THE PHFA PROJECT

A National Net-Zero-Energy-Capable Affordable Housing Initiative

Tim McDonald
tim@onionflats.com
215.783.5591

Ed Mazria, Greenbuild Philly 2013

Ed Mazria, Greenbuild Philly 2013

An area equal to 3.5 times the entire building stock of U.S.

By 2030,

900 billion ft^2 (84 billion m^2)

of new and rebuilt buildings
will be constructed in cities worldwide.

Sources:
UN Habitat, *State of the World's Cities 2010/2011*; McKinsey Global Institute.

2030

RADICAL

AFFORDABLE

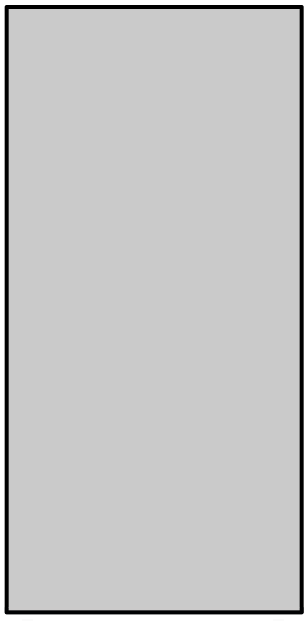
SCALABLE

NET-ZERO-ENERGY-CAPABLE

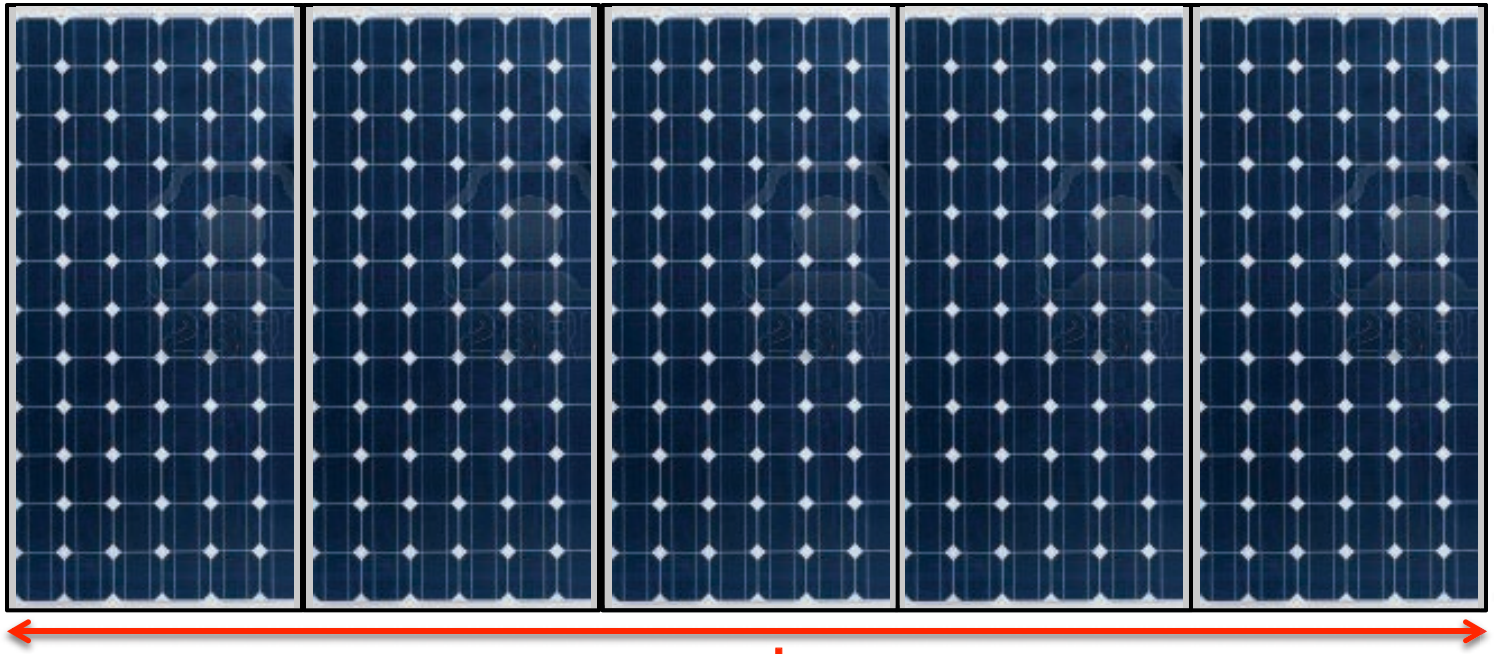
A building must GENERATE

NET-ZERO-ENERGY-CAPABLE

ALL it needs to survive



1900 sf home
39,000 kWh/yr



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

Certified
Passive House
Passive House Institute

“Fabric First” approach

80% REDUCTION

4.5 kWh/sf/yr

Certified
Passive House
Passive House Institute

Envelope and Thermal Comfort Principles

1. **Continuous Insulation-** creating steady indoor temperatures that won't drop below 50 degrees without heating source

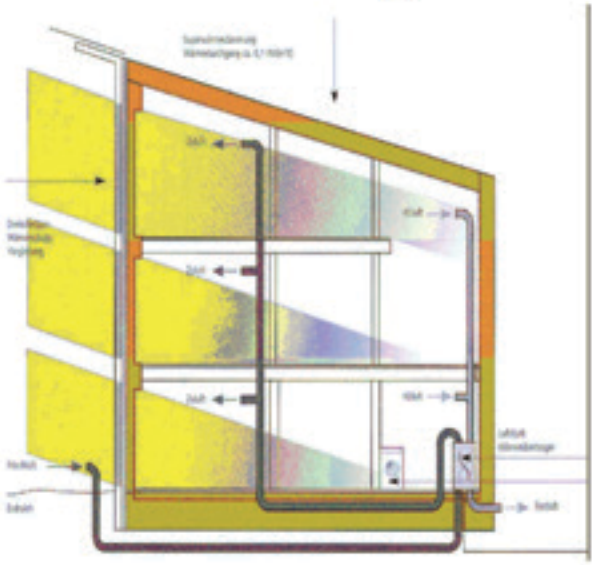
2. **Thermal Bridge Free Construction-** minimizes condensation/ building deterioration

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

PHIUS
Passive House Institute US

MPG for buildings

PERFORMANCE

Certified Passive House

Passive House Institute

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

Certified
Passive House
Passive House Institute

Consumption

PH METRIC

4.5 kWh/sf/yr

(Site Energy)

Production

ROOF METRIC

4.5 kWh/sf/yr

(Site Energy)

ONION FLATS

PLUMBOB

JIG INC

ARCHITECTURE
RESEARCH
CENTER
TEMPLE UNIVERSITY

STABLES 2015: 27 townhomes

ONION FLATS

MaGrann ASSOCIATES

ENERGY/BUILDING CONSULTANTS & ENGINEERS

One Crescent Drive • Philadelphia, PA 19112 • 1-888-MAGRANN • www.magrann.com

New Jersey • Pennsylvania • Kentucky • Ohio

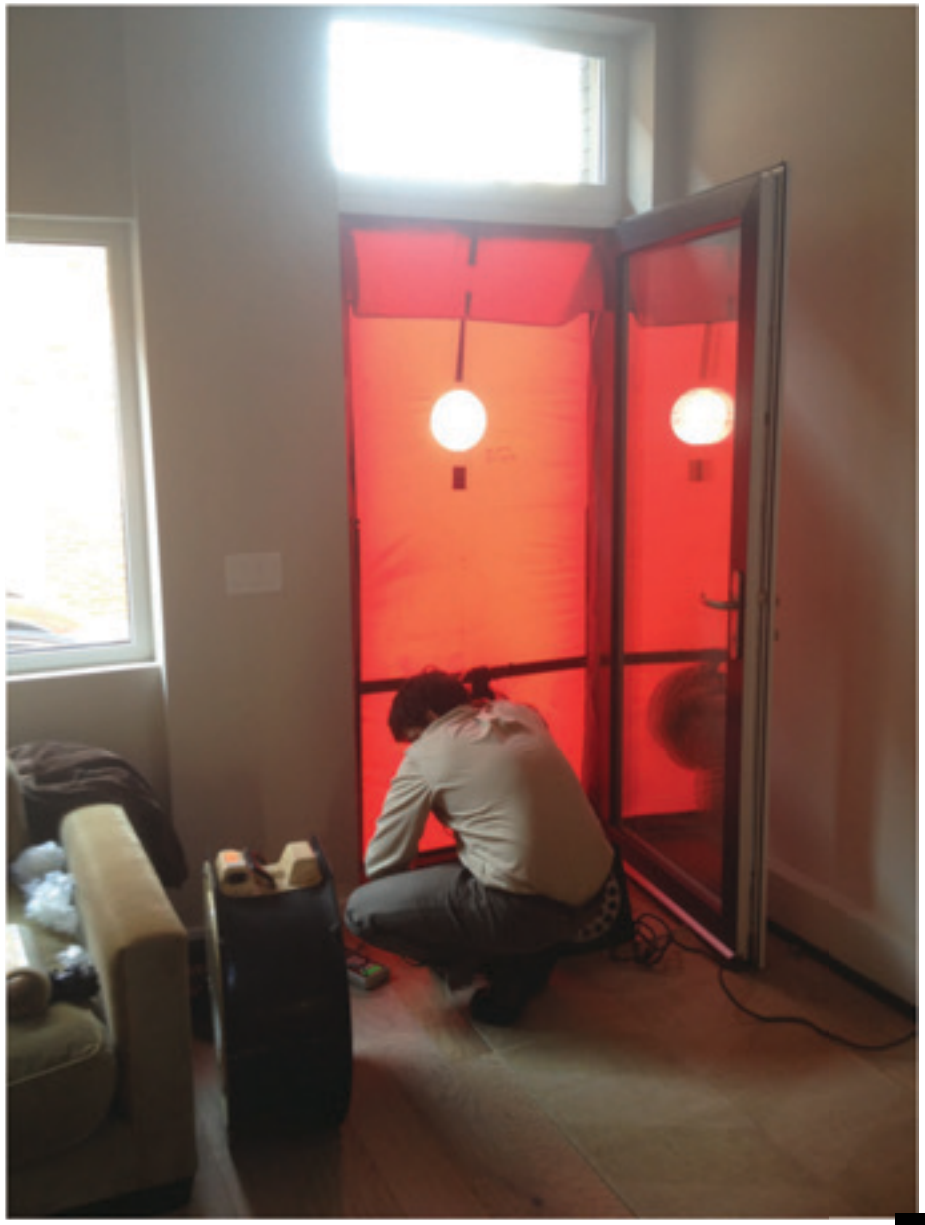
BUILDING LEAKAGE TEST COMPARISON

Test #1		Test #2	
Test File:	Depressurization File	Test File:	Pressurization File
Date of Test:	7/5/2012	Date of Test:	7/5/2012
Customer:	Onion Flats, LLC 111 West Norris Street Philadelphia, Pennsylvania 19122	Customer:	Onion Flats
Phone:	215-783-6591		

