

COMBAT THE **CLIMATE CHALLENGE**.
ADDRESS THE **HOUSING CRISIS**.
DISRUPT DEVELOPMENT WITH DESIGN.

WHAT IS LOW-IMPACT INFILL HOUSING?

As we **combat the climate challenge**, the **Green New Deal** has the opportunity to substantially reduce greenhouse gases while addressing the nation’s **housing crisis** and **disrupt the developmental disaster** that is sprawl through Low-Impact strategies.

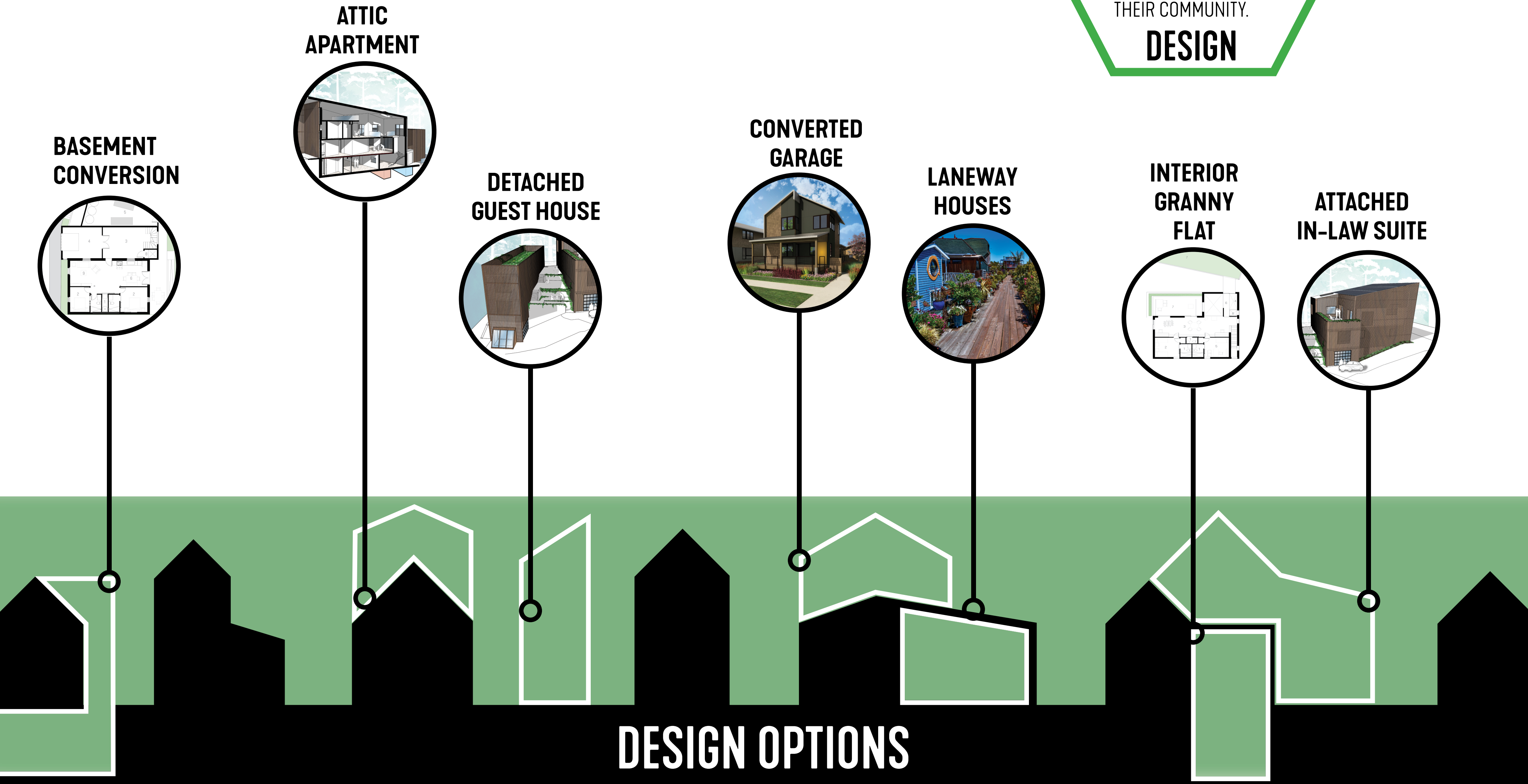
