce carbon emissions.
- Ultimate disposal of the product.

The intent of this Imperative is to set a baseline for transparency, sustainable extraction, support of local sector, and waste diversion for all projects.

All projects must positively impact the building products market by meeting the following materials selection criteria:

- The project must contain one Declare label product per 200 sq. m of gross building area, or project area, whichever is smaller, up to twenty distinct products from five manufacturers. All other product manufacturers not currently in Declare must, at a minimum, receive a letter requesting they disclose their ingredients and identify any Red List content.
- All projects (except residential) must incorporate one product certified under the Living Product Challenge.
- 50% of wood products must be F5C, salvaged, or harvested on site either for the purpose of clearing the area for construction or to restore or maintain the continued ecological function of the site. The remainder must be from low-risk sources.
- 20% or more of the materials construction budget must come from within 500 kilometers of construction site.
- The project must divert 80% of the construction waste material from the landfill and provide dedicated infrastructure for the collection of recyclables and compostable food scraps during occupancy.

When a project is targeting all Materials Imperatives, it is not necessary to document this Imperative, as all requirements are superseded by Imperatives 13-16.

POLICY OPPORTUNITIES

- Pittsburgh's [Section 161.39 "Sustainable and Socially Responsible Procurement,"](#) while only applicable to City Departments, sets a precedent for codifying this Imperative's Responsible Material Requirements that could be included as an incentive or in the [Performance Points system.](#)

POLICY BARRIERS

- Regional landfill industry lobbying was cited by policy stakeholders as an explicit barrier to project construction waste recycling and diversion goals.

FRICK ENVIRONMENTAL CENTER.
PHOTO CREDIT: JEREMY MARSHALL.



MATERIALS

IMPERATIVE

13

Red List

The intent of this Imperative is to foster a transparent materials economy free of toxins and harmful chemicals.

All projects must avoid the following Red List chemical classes in 90% of the project's new materials by cost. "In situ" materials do not need to be removed or vetted for Red List chemical classes.

OVERVIEW

While the City's [Sustainable and Socially Responsible Procurement](#) definition #4, "Environmentally Preferable Product" does require "products and services that have a lesser effect on the environment and human health when compared with competing products," there are no specific requirements that require screening for harmful chemicals or toxicity.

POLICY OPPORTUNITIES

- The City's [Sustainable and Socially Responsible Procurement](#) standards could add specific criteria for material sourcing and screening for harmful chemicals.

POLICY BARRIERS

- The [Sustainable and Socially Responsible Procurement](#) standards apply to city projects only, and lack specific quantitative targets and therefore may be difficult to measure or enforce by the City's Office of Management and Budget which oversees procurement.

MATERIALS

IMPERATIVE

14

Responsible Sourcing

OVERVIEW

- See Imperative 12.

POLICY OPPORTUNITIES

- See Imperative 12.

POLICY BARRIERS

- See Imperative 12.

The intent of this Imperative is to support sustainable extraction of materials and transparent labeling of products.

All project must advocate for:

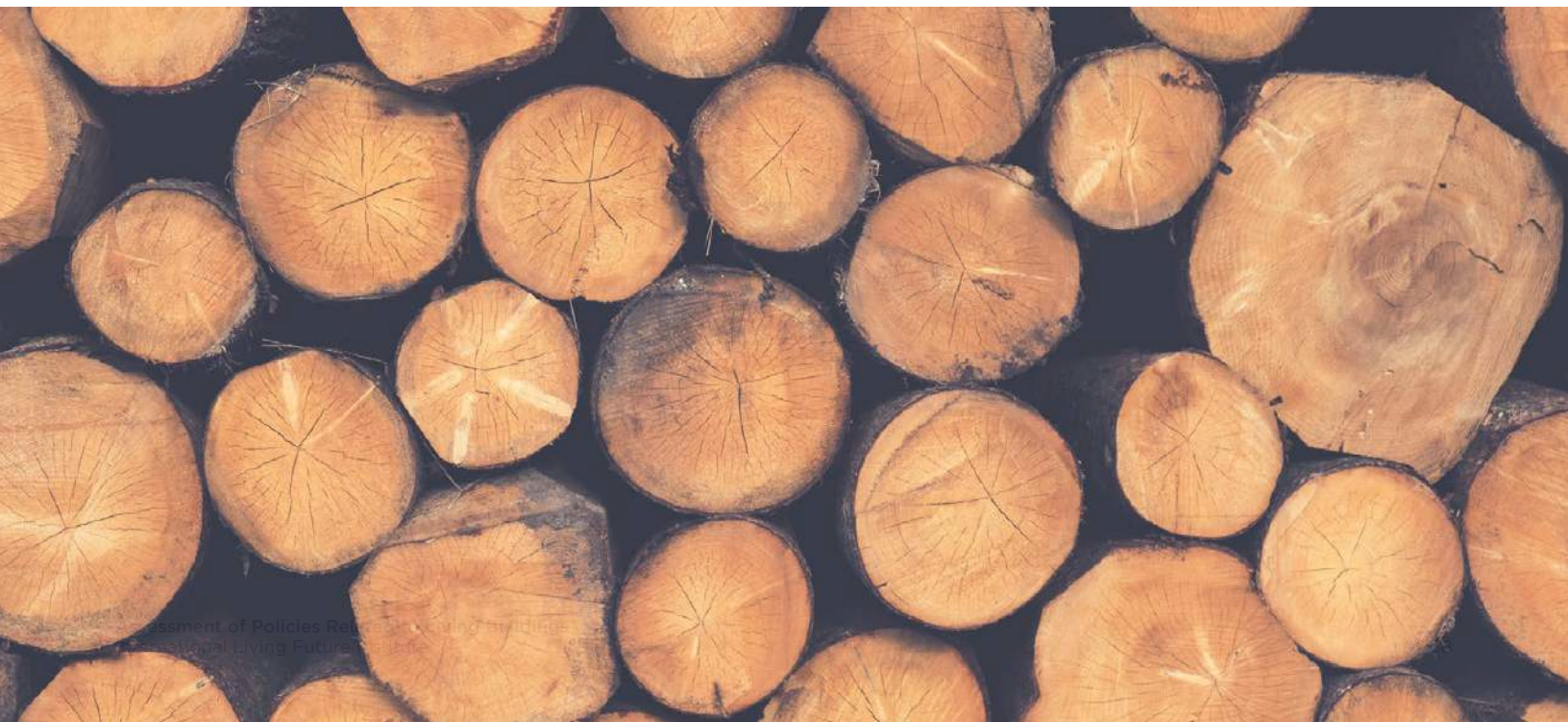
- The creation and adoption of third-party certified standards for sustainable resource extraction and fair labor practices for extraction of rock, metal, minerals, and timber.
- Certification under the Natural Stone Council (NSC) 373 Standard by quarries and/or manufacturers of all dimensioned stone products used with the project.

All projects must either source 80% or more of all wood, by cost or volume, as Forest Stewardship Council (FSC) certified, or as salvaged, or from the intentional harvest of on-site timber for the purposes of clearing the area for construction or restoring/maintaining the continued ecological function of the on-site bionetwork, and the remaining 20% of wood must be from low-risk sources. Alternatively, the project may achieve FSC Project Certification.

All projects must contain two Declare labeled products for every 200 sq. m of gross building area, or project area, whichever is smaller, up to forty products, and advocate to all manufacturers that are not in Declare that they register their products in the Declare Database.

All projects (except residential) must incorporate one product certified under the Living Product Challenge per 1,000 sq. m of gross building area or project area, whichever is smaller, up to three products.

Residential projects must incorporate one product certified under the Living Product Challenge.



MATERIALS

IMPERATIVE

15

Living Economy Sourcing

OVERVIEW

Boosting the local economy is a significant topic in Pittsburgh, though few requirements for local procurement are codified. However, steps have been made in the direction of the Living Economy Sourcing Imperative requirements through efforts such as the [Office of Management and Budget's alteration of procurement protocols](#) to better include local businesses owned by women and people of color. Additionally, as noted in Imperatives 12 and 13, the City of Pittsburgh's [Sustainable and Socially Responsible Procurement](#) ordinance calls out reduction in material transport distances in order to reduce the carbon impact of projects overseen by City departments, but with the side effect of benefiting the local economy.