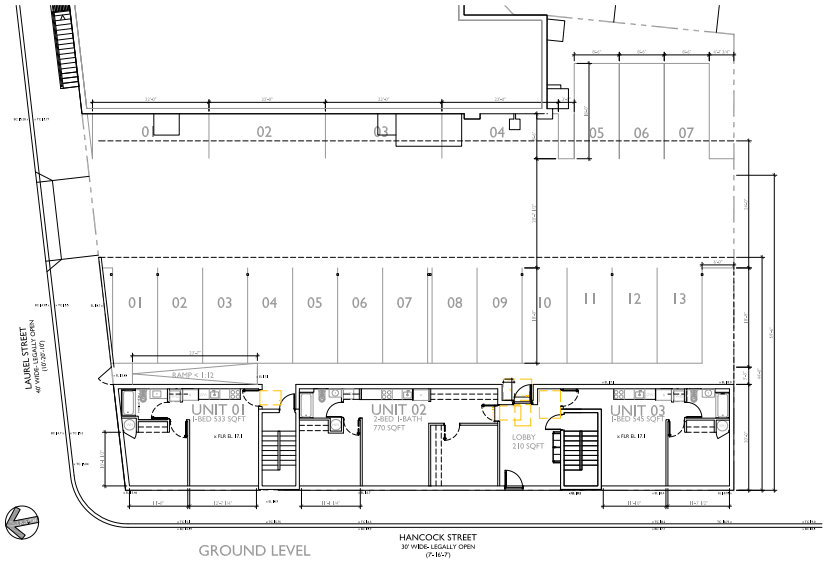
Test Results

	Test #1	Test #2	Change	Percent
1. Airflow at 50 Pascals:	293 CFM	201 CFM	-92 CFM	-31.4 %
	0.48 ACH	0.33 ACH	-0.15 ACH	-31.4 %

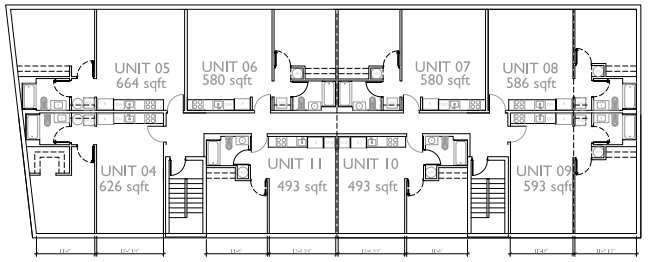
FINAL AIRFLOW **.49 ACH 50**



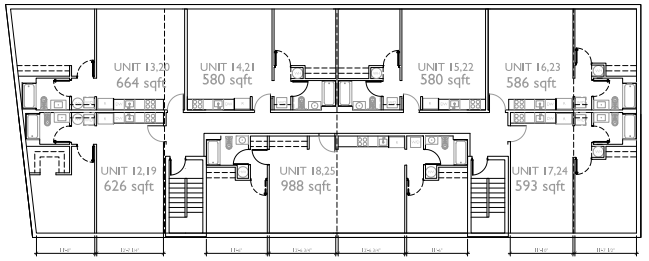
ONION FLATS



GROUND LEVEL
OPTION 01



LEVEL 02



LEVEL 03-04

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

ONION FLATS

NON-PROFIT COMMUNITY ORGANIZATION

RAISE OF HOPE

PHILADELPHIA REDEVELOPMENT AUTHORITY

FIRST

CERTIFIED

PASSIVE HOUSE
IN
PENNSYLVANIA

START: APRIL 20, 2012

CERTIFICATE OF OCCUPANCY: JULY 20, 2012

Certified Passive House
Passive House Institute

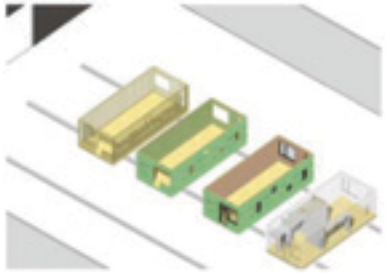
RECIPIENT OF THE
2014 INTERNATIONAL
PASSIVE HOUSE AWARD

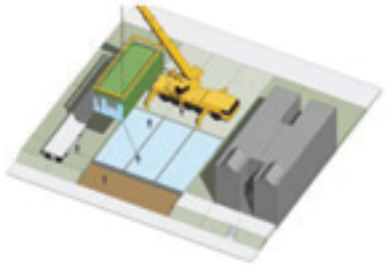
PHIUS
Passive House Institute US

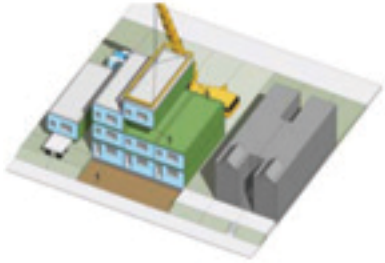
SECOND PLACE WINNER
2015 PHIUS AWARD
"AFFORDABLE HOUSING"