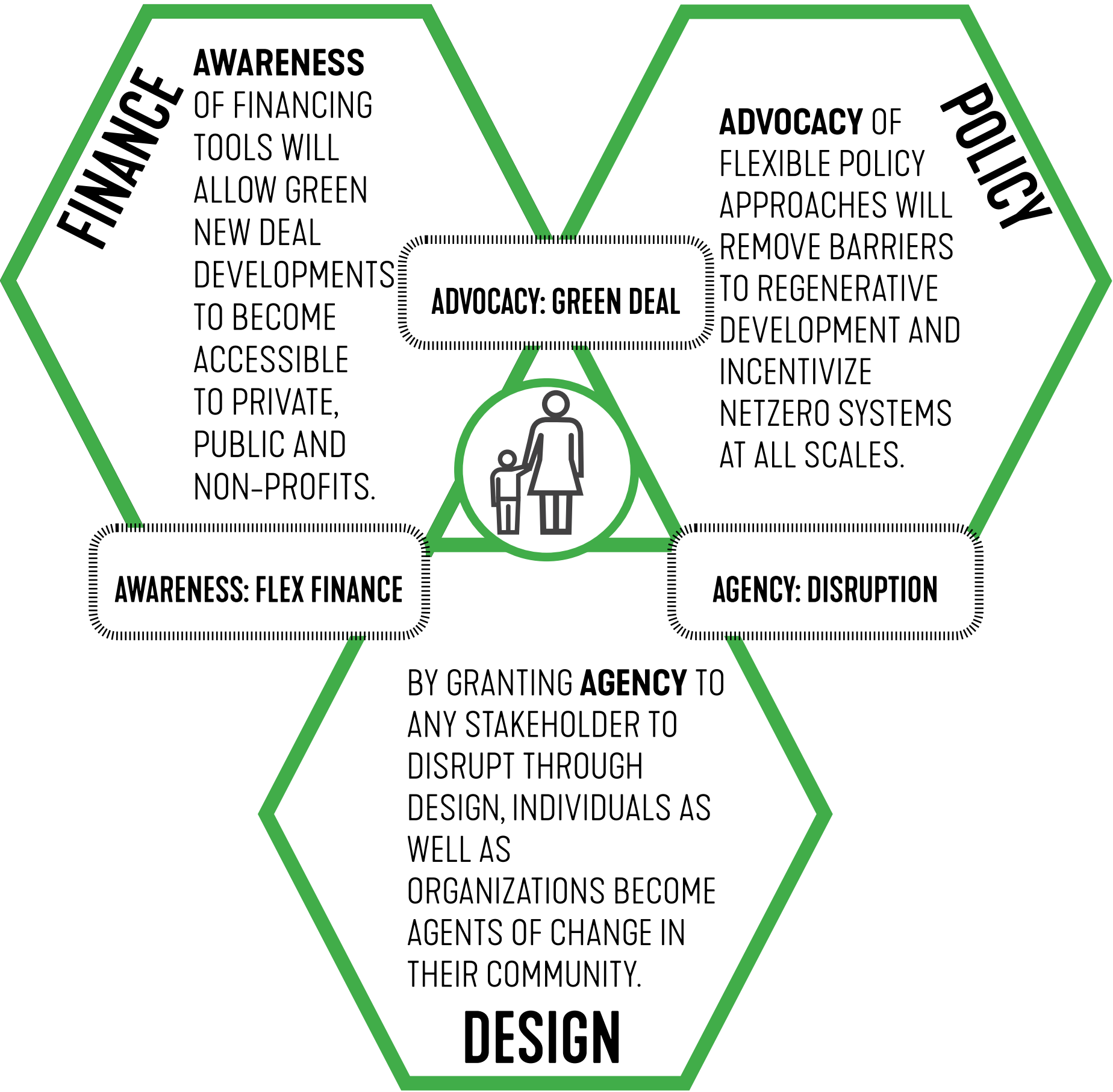
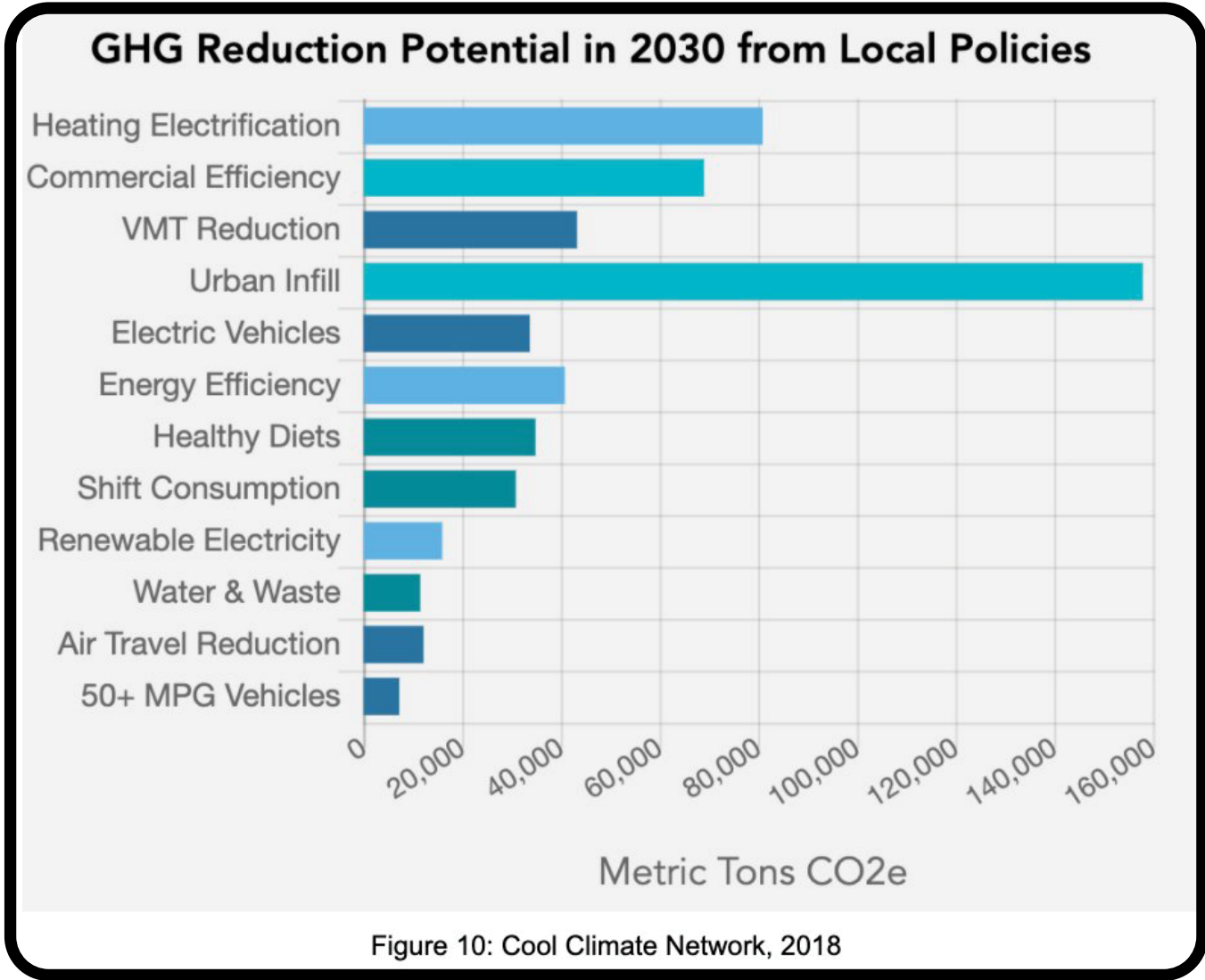
Infill housing can holistically leverage **financing, policy and design** to limit GHG emissions. These emission efficiencies are the benefit urban areas enjoy with dense systems of transportation, infrastructure and commercial activity. In this way, infill housing combats inefficient sprawl. **It can have the greatest impact for the lowest effort.**



