

green  
town

# Designing for the Future: How to Get to Net Zero

Gabriela Martin, Illinois Clean  
Energy Community Foundation

Tom Bassett-Dilley, Tom  
Bassett-Dilley Architects

Nate Kipnis, Kipnis Architecture  
and Planning

Chris Lindgren, Park District of Oak  
Park

David Pope, Oak Park Residence  
Corporation

# Greentown: How to Get to Net Zero

## Education Facilities: K – Community College



Credit: Chris Lindgren

Adlai E. Stevenson High School -  
VERIFIED



Credit: Wight & Co.

Prairie Trails School – VERIFIED  
(Renovation)



Illinois Clean Energy  
community foundation

# Greentown: How to Get to Net Zero

## Education Facilities: K – Community College



Credit: Chris Lindgren

Saint Joseph School – VERIFIED but ...



Credit: Wight & Co.

Academy for Global Citizenship – Under Construction



Illinois Clean Energy  
community foundation

# Greentown: How to Get to Net Zero

## Education Facilities: K – Community College



Credit: Wight & Co.

Heartland Community College Agriculture  
Center – Under Construction



# Greentown: How to Get to Net Zero

## Recreation Centers/Community Centers



Credit: Chris Lindgren

Park District of Oak Park Carroll  
Community Center – VERIFIED  
(Renovation)



Credit: Wight & Co.

Northbrook Park District Techny Fields  
Activities Center - VERIFIED



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# Greentown: How to Get to Net Zero

## Recreation Centers/Community Centers



Credit: Kmiecik Imagery

Plainfield Park District Prairie Activities Center - Monitoring



Credit: Perkins + Will

Park District of Oak Park Recreation Center – Just Completed

# Greentown: How to Get to Net Zero

## Local Government



Credit: Mariusz Mizera

Countryside Municipal Complex -  
VERIFIED



Credit: Wold Architects and Engineers

Lake County 911 and Regional  
Operations Center - Groundbreaking



# Greentown: How to Get to Net Zero

## Forest Preserve Districts



Credit: LAKE | FLATO

Lake County Forest Preserve District  
Environmental Education Center –  
Under Construction



Credit: Wight & Co.

Forest Preserve District of DuPage  
County Willowbrook Wildlife Center –  
Under Construction



# Greentown: How to Get to Net Zero

## Affordable Housing



Credit: Farr Associates

Granite City Housing Authority -  
VERIFIED



Credit: TBD Architects

Oak Park Residence Corporation 7 Van  
Buren – Under Construction



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# Greentown: How to Get to Net Zero

Map and List Analysis

## NBI Getting to Zero Buildings Database

Use the filters on the left to filter projects in the map, and/or select a bubble on the map to filter the table below  
Use the tabs above or buttons in the top right to navigate to the analysis and graphics page

Reset Filters Analysis Graphics

**ZE Status** **Count**

Emerging 13

Verified 3

**State or Province**

(All)

Alabama

Alberta

Arizona

Arkansas

British Columbia

California

Colorado

Connecticut

Delaware

**Building Type**

(All)

Education

Food Sales

Food Service

Health Care (Inpatient)

Health Care (Outpatient)

Lodging

Mercantile (Enclosed a...)

Mercantile (Retail Other...)