POLICY OPPORTUNITIES

- Pittsburgh's [Sustainable and Socially Responsible Procurement](#) ordinance, while only applicable to City Departments, sets a precedent for codifying this Imperative's Living Economy Sourcing that could be included as an incentive or in the [Performance Points system](#).

POLICY BARRIERS

- None noted.

The intent of this Imperative is to foster local communities and businesses, while minimizing transportation impacts.

The project must incorporate place-based solutions and contribute to the expansion of a regional economy rooted in sustainable practices, products, and services. Manufacturer location for materials and services must adhere to the following restrictions:

- 20% or more of materials construction budget must come from within 500 km of construction site.
- 30% of total materials construction budget must come from within 1000 km of the construction site.
- An additional 25% of materials construction budget must come from within 5000 km of the construction site.
- The remaining 25% of materials may be sourced from any location.

MATERIALS

IMPERATIVE

16

Net Positive Waste

OVERVIEW

Pittsburgh has made recent progress in diverting waste generated through all phases of a building's life cycle. With help from [100 Resilient Cities](#), the City of Pittsburgh has developed a [Roadmap to Zero Waste](#), laying out a strategic plan to achieve a more than 90% diversion rate city-wide by 2030. In 2021, a mayoral executive order mandated creation of a [unified, City-led deconstruction policy](#) designed to divert building materials from landfills. Per workshop participants, reuse and donation centers for salvaged or unused building materials are well-known and utilized.

POLICY OPPORTUNITIES

- High waste diversion rates could be included as an incentive in the [Performance Points system](#).

POLICY BARRIERS

- The landfill industry's lobbying efforts continue to be a regional barrier to adoption of more stringent waste and recycling policy per the feedback of multiple city stakeholders.

The intent of this Imperative is to integrate waste reduction into all phases of projects and to encourage imaginative reuse of salvaged "waste" materials.

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 and to find ways to integrate waste back into either an industrial loop or a natural nutrient loop.

All projects must feature at least one salvaged material per 500 square meters of gross building area or be an adaptive reuse of an existing structure.

All projects must create a Materials Conservation Management Plan that explains how the project optimizes materials in each of the following phases:

- Design Phase, including the consideration of deconstruction and appropriate durability in product specifications.
- Construction Phase, including product optimization and collection of waste materials for reuse or recycling.
- Operation Phase, including a collection plan for consumables and durables.
- End of Life Phase, including a plan for adaptable reuse and deconstruction.

All projects must divert waste material from the landfill to the following levels (by weight or volume)

during construction.

All project types must provide dedicated infrastructure for the collection of recyclables and compostable food scraps.

Projects located on sites with existing infrastructure must complete a pre-building audit that inventories available materials and assemblies for reuse or donation.

MATERIAL	MINIMUM DIVERSION RATE
Metal	99%
Paper and cardboard	99%
Soil and biomass	100%
Rigid foam, carpet, and insulation	95%
All others—combined weighted average*	90%
Demolition waste	80%

* Hazardous materials in demolition waste, such as lead-based paint, asbestos, and polychlorinated biphenyls (PCBs), are exempt from percentage calculations.

Equity Petal



17

Universal Access

OVERVIEW

Accessibility in Pittsburgh is governed by the Americans with Disabilities Act (ADA), and there are no codified incentives for increased or enhanced accessibility, through, as this Imperative requires, the Architectural Barriers Act (ABA) or the principles of Universal design.

While the Zoning Code deems its purpose is to “provide adequate light and air... [and] facilitate adequate provision of parks, playgrounds and other public requirements,” amongst other duties, there is little required in the code outside the basics of standard emissions regulations and open space requirements for planned or large scale developments. The [City’s Percent for Art](#) ordinance requires that 1% of the City’s capital construction and renovation be allocated to support a public art program that “uplifts community identity, public history, and evolving culture.” Additionally, the Pittsburgh Zoning Code’s [Performance Points System](#), applicable to select districts, provides incentives to projects that incorporate public art.

Regarding access to waterways, the City’s Zoning Code does outline a [Riverfront Zoning District](#) that promotes development that “maintains and creates connections between the riverfronts and neighborhoods within the City” and “improves the scenic qualities and the public’s enjoyment of riverfronts by preserving, creating, and enhancing public views and access to the riverfronts.” The Pittsburgh Zoning Code’s [Performance Points System](#), applicable to select districts, provides incentives to projects that provide riverfront public access, trails, and amenities.