This can be tackled by focusing on raising **awareness of financing** options to make low-impact infill housing more accessible to all stakeholders.

Advocating for policies that incentivize this type of low-impact development to limit sprawl.

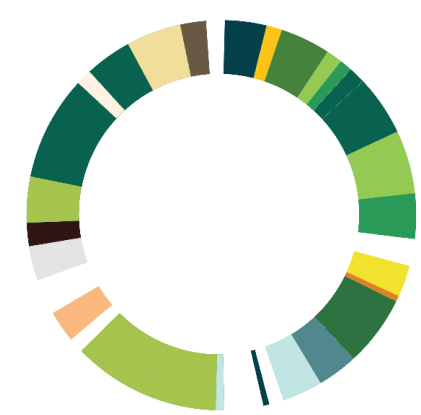
Finally, **design agency** for any stakeholder to create low-impact buildings with NetZero standards as a baseline. These strategies and tactics allow any individual to disrupt the status quo at each phase of development.



LOW-IMPACT INFILL HOUSING (LIIH)

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GREEN NEW DEAL SUPERSTUDIO



THE HOLISTIC HOUSING APPROACH

Housing is increasingly tied with solving the **economic, social and climate issues** facing communities across the country. There have been numerous piece-meal solutions. What is lacking are a succinct set of accessible, affordable, and environmentally-friendly design tools to address these housing issues for a variety of stakeholders. From **non-profits, to local governments to homeowners** and everyone in-between, we hope our scalable approach to sustainable infill housing will elevate the marketplace to find more accessible ways to densify urban areas.