ZE Status	State or Province	Name	Certifications	City	Building Type	Size (sf)	Total Site EUI	Net Site EUI
Verified	IL	Adlai E. Stevenson High School EBA I Science Addition	LEED, ILFI	Lincolnshire	Education	54,000	32	-3
Verified	IL	Carroll Center - Park District of Oak Park	PHIUS+ Sour...	Oak Park	Public Assembly	7,700	5	-6
Verified	IL	Techny Prairie Activity Center - Northbrook Park District	PHIUS+ Sour...	Northbrook	Public Assembly	44,200	27	0
Emerging	IL	Academy for Global Citizenship		Chicago	Education			
Emerging	IL	Adlai E. Stevenson High School EBA II Fieldhouse		Lincolnshire	Education	62,259		
Emerging	IL	Courtryside Municipal Complex		Countryside	Public Assembly	34,700		
Emerging	IL	Electrical and Computer Engineering Building and Univ...		Champaign	Education	250,000		
Emerging	IL	Heartland Community College Agriculture Complex		Normal	Education	30,000		
Emerging	IL	Lake County Forest Preserves Environmental Educatio...		Libertyville	Education			
Emerging	IL	Oak Park Residence Corporation: 7 Van Euren		Oak Park	Multifamily			
Emerging	IL	Parkview Early Learning Center		Mount Prospect	Education	10,000		
Emerging	IL	Prairie Activity & Recreation Center - Plainfield Park Dis...	PHIUS	Plainfield	Public Assembly	39,776		
Emerging	IL	Saint Joseph's School Addition	PHIUS	Downers Grove	Education	7,000		
Emerging	IL	Sunset Ridge	LEED	Chicago	Education	73,890		
Emerging	IL	Walgreens Evanston Store	LEED	Evanston	Mercantile (Enclos..	14,000	48	-5
Emerging	IL	Willowbrook Wildlife Center		Glen Ellyn	Other	25,000		0

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# Greentown: How to Get to Net Zero

## United States

Emerging Net Zero Buildings: 556

Verified Net Zero Buildings: 164

Total: 720

In Order of Verified Projects

State	Emerging	Verified
1 California	238	54
2 Oregon	25	8
3 Massachusetts	24	7
4 Illinois	11	7
5 Florida	10	7
6 Washington	9	7
7 New York	57	6
8 Pennsylvania	9	5
9 Virginia	7	5
10 Maryland	5	5

In Order of Total Projects

State	Emerging	Verified	Total
1 California	238	54	292
2 New York	57	6	63
3 Oregon	25	8	33
4 Massachusetts	24	7	31
5 Colorado	18	3	21
6 Arizona	18	1	19
7 Illinois	11	7	18
8 Florida	10	7	17
9 Texas	13	3	16
10 Washington	9	7	16