The intent of this Imperative is to allow equitable access to, and protections from any negative impacts resulting from the development of, Living Building projects.

All projects must make all primary transportation, roads, and non-building infrastructure that are considered externally focused (e.g., plazas, seating, or park space) 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.

Projects in transects L3-L6 (except single-family residences) must provide for and enhance the public realm through design measures and features that are accessible to all members of society, such as street furniture, public art, gardens, and benches.

All projects must safeguard access for those with physical disabilities through designs meeting either the principles of universal design (United States Access Board), the Americans with Disabilities Act (ADA), and the Architectural Barriers Act (ABA) Accessibility Guidelines, or international equivalent.

No project may block access to, nor diminish the quality of, fresh air, sunlight, and natural waterways for any member of society or adjacent developments. Projects must also appropriately address any noise audible to the public.

- **Fresh Air:** Projects must protect adjacent property from any noxious emissions that would compromise its ability to use natural ventilation. All operational emissions must be free of Red List items, persistent bioaccumulative toxicants, and known or suspect carcinogenic, mutagenic, and reprotoxic chemicals.
- **Sunlight:** Projects may not block sunlight to adjacent building façades and rooftops above a maximum height allotted for the transect. The project may not shade the roof of an adjacent development, unless the adjoining development was built to a lesser density than acceptable for the transect.
- **Natural Waterways:** Projects may not restrict access to the edge of any natural waterway, except where such access can be proven to be a hazard to public safety or would severely compromise the function of the project. No project may assume ownership of water contained in these bodies or compromise the quality of water that flows downstream. If the project’s boundary is more than sixty meters long parallel to the edge of the waterway, it must incorporate and maintain an access path to the waterway from the most convenient public right-of-way.

POLICY OPPORTUNITIES

- The incentives for projects that provide riverfront public access, trails, and amenities that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront (RIV) and the Uptown Public Realm District (UPR) zones) could be expanded to other districts to contribute to achievement of this Imperative .
- Incentives for enhanced inclusive access (such as ABA, Universal Access), enhanced public spaces, access to fresh air, and access to sunlight could be added to The Zoning Code's [Performance Points System](#) or could be mandated for larger scale projects requiring development review.

POLICY BARRIERS

- Universal Access, even if more stringently codified or incentivized by the City, would be difficult to achieve in many areas of Pittsburgh due to limitations of historical and infrastructure-related existing conditions including, per stakeholder feedback, trash bins and parked cars blocking sidewalks of restrictively narrow streets.
- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

EQUITY

CORE IMPERATIVE

18

Inclusion

OVERVIEW

According to the 2017 report [“Pittsburgh Equity Indicators,”](#) Pittsburgh’s equality score was 55 out of a possible 100, indicating that inequalities by race, gender, and income are prevalent in Pittsburgh and that the requirements of this Imperative could have particular impact. Pittsburgh has begun to address the issue of equity through the [City’s Equal Opportunity Review Commission](#) (EORC) which is charged with facilitating participation of “minority- and women-owned businesses as prime contractors and subcontractors in construction and professional services contracts within the City of Pittsburgh.” The City has also committed to providing professional development for [LGBT-owned enterprises](#).

The Pittsburgh Zoning Code includes incentives for projects incorporating equitable development that are consistent with the intent of this Imperative, with an emphasis on employing underrepresented groups, in its [Performance Points System](#). Additionally, there is an Equitable Development Trust Fund included in the City’s Performance Points System, which is applicable to select districts and is outlined in [Section 915.07](#). Pittsburgh Water and Sewer Authority’s (PWSA’s) current [Strategic Plan for Stormwater](#) also includes a workforce development program, which, due to the enormous scale of the proposed green infrastructure project, would provide opportunities not only in entry-level or maintenance roles, but also in management and higher level roles.

POLICY OPPORTUNITIES

- The incentives for equitable development and job creation that are included in the Zoning Code’s [Performance Points System](#) (currently only applicable to the Riverfront (RIV) and the Uptown Public Realm District (UPR) zones) could be expanded to other districts to contribute to

The intent of this Imperative is to help create stable, safe, and high-paying job opportunities for people in the local community, and to support local diverse businesses through hiring, purchasing, and workforce development practices.