BUILDING SYSTEMS ALTERNATIVES



COMPACT BIODIGESTER
PRODUCES ZERO WASTE,
COMPOST & CAN SUPPLY
AQUAPONIC SYSTEMS.
DON'T FLUSH IT ALL
AWAY!
Photo by BioRock



RECIRCULATING
FIXTURES. GOOD TO
THE LAST DROP!



SOLAR, THERMAL,
HYDRONIC HVAC
IN A SINGLE,
INTEGRATED TRIPLE
SOLAR PACKAGE

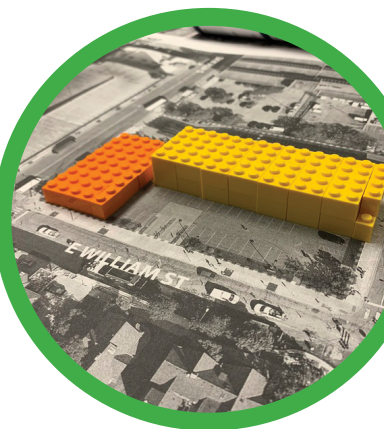
BUILDING DELIVERY OPTIONS



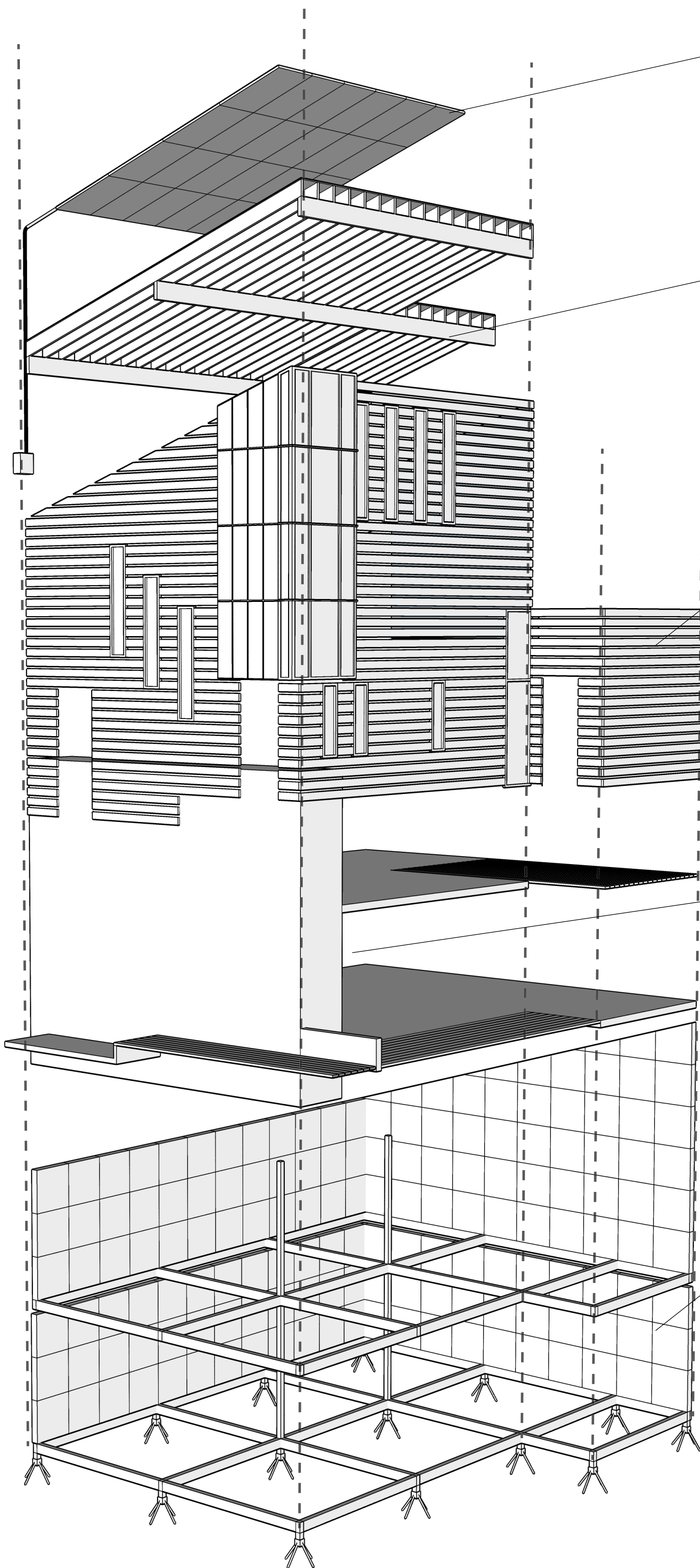
PREFAB
FOR THE
WIN!
Photo by Heijmans
ONE via Inhabitat



BOB THE
BUILDER



SELF-BUILD,
IT'S AS EASY
AS LEGOS!



