

MWCOG Meeting

The Living Community Challenge



May 27, 2015



DC's Progressive Green Building Policies

Green Building & Energy

- ✓ Green Building Act (2006)
- ✓ Energy Benchmarking & DC SEU (2008)
- ✓ Energy Efficiency Financing Act (PACE - 2010)
- ✓ Distributed Generation Amendment Act (2011)
- ✓ Community Renewables Act (2013)
- ✓ Green Construction Codes (2014)



Green Infrastructure

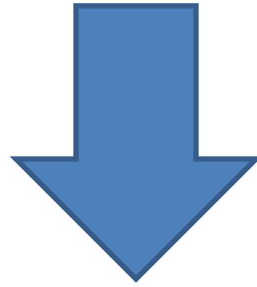
- ✓ Stormwater Regulations (2013)
- ✓ Green Area Ratio (2013)
- ✓ Green Construction Codes (2014)

DC's "Green" Leadership

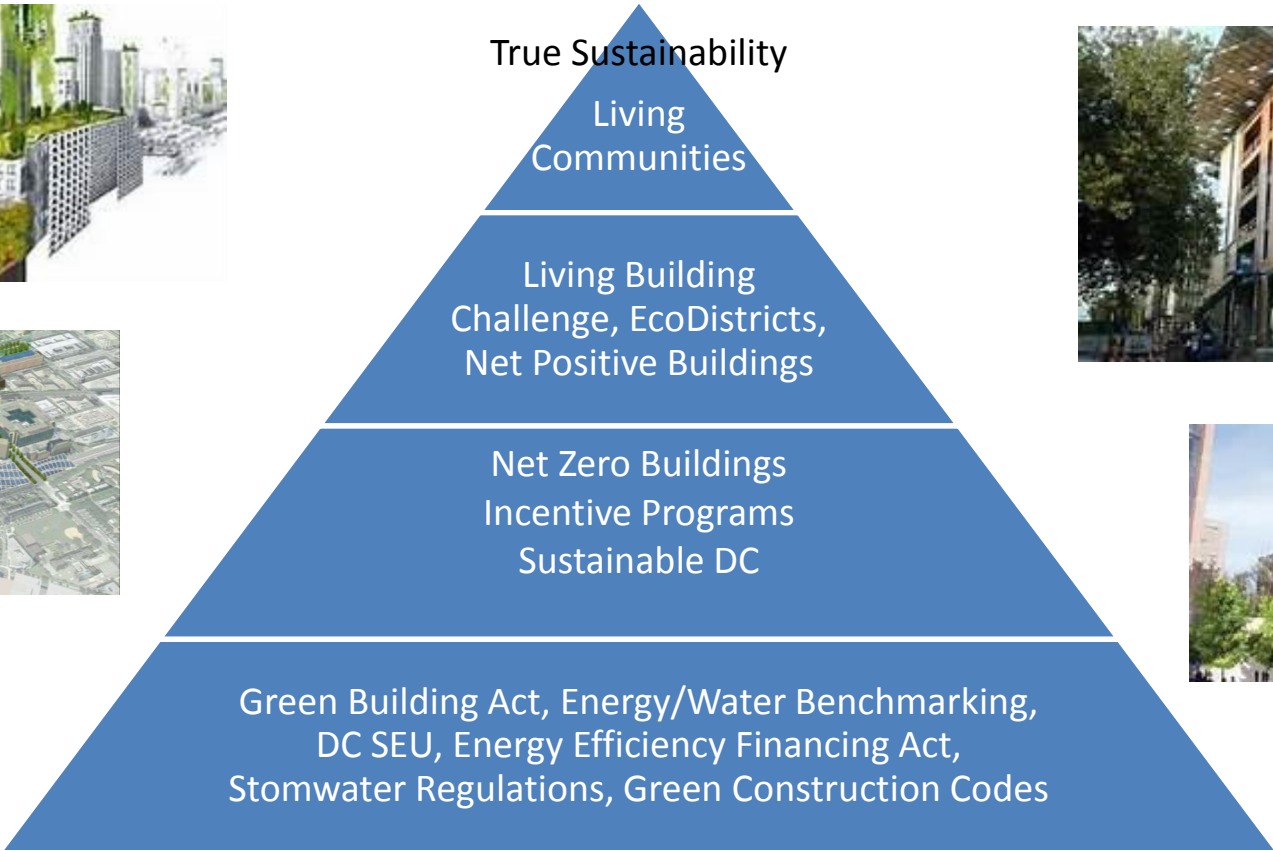
- ❖ **1st in nation among large cities in LEED and ENERGY STAR® certified square footage per capita by large margin**
- ❖ **1st in nation in total number of ENERGY STAR® buildings (metro area) and 2nd in total number of LEED projects**
- ❖ **1st in nation in green power purchasing for 5 years running**
- ❖ **1st in nation in green roof square footage per capita (2nd in total square footage)**
- ❖ **2nd in mass transit (50% of District trips by transit, walking, or bike)**



LEED Platinum Is Great,
But It Isn't Enough
to Get to This



Path to True Sustainability



Related Initiatives in DC

- ❖ Living Building Challenge
 - ✓ LBC Design Competition for Affordable Housing Site
 - ✓ DC Public Library RFP
- ❖ Living Community Challenge
 - ✓ Education – LCC Talk & Charette in March
 - ✓ Planning – Creation of LCC Plans for large scale development projects, and future Sustainable DC 2050 Vision - LCC at the city scale
- ❖ EcoDistricts – 3 Target Cities Projects in DC





INTRODUCTION TO THE LIVING COMMUNITY CHALLENGESM 1.0

A Visionary Path to a
Regenerative Future



INTERNATIONAL
LIVING FUTURE
INSTITUTESM

A lush green forest with moss-covered trees and ferns. The scene is filled with vibrant green foliage, including large ferns in the foreground and moss-covered tree trunks and branches. The lighting is soft and dappled, creating a serene and natural atmosphere.

