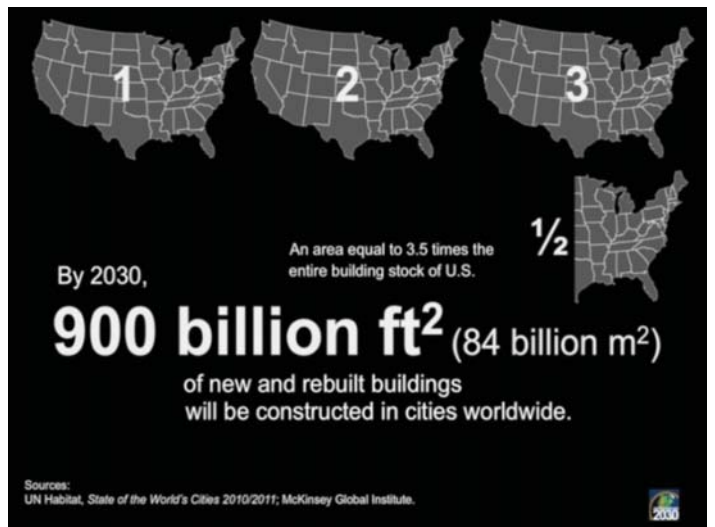




THE PHFA PROJECT
*A National
Net-Zero-Energy-Capable
Affordable Housing Initiative*

Tim McDonald
tim@onionflats.com
215.783.5591

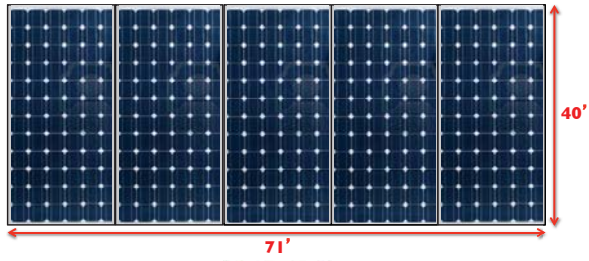


RADICAL
AFFORDABLE
SCALABLE

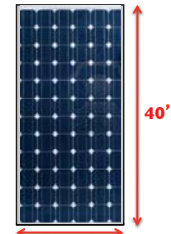
NET-ZERO-ENERGY-CAPABLE

A building must **GENERATE**
NET-ZERO-ENERGY-CAPABLE
ALL it needs to survive

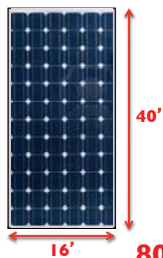




1900 sf home
39,000 kWh/yr
2832 sf roof



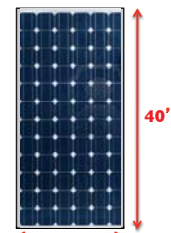
80% REDUCTION
4.5 kWh/sf/yr
615 sf roof



80% REDUCTION
4.5 kWh/sf/yr



**“Fabric First”
 approach**

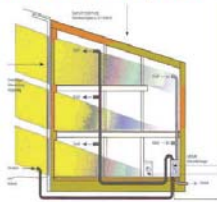


80% REDUCTION
4.5 kWh/sf/yr



Envelope and Thermal Comfort Principles

- 1. **Continuous Insulation**- creating steady indoor temperatures that won't drop below 50 degrees without heating source
- 2. **Thermal Bridge Free Construction**- minimizes condensation/ building deterioration
- 3. **Compact Building Shape**- excellent surface-to-volume ratio (< 1)
- 4. **Airtightness**- minimizes moisture diffusion into wall assembly
- 5. **Balanced Ventilation with Heat Recovery with minimal Space Conditioning System** - exceptional efficiency, indoor air-quality and comfort
- 6. **Optimal Solar Orientation and Shading** - maximizing solar gains for winter, minimizing gains for the summer case



- 7. **Energy Efficient Appliances and Lighting**- highly efficient use of household electricity
- 8. **User Friendliness** - user manuals are recommended to be given homeowners

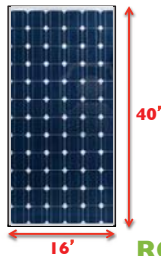


MPG for buildings

PERFORMANCE Requirements

1. Specific Space Heating/ Cooling Demand	4.75 kBtu/sf/yr
2. Air-Tightness	.6 ACH50
3. Specific Primary Energy Demand	38 kBtu/sf/yr
SOURCE factor of 2.5	
	15 kBtu/sf/yr

Conversion to kWh of 3.412 **4.5 kWh/sf/yr**



Consumption
PH METRIC
4.5 kWh/sf/yr
(Site Energy)

Production
ROOF METRIC
4.5 kWh/sf/yr
(Site Energy)



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TEMPLE UNIVERSITY





STABLES 2015: 27 townhomes







McGrann
 Mechanical, Electrical, Plumbing & Fire
 2200 Chestnut Street - Philadelphia, PA 19103 - 215-598-0100 - www.mcgrann.com
 1000 Locust Street - Philadelphia, PA 19106 - 215-598-0100 - www.mcgrann.com

BUILDING LEAKAGE TEST COMPARISON

Test #1	Test #2	Change	Airflow
Test File: Commissioning File	Test File: Commissioning File		
Area of Test: 10000 SF	Area of Test: 10000 SF		
Customer: Green Park, LLC	Customer: Green Park		
Address: 1700 Market Street	Address: 1700 Market Street		
Philadelphia, Pennsylvania 19102	Philadelphia, Pennsylvania 19102		
Phone: 215-598-0100	Phone: 215-598-0100		
Test Results			
1. Airflow at 50 Pascals	202 CFM 6.46 ACH	201 CFM 6.33 ACH	62 CFM 1.76 ACH

FINAL AIRFLOW **.49 ACH 50**



CAPITAL FLATS 2 2016: 25 units



BANK FLATS 2016: 31 units and retail

NLG 2018: 50 units



BANK FLATS 2016: 31 units and retail



BELFIELD HOMES
PHILADELPHIA, PENNSYLVANIA 19141



FIRST
CERTIFIED
PASSIVE HOUSE
IN
PENNSYLVANIA

START: APRIL 20, 2012
CERTIFICATE OF OCCUPANCY: JULY 20, 2012

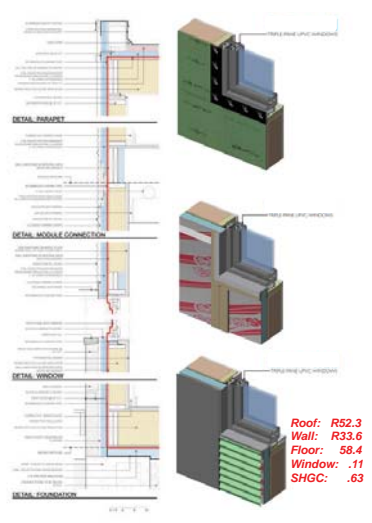


RECIPIENT OF THE
2014 INTERNATIONAL
PASSIVE HOUSE AWARD



SECOND PLACE WINNER
2015 PHIUS AWARD
"AFFORDABLE HOUSING"





ENERGY/BUILDING CONSULTANTS & ENGINEERS
 One Chestnut Street, Philadelphia, PA 19102 • 1 800 642 2828 • www.enr.com
 New Jersey • Pennsylvania • Kentucky • Ohio

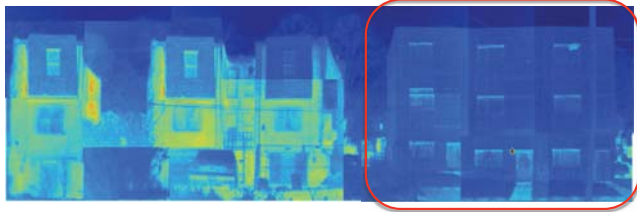
BUILDING LEAKAGE TEST COMPARISON

Test #1	Test #2
Test File: Depressurization File	Test File: Pressurization File
Date of Test: 7/20/12	Date of Test: 7/20/12
Customer: Orion Flats, LLC	Customer: Orion Flats
111 West North Street Philadelphia, Pennsylvania 19102	
Phone: 215-783-5581	

Test Results	Test #1	Test #2	Change	Percent
1. Airflow at 50 Pascals:	263 CFM 8.48 ACH50	201 CFM 6.33 ACH50	-62 CFM -0.19 ACH50	-24 % -24 %

FINAL AIRFLOW: 0.405 ACH 50

PASSIVE HOUSE MAX 0.6 ACH 50





\$130/sf



 **PHFA**
PENNSYLVANIA HOUSING FINANCE AGENCY



**MAKE ALL AFFORDABLE HOUSING
NET-ZERO-ENERGY-CAPABLE BY 2030**



USE PASSIVE HOUSE AS THE TOOL



POINTS-BASED SYSETEM

Total points	120
Community and Economic Impact	30
- Underserved Areas	
- Senior Occupancy Developments	
- Preservation	
Development Characteristics	25
- Smart Site Selection	
- Enterprise Green Communities	
Resident Population and Services	50
- Income and Rent Targeting	
- Designated Populations and Supportive Services	
- Accessible Units	
- Large Families	
Development Process	15
- Noncompliance	
- Ability to Proceed	
Development Cost Savings	10

POINTS-BASED SYSETEM

Total points	130
Community and Economic Impact	30
- Underserved Areas	
- Senior Occupancy Developments	
- Preservation	
Development Characteristics	25
- Smart Site Selection	
- Enterprise Green Communities	
- PASSIVE HOUSE	10
Resident Population and Services	50
- Income and Rent Targeting	
- Designated Populations and Supportive Services	
- Accessible Units	
- Large Families	
Development Process	15
- Noncompliance	
- Ability to Proceed	
Development Cost Savings	10