Power Supply

PV Array as income generator to sell power back to the grid supply or supply the ADU with off-grid power.

Roof Assembly

Metal shed roof on wood frame with rainwater collection. Exposed monoslope ceiling gives ambient light to upper level while increasing volume of the small space.

Exterior Assembly

Horizontal wood rain screen assembly with corner curtainwall to supply stairs and second floor with natural light. Sustainably harvested wood reduces embodied carbon and gives the potentially dense site with warm, soft tones.

Core Organization

The vertical circulation, storage and support spaces are stacked together along the NE side of the building. This two-story volumn allows for daylight to enter the space at the only double height volumn.

Structure

Small scale timber frame on friction pins reduces carbon footprint. Small scale SIPs panels provides easy installation with the added rigidity of shear walls and thermal barrier of high mycelium.

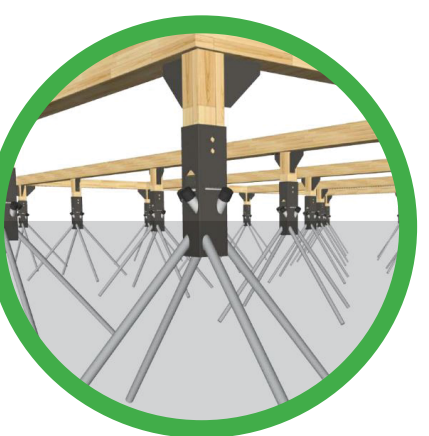
STRUCTURE, SKIN AND INSULATION SYSTEMS



Smaller, 2'x4'MgO
STRUCTURALLY
INSULATED
PANELS WITH
MYCELIUM
INSULATION
Photo by Ecovative via
Mushroom Tiny House

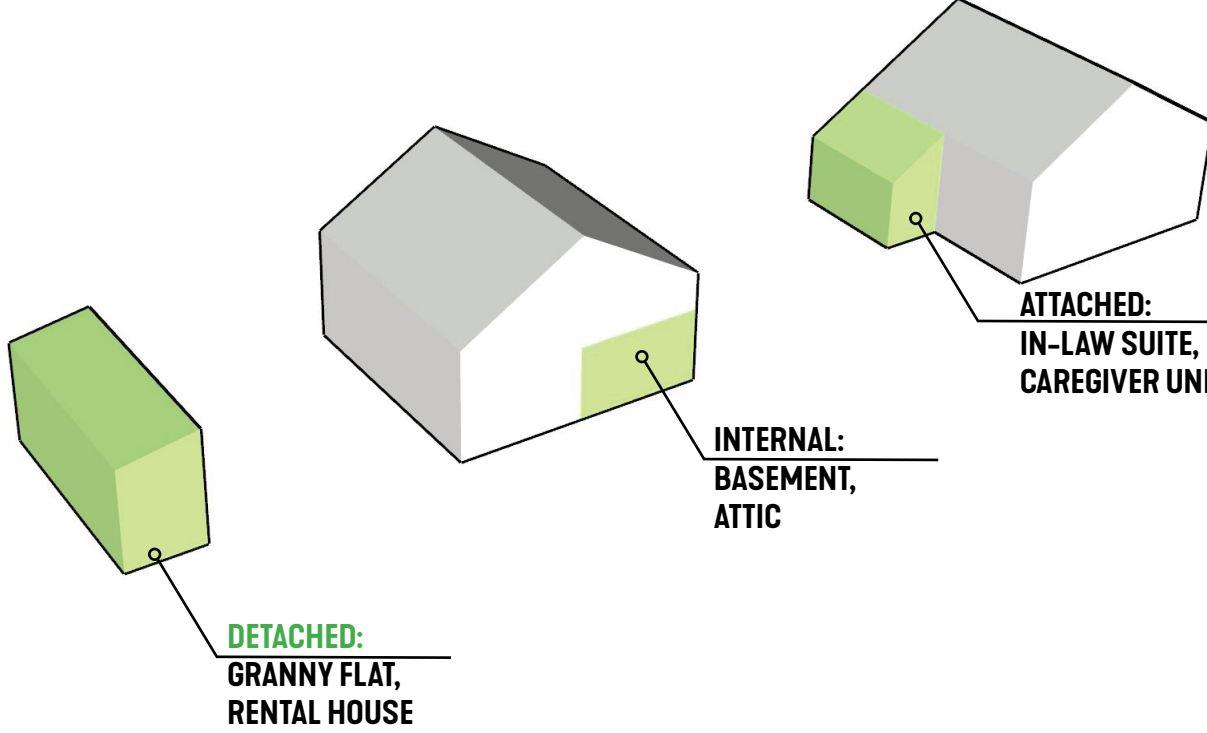


LETS ROCK A
MECHANICAL
CONCRETE
FOUNDATION!