All projects must have a Just label for at least two project team organizations that have an integral role in decisions during both design and construction phases, and an additional five organizations involved in the project must complete a self-assessment.

In addition, all projects must either:

Include diverse stakeholders from vulnerable or disadvantaged populations in the design, construction, and operations and maintenance phases at the following levels:

- 20% of design contract and/or construction contracts, and 10% of maintenance contracts must be with JUST organizations that meet required levels for Diversity category, or are registered Minority⁶, & Woman⁶², or Disadvantaged⁶³ Business Enterprises (MWDDBE) organizations, or international equivalent.
- Workforce development/training/community benefits agreements, registered apprentice programs, and similar programs are employed for 10% of the General Contractor’s project contracts, and/or project maintenance contracts.

OR

Donate 0.1% of total project cost to a regional, community-based nonprofit organization focused on equity and inclusion.

achievement of this Imperative.

- The City's EORC could expand its requirements for contracting minority-owned, women-owned, and LGBT-owned businesses to include percentages of large contracts for public and private projects. It could also add workforce training as a requirement for these projects.

POLICY BARRIERS

- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

FRICK ENVIRONMENTAL CENTER, PHOTO CREDIT BOHLIN CYWINSKI JACKSON



Beauty Petal

CORE IMPERATIVE

19

Beauty + Biophilia

The intent of this Imperative is to connect project teams and occupants with the benefits of biophilia and incorporate meaningful biophilic design elements into the project.

Projects must be designed to include elements that nurture the innate human/nature connection. Each project team must engage in a minimum of one all-day exploration of the biophilic design potential for the project. The exploration must result in a biophilic framework and plan for the project that outlines strategy and implementation ideas for the following:

- How the project will be transformed by deliberately incorporating nature through Environmental Features, Light and Space, and Natural Shapes and Forms.
- How the project will be transformed by deliberately incorporating nature's patterns through Natural Patterns and Processes and Evolved Human-Nature Relationships.
- How the project will be uniquely connected to the place, climate, and culture through Place-Based Relationships. The project must meaningfully integrate public art and contain design features intended solely for human delight and the celebration of culture, spirit, and place appropriate to the project's function.

The framework should include a record of the exploration day and goals for the project, as well as historical, cultural, ecological, and climatic studies that thoroughly examine the site and context for the project. The plan must contain methods for tracking biophilia at each design phase to ensure sufficient implementation of the framework.

OVERVIEW

While the incorporation of biophilic design into a project is admittedly difficult to regulate, there are aspects of this Imperative that are incentivized in Pittsburgh. The [City's Percent for Art](#) ordinance requires that 1% of the City's capital construction and renovation be allocated to support a public art program that "uplifts community identity, public history, and evolving culture." Additionally, the Pittsburgh Zoning Code's [Performance Points System](#), applicable to select districts, provides incentives to projects that incorporate public art.

POLICY OPPORTUNITIES

- The incentives around public art that are included in the Zoning Code's [Performance Points System](#) (currently only applicable to the Riverfront (RIV) and the Uptown Public Realm District (UPR) zones) could be expanded to other districts to contribute to achievement of this Imperative.
- Incorporation of biophilic design could be added to the [Performance Points System](#).
- Public-facing City projects could introduce a biophilic requirement.

POLICY BARRIERS

- Many in the development and construction industries are not aware of the Zoning Code's [Performance Points System](#), and when it has been employed it has proven difficult to work with and enforce due to lack of precedent and the Building Department's lack of education about and staffing adequate for enforcing this Zoning Code requirement.

BEAUTY

CORE IMPERATIVE

20

Education + Inspiration

The intent of this Imperative is to provide educational materials about the operation and performance of the project to the occupants and the public in order to share successful solutions and catalyze broader change.

All projects must provide:

- A Living Building Challenge Case Study.
- An annual open day for the public.
- A copy of the Operations and Maintenance Manual.

All projects (except single-family residential) must:

- Provide a simple brochure describing the design and environmental features of the project.
- Install interpretive signage that teaches visitors and occupants about the project.
- Develop and share an educational website about the project.
- Include one Living Future Accredited Professional on the project team.