THE PHFA PROJECT

OCT 2014

“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

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THE PHFA PROJECT

OCT 2014

“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

FEB 2015

85 Multi-family project applications were received

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RESEARCH
CENTER

THE PHFA PROJECT

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“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

FEB 2015

85 Multi-family project applications were received

JUNE 2015

39 projects awarded funding

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RESEARCH
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THE PHFA PROJECT

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“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

FEB 2015

85 Multi-family project applications were received

JUNE 2015

39 projects awarded funding

38% applied as Passive House projects

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THE PHFA PROJECT

Pennsylvania

85 Projects

32 PH projects

53 NON-PH projects

Average cost = \$169/sf

Average cost = \$165/sf
< 2%

\$COST\$ “Negligibly different” from NON-PH projects

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THE PHFA PROJECT

OCT 2014

“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

FEB 2015

85 Multi-family project applications were received

JUNE 2015

39 projects awarded funding

38% applied as Passive House projects

8 Passive House Projects awarded funding

422 new Passive House/Net-Zero-Energy-Capable units in PA

\$COST\$ “Negligibly different” from NON-PH projects

YEAR 1 of *The PHFA Project: A NATIONAL Net-Zero-Energy Initiative by 2030*

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THE PHFA PROJECT

8 Passive House Projects awarded funding

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THE PHFA PROJECT



Wynne Senior Residences Sacred Heart Washington Square Hillcrest Senior Residences
Wynne Senior Residences Heritage Point Saint John Neumann Mann Edge II

8 Passive House Projects awarded funding

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THE PHFA PROJECT



PENROSE
PHILADELPHIA

Kitchen & Associates
Architectural • Planning • Interior Design

WYNNE- SENIOR RESIDENCE
Philadelphia, Pennsylvania

**ARCHITECTURE
RESEARCH
CENTER**

Wynne Senior Residence
54th and Arlington Streets
Philadelphia, PA
51 one and two bedroom senior affordable apartment units with Community Room, Management Suite, and a Retail space.

THE PHFA PROJECT



PENROSE
PHILADELPHIA

Kitchen & Associates
Architectural • Planning • Interior Design

SACRED HEART RESIDENCES
Allentown, Pennsylvania

**ARCHITECTURE
RESEARCH
CENTER**

Sacred Heart Residences
5th and Turner Streets
Allentown, PA
61 one and two bedroom senior affordable apartment units with Community Room, Management Suite, and two retail spaces.

THE PHFA PROJECT



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CENTER**

Heritage Point
56 units, 5 buildings

THE PHFA PROJECT



SEDA - COG
HOUSING DEVELOPMENT
CORPORATION
231 Furness Road, Lewisburg, PA 17837
Tel: (717) 524-4491

MANN EDGE II
100 EAST WATER STREET, LEWISTOWN, PA 17544
022114
A-0.1

ARCHITECTURAL CONCEPTS
ARCHITECTURE
PLANNING
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE
CONSTRUCTION MANAGEMENT

**ARCHITECTURE
RESEARCH
CENTER**

Mann Edge II
Lewistown, PA
34 units

THE PHFA PROJECT



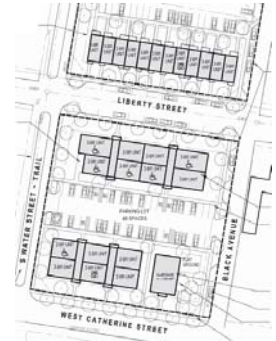
Exterior View from St. John Neumann Place I

St. John Neumann Place II - New Seniors Housing
 Architecture
 Architecture of Philadelphia
 RDL Architects

St. John Newman Place 1
 Philadelphia, PA
 52 units, Senior Housing

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THE PHFA PROJECT



architectural site plan by RDL Architects, LLC

Washington Square Town Homes
 Chambersburg, PA
 54 units, Apartments and town homes

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THE PHFA PROJECT



RDL Architects

Hillcrest Senior Residences
 Pittsburgh, PA
 65 units, Senior Housing

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THE PHFA PROJECT



UNIT TYPE	RESIDENTS PROVIDED	GROSS AREA	NET AREA	BEDROOM NET AREA		
				BR #1	BR #2	BR #3
1-BEDROOM	1	1,117	1,017	—	—	—
2-BEDROOM	1	1,117	1,017	—	—	—
3-BEDROOM	1	1,117	1,017	—	—	—
4-BEDROOM	1	1,117	1,017	—	—	—
5-BEDROOM	1	1,117	1,017	—	—	—
6-BEDROOM	1	1,117	1,017	—	—	—
7-BEDROOM	1	1,117	1,017	—	—	—
8-BEDROOM	1	1,117	1,017	—	—	—
9-BEDROOM	1	1,117	1,017	—	—	—
10-BEDROOM	1	1,117	1,017	—	—	—
11-BEDROOM	1	1,117	1,017	—	—	—
12-BEDROOM	1	1,117	1,017	—	—	—
13-BEDROOM	1	1,117	1,017	—	—	—
14-BEDROOM	1	1,117	1,017	—	—	—
15-BEDROOM	1	1,117	1,017	—	—	—
16-BEDROOM	1	1,117	1,017	—	—	—
17-BEDROOM	1	1,117	1,017	—	—	—
18-BEDROOM	1	1,117	1,017	—	—	—
19-BEDROOM	1	1,117	1,017	—	—	—
20-BEDROOM	1	1,117	1,017	—	—	—
21-BEDROOM	1	1,117	1,017	—	—	—
22-BEDROOM	1	1,117	1,017	—	—	—
23-BEDROOM	1	1,117	1,017	—	—	—
24-BEDROOM	1	1,117	1,017	—	—	—
25-BEDROOM	1	1,117	1,017	—	—	—
26-BEDROOM	1	1,117	1,017	—	—	—
27-BEDROOM	1	1,117	1,017	—	—	—
28-BEDROOM	1	1,117	1,017	—	—	—
29-BEDROOM	1	1,117	1,017	—	—	—
30-BEDROOM	1	1,117	1,017	—	—	—
31-BEDROOM	1	1,117	1,017	—	—	—
32-BEDROOM	1	1,117	1,017	—	—	—
33-BEDROOM	1	1,117	1,017	—	—	—
34-BEDROOM	1	1,117	1,017	—	—	—
35-BEDROOM	1	1,117	1,017	—	—	—
36-BEDROOM	1	1,117	1,017	—	—	—
37-BEDROOM	1	1,117	1,017	—	—	—
38-BEDROOM	1	1,117	1,017	—	—	—
39-BEDROOM	1	1,117	1,017	—	—	—
40-BEDROOM	1	1,117	1,017	—	—	—
41-BEDROOM	1	1,117	1,017	—	—	—
42-BEDROOM	1	1,117	1,017	—	—	—
43-BEDROOM	1	1,117	1,017	—	—	—
44-BEDROOM	1	1,117	1,017	—	—	—
45-BEDROOM	1	1,117	1,017	—	—	—
46-BEDROOM	1	1,117	1,017	—	—	—
47-BEDROOM	1	1,117	1,017	—	—	—
48-BEDROOM	1	1,117	1,017	—	—	—
49-BEDROOM	1	1,117	1,017	—	—	—

THE WHITEHALL
 49 ONE AND TWO BEDROOM SENIOR AFFORDABLE APARTMENT UNITS WITH COMMUNITY ROOM, MANAGEMENT SUITE
 EAST VINCENT TOWNSHIP, PA
 RDL ARCHITECTS
 ARCHITECTURAL CONSULTING INC
 1000 EAST VINCENNT ROAD, EAST VINCENT TOWNSHIP, PA 17040
 717-261-1111
 www.rdlarchitects.com
 www.architecturalconsultinginc.com

The Whitehall
 Old Schuylkill Road
 East Vincent Township, PA
 49 one and two bedroom senior affordable apartment units with Community Room, Management Suite

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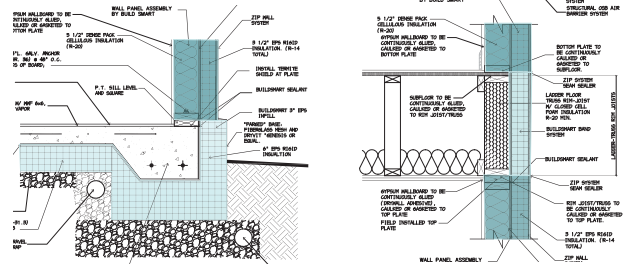
THE PHFA PROJECT

The Whitehall	
CPHC	Tim McDonald
Certifier	PHI
Place	Spring City, PA
Climate Zone	4A
Type	Senior Housing
Square Footage	\$4,287
# units	49 units, 1 building
ROOF	R35-B Loose-blown cellulose, vented roof assemblies, ZIP panel air-barrier
WALLS	R32-B SmartBuild system, 2x6 stud, Dense-packed cellulose, 3.5" EPS
SLAB	R26-4 SmartBuild system, 6" EPS under slab and foundation
WINDOWS	.11 U value Klearwall, Triple pane, vinyl, .10 Uglass, 14 Uframe, .57 SHGC
Entry doors/windows	R7 solid, foam-filled Klearwall, with exterior storm doors included
DHW	DE-Centralized Individual Heat Pump Water Heaters (HPWH), Energy Factor 2.6
HEATING/COOLING	Air-Source Heat Pumps Decentralized, ducted, 10 HSPF for heating, 11.2 EER, 3.2 COP
VENTILATION	Centralized Ultimate Aire 2000X, 3 units, 83% sensible recovery
LAUNDRY + KITCHEN	Ventless and Vented Recirc un-vented kitchen hoods; Vented dryers with magnetic damper
Cost/unit	\$163,416.00
Cost/sf	\$148.00