LETS STICK WITH A
FRICTION PIN
FOUNDATION!
Photo by Ground Frame Image
by Pin Foundations, Inc.

BASIC INFILL FORMS



A LOW-IMPACT DESIGN APPROACH

Low-impact, infill housing can bring an innovative solution to the increasingly difficult policy, financing and design issues that plague our fractured housing market. Using forward-thinking policy, widely inclusive financing and sustainable materials and methods, these housing solutions create equitable dwelling units that create a sense of place, ownership, and identity.

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“The road to success is always under construction”

The average home, using conventional construction, generates 98.7 kg of carbon while a low-impact/netzero design can generate a third of that.

Iterations of construction methods have evolved with the needs of each era and society’s material and technological limitations. The Green New Deal provides an opportunity to jumpstart more innovative and efficient building systems that are low-impact with regard to **embodied carbon and operational energy usage**, raising awareness of these systems is the first step in scaling them to the wider market.

“The same old thinking yields the same old results”

As the chart shows, different regions have different emission rates, with state-wide policies making California and the Pacific Northwest more efficient than other regions through strategic policy. Rural and suburban regions are far more carbon intensive compared to the relevant efficiency of urban areas given their density and infrastructure efficiency. We must reconsider the zoning restrictions that make many infill-housing options illegal or prohibitively expensive.

In the process, we must address historic redlining by providing more diverse and affordable housing options that were previously allowed but have since been made illegal through exclusionary zoning.

“We shape our buildings; thereafter they shape us”

We must design space for both now and into the future. The ability for the proposed **low-impact** construction to disrupt the development disaster of sprawl and addressing the housing crisis is critical. Starting with NetZero design strategies as a baseline is the cornerstone of low-impact infill housing. This is especially true for decreasing the **Energy Unit Intensity** or EUI of existing buildings and new construction to lessen the energy consumption over time.