OVERVIEW

- While there are no requirements for education and inspiration in Pittsburgh's codes, there are also no explicit barriers to achieving this Imperative in City or State code.

POLICY OPPORTUNITIES

- Provision of educational materials as required by this Imperative could be added to the [Performance Points System](#).
- Public-facing City projects could introduce an educational requirement as outlined in this Imperative.

POLICY BARRIERS

- None noted.



PHIPPS CONSERVATORY AND BOTANICAL GARDENS. IMAGE COURTESY OF DENMARSH PHOTOGRAPHY, INC.

Conclusion

“The ceiling is high, but the floor is low.”

Such was one Working Group participant’s assessment of the policy landscape in Pittsburgh. As shown in this report, few explicit policy barriers to regenerative building and LBC are found in Pittsburgh’s city code. Most barriers that do exist reside in the Pennsylvania State code. It is in this context that a culture of City agency innovation and public/private-sector collaboration has taken root and led to local programs and partnerships that seek to embed increasingly ambitious sustainability goals in Pittsburgh building projects. In this sense, the ceiling is indeed high.

That said, there is also a relative lack of minimum code requirements, and the adoption of regenerative practices depends largely on voluntary incentives programs that suffer from low familiarity and lack of implementation support. Absent well-supported and enforceable minimum sustainability criteria formalized in policy, the floor, meaning minimum code requirements related to sustainability, is low. More enforceable minimum requirements would accelerate and preserve the widespread adoption of a more holistic regenerative building standard in Pittsburgh. As noted in the Education and Advocacy section above, it could make sense to consolidate multi-city advocacy around allowing stretch codes at the (Second Class) City level in an effort to raise the minimum sustainability-related code requirements for projects within the City.

One Policy Workshop stakeholder cleverly referred to the ideal dynamic of an enforceable minimum standard paired with well-crafted incentives as

“carrot-flavored sticks.” A policy landscape that incentivizes innovation around sustainability in the built environment while continually raising the floor will ensure that the City of Pittsburgh continues to act as a beacon of regenerative building in the United States.

Policy-Adjacent Opportunities for Further Investigation

As the research and stakeholder feedback summarized in this report indicate, many barriers to and opportunities around regenerative building in the City of Pittsburgh reside outside of local city code and policy. **Thus it makes sense not to focus on local policies where the opportunity for impact is relatively low.** Summarized below are some supplementary observations and insights from research and stakeholder feedback that may further assist project leaders, building professionals, and policy advocates in locating and catalyzing regenerative building opportunities in the City.

- **Show How LBC Can Explicitly Align to National and International Climate and Sustainability Commitments:** Ensure legibility of a given project against widely-adopted and broadly-recognized goals or commitments (e.g., US Climate Task Force, Carbon Disclosure Project, United Nations Sustainable Development Goals etc.).
- **Show How LBC Can Explicitly Align to Corporate Commitments:** Owners, developers, and occupiers with larger portfolios and corporate goals (often attached to national or international standards) will seek a program that explicitly aligns to their internal corporate commitments.
- **Help Financiers Make the Right Decision:** As Environmental Social and Governance (ESG) disclosures become key decision-making tools in investor evaluations and bank financing, more explicit alignment to widely-recognized international and cross-industry reporting standards may increase likelihood of financing LBC projects.
- **Engage Additional / Missing Stakeholders in conversations around Policy:**
 - Historically underrepresented stakeholders and neighborhood groups
 - Health Agency Officials (e.g., Dept. of Health, OSHA, NIOSH)
 - Corporations / Developers / For-profit entities
 - Local and Regional Banks and Lending Institutions
 - Water and energy utilities in Allegheny County
 - Urban Planners / Landscape Architects
 - Professional associations (e.g., AIA, NOMA, ASHRAE, Carbon Leadership Group)