- NO COST INCREASE FROM SCHEMATIC DESIGN TO 90% CONSTRUCTION DOCUMENTS
- SAME WITH THREE OTHER PH PROJECTS

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CENTER

PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS



PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS



BUILDSMART

PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

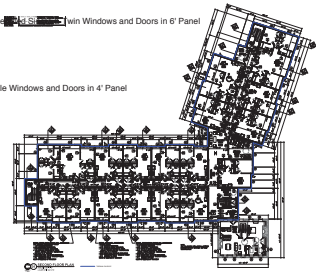
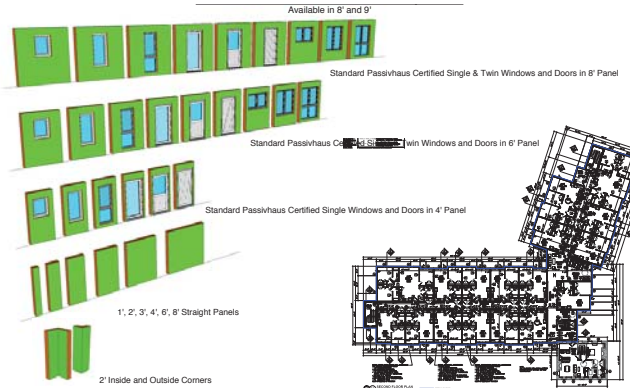


BUILDSMART

PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

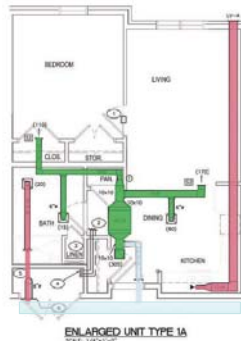


PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS



< \$10/sf

VENTILATION/HEATING/COOLING

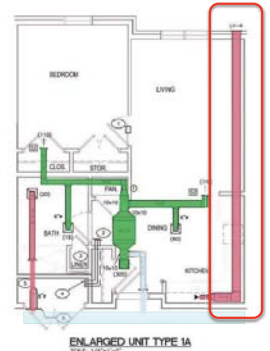


**Initial design by mechanical engineer
Coupled ventilation/heating/cooling**

VENTILATION/HEATING/COOLING



Kitchen ventilation
- conflicts between EGC, Energy Star and PH: ASHRAE 62.2 5 ach continuous – PH .3 ACH
- EGC and EPA now accept waiver with PH projects, can be recirculating



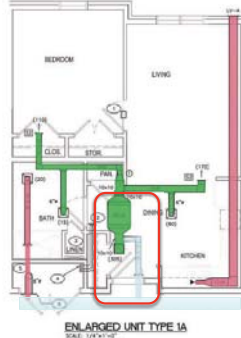
**Initial design by mechanical engineer
Coupled ventilation/heating/cooling**

VENTILATION/HEATING/COOLING



- Kitchen ventilation**
- conflicts between EGC, Energy Star and PH: ASHRAE 62.2 5 ach continuous – PH .3 ACH
 - EGC and EPA now accept waiver with PH projects, can be recirculating

- COUPLED centralized ventilation and ducted Min-split**
- Supply ventilation connected to return of Mini-split
 - Unbalanced exhaust/supply for ventilation
 - Different CFM requirements for H/C versus ventilation. No way to guarantee required ventilation supply at commissioning



Initial design by mechanical engineer
Coupled ventilation/heating/cooling

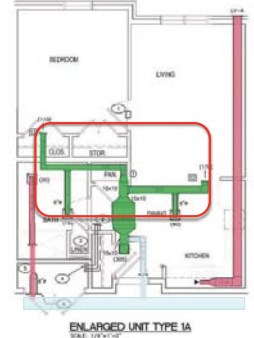
VENTILATION/HEATING/COOLING



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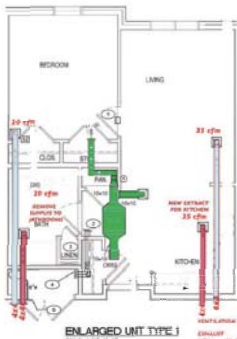
- COUPLED centralized ventilation and ducted Min-split**
- Supply ventilation connected to return of Mini-split
 - Unbalanced exhaust/supply for ventilation
 - Different CFM requirements for H/C versus ventilation. No way to guarantee required ventilation supply at commissioning

- Inefficient Duct layout**
- Bath supply not required, exhaust only
 - Extended duct lengths

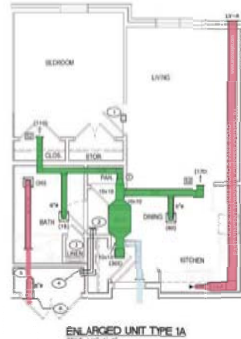


Initial design by mechanical engineer
Coupled ventilation/heating/cooling

VENTILATION/HEATING/COOLING

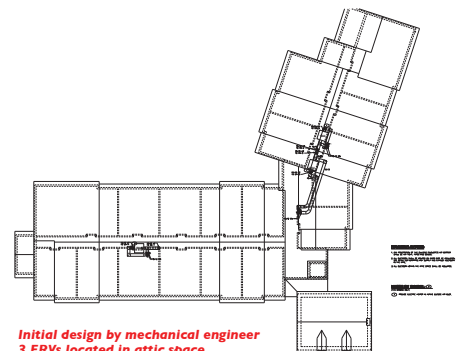
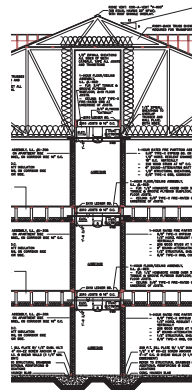


De-coupled, balanced ventilation



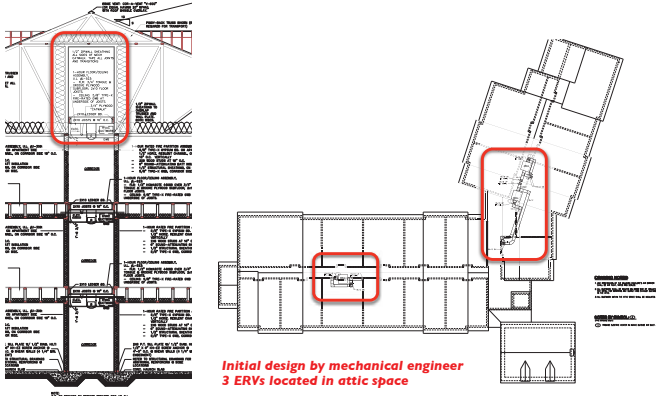
Initial design by mechanical engineer
Coupled ventilation/heating/cooling

LOCATION OF CENTRALIZED ERVs



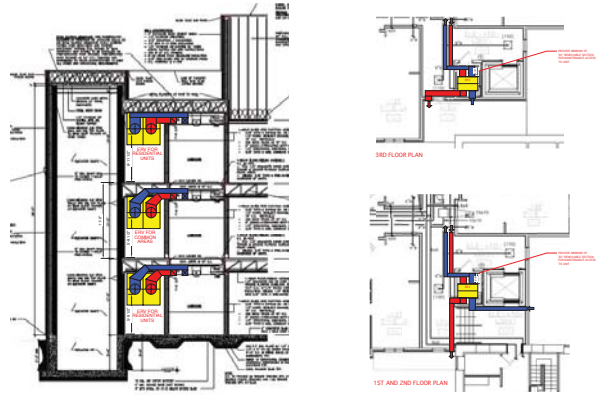
Initial design by mechanical engineer
3 ERVs located in attic space

LOCATION OF CENTRALIZED ERVS



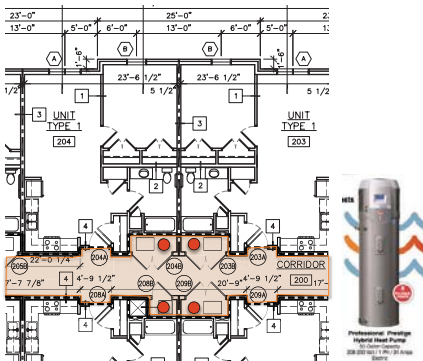
Initial design by mechanical engineer
3 ERVs located in attic space

LOCATION OF CENTRALIZED ERVS



Redesigned so ERVs are located on
Each floor, ease of access, maintenance,
Less duct work, fire dampers, simplified penetrations

DOMESTIC HOT WATER



- All electric, no gas, no venting
- Heat Pump: COP of 3.0
- Minimal heat loss via short runs
- Minimal cost for piping
- No recirc pumps required
- Metering connected to individual unit
- Located outside apt, vented to corridor

THE PHFA PROJECT

36 STATE Housing Finance Agencies
Engaged by ARC to replicate PHFA strategy

PENNSYLVANIA

THE PHFA PROJECT



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Net-Zero-Energy Affordable Housing by 2030

Philadelphia, PA

dwel

Super Green Affordable Housing Introduces
Passive Design to the Masses

Changing Skyline: High-quality homes for low-income Philadelphians



The Orion Plaza co-housing in Logan. The five-bedroom homes, which cost about \$250,000 apiece to build, come with Bosch appliances and fine European windows. (ORION PLAZA)



PITTSBURGH

Uptown Lofts with Alpen Windows Celebrates PHIUS+ Certification and Ribbon Cutting

Date: Mar 31, 2015 Categories: General News

Pittsburgh, PA - On February 26, **PHFA Housing** held its ribbon cutting ceremony at Uptown Lofts on Fifth to celebrate its grand opening and achievement of **PHIUS+ Passive House Certification for Multifamily Buildings**. The Uptown Lofts project is a new housing development of two buildings that will serve low-income individuals and youth who have aged out of the foster care system. One building at Uptown Lofts is certified by the Department of Energy as meeting Energy Star V4 Standards, and the other is **PHIUS+ Passive House Certified** by Passive House Institute, US (PHIUS).