FOREST AS METAPHOR

Unique to place

Adapted to climate and site

Harvests all energy + water

Waste = resource

Symbiotic

Diverse

Beautiful

A NEW MODEL OF COMMUNITY BUILDING A NEW MODEL OF URBAN DESIGN



PETALS & IMPERATIVES

PLACE

01. Limits to Growth
02. Urban Agriculture
03. Habitat Exchange
04. Human Powered Living



MATERIALS

11. Living Materials Plan
12. Embodied Carbon Footprint
13. Net Positive Waste



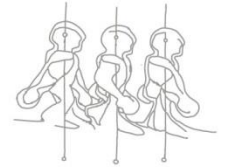
WATER

05. Net Positive Water



EQUITY

14. Human Scale + Humane Places
15. Universal Access to Nature & Place
16. Universal Access to Community Services
17. Equitable Investment
18. Just Organizations



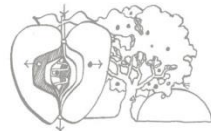
ENERGY

06. Net Positive Energy



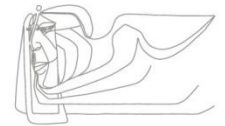
HEALTH & HAPPINESS

07. Civilized Environment
08. Healthy Neighborhood Design
09. Biophilic Environment
10. Resilient Community Connections



BEAUTY

19. Beauty + Spirit
20. Inspiration + Education



PETALS & IMPERATIVES

PLACE

RESTORING A HEALTHY
COEXISTENCE WITH
NATURE



MATERIALS

ENDORISING PRODUCTS
AND PROCESSES THAT
ARE SAFE FOR ALL
SPECIES THROUGH TIME



WATER

CREATING WATER-
INDEPENDENT SITES,
BUILDINGS AND
COMMUNITIES



EQUITY

SUPPORTING A JUST,
EQUITABLE WORLD



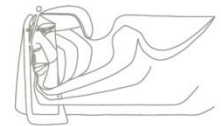
ENERGY

RELYING ONLY ON
CURRENT SOLAR INCOME



BEAUTY

CELEBRATING PLANS
THAT PROPOSE
TRANSFORMATIVE
CHANGE



HEALTH & HAPPINESS

MAXIMIZING PHYSICAL
AND PSYCHOLOGICAL
HEALTH AND WELL-BEING



CERTIFICATION VS. COMPLIANCE

Living Community Challenge Certification is a performance standard for built and occupied projects.

Living Community Masterplan Compliance acknowledges plans for aspirations.





FIRST YEAR

4 REGISTERED COMMUNITIES

6 PILOT CITIES



LIVING COMMUNITY CHALLENGESM 1.0

A Visionary Path to a
Regenerative Future



INTERNATIONAL
LIVING FUTURE
INSTITUTESM

Green Building Fund Grants



First Costs

Building Type	Net Zero Energy	Net Zero Water	Living Building Challenge
Commercial - New (328,095 SF)	5-10%	0-4%	11-16%
Commercial - Retrofit (235,172 SF)	7-12%	1-6%	13-18%
Residential - New (329,164 SF)	14-19%	2-7%	22-27%

Energy Financials

Building Type	Deep ECM Only			Net Zero With ECM			Net Zero Without ECM		
	NPV	SPB	ROI	NPV	SPB	ROI	NPV	SPB	ROI
Office New Construction	(\$396,476)	11 yrs	9.10%	\$2,672,413	3.0 yrs	33.80%	\$2,508,026	3.3 yrs	30.30%
Multifamily New Construction	(\$1,772,741)	17.7 yrs	5.70%	\$3,192,398	3.0 yrs	33.10%	\$2,943,543	3.4 yrs	29.30%
Office Renovation	(\$137,039)	8.1 yrs	12.30%	\$1,260,704	2.7 yrs	36.80%	\$3,008,046	3.4 yrs	29.20%

Net Zero/Living Building Study



First Costs

Building Type	Net Zero Energy	Net Zero Water	Living Building Challenge
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NET ZERO WATER AND ECOLOGICAL WATER FLOW STRATEGIES

For each building, a storm and rainwater retention system was added via a tank in the basement. The walls and floor of this tank were waterproofed and structurally upgraded to meet the load of the water. Related pipes, pumps and greywater distribution (purple pipe) systems were also added.

	Assumed Incremental Cost	Cost Premium per SF	Cost Premium %	NPV	SPB	ROI
Office New Construction	\$1,190,133	\$3.80	1.3%	(\$116,953)	10.18	9.8%
Multi-Family New Construction	\$1,540,145	\$4.65	1.7%	(\$72,580)	21.22	4.7%
Office Renovation	\$1,846,100	\$7.85	3.1%	(\$94,808)	19.47	5.1%

Table E: Cost and Payback of NetZero Water Strategies

Note: \$2.00 per SRC was assumed for stormwater incentives.

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