- Youth Groups
- Non-regenerative building advocates
- **Add LBC, in addition to LEED, as an approved development incentive and government building requirement in Zoning Code:**
 - Demonstrate alignment of LBC with PA / Pittsburgh Commitments, including 2030 Commitment, and show where LBC addresses city commitments not included in LEED certification requirements and/or where LBC better aligns with intents and outcomes of these commitments
- **Add more creative City incentives:**
 - Offer permit expediting for projects committing to regenerative building goals
 - Provide streamlined information about and/or connection to federal, state, and local public and private grants (e.g., renewable energy grants, community development grants, etc.)
 - Sponsor community recognition for projects that achieve regenerative goals - through published lists, City-sponsored events, etc.
 - Further incentivize existing code-compliant possibilities (rainwater collection, native plant use, healthy IAQ...) at all scales, from residential to high rise
- **Consider timing of policy proposals / incentives:** As elaborated in [Architecture 2030](#), consider key building lifecycle intervention points for adding requirements or incentives, which could be included in the Zoning Code or other City regulations:
 - Point-Of-Sale
 - Major renovations
 - Building systems, materials, and equipment replacements
 - Capital improvement cycles
 - Zoning or use changes
 - Life-safety and resiliency upgrades (e.g. seismic, flooding, fire prevention, power disruption)

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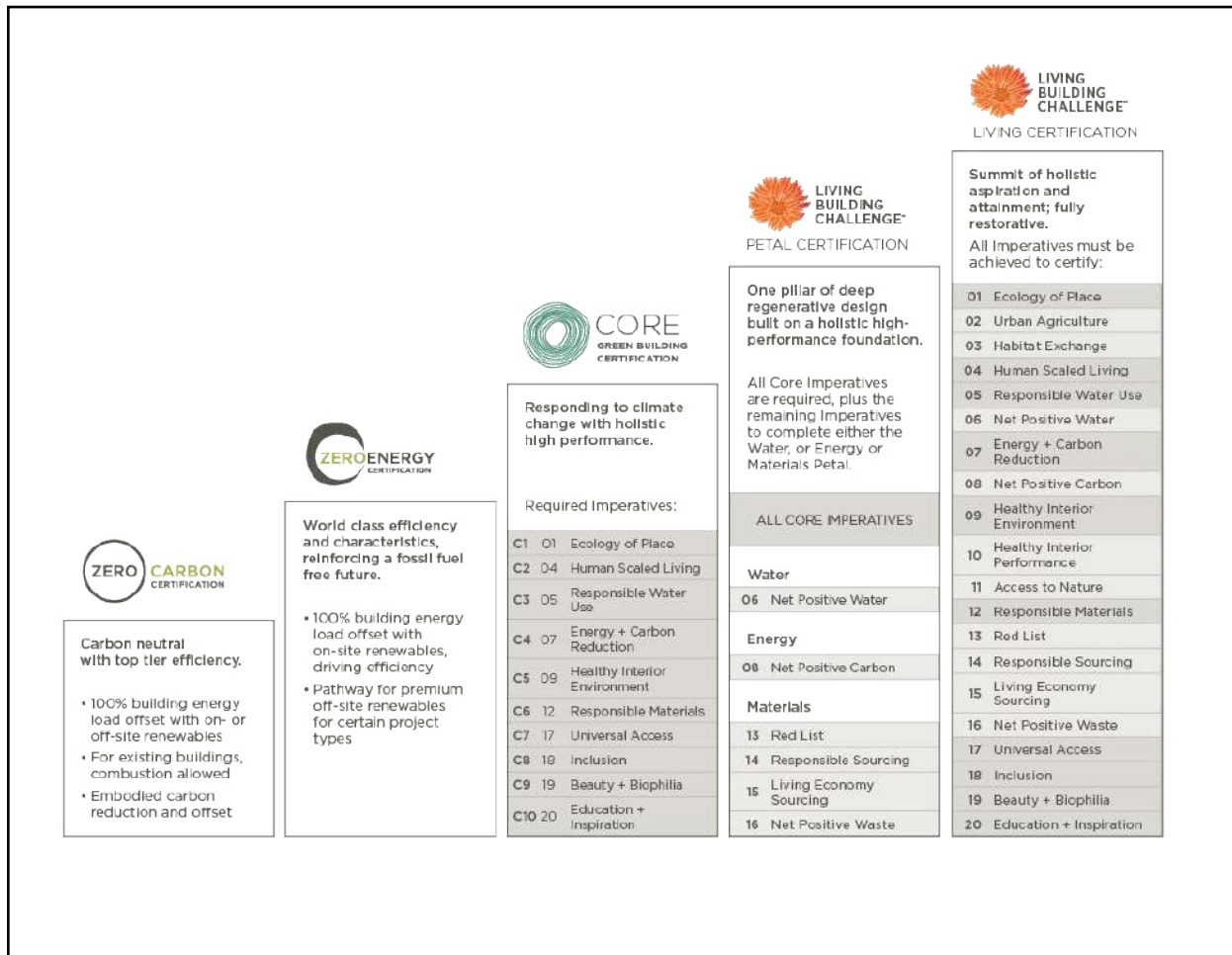
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Addendum 1