Both buildings integrated Alpen high performance fiberglass windows into their building envelopes. Alpen's 325 Series windows were selected for the Energy Star V4 building, offering thermal performances up to R-3.8 or U-0.26 and SHGC-0.30 to meet Energy Star 30/20 requirements. As for the passive house certified building, the design team chose Alpen's 325-5 Series windows which recently received **PHIUS+ Certified Window Performance Data Certificates** in February 2015.

Alpen is pleased to report that we continue to receive notes of praise from the project design and construction teams, as well as people in the community and window manufacturing sector, who remark on the high quality and thermal efficiency our Alpen windows supplied to these precedent-setting projects. We have also heard thanks for the excellent service our sales and support team provided in keeping this fast-paced, high volume commercial project on-time and on-budget at every stage.

Alpen would like to congratulate all of the design/build team for their excellence at Uptown Lofts, we extend special thanks to:

- PHIUS+ Reporting
- Fourth Light Architects
- Explosion-Thompson Architects
- Houses Construction (three cheers for your incredible "before-drywall" blower door test result -90 ACH-50!).



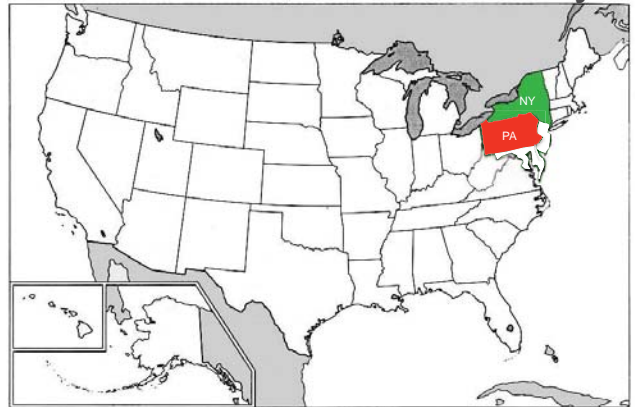
Developers Get Aggressive With Passive House Design

By Donna Kimura



NEW YORK

THE PHFA PROJECT



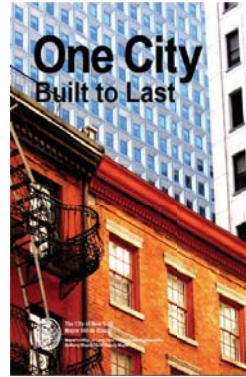
ARCHITECTURE
RESEARCH
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Office of the Governor, Homes and Community Renewal



Mayor de Blasio Commits to 80 Percent Reduction of Greenhouse Gas Emissions by 2050, Starting with Sweeping Green Buildings Plan

September 21, 2014



What is Passive House?

A building constructed to "Passive House" standards must meet strict energy efficiency criteria for its insulation, space heating and cooling, and primary energy demand within the building. These standards require reducing heating and cooling loads through substantial insulation, the limited use of solar heat and internal heating sources, such as people and electrical equipment, to heat the building, and heat recovery systems for space heating. Because the building is essentially airtight, a continuous supply of low volume filtered fresh air must be provided to living and working spaces, and must be regularly exhausted from spaces with high-efficiency heat exchange to minimize heating losses.

Passive House standards can be applied to both new construction and renovations. For the renovation of existing buildings, the performance standard is slightly more lenient, but still results in a roughly 90 percent reduction in average heating and cooling energy usage and up to a 75 percent reduction in primary energy usage. A Passive House building can also be any type of building, including an apartment building, a school, an office building, a factory, a supermarket, or a single-family house.

Case Study: Knickerbocker Commons Affordable Housing

833 Knickerbocker Avenue, Brooklyn
 Architect: Chris Benedict, B.S., AIA
 General Contractor: Galley Construction
 Construction Cost: \$180/square foot
 No. of Units: 24



Knickerbocker Commons, the first mid-sized apartment building designed to Passive House standards in the United States

Knickerbocker Commons, a six-story residential building containing 24 units of affordable housing, is the country's first mid-sized apartment building to conform to Passive House design standards. To achieve the strict Passive House standards, each rental unit in Knickerbocker Commons has its own ventilation system and small radiators for heating and air-gel windows are conditioning units for cooling. In addition, the building features triple-paneled windows and a sculpted interior that shades windows from the sun in the summer and maximizes exposure in the winter. According to the project's architect, Chris Benedict, the building will use 85 percent less energy than is typically required to heat a New York City apartment building in the winter.

The apartment is located in the Red Hook neighborhood of Brooklyn and was developed through HCD's Low Income Rental Program. Of the 24 units, six units will be rented to households earning up to 70 percent of Area Median Income (AMI), five units will be rented to households earning up to 50 percent of AMI. 13 units will be rented to households earning up to 60 percent of AMI, and one unit will be set aside for a building superintendent. In addition to the residential units, the project includes almost 5,000 square feet of community facility space.

NYC

REAL ESTATE

The Passive House in New York

By ALISON GREGOR | MARCH 27, 2015



New York buildings adhering to passive-house principles include 833 Knickerbocker Avenue, Brooklyn. Photo courtesy of The New York Times.

It was less than a decade ago that a building design philosophy from Germany called "passive house" jumped the Atlantic Ocean and quietly took root in Brooklyn.

Now, with a few dozen homes and small projects built or retrofitted to this still exotic standard, passive buildings appear poised to enter New York City's housing market in a much bigger way. Large projects delivering hundreds of new passive units to market are in the works, and city officials are watching closely.

Passive buildings maintain a comfortable interior climate without active heating and cooling systems — that means no more radiators or air-

conditioning units for cooling. In addition, the building features triple-paneled windows and a sculpted interior that shades windows from the sun in the summer and maximizes exposure in the winter. According to the project's architect, Chris Benedict, the building will use 85 percent less energy than is typically required to heat a New York City apartment building in the winter.

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NYC

REAL ESTATE

World's Tallest Passive House Breaks Ground on Roosevelt Island

By ALISON GREGOR | JUNE 12, 2015

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An apartment tower on Roosevelt Island that began construction this month will be the tallest passive-house high-rise in the world when it is completed in 2017, according to the Passive House Institute in Germany. And at about 270,000 square feet, it will also be the largest, said David Kramer, a principal with Hudson Companies, which is developing the building in partnership with Cornell Tech, the applied sciences campus of Cornell University, and the Related Companies.

The tower will rise 270 feet, contain 350 units and house about 530 graduate students, faculty and staff on a new 12-acre campus for Cornell Tech, which has been operating out of temporary facilities in the Google building in Chelsea since 2012. And because the building



Ground has been broken for a passive-house apartment tower on the Cornell Tech campus on Roosevelt Island. Photo courtesy of The New York Times.

NEW YORK

THE PHFA PROJECT



ARCHITECTURE RESEARCH CENTER

Office of the Governor, Homes and Community Renewal
COMMITTED!!!!

NEW YORK

THE PHFA PROJECT

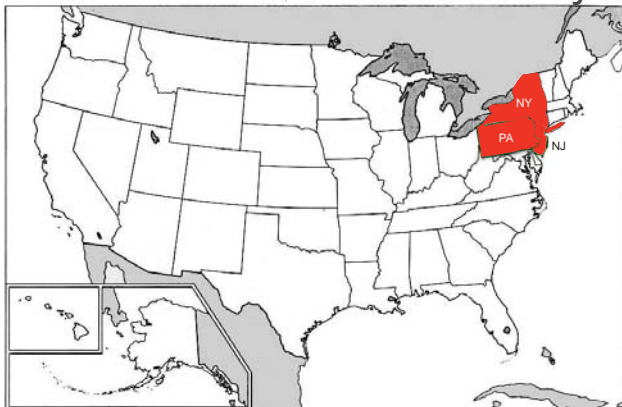


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Office of the Governor, Homes and Community Renewal
COMMITTED!!!!

NEW JERSEY

THE PHFA PROJECT



ARCHITECTURE RESEARCH CENTER

State of New Jersey Housing and Mortgage Finance Agency
COMMITTED. Updated QAP in Fall 2015

DELAWARE

THE PHFA PROJECT



ARCHITECTURE RESEARCH CENTER

Delaware State Housing Authority
COMMITTED. Updated QAP in Fall but not signed by Governor

MARYLAND

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
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Maryland Dept. of Housing and Community Development
QAP comments submitted

DISTRICT OF COLUMBIA

THE PHFA PROJECT



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District of Columbia Housing Finance Agency
VERY INTERESTED: dialogue progressing

DC

Case Study - Habitat for Humanity of Washington DC



Habitat for Humanity of Washington DC:
Winner of a 2012 Mayor's Sustainability
Award
Project: EMPOWERHOUSE

THE NEW SCHOOL HONORED BY HABITAT FOR HUMANITY FOR SUSTAINABLE HOME DESIGN

Thursday, November 20 at 7 pm in Washington, D.C.

Solar Decathlon Winning Design Adopted for Affordable Housing Projects Nationwide

NEW YORK, Nov. 20, 2014 - Two years after New School students designed and built an affordable, energy-efficient home for low-income families in Washington, D.C., three leaders of the project will be honored at Habitat for Humanity of Washington D.C.'s Raising The Roof celebration fundraiser on Thursday, Nov. 20.