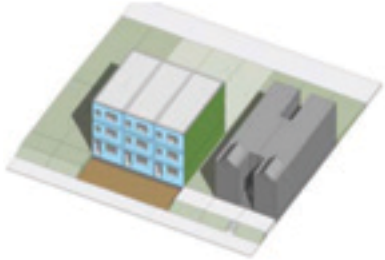
2013
AIA
HONOR
AWARD


ONION
FLATS



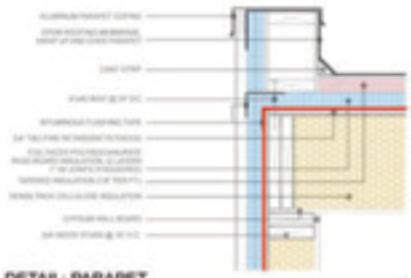




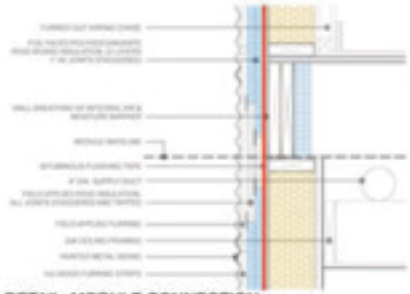


FACTORY BUILD

SITE ASSEMBLE

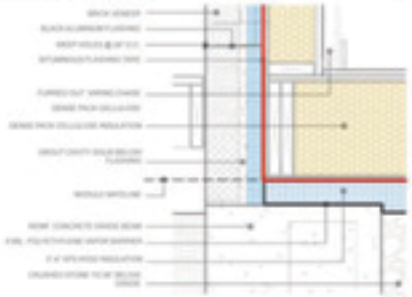


DETAIL: PARAPET

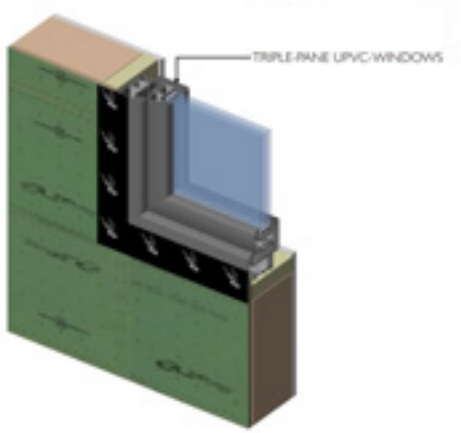


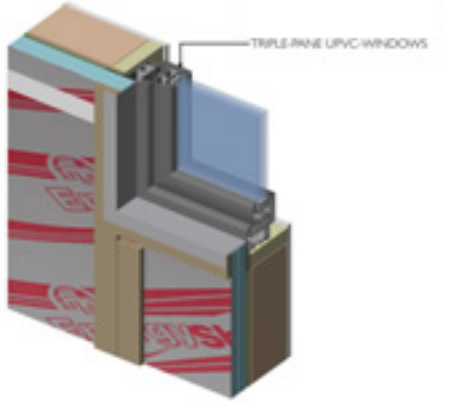
DETAIL: MODULE CONNECTION

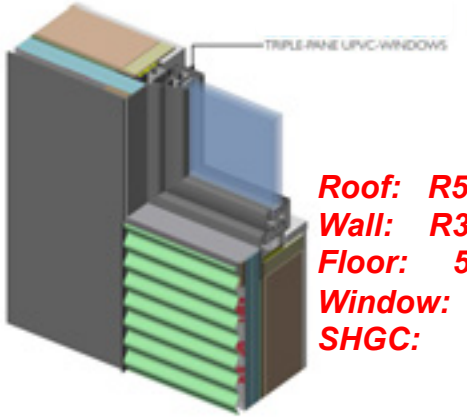
DETAIL: WINDOW



DETAIL: FOUNDATION







Roof: R52.3
Wall: R33.6
Floor: 58.4
Window: .11
SHGC: .63

ENERGY/BUILDING CONSULTANTS & ENGINEERS

One Crescent Drive • Philadelphia, PA 19112 • 1-888-MAGRANN • www.magrann.com

New Jersey • Pennsylvania • Kentucky • Ohio

BUILDING LEAKAGE TEST COMPARISON

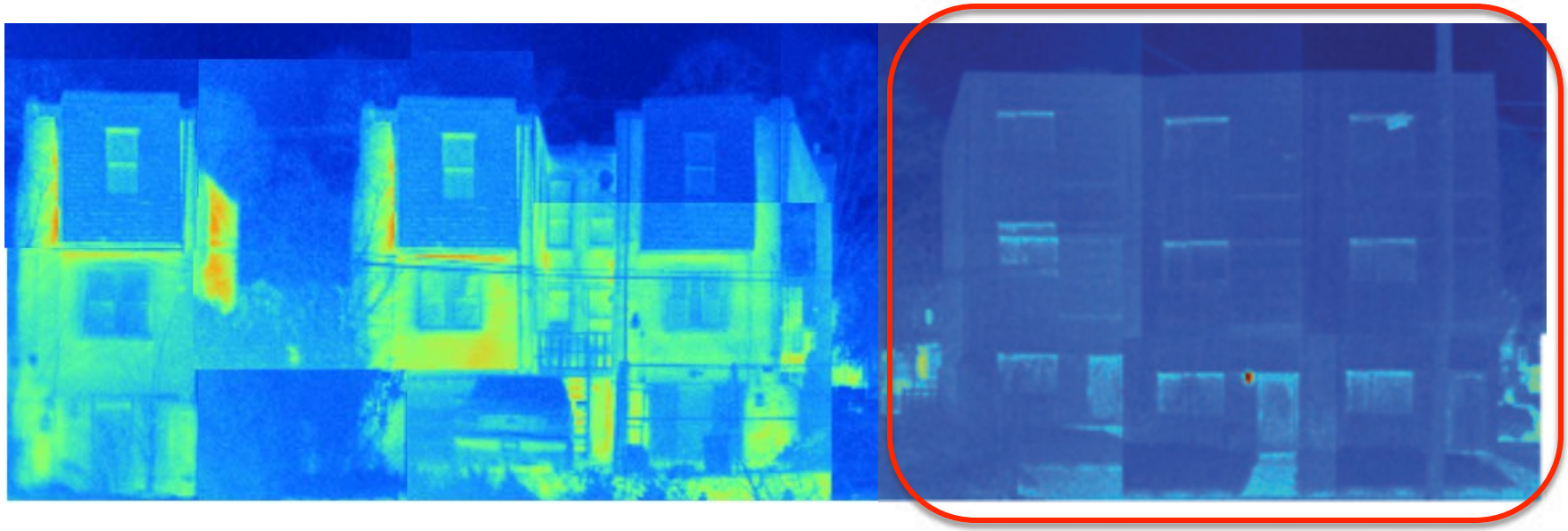
Test #1		Test #2	
Test File:	Depressurization File	Test File:	Pressurization File
Date of Test:	7/5/2012	Date of Test:	7/5/2012
Customer:	Onion Flats, LLC 111 West Norris Street Philadelphia, Pennsylvania 19122	Customer:	Onion Flats
Phone:	215-783-5591		

Test Results

	Test #1	Test #2	Change	Percent
1. Airflow at 50 Pascals:	293 CFM	201 CFM	-92 CFM	-31.4 %
	0.48 ACH	0.33 ACH	-0.15 ACH	-31.4 %

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


HOW?

QAP

Qualified Allocation Plan

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

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

OCT 2014

“PASSIVE HOUSE points” introduced to PHFA 2015 QAP

FEB 2015

85 Multi-family project applications were received

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

Construction Cost Summary from PHFA Applications

2015 Costs

Single Family / Townhouse

Proj. No.	County	Climate Zone	Units (by BR Qty) 0	1	2	3	4+	Total Units	Bldg. Area	Constr. $	$ /Unit	$/SF
SF-1	Franklin	5A			33	21		54	70,218	7,051,522	130,584	100
SF-2	Schuylkill	5A		3	9	5		17	21,151	2,238,725	131,690	106
SF-3	Philadelphia	4A		5	19	31	5	60	79,795	9,363,626	156,060	117
SF-4	Allegheny	5A			26	19		45	63,548	8,863,631	196,970	117
SF-5	Lycoming	5A		16	34			50	66,147	8,141,437	162,829	123
SF-6	Bradford	5A		10	24	16		50	62,956	7,964,823	159,296	127
SF-7	Centre	5A			20	20		40	53,652	7,523,233	188,081	140
SF-8	Lebanon	5A			46	16		62	84,168	11,742,459	189,395	140
SF-9	Bradford	5A		2	26	12		40	59,954	8,369,296	209,232	140
SF-10	Butler	5A		3	39	18		60	67,904	9,827,275	163,788	145
SF-11	Erie	5A			9	34		43	53,454	7,870,669	183,039	147
SF-12	Dauphin	5A		3	3	25	4	35	61,504	9,192,750	262,650	149
SF-13	Berks	5A		22	20	16		58	62,097	9,305,340	160,437	150
SF-14	Franklin	5A		7	25	24		56	77,469	11,791,991	210,571	152
SF-15	Luzerne	5A		26	15	15		56	56,250	8,968,491	160,152	159
SF-16	Union	5A		5	12	8	6	31	43,868	7,071,066	228,099	161
SF-17	Chester	4A		48	12			60	58,349	9,809,238	163,487	168
SF-18	Allegheny	5A		4	30	18		52	77,351	12,979,386	249,604	168
SF-19	Berks	5A		10	21	11		42	57,722	9,785,000	232,976	170
SF-20	Montgomery	4A		16	24	15		55	61,480	11,113,700	202,067	181
SF-21	Delaware	4A		8	34	14		56	65,790	12,184,074	217,573	185
SF-22	Philadelphia	4A			17	16	2	35	45,476	8,905,240	254,435	196
SF-23	Allegheny	5A		14	9			23	28,205	5,552,583	241,417	197
SF-24	Westmoreland	5A		28	8			36	43,872	8,331,567	231,432	245
SF-25	Philadelphia	4A		10	19	11		40	46,757	11,453,809	286,345	245

Adaptive Reuse

AR-1	Lehigh	5A		34	4	11		49	65,339	6,392,809	130,465	98
AR-2	Erie	5A		29	16			45	53,021	6,152,972	136,733	116
AR-3	Philadelphia	4A	12	54				66	77,975	9,751,707	147,753	125
AR-4	Allegheny	5A	2	49	4			55	65,577	9,514,764	172,996	145
AR-5	Delaware	4A		53				53	51,690	8,030,480	151,518	155
AR-6	Philadelphia	4A		44				44	49,406	8,361,579	190,036	169
AR-7	Montgomery	4A		33	3	7		43	55,832	9,468,816	220,205	170
AR-8	Philadelphia	4A			28	10		38	53,840	9,515,893	250,418	177
AR-9	Dauphin	5A	5	17	6			28	45,434	8,075,064	288,395	178
AR-10	Allegheny	5A		33	3			36	50,664	9,436,523	262,126	186
AR-11	Philadelphia	4A		46				46	56,478	10,795,027	234,675	191
AR-12	Philadelphia	4A		27	10			37	48,768	9,658,098	261,030	198
AR-13	Philadelphia	4A		30	21			51	62,509	13,609,683	266,857	218
AR-14	Washington	4A		17	7			24	35,299	7,856,113	327,338	223
AR-15	Philadelphia	4A		62				62	70,991	25,995,741	419,286	366

Multi-Story / Elevator

MS-1	Northumberland	5A		35				35	40,397	4,276,084	122,174	106
MS-2	Dauphin	5A		22	14	14		50	88,314	10,055,562	201,111	114
MS-3	Dauphin	5A		18	59			77	92,000	10,668,511	138,552	116
MS-4	Lancaster	5A		46	6			52	71,758	8,456,719	162,629	118
MS-5	Blair	5A		33	20			53	82,070	9,727,007	183,528	119
MS-6	Chester	4A		46	15			61	76,340	9,638,964	158,016	126
MS-7	Lancaster	5A		13	39	26		78	88,910	11,681,226	149,759	131
MS-8	Clearfield	6A		24	6			30	42,254	5,551,584	185,053	131
MS-9	Indiana	5A		40				40	36,743	4,898,995	122,475	133
MS-10	Bradford	5A		50	6			56	57,817	7,738,172	138,182	134
MS-11	Cambria	5A		32	11			43	44,887	6,341,616	147,479	141
MS-12	Dauphin	5A		38	16			54	58,335	8,201,250	151,875	141
MS-13	Mifflin	5A		30	4			34	39,447	5,559,187	163,506	141
MS-14	Fayette	5A		12	12			24	29,586	4,192,325	174,680	142
MS-15	Allegheny	5A		24	12	13		49	67,340	9,698,634	197,931	144
MS-16	Lackawanna	5A		44	4			48	49,460	7,159,738	149,161	145
MS-17	Lehigh	5A		54	7			61	63,949	9,318,159	152,757	146
MS-18	Centre	5A		37	11			48	57,959	8,490,644	176,888	146
MS-19	Chester	4A		41	3	5		49	54,287	8,007,477	163,418	148
MS-20	Fayette	5A		21	3			24	36,064	5,407,359	225,307	150
MS-21	Chester	4A		61	3			64	70,083	10,557,500	164,961	151
MS-22	Allegheny	5A		54	12			66	70,689	10,787,052	163,440	153
MS-23	Allegheny	5A		40	6			46	58,617	9,134,790	198,582	156
MS-24	Wayne	6A		36	4			40	40,959	6,460,530	161,513	158
MS-25	Centre	5A			12			12	16,796	2,683,900	223,658	160
MS-26	Beaver	5A		40	12			52	55,361	9,468,440	182,085	171
MS-27	Lancaster	5A		51				51	51,500	8,871,635	173,954	172
MS-28	Allegheny	5A		52	8			60	66,733	11,716,729	195,279	176
MS-29	Montgomery	4A		40	4			44	44,687	8,202,314	186,416	184
MS-30	Montgomery	4A		50				50	42,265	8,029,015	160,580	190
MS-31	Crawford	5A		36	4			40	38,953	7,490,675	187,267	192
MS-32	Philadelpia	4A		9	8	7		24	31,220	6,031,050	251,294	193
MS-33	Westmoreland	5A		47				47	49,080	9,825,224	209,047	200
MS-34	Philadelphia	4A		58	4			62	56,120	11,262,762	181,657	201
MS-35	Philadelphia	4A	60					60	57,672	11,915,227	198,587	207
MS-36	Philadelphia	4A		20	4			24	26,284	5,523,620	230,151	210
MS-37	Philadelphia	4A		34	11			45	42,523	8,964,723	199,216	211
MS-38	Philadelphia	4A		52				52	50,275	10,703,403	205,835	213
MS-39	Philadelphia	4A		39	11			50	53,416	11,371,112	227,422	213
MS-40	Philadelphia	4A		45	5			50	55,099	11,747,269	234,945	213
MS-41	Philadelphia	4A		24				24	24,284	5,194,462	216,436	214
MS-42	Philadelphia	4A		45				45	46,754	10,118,014	224,845	216
MS-43	Philadelphia	4A		53				53	50,312	10,900,733	205,674	217
MS-44	Philadelphia	4A		54				54	48,965	10,664,381	197,489	218
MS-45	Philadelphia	4A	88					88	79,650	18,005,791	204,611	226