# Greentown: How to Get to Net Zero



**Illinois Clean Energy**  
*community foundation*

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Nathan Kipnis FAIA



High Design/Low Carbon™



# Evanston Passive House - Historical Context

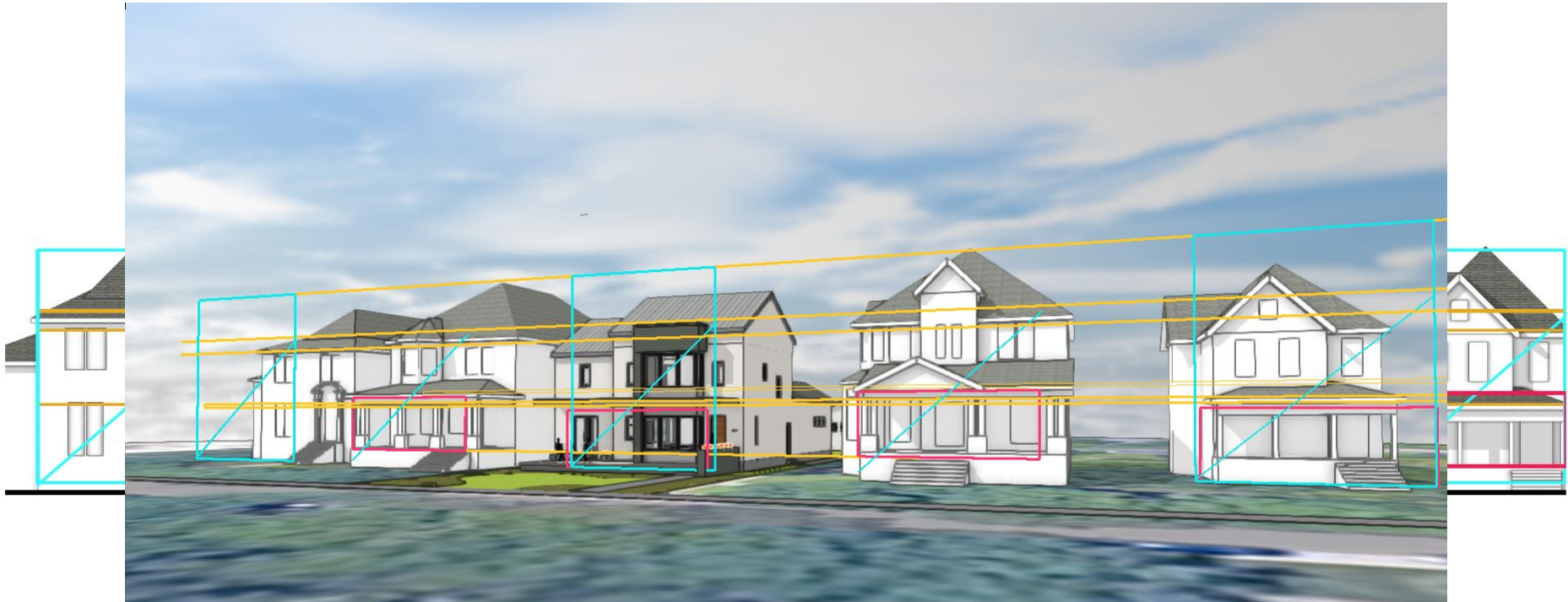


## Neighborhood Features

- Front Covered Porch
- Vertically Oriented Bay
- Bay that Projects Above B.O. Roof
- Vertically Oriented Windows
- Two Story Facade with Tall Roof
- Wood Siding or Stucco Finish



# Evanston Passive House - Proportion Study









# Systems

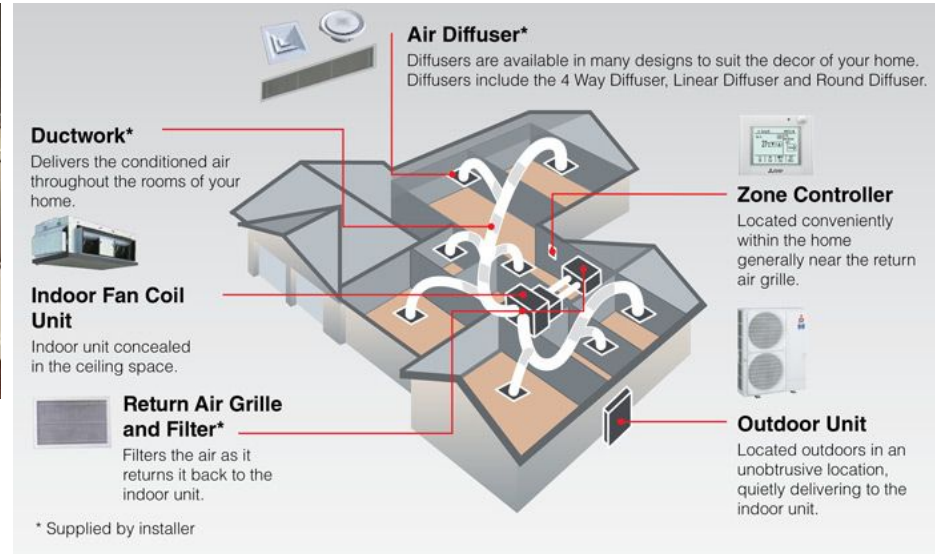


Induction Cooktop



Air Source/  
Hybrid Water Heater

Air  
Source/Hybrid  
Dryer



Mini-Split/Air Source Heat Pump

# Evanston Passive House

## Sustainability Features

- Light Shelf for Enhanced Daylighting
- Triple Glazed Sierra Pacific Windows
- ERV System for Controlled Fresh Air
- T-Studs + Continuous Ext. Insulation
- All Electric (No Natural Gas Line)
- Valcucine Sustainable Cabinets
- Landscaping with Native Plants
- LED Correctly Colored Lighting
- Low VOC Finishes Throughout
- Tall Ceilings + Ceiling Fans
- Carbon Free 'Water Place'
- Carbon Cure™ Concrete
- PAC-Clad Metal Roofing
- Battery Backup System
- EV Charger in Garage
- 12.6 kW Solar Array
- ACH50 = 0.30