LBC Certifications Overview

The International Living Future Institute (ILFI) offers a suite of high performance [building certification programs](#), including the Living Building Challenge (LBC), Core Green Building Certification (Core), Zero Carbon (ZC), and Zero Energy (ZE). These programs are designed to serve as a philosophy and advocacy tool, as well as a third-party certification based on actual performance.



Addendum 2

LBC 4.0 Imperatives

The [Living Building Challenge](#) consists of seven performance categories, or “Petals”: Place, Water, Energy, Health + Happiness, Materials, Equity, and Beauty.

Each Petal is subdivided into Imperatives for a total of twenty Imperatives in the Challenge. The Imperatives can be applied to almost every conceivable building project, of any scale and any location—be it a new building or the renovation of an existing structure.

SUMMARY MATRIX

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	Core Imperative	Required	Required	Not Required	Required
	02 Urban Agriculture	Scale Jumping Allowed	Required	Required	Not Required	Not Required
	03 Habitat Exchange	Scale Jumping Allowed	Required	Required	Required	Required
	04 Human Scaled Living	Scale Jumping Allowed	Required	Required	Required	Not Required
WATER	05 Responsible Water Use	Handprinting Imperative	Required	Required	Required	Required
	06 Net Positive Water	Handprinting Imperative	Required	Required	Not Required	Required
ENERGY	07 Energy + Carbon Reduction	Scale Jumping Allowed	Required	Required	Required	Required
	08 Net Positive Carbon	Scale Jumping Allowed	Required	Required	Not Required	Required
HEALTH + HAPPINESS	09 Healthy Interior Environment	Core Imperative	Required	Required	Required	Not Required
	10 Healthy Interior Performance	Core Imperative	Required	Required	Required	Not Required
	11 Access to Nature	Core Imperative	Required	Required	Required	Not Required
MATERIALS	12 Responsible Materials	Core Imperative	Required	Required	Required	Required
	13 Red List	Core Imperative	Required	Required	Required	Required
	14 Responsible Sourcing	Core Imperative	Required	Required	Required	Required
	15 Living Economy Sourcing	Core Imperative	Required	Required	Required	Required
	16 Net Positive Waste	Core Imperative	Required	Required	Required	Required
EQUITY	17 Universal Access	Core Imperative	Required	Required	Required	Required
	18 Inclusion	Core Imperative	Required	Required	Required	Required
BEAUTY	19 Beauty + Biophilia	Core Imperative	Required	Required	Required	Required
	20 Education + Inspiration	Core Imperative	Required	Required	Required	Required

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

Addendum 3

List of Policy Workshop Participants and Interviewees

Name	Title	Representing
Megan Zeigler	Vice President Planning and Policy	Green Building Association
Katie Reed	Principal Development Review Planner	Department of Mobility & Infrastructure
Kate Rakus	Land Use Policy & Code Implementation Coordinator	Department of City Planning
Rebecca Kiernan	Assistant Director Sustainability & Resilience	Department of City Planning
Corey Layman	AICP Assistant Director & Zoning Administrator	Department of City Planning
Scott McMurtry	Chief of Staff	Office of Councilperson Erika Strassburger
Julie Ascioffa	Industry Relations Manager	Pittsburgh Water & Sewer
Lindsay Baxter	Manager of Regulatory and Clean Energy Strategy	Duquesne Light Company
Chris Klehm	President of e2 and VP of Jendeco Construction	e2 / Jendeco Construction
Kristen McIntosh	Project Manager	Ecocraft Homes
Pete Jefferson	Principal	Branch Pattern
Sarah Kinter	Director	Pittsburgh Department of Licenses, Permits & Inspections
David Green	Assistant Director, Construction & Permits	Pittsburgh Department of Licenses, Permits & Inspections



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