$COST$ **"Negligibly different" from NON-PH projects**

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

Pennsylvania

85 Projects

32 PH projects — **Average cost = $169/sf**

53 NON-PH projects — **Average cost = $165/sf**

< 2%

$COST$ "Negligibly different" from NON-PH projects

ARCHITECTURE
RESEARCH
CENTER

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***

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

8 Passive House Projects awarded funding

ARCHITECTURE
RESEARCH
CENTER

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

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

PENNROSE Properties, LLC

ARTIST'S RENDERING

DATE: 29 OCTOBER 2013 | K&A #: 12134

Kitchen & Associates
Architecture • Engineering • Planning • Interiors

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

Kitchen & Associates
Architecture · Engineering · Planning · Interiors

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

ARCHITECTURE
RESEARCH
CENTER

Heritage Point
56 units, 5 buildings

THE PHFA PROJECT

SEDA - COG
HOUSING DEVELOPMENT
CORPORTATION
201 Furnace Road, Lewisburg, PA 17837
Tel: (570) 524-4491

MANN EDGE II
100 EAST WATER STREET, LEWISTOWN, PA 17044

02/21/14
A-0.1

ARCHITECTURAL CONCEPTS, PC
www.arconcepts.com
610.518.1596 T 610.873.1587 F
The Grimmet Mansion
626 West Lincoln Highway
Exton . Pennsylvania 19341

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

Archdiocese of Philadelphia

ARCHITECTURE
RESEARCH
CENTER

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

THE PHFA PROJECT

architectural site plan by RDL Architects, LLC

ZA+D design
ZA+D interiors
ZA+D passiv
Redefining the Building Potential

ARCHITECTURE
RESEARCH
CENTER

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

THE PHFA PROJECT

think little
SMALL SOLUTIONS for a BIG WORLD

www.think-little.com
1515 Chesapeake Street / Charlottesville, Virginia 22902
tel: (434) 409-3970 / fax: (434) 382-0617

Hillcrest Senior Residences ***RDL Architects***

ARCHITECTURE
RESEARCH
CENTER

Hillcrest Senior Residences
Pittsburgh, PA
65units, Senior Housing

THE PHFA PROJECT

AREA CALCULATIONS

UNIT TYPE	NUMBER PROVIDED	GROSS AREA	NET AREA	BEDROOM NET AREA		
				BR #1	BR #2	BR #3
1 BEDROOM	35	691 sf	660 sf	155 sf	–	--
1 BEDROOM ACCESSIBLE	4	691 sf	660 sf	155 sf	–	--
1 BEDROOM SENSORY IMPAIRED	1	691 sf	660 sf	155 sf	–	--
2 BEDROOM	2	1,022 sf	982 sf	229 sf	172 sf	--
2 BEDROOM ACCESSIBLE	1	1,022 sf	982 sf	229 sf	172 sf	--
3 BEDROOM	4	1,412 sf	1,355 sf	159 sf	159 sf	144 sf
3 BEDROOM ACCESSIBLE	1	1,412 sf	1,355 sf	159 sf	159 sf	144 sf
MANAGER'S APARTMENT	1	1,200 sf	962 sf	174 sf	155 sf	--

ARCHITECTURAL CONCEPTS PC
www.arconcepts.com
610.518.1580 f 610.873.1977
The Grimmel Mansion
826 West Lincoln Highway
Exton, Pennsylvania 19341

THE WHITEHALL
OLD SCHUYKILL ROAD & PARK ROAD
EAST VINCENT TOWNSHIP, CHESTER COUNTY, PA.

0 20 40
01/30/13

missionfirst HOUSING GROUP

ARCHITECTURE
RESEARCH
CENTER

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

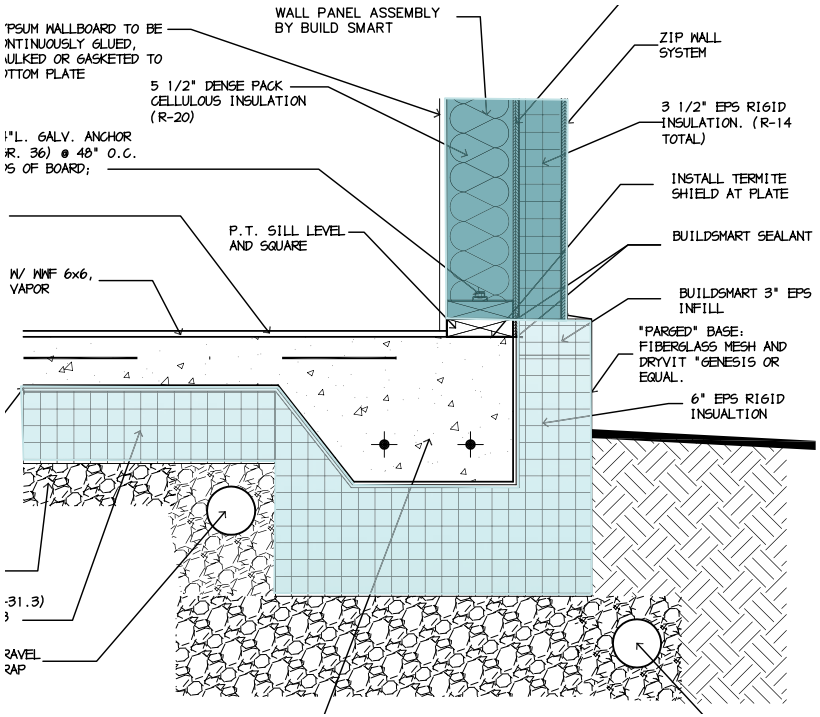
THE PHFA PROJECT

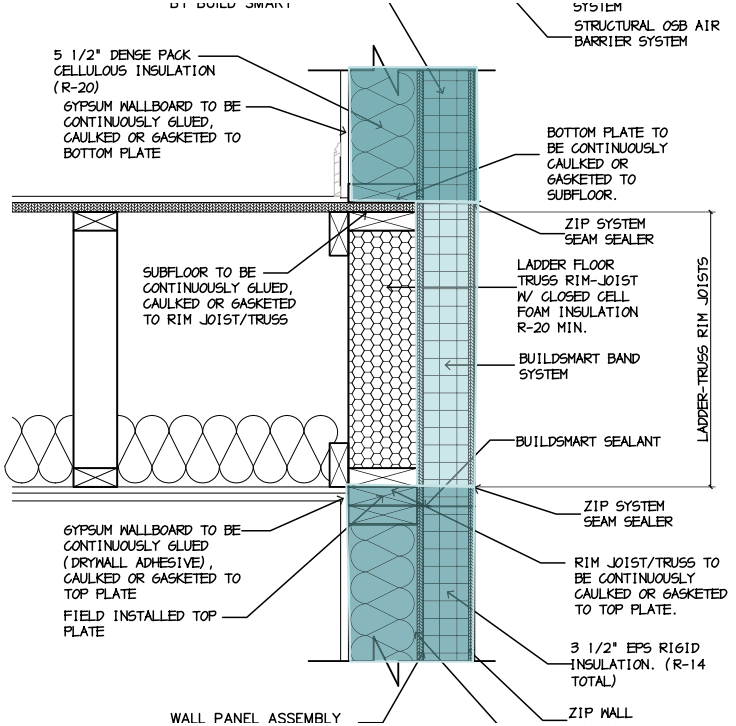
The Whitehall		
CPHC	Tim McDonald	
Certifier	PHI	
Place	Spring City, PA	Chester County
Climate Zone	4A	
Type	Senior Housing	Smoking
Square Footage	54,287	
# units	49 units, 1 building	
ROOF	R45.8	Loose-blown cellulose, vented roof assemblies, ZIP panel air-barrier
WALLS	R32.8	SmartBuild system, 2x6 stud, 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
		Klearwall built into SmartBuild, .105 Uglass, .21 Uframe, .5 SHGC
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 200DX, 3 units, 83% sensible recovery
LAUNDRY + KITCHEN	Ventless and Vented	Recirc un-vented kitchen hoods; Vented dryrs with magnetic damper
Cost/unit	$163,418.00	
Cost/sf	$148.00	