## Certifications:

- PHIUS Zero Certification
- DOE Zero Net Ready
- Energy Star

# Evanston Passive House







Nathan Kipnis FAIA



High Design/Low Carbon™



# Getting To Zero: a “Passive-forward” approach

Tom Bassett-Dilley AIA, CPHC

President, Tom Bassett-Dilley Architects, Ltd.  
(TBDA), Oak Park, IL, since 2006

Passive House Alliance Chicago (Board Member) and  
Passive House Alliance National Council (regional  
rep)







Most TBDA Phius/Zero Energy/Capable Projects\*, 2011-current (\*excluding ~10 in-progress, mostly retrofits)



# Case Study: Community Center retrofit and addition

- One of only three certified Net Zero buildings in IL
- Retrofit and Addition
- Phius Source Zero certified



Carroll Community Center, Oak Park, IL



# Case Study: Bungalow Retrofit—from EUI 115 to -4

ILFI Net Zero Certification pending

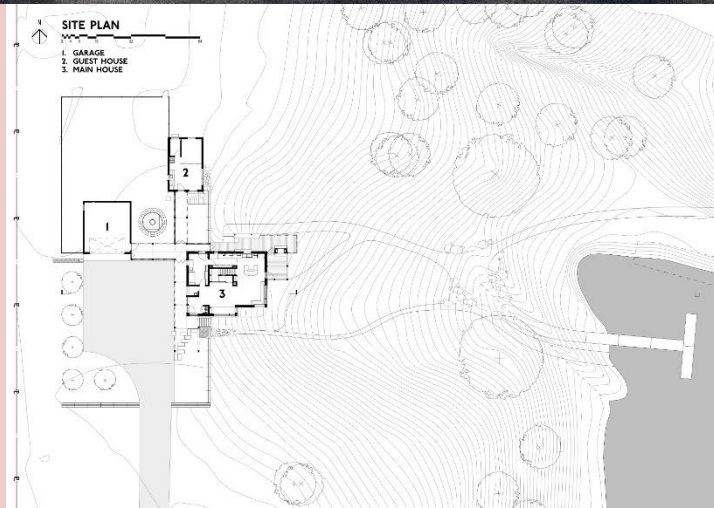




# Case Study: new NZE residence

Net zero energy requested; all-electric house with PV array to offset annual energy use. PV was added to guest house after first year to achieve NZE.

- LEED-H Gold certified



Net Zero Prairie Retreat, near Springfield, IL



# Case Study: new NZE Phius (Passive House)

Phius Source Zero certified



“Acorn Glade,” Downers Grove, IL

# Case Study: NZE Phius Historic Retrofit

1905 house with a gut remodel to insulate and update mechanicals to Passive House levels, with solar PV on garage and addition roof to achieve NZE



Phius Zero Historic Renovation, Oak Park, IL



THANK YOU!