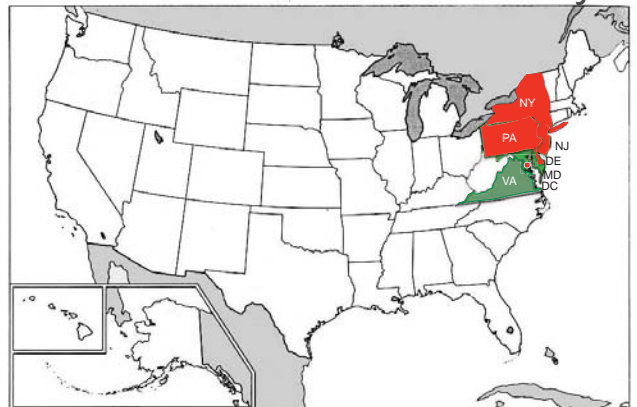
The event at Union Station, 40 Massachusetts Ave. NE will honor Shella Johnson, New School trustee and chair of Parsons The New School for Design's board of governors, Joel Towers, executive dean of Parsons The New School for Design, and Dee MacDonald Miller, a senior vice president in the Tenant Representation Division of Jones Lang LaSalle.



Empowerhouse in its current location in Deamood, a neighborhood of Washington, D.C.

VIRGINIA

THE PHFA PROJECT

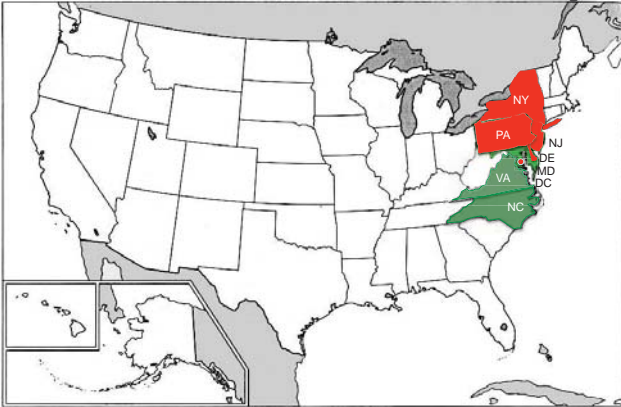


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Virginia Housing Development Association
EARTHCRAFT; not updating QAP in 2016; continuing pursuit

NORTH CAROLINA

THE PHFA PROJECT

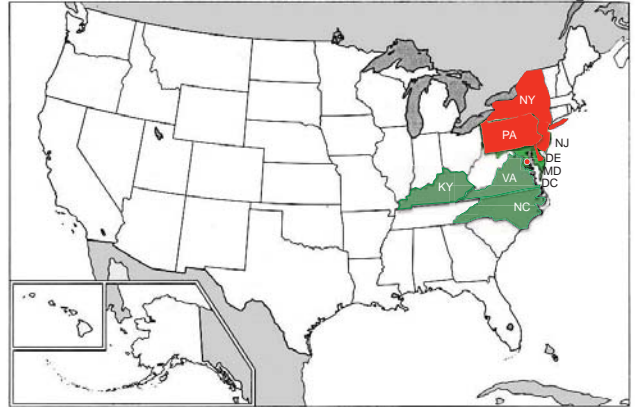


ARCHITECTURE
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North Carolina Housing Finance Agency
"...developers not interested in energy efficiency...."

KENTUCKY

THE PHFA PROJECT

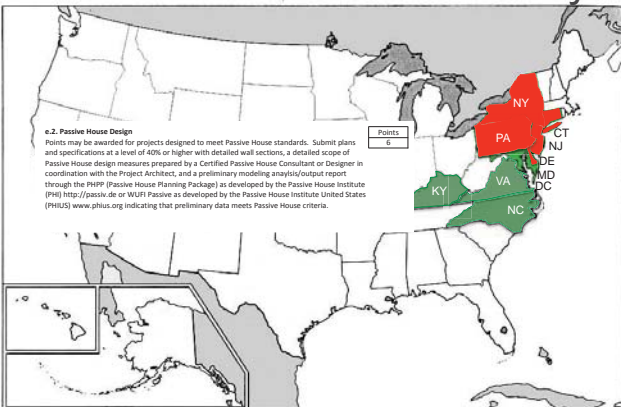


ARCHITECTURE
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Kentucky Housing Corporation
VERY INTERESTED: Webinar November 12

CONNECTICUT

THE PHFA PROJECT

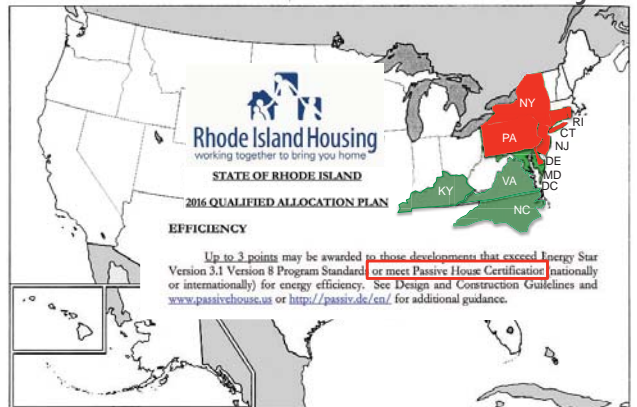


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Connecticut Housing Finance Authority
COMMITTED!!!!; 2017 QAP, Presentation on Nov 4

RHODE ISLAND

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Rhode Island Housing
COMMITTED!!!!

e2. Passive House Design
Points may be awarded for projects designed to meet Passive House standards. Submit plans and specifications at a level of 40% or higher with detailed wall sections, a detailed scope of Passive House design measures prepared by a Certified Passive House Consultant or Designer in coordination with the Project Architect, and a preliminary modeling analysis/output report through the PHPP (Passive House Planning Package) as developed by the Passive House Institute (PHI) <http://passiv.de> or WUFI Passive as developed by the Passive House Institute United States (PHIUS) www.phius.org indicating that preliminary data meets Passive House criteria.

Rhode Island Housing
working together to bring you home

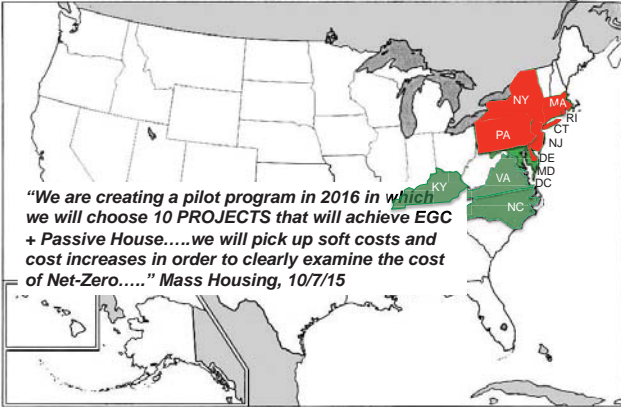
STATE OF RHODE ISLAND
2016 QUALIFIED ALLOCATION PLAN

EFFICIENCY

Up to 3 points may be awarded to those developments that exceed Energy Star Version 3.1 Version 8 Program Standard or meet Passive House Certification (nationally or internationally) for energy efficiency. See Design and Construction Guidelines and [www.passivhouse.us](http://passivhouse.us) or <http://passiv.de/en/> for additional guidance.

MASSACHUSETTS

THE PHFA PROJECT

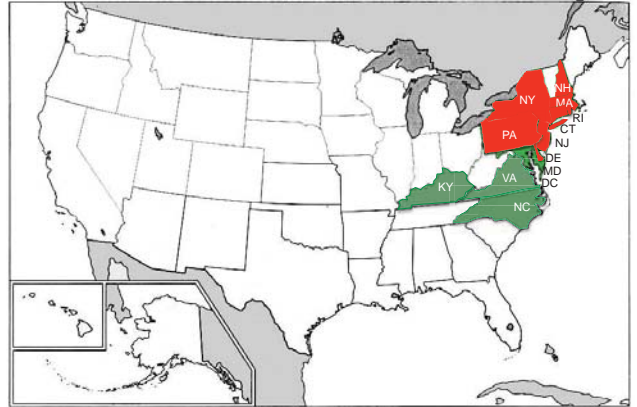


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Executive Office of Housing and Economic Development
COMMITTED: Pilot program in 2016

NEW HAMPSHIRE

THE PHFA PROJECT

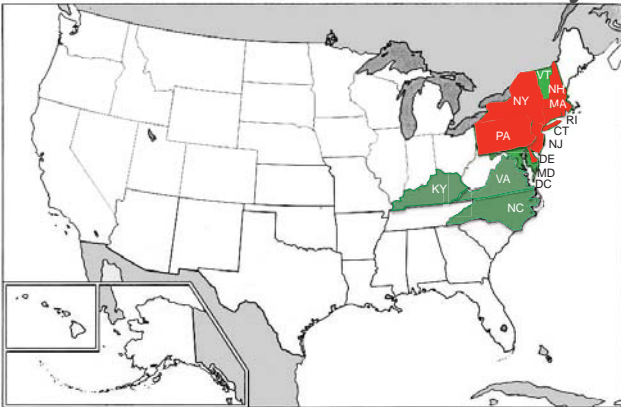


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New Hampshire Housing Finance Authority
COMMITTED: CPHC in Dept!! Introducing PH into QAP in 2016

VERMONT

THE PHFA PROJECT

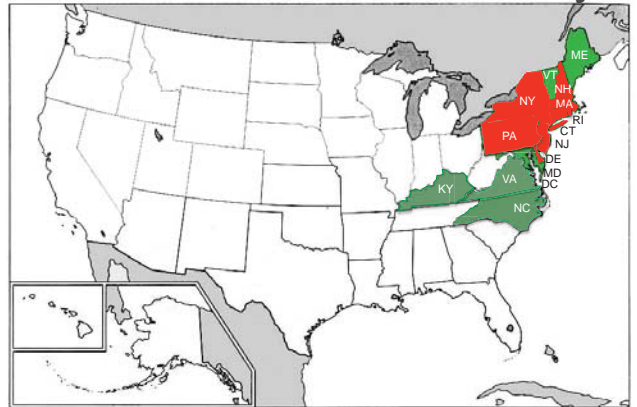


ARCHITECTURE
RESEARCH
CENTER

Vermont Housing Finance Agency
VERY INTERESTED; Presentation on Nov. 18

MAINE

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Maine State Housing Authority
Several PH affordable housing projects being built this year

MAINE

BANGOR DAILY NEWS

Brewer's 'passive housing' project largest of its kind in US



Courtesy of Community Housing of Maine
A 48-unit passive housing project is in the works at the former State Street School site in Brewer.