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

ARCHITECTURE
RESEARCH
CENTER

PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS





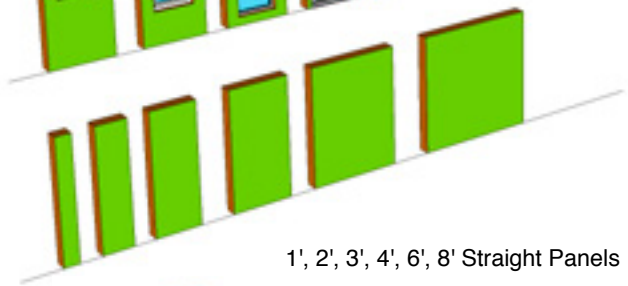
PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

Available in 8' and 9'

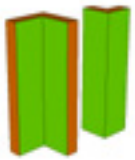
Standard Passivhaus Certified Single & Twin Windows and Doors in 8' Panel

Standard Passivhaus Certified Single & Twin Windows and Doors in 6' Panel

Standard Passivhaus Certified Single Windows and Doors in 4' Panel



1', 2', 3', 4', 6', 8' Straight Panels



2' Inside and Outside Corners

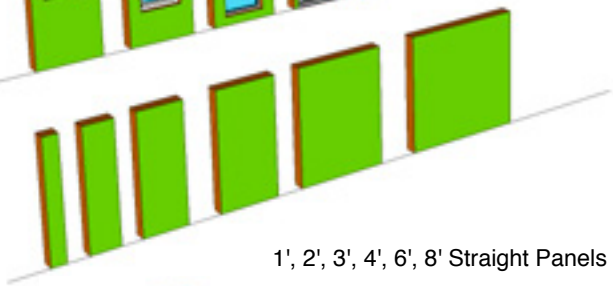
PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

Available in 8' and 9'

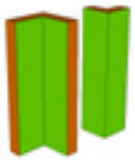
Standard Passivhaus Certified Single & Twin Windows and Doors in 8' Panel

Standard Passivhaus Certified Single & Twin Windows and Doors in 6' Panel

Standard Passivhaus Certified Single Windows and Doors in 4' Panel



1', 2', 3', 4', 6', 8' Straight Panels



2' Inside and Outside Corners

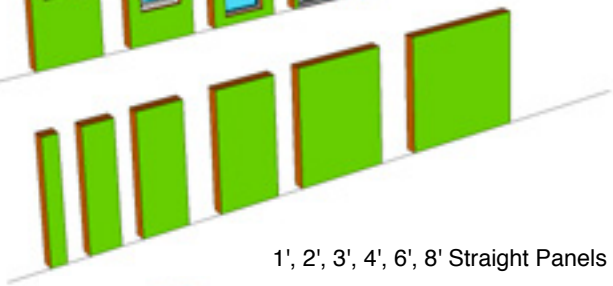
PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

Available in 8' and 9'

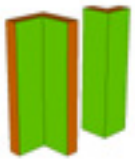
Standard Passivhaus Certified Single & Twin Windows and Doors in 8' Panel

Standard Passivhaus Certified Single & Twin Windows and Doors in 6' Panel

Standard Passivhaus Certified Single Windows and Doors in 4' Panel



1', 2', 3', 4', 6', 8' Straight Panels



2' Inside and Outside Corners

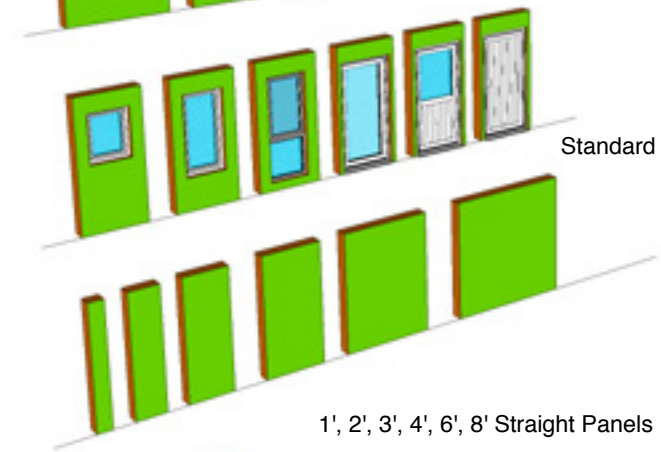
BUILDSMART

PREFABRICATED PASSIVE HOUSE WALL SYSTEM WITH INTEGRATED WINDOWS/DOORS

Available in 8' and 9'

Standard Passivhaus Certified Single & Twin Windows and Doors in 8' Panel

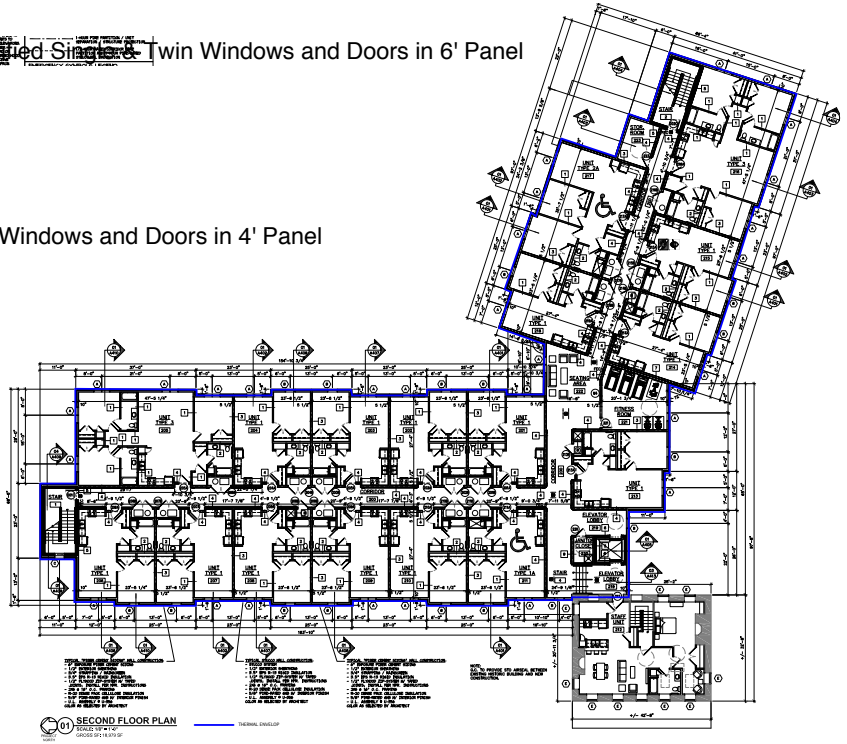
Standard Passivhaus Certified Single & Twin Windows and Doors in 6' Panel