Design and image credit: Kahler Slater

# Net Zero Facilities

Chris Lindgren

Superintendent of Parks & Planning



**PARK DISTRICT**  
of OAK PARK

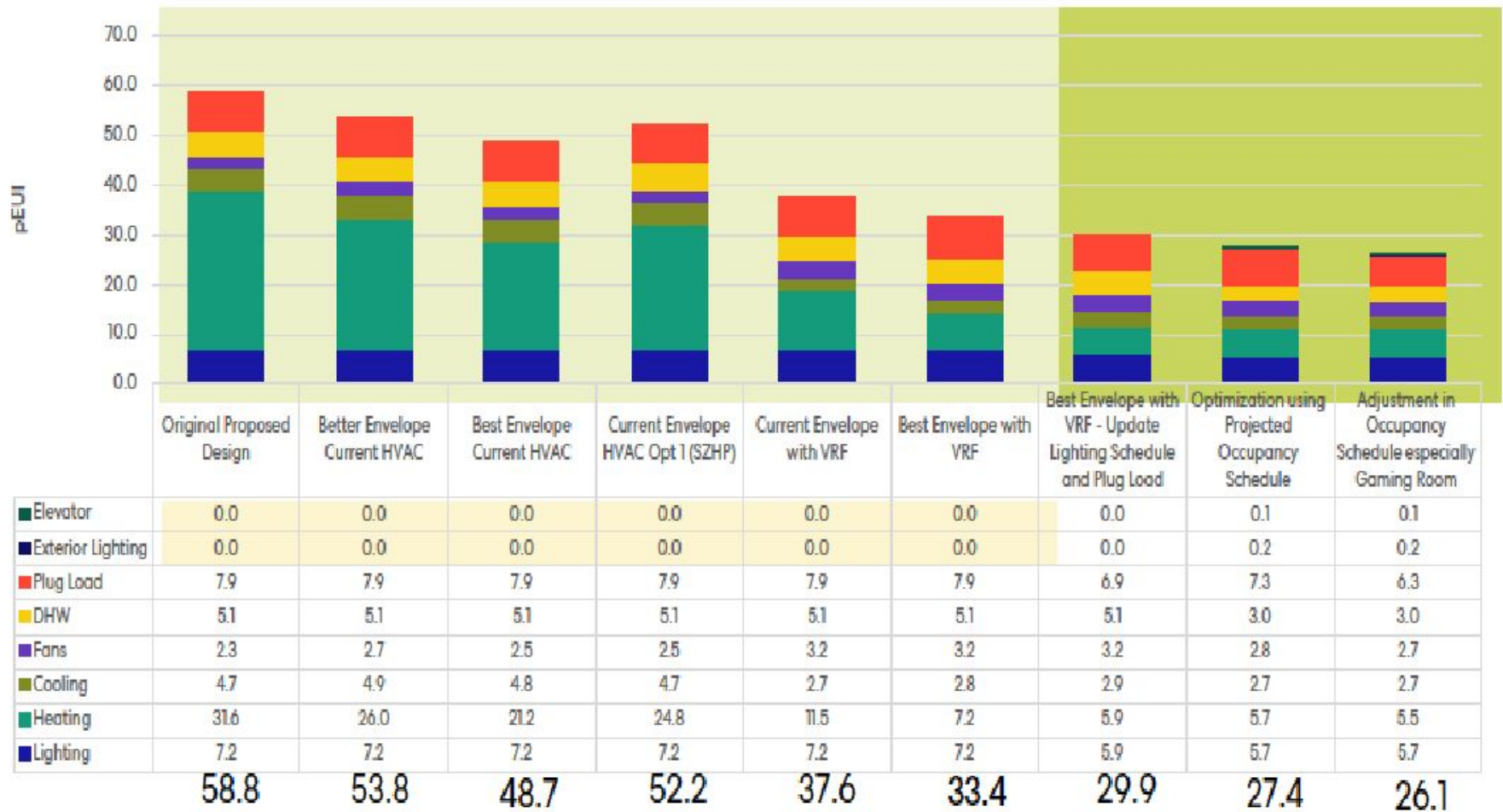
# OP Community Rec Center

- ▶ All electric facility
- ▶ 43,000 sq. ft. rec facility
- ▶ 318 kW Solar Array - ILFI Net Zero Design
- ▶ Battery back-up (no gas generator)
- ▶ March 2022 - May 2023
- ▶ ICECF Grant \$1.78M





# pEUI Progress to Achieve Net Zero



Yellow background: Elevator Load and Exterior Lighting were not included in the first stage of the optimization

Light Green background: 1<sup>st</sup> Stage Optimization focus on new system selection to achieve net zero

Dark Green background: 2<sup>nd</sup> Stage Optimization focus on building operation and plug load



# Case Study - Carroll Center

- ▶ ICECF Funded \$577,800
- ▶ 3800 sq. ft. addition on 100yr old park facility
- ▶ PHIUS +Source Zero
- ▶ Energy Prove out very positive
- ▶ Geothermal HVAC System
- ▶ Thoughtful design on tight budget
- ▶ All Electric Facility
- ▶ Owner GC with CM











**GARROLL**  
COMMUNITY CENTER



# Results

- ▶ NBI Certified October 1, 2021 (2<sup>nd</sup> in State)
- ▶ Designed to cover entire building load, exceeded goals
- ▶ Generates enough energy for entire site
- ▶ Comfortable building
- ▶ Great press, multiple awards
- ▶ Happy Board
- ▶ No utility bills = Happy Me



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