By Nick McCrea, BDN Staff
Posted May 13, 2015, at 3:14 p.m.

BREWER, Maine — Construction began Wednesday on what's expected to be one of the largest passive housing projects in the United States. Village Centre Apartments, a 48-unit affordable housing complex, is being built at the former State Street School site. Crews have been doing abatement work there since last year after the demolition of the old school.

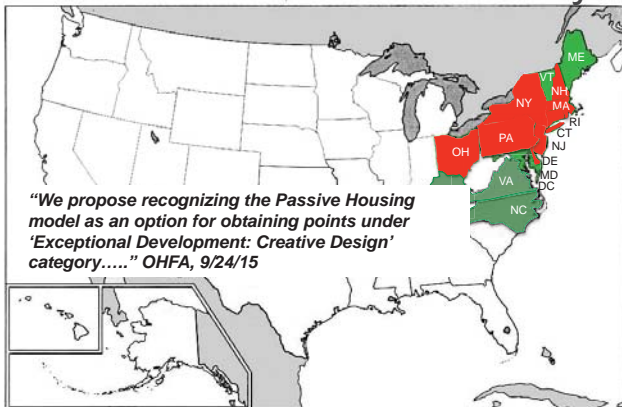
MAINE



KAPLAN THOMPSON ARCHITECTS

OHIO

THE PHFA PROJECT



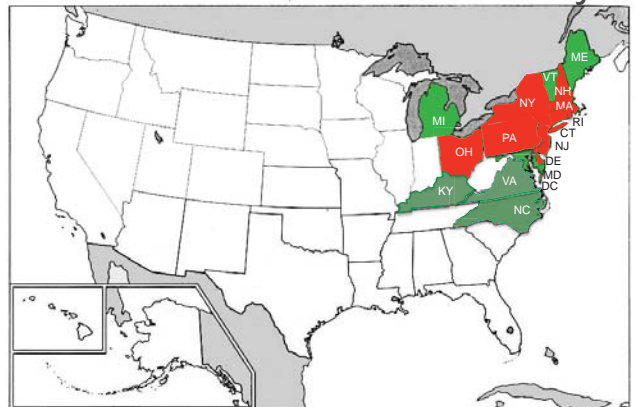
"We propose recognizing the Passive Housing model as an option for obtaining points under 'Exceptional Development: Creative Design' category....." OHFA, 9/24/15

ARCHITECTURE
RESEARCH
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Ohio Housing Finance Agency
Introducing PH into "Creative Design" points

MICHIGAN

THE PHFA PROJECT

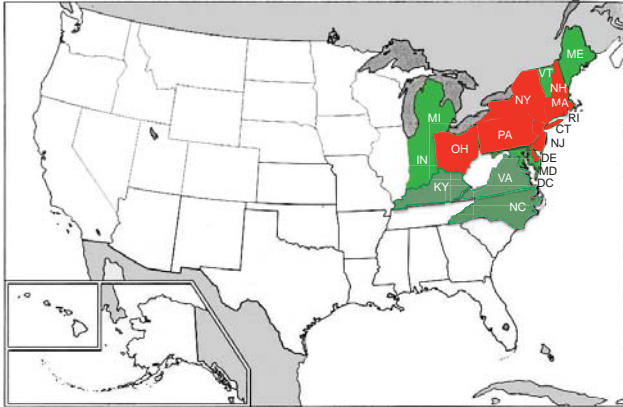


ARCHITECTURE
RESEARCH
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Michigan State Housing Development Authority
Updating QAP in Spring, PH is "included in discussions"

INDIANA

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Indiana Housing & Community Development Authority
PH in "Innovation Round": Working with Energy consultant

ILLINOIS

THE PHFA PROJECT

2016-2017
Qualified Allocation Plan

8) Energy Efficiency and Sustainability

1) Green Initiative Standards

Projects whose architectural design and construction meet or exceed green initiative standards, evidenced through submission of the Scoring - Green Initiatives Certification, available on the Website, can earn up to three (3) points as follows:

Points: Green Initiative

1

- Commit to obtaining EPA Energy Star certification -or-
- Minimum 10% improvement for new construction (5% for rehab) above ASHRAE 90.1 2010 proven by a completed energy model, -or-
- HERS rating of 70 or lower

2

Commit to obtaining a sustainable building certification from one of the following:

- U.S. Green Building Council LEED certification -or-
- Enterprise Green Communities 2013 certification -or-
- PH Passivhaus Certified through PHFA** -or-
- Passivhaus Certified through PHFA

3

Meet minimum standards in the Authority Standards for Architectural Planning and Construction indicated for water conserving features; and

Commit to obtaining a sustainable building certification from one of the following:

3) 1

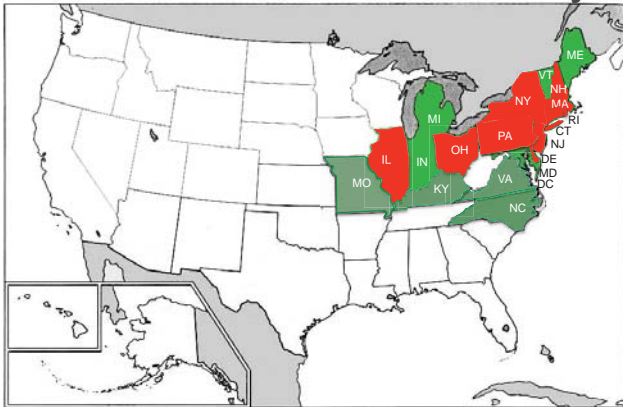
- Certification through Living Building Challenge -or-
- Alternative certification for a high-performance building achieving Tier 2 or 3a Capable status as approved by the Authority.

ARCHITECTURE
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Illinois Housing Development Authority
Committed!!! PH built into 2016 QAP

MISSOURI

THE PHFA PROJECT



ARCHITECTURE
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Largest PH multi-family housing project in country underway

Kansas City, MI



Passivhaus Apartment Complex Would be a Giant

Scheduled to begin construction in October, this 276-unit multifamily project in Kansas City will seek certification from PHIUS.

POSTED ON SEP 16 2015 BY SCOTT GIBSON

When ready for occupancy in early 2017, the 276-unit riverfront apartment complex would be the largest Passivhaus-certified building in the country and, according to its developer, help Passivhaus construction shed its "boutique" status and begin to interest big institutional investors.

The "Second and Delaware" project, named for its location in a historic warehouse district just north of downtown Kansas City, will include a range of apartment sizes, from 550-square-foot studios to 1,300-square-foot, two-bedroom models. It also will feature rooftop gardens and an underground 500-vehicle parking garage.

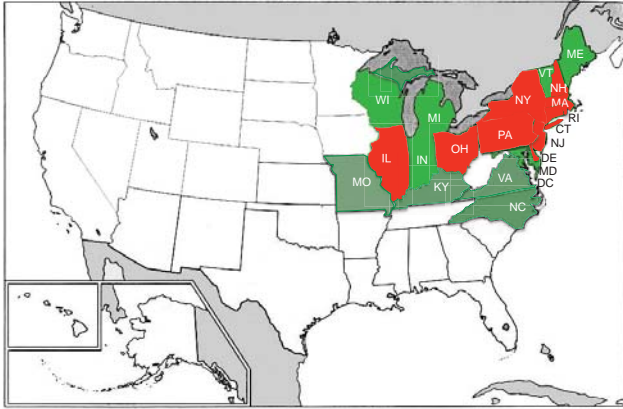
The \$60 million project is the work of the Arnold Development Group, which hopes to show that projects that are good for the environment and for the people who live in them also can have an attractive bottom line. It would dwarf what is now the largest Passivhaus project in North America, the 57-unit Orchards at Orenco project in Hillsboro, Oregon.



Image 1 of 2
This illustration shows a proposed 276-unit apartment complex in Kansas City. Once built and certified, it would become the largest Passivhaus building in the country. Developers hope to open the doors to tenants in 2017.