Standard Passivhaus Certified Single Windows and Doors in 4' Panel

1', 2', 3', 4', 6', 8' Straight Panels

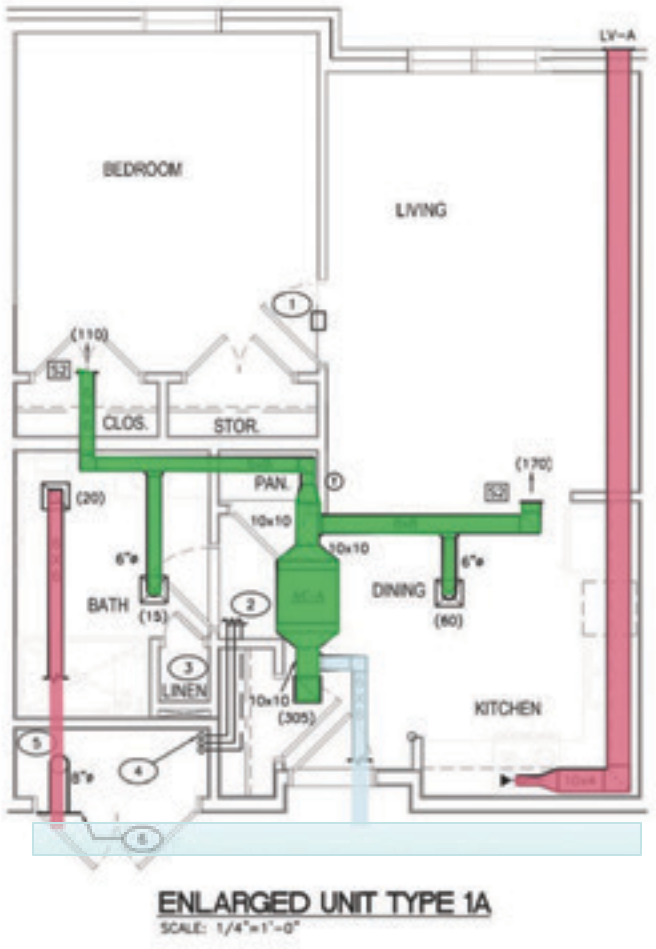
2' Inside and Outside Corners



BUILDSMART

< $10/sf

VENTILATION/HEATING/COOLING

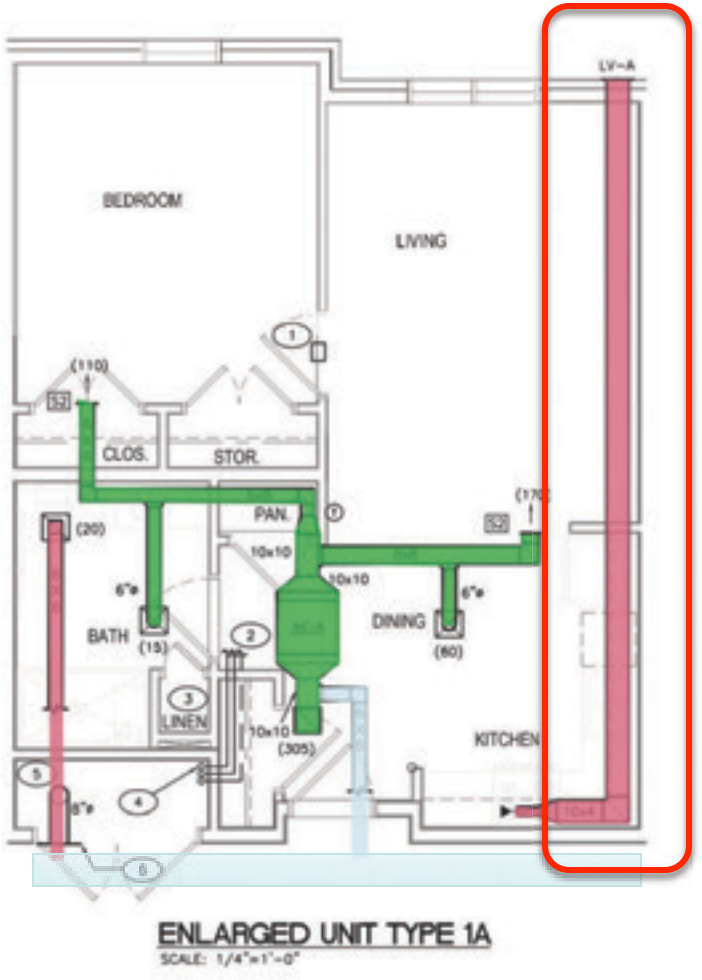


Initial design by mechanical engineer
Coupled ventilation/heating/cooling

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

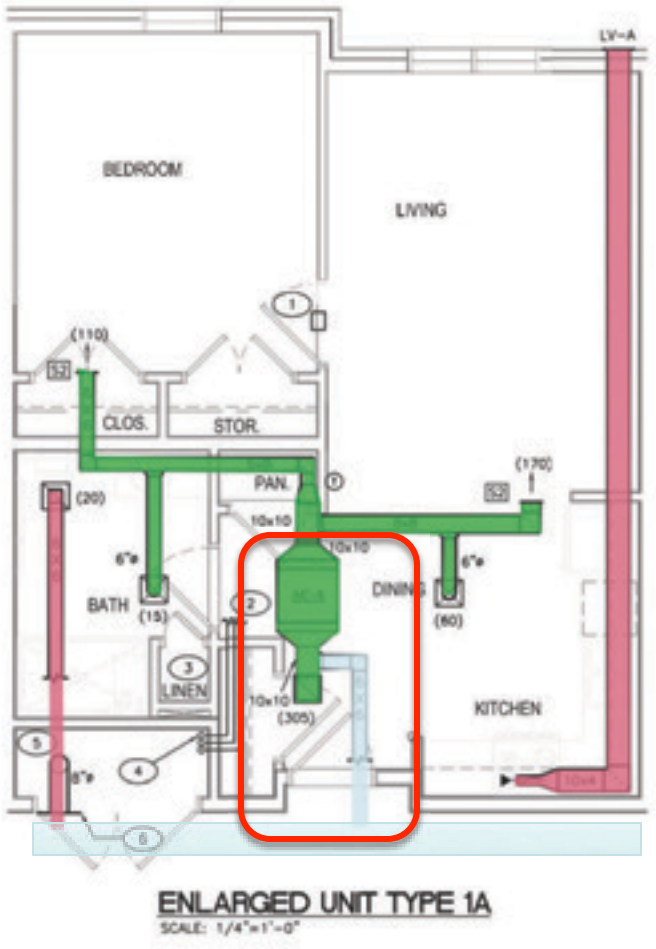
VENTILATION/HEATING/COOLING

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

Kitchen ventilation

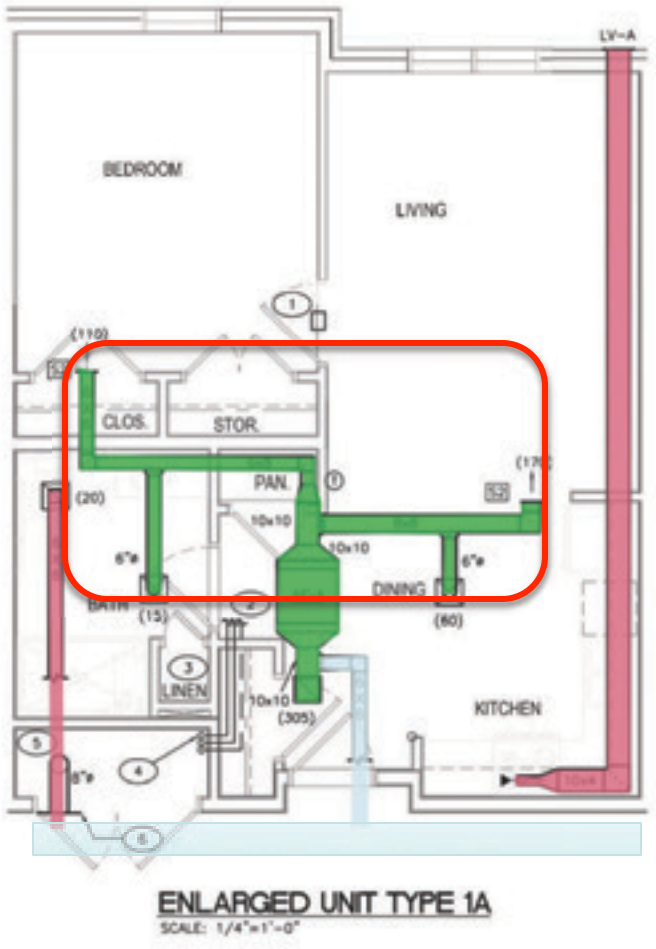
- *conflicts between EGC, Energy Star and PH: ASHRAE 62.2 5 ach continuous – PH .3 ACH*
- *EGC and EPA now accept waiver with PH projects, can be recirculating*

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*

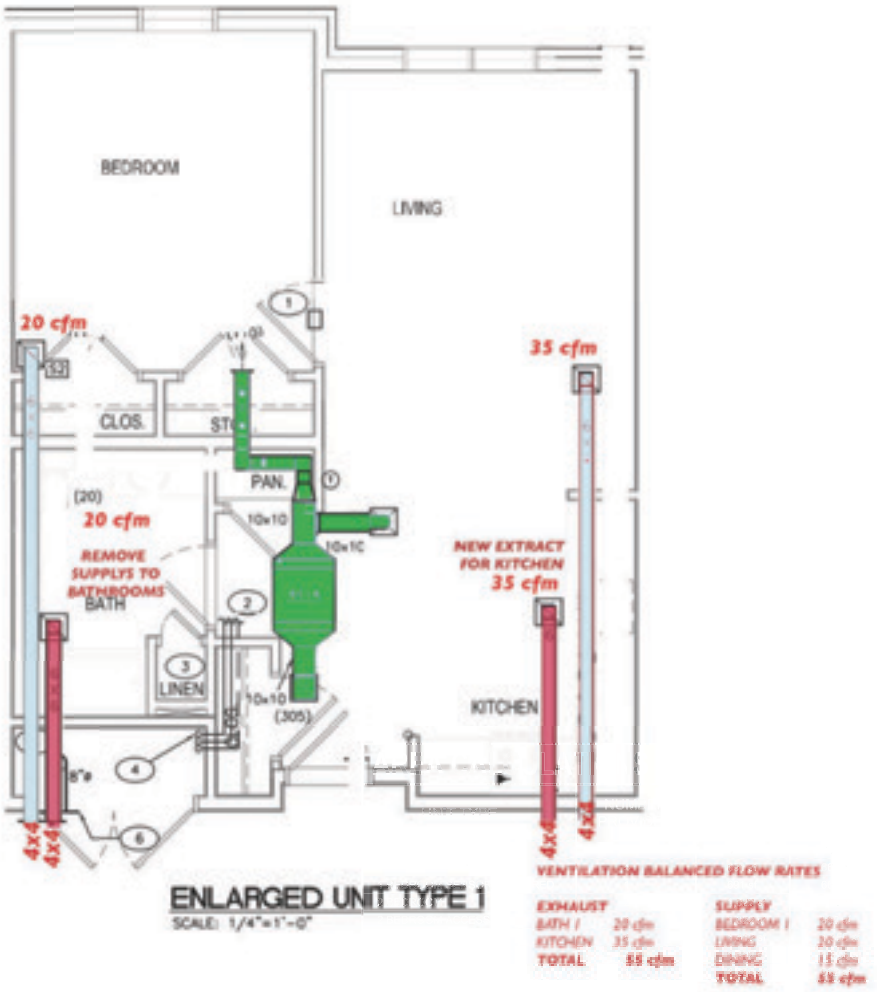
Inefficient Duct layout

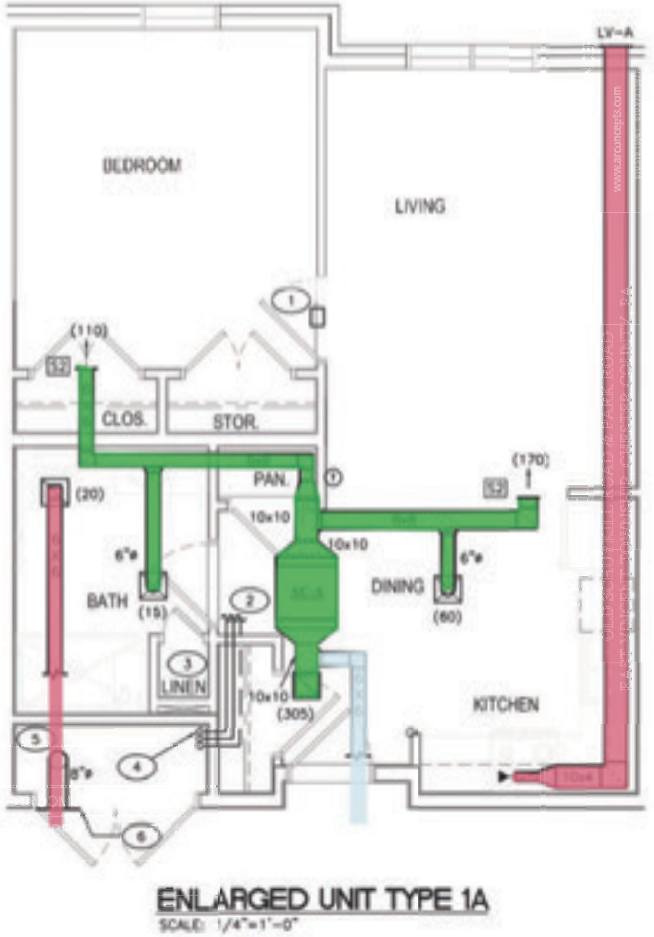
- *Bath supply not required, exhaust only*
- *Extended duct lengths*