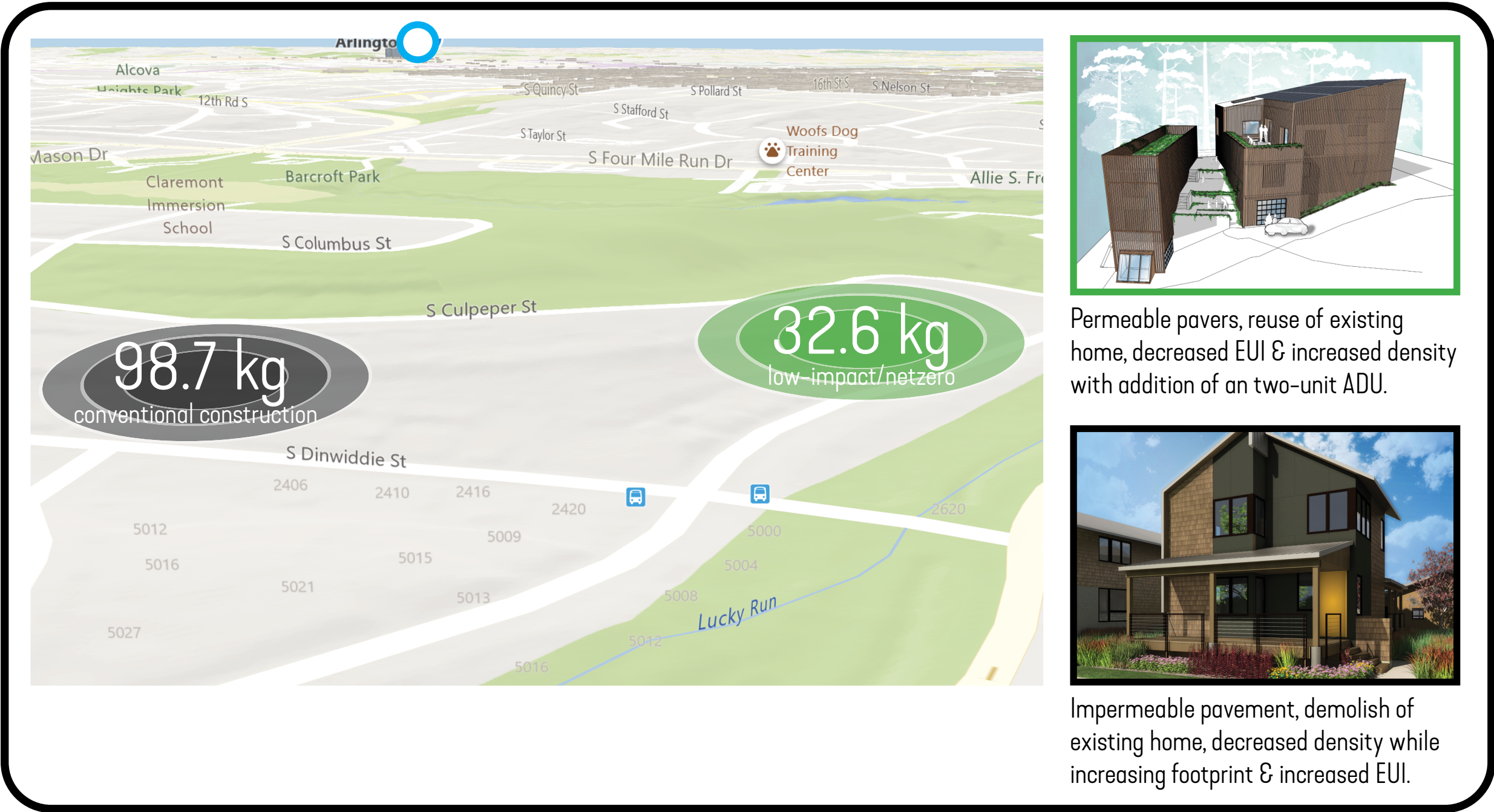
WHY IT MATTERS

We currently only have one habitable planet and are in control of our decisions to **design a better future**.

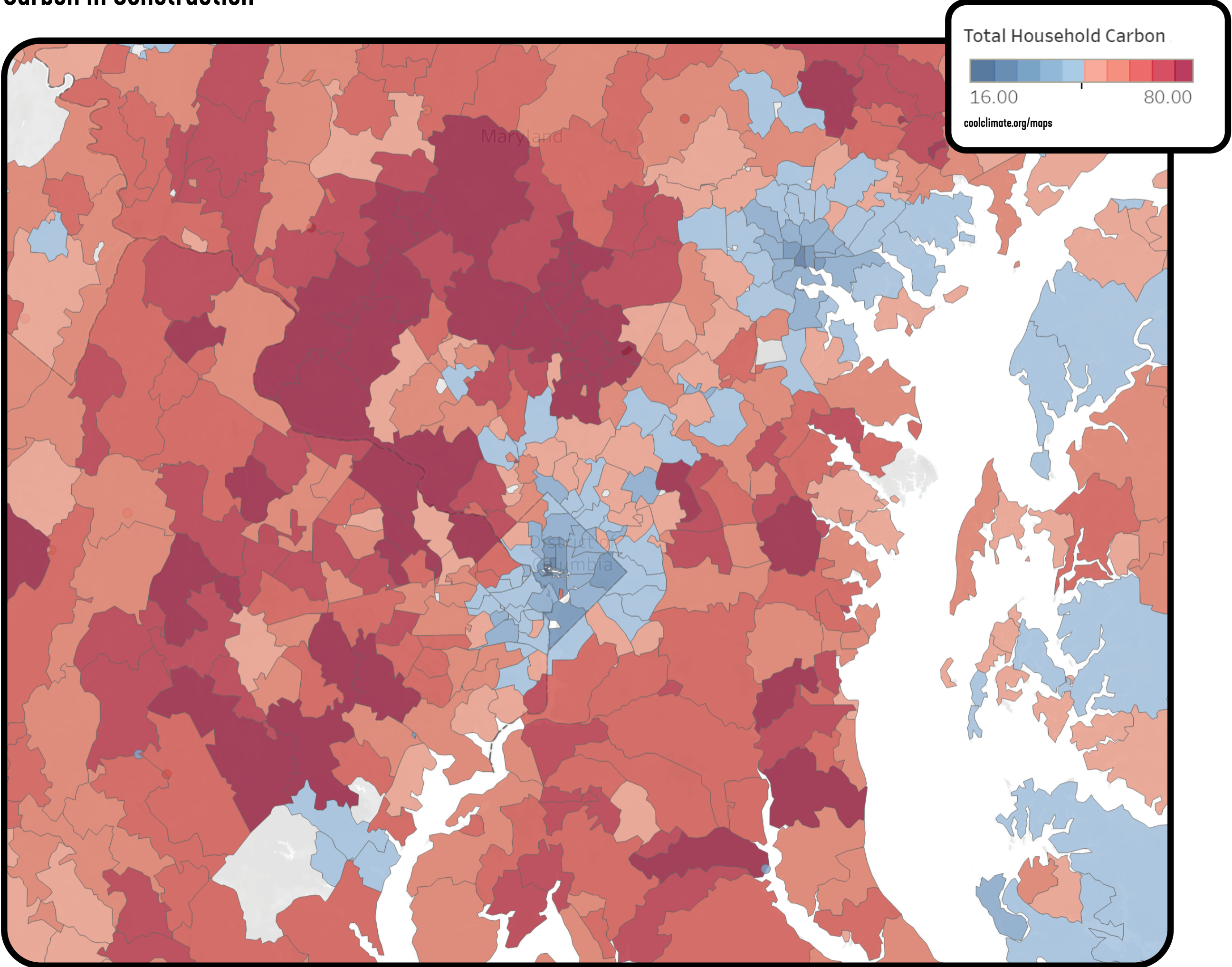
LOW-IMPACT INFILL HOUSING (LIIH)