WISCONSIN

THE PHFA PROJECT

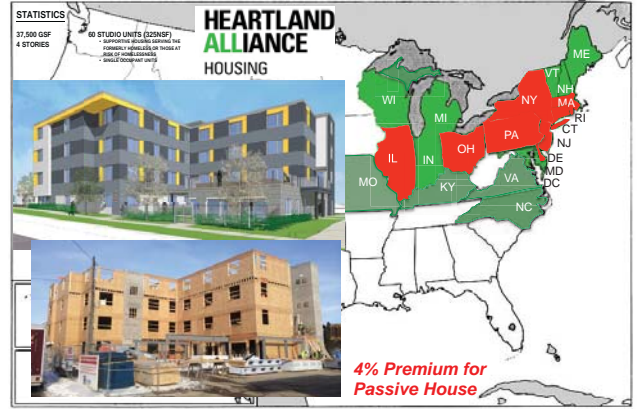


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Wisconsin Housing and Economic Development Authority
New QAP in June 2017, working with team on PH info

WISCONSIN

THE PHFA PROJECT

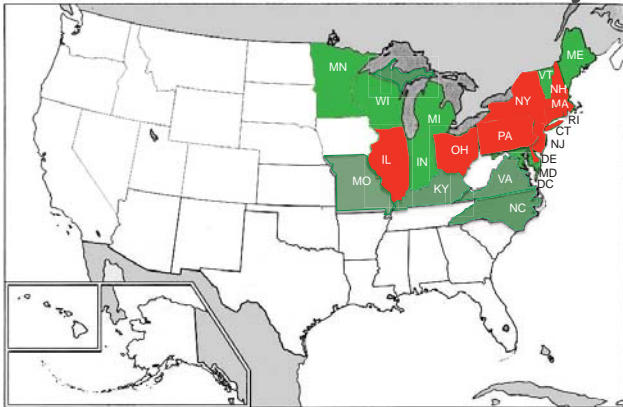


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Wisconsin Housing and Economic Development Authority
Heartland Housing project in Madison; New QAP in June 2017

MINNESOTA

THE PHFA PROJECT

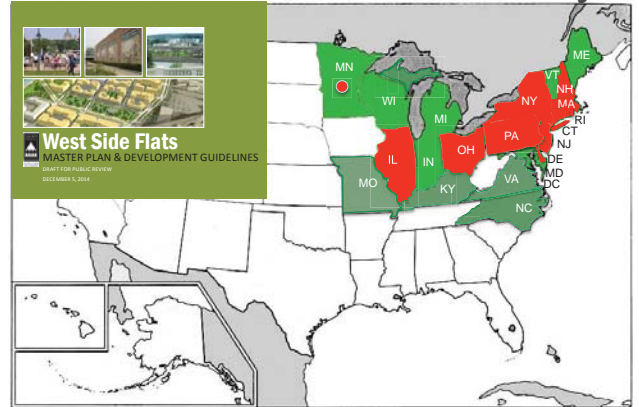


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Minnesota Housing Finance Agency
QAP discussions informed by large PH projects

MINNESOTA, St. Paul

THE PHFA PROJECT



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St. Paul Planning and Economic Development
Committed!!!! Two large projects built to PH in West Side Flats

MINNESOTA, St. Paul

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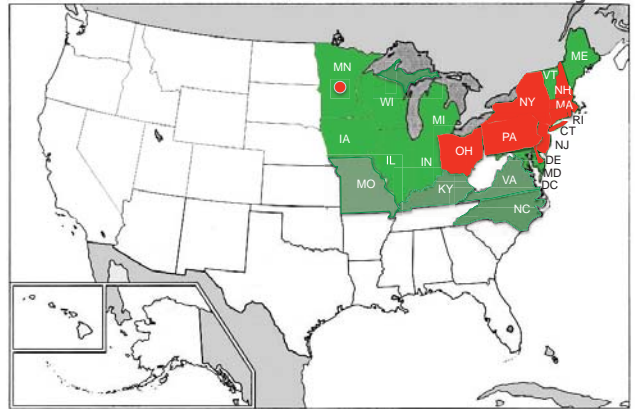


ARCHITECTURE
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St. Paul Planning and Economic Development
Committed!!!! Two large projects built to PH in West Side Flats

IOWA

THE PHFA PROJECT

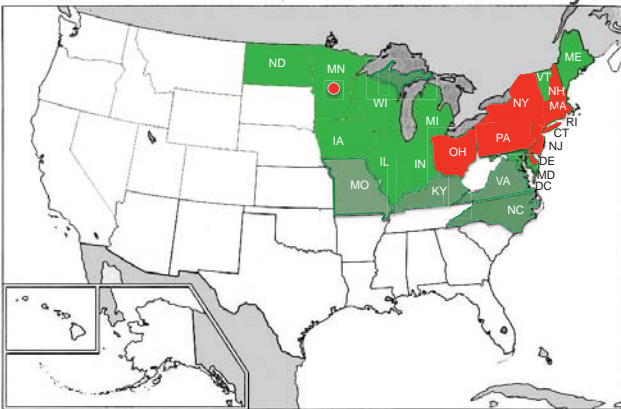


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Iowa Finance Authority
INTERESTED, PRESENTED AT HOUSING CONFERENCE, Sept 9

NORTH DAKOTA

THE PHFA PROJECT

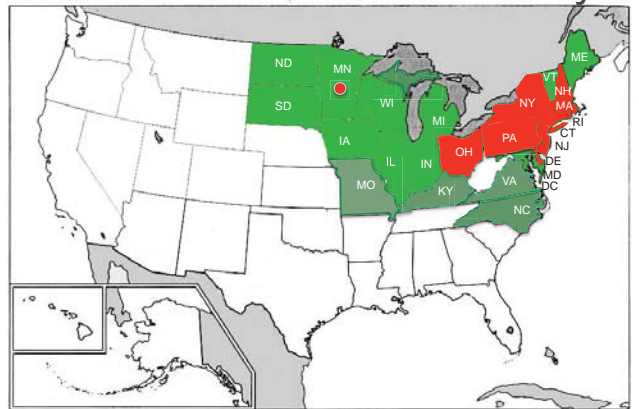


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North Dakota Housing Finance Agency
Call June 16; several follow-ups, too busy...

SOUTH DAKOTA

THE PHFA PROJECT

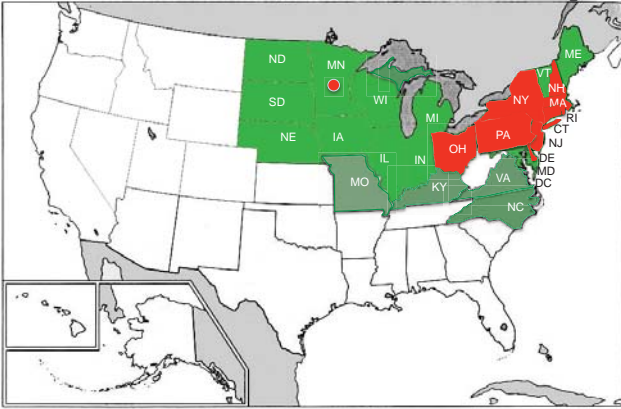


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South Dakota Housing Development Authority
VERY INTERESTED; CPHC in Dept!!

NEBRASKA

THE PHFA PROJECT

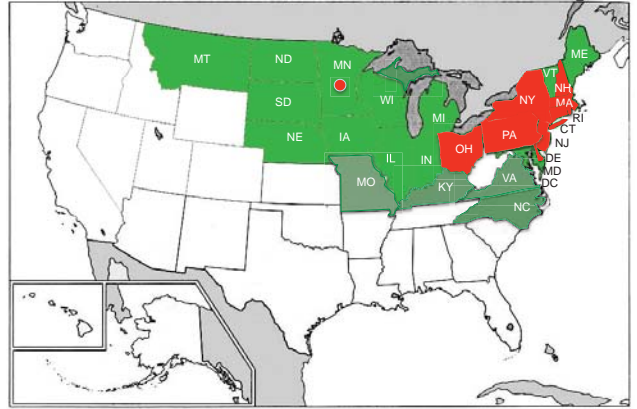


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Nebraska Investment Finance Authority
Multiple calls, non-responsive

MONTANA

THE PHFA PROJECT

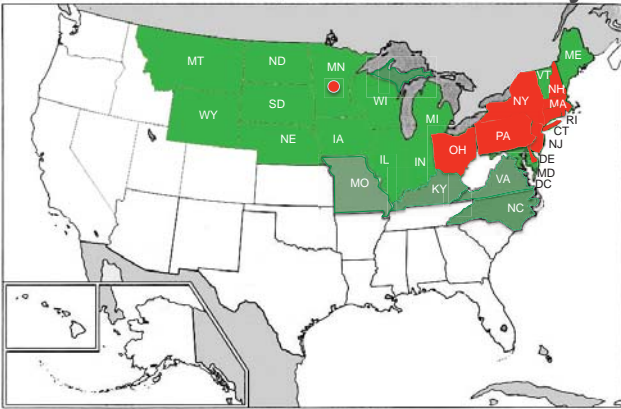


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Montana Housing Division
Presented at QAP discussion January 26, 2016; QAP comments...

WYOMING

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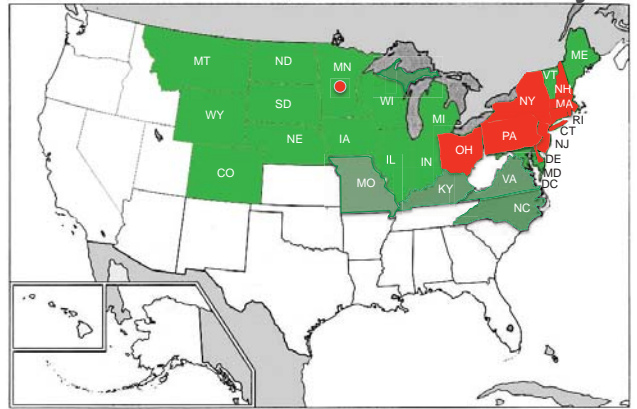


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Wyoming Community Development Authority
Sent official public comments to QAP

COLORADO

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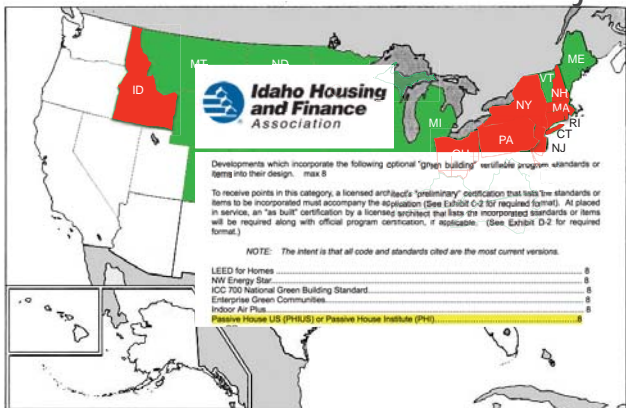