Initial design by mechanical engineer
Coupled ventilation/heating/cooling

VENTILATION/HEATING/COOLING

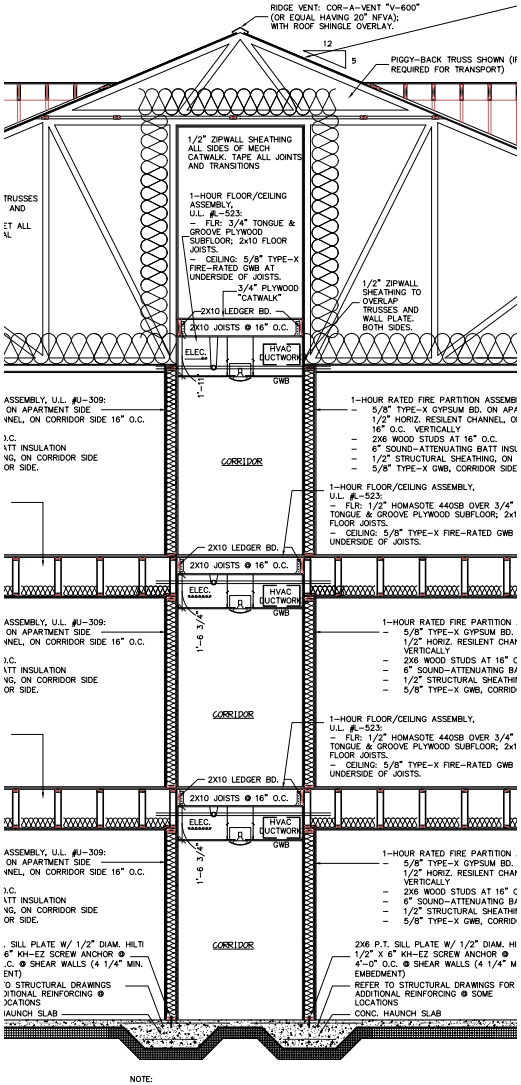


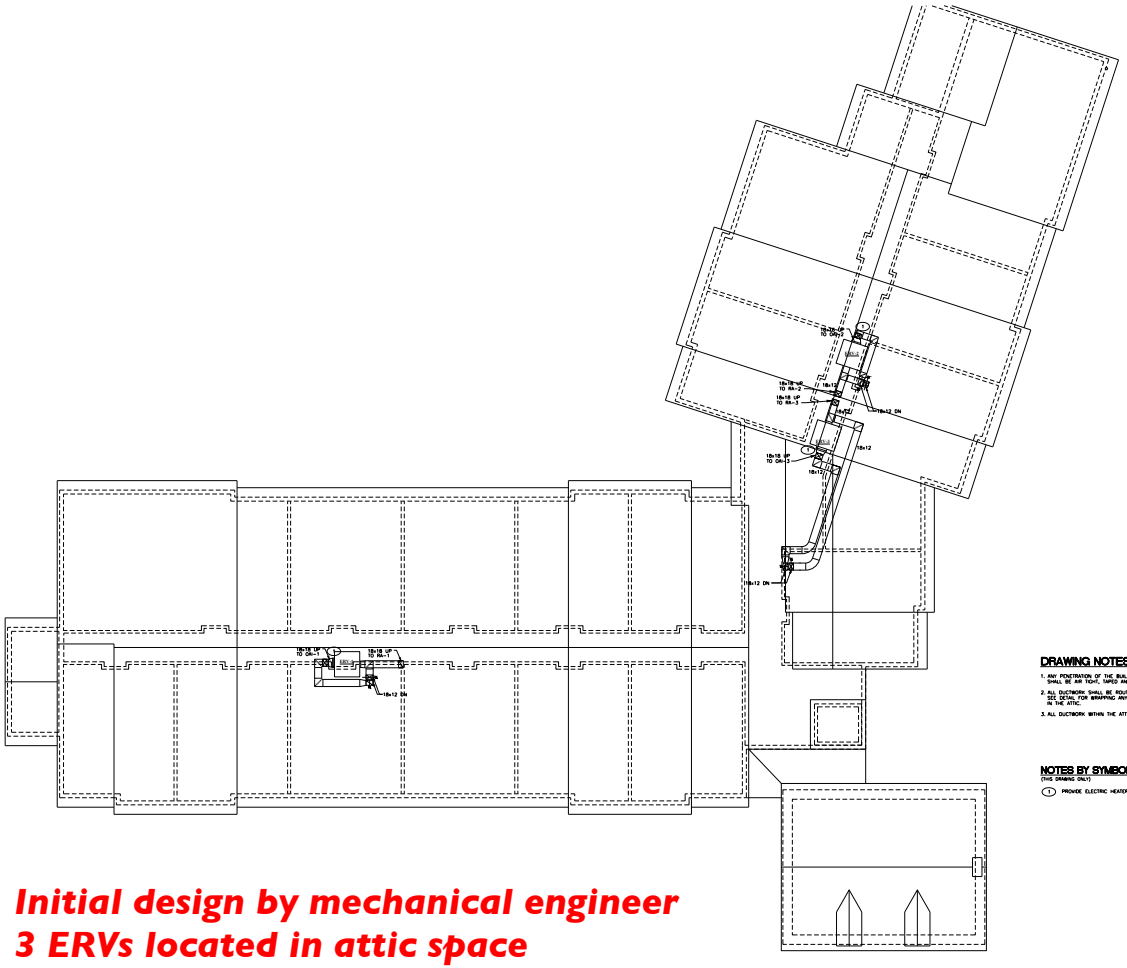


De-coupled, balanced ventilation

Initial design by mechanical engineer
Coupled ventilation/heating/cooling

LOCATION OF CENTRALIZED ERVS





DRAWING NOTES:

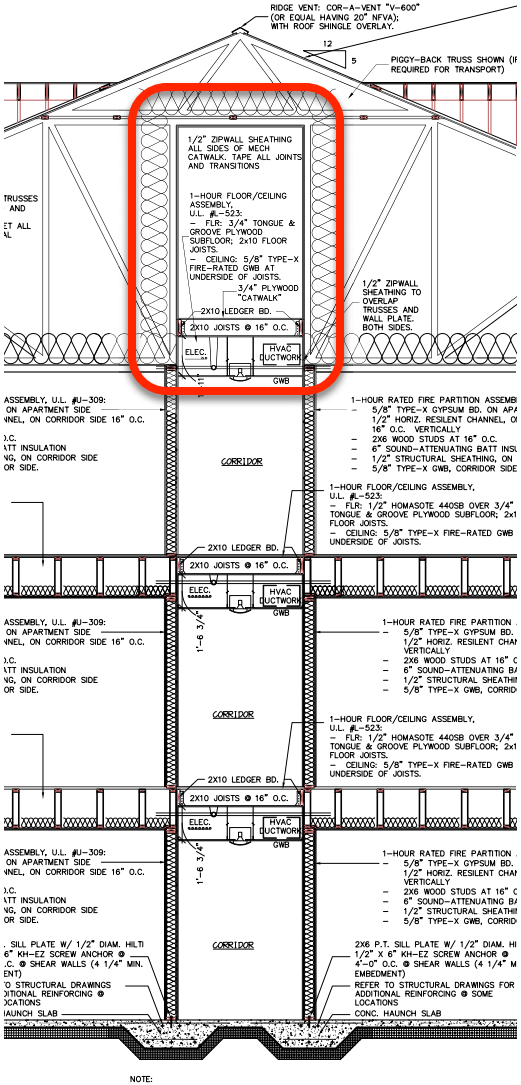
1. ANY PENETRATION OF THE BUILDING ENVELOPE'S AIR BARRIER SHALL BE AIR TIGHT, TAPED AND SEALED.
2. ALL DUCTWORK SHALL BE ROUTED ON WARM SIDE OF INSULATION. SEE DETAIL FOR WRAPPING ANY SUPPLY AND EXHAUST DUCTWORK IN THE ATTIC.
3. ALL DUCTWORK WITHIN THE ATTIC SPACE SHALL BE INSULATED.