SMITHGROUP

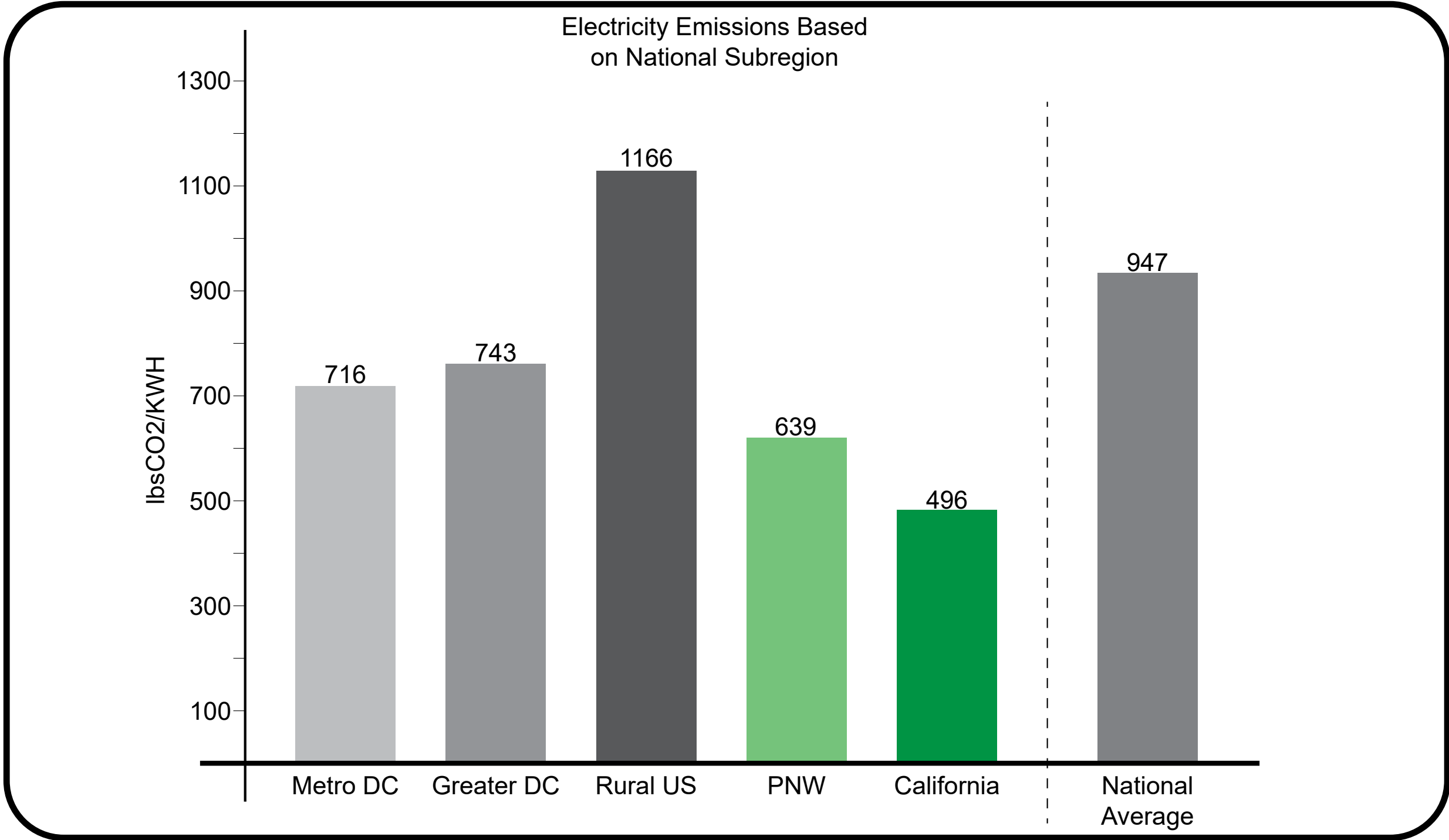
GREEN NEW DEAL SUPERSTUDIO



Carbon in Construction



Household Carbon by Zip Code



Electric Emissions By Sub Region