ARCHITECTURE
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Colorado Housing and Finance Authority
Very busy but dialogue progressing

IDAHO

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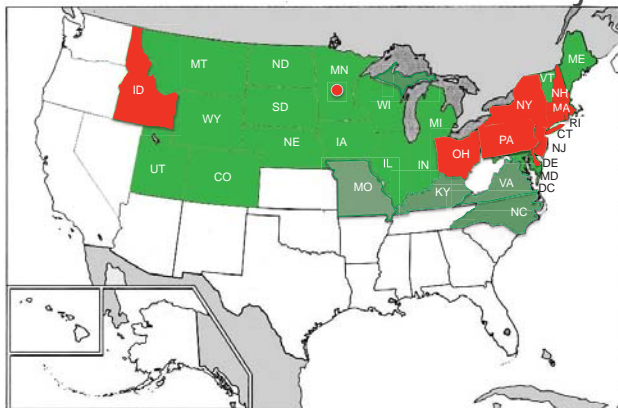


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Idaho Housing and Finance Association
COMMITTED PH built into QAP in 2016

UTAH

THE PHFA PROJECT

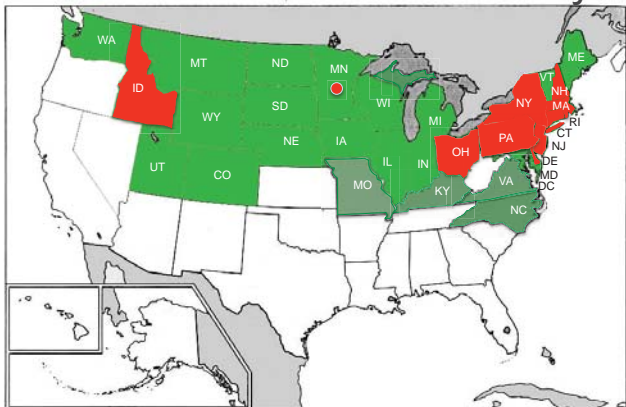


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Utah Housing Corp
Presentation at Conference Oct 21: invited to QAP discussion

WASHINGTON

THE PHFA PROJECT

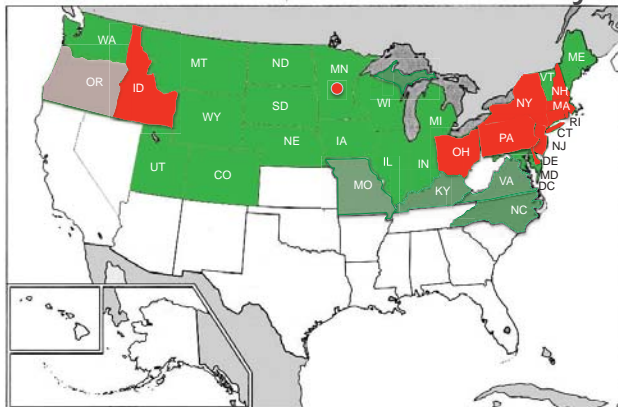


ARCHITECTURE
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Washington State Housing Finance Commission
Meeting June 25; VERY INTERESTED; 2017 QAP in Spring

OREGON

THE PHFA PROJECT



ARCHITECTURE
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Oregon Housing and Community Services
Largest PH Affordable housing project in US



This Is The Largest Passive House Building In The US

November 19th, 2014 by Steve Harley

What do you think about this?

▲ Interesting 1 ▼ Not Interesting

Originally published on [Green Building Elements](#).

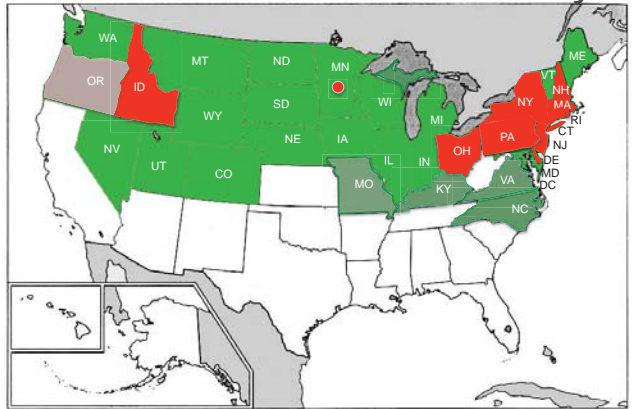


The largest **Passive House** structure in the US, called The Orchard At Orem, is under construction in Hillsboro, Oregon, a suburb of Portland. The 27 unit residential building is being built by **HOCHI Communities Development**, a non-profit developer dedicated to lowering overall living costs for residents. HOCHI believes delivering truly affordable housing places a minimal burden on the finances of low-income families by keeping utility costs as low as possible.

OREGON.gov
Oregon Housing and Community Services

NEVADA

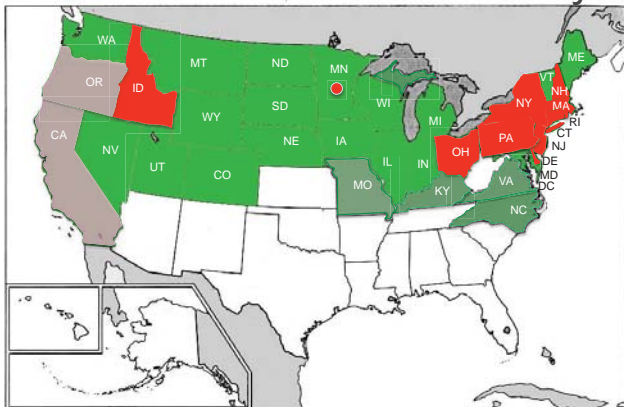
THE PHFA PROJECT



ARCHITECTURE RESEARCH CENTER
State of Nevada Housing Division
Call June 9; INTERESTED; Waiting to see costs in PHFA projects

CALIFORNIA

THE PHFA PROJECT



ARCHITECTURE RESEARCH CENTER

California Tax Credit Allocation Committee
Introduced PH in "public comments" in 2016 QAP

CALIFORNIA

Building Code Revision Launches California Toward Zero Net Energy Buildings

Bill Roth | Monday November 11th, 2013 | 2 Comments

Like 63 +1 7 Tweet 81 Share

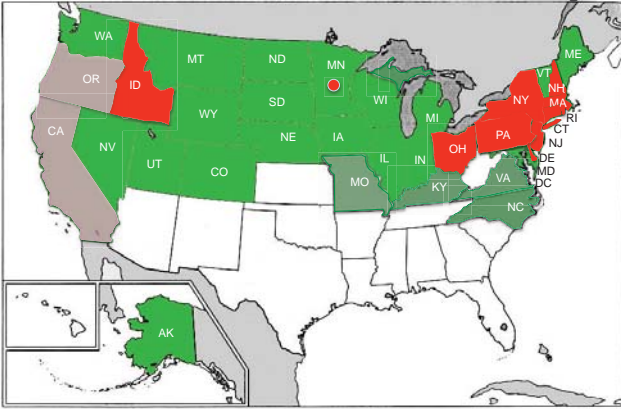
Starting in 2014, California is implementing a tsunami of building code revisions called Title 24. These revised building codes will move California's residential and commercial buildings toward Zero Net Energy (ZNE). In a ZNE building, the annual energy consumption is equal to its annual production of renewable energy. Under Title 24, all new residential construction is to be ZNE by 2020 with all new commercial buildings achieving this ZNE goal by 2030.



Title 24 moves building design toward "comprehensive building solutions." This building design approach first focuses upon reducing energy consumption through the integration of smart and energy efficient technologies. The final design step after reducing the building's energy consumption is to install onsite renewable energy generation like solar panels.

ALASKA

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Alaska Corporation for Affordable Housing
Call June 23: INTERESTED; Updating QAP in December

ALASKA

Business

Developer plans new Anchorage housing that will produce more energy than it uses

Sean Doogan | Alaska Dispatch News | January 11, 2015

Email Print

Like 1k

Tweet 38

8+1 2

Text Size

An Alaska design and architectural firm is partnering with a nonprofit housing agency to design and erect a building that gives more than it takes.

The building, planned for 2 acres on Muldoon Road near its intersection with the Glenn Highway, would be home to 20 apartments for low-income families and residents with disabilities. If the architect and designers have their way, the multifamily housing unit will produce more energy than it consumes and use on-site water and sewer reclamation systems.



RurAL CAP plans to expand its Safe Harbor project for low-income housing with apartments at the location of the former How-How restaurant on Muldoon Road.
McCool Carlson Green illustration

RELATED:

New 'super-insulated' homes rising across Alaska's North Slope

Anchorage attracting new retailers despite big downturn in state revenue

RELATED:

Nonprofit RurAL CAP runs a housing program called Safe Harbor, providing housing to Anchorage residents with very low incomes. The new ultra energy-efficient units are set to be built next door to an existing 50-unit complex inside the old Ramada Inn on Muldoon Road.

Managers there say that without the housing they provide to people who are at least 50 percent below the median income level (about \$1,000 per year for a family of four), most of the families would be homeless. Many current Safe Harbor residents were homeless before finding housing with RurAL CAP, according to the agency; dozens more low-income Anchorage families are on a waiting list for affordable housing.

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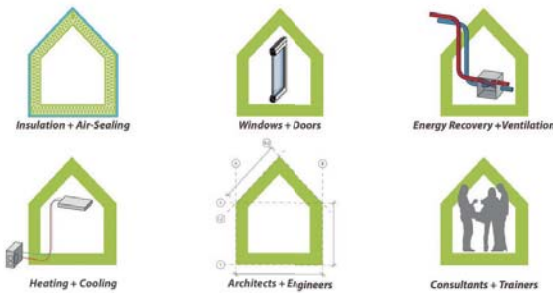


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