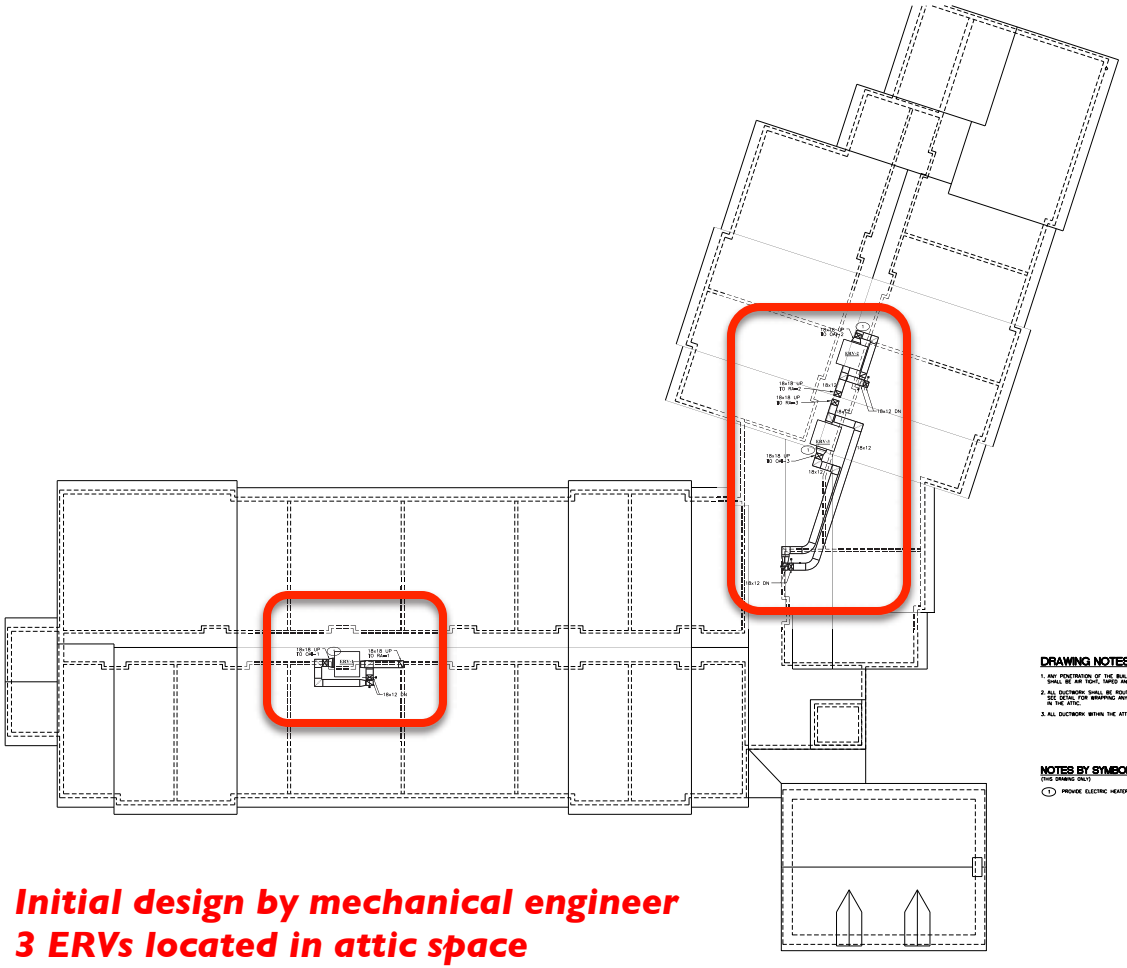
NOTES BY SYMBOL: (THIS DRAWING ONLY)

(1) PROVIDE ELECTRIC HEATER IN INTAKE OUTSIDE AIR DUCT.

Initial design by mechanical engineer
3 ERVs located in attic space

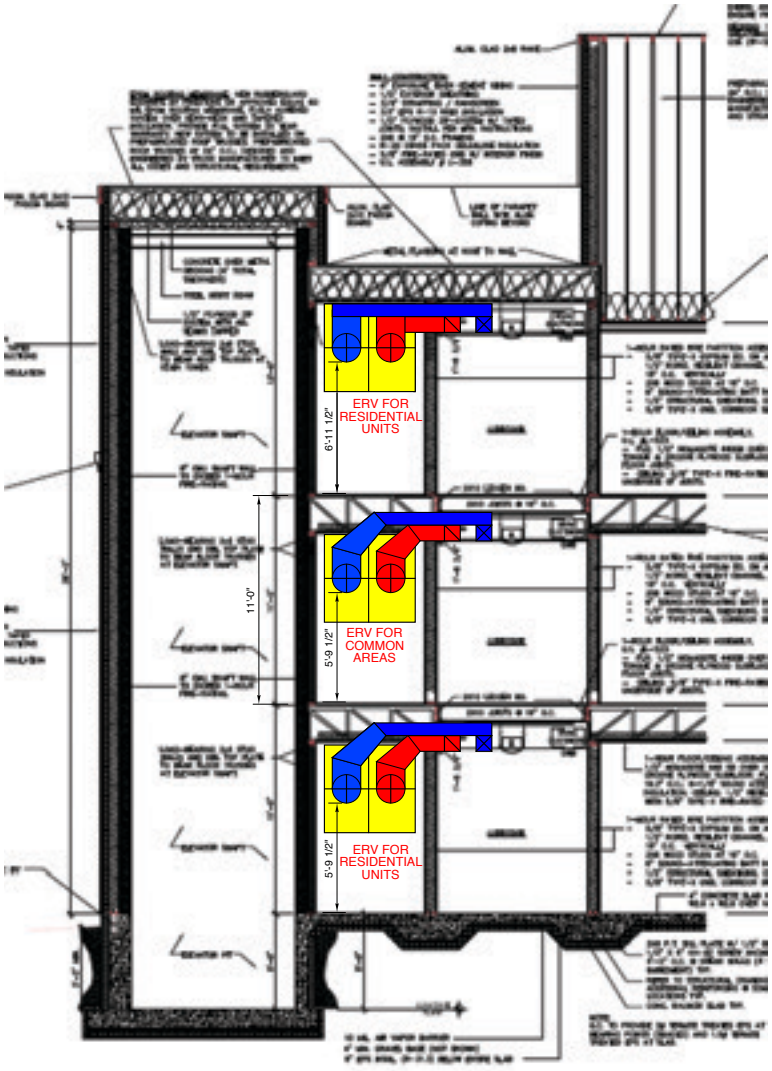
LOCATION OF CENTRALIZED ERVS

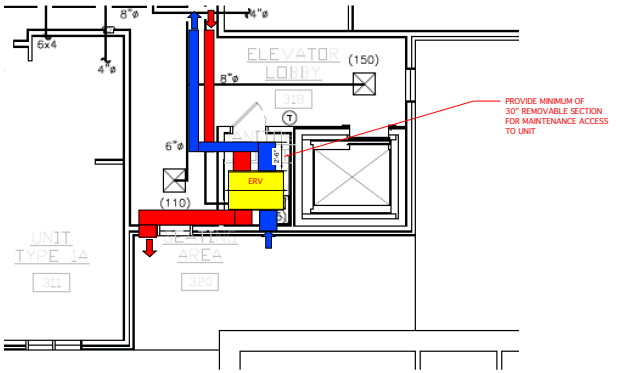




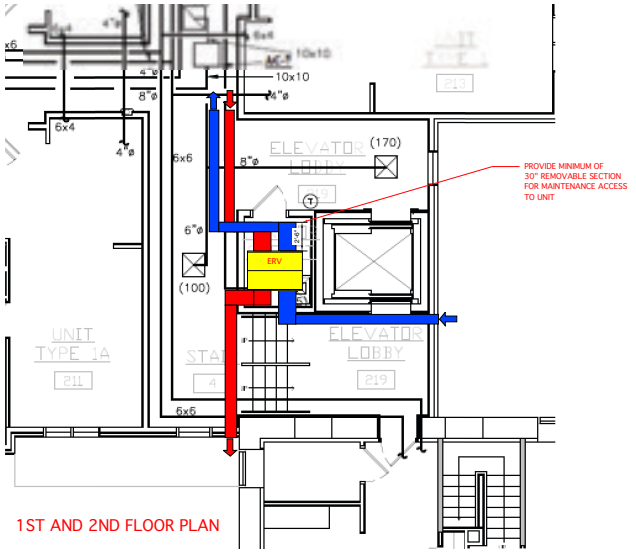
Initial design by mechanical engineer
3 ERVs located in attic space

LOCATION OF CENTRALIZED ERVS





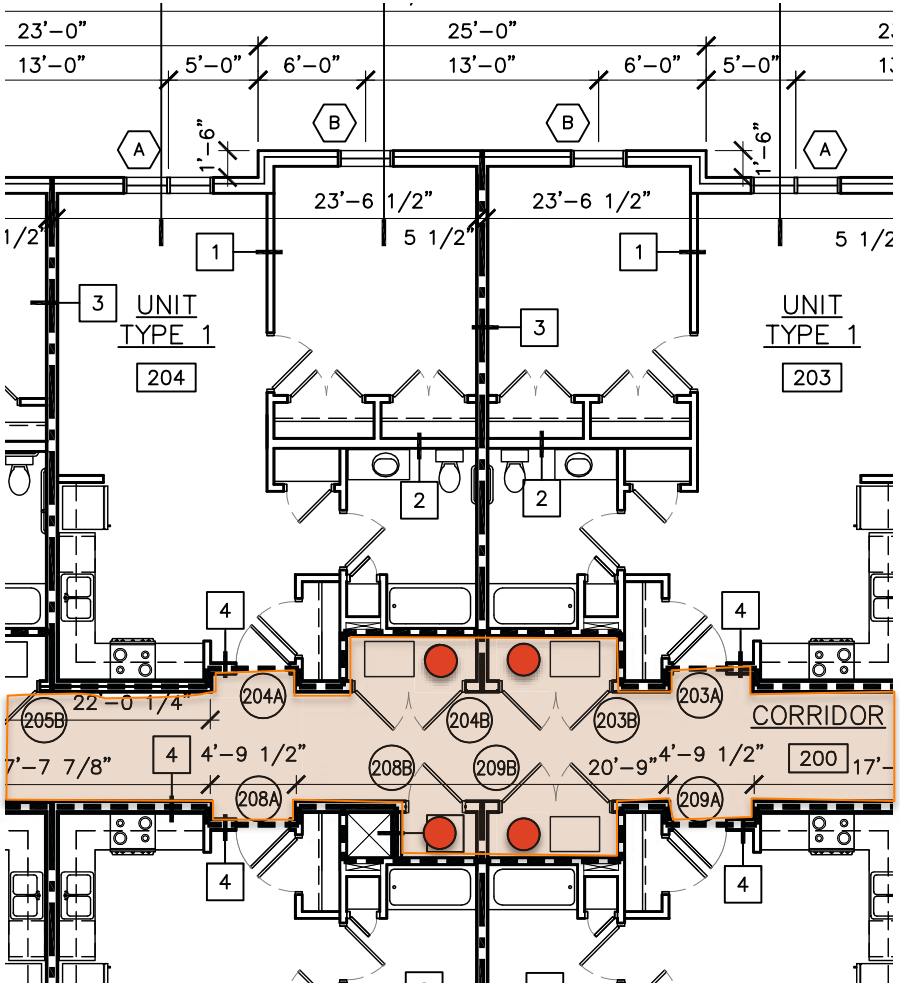
3RD FLOOR PLAN



1ST AND 2ND FLOOR PLAN

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*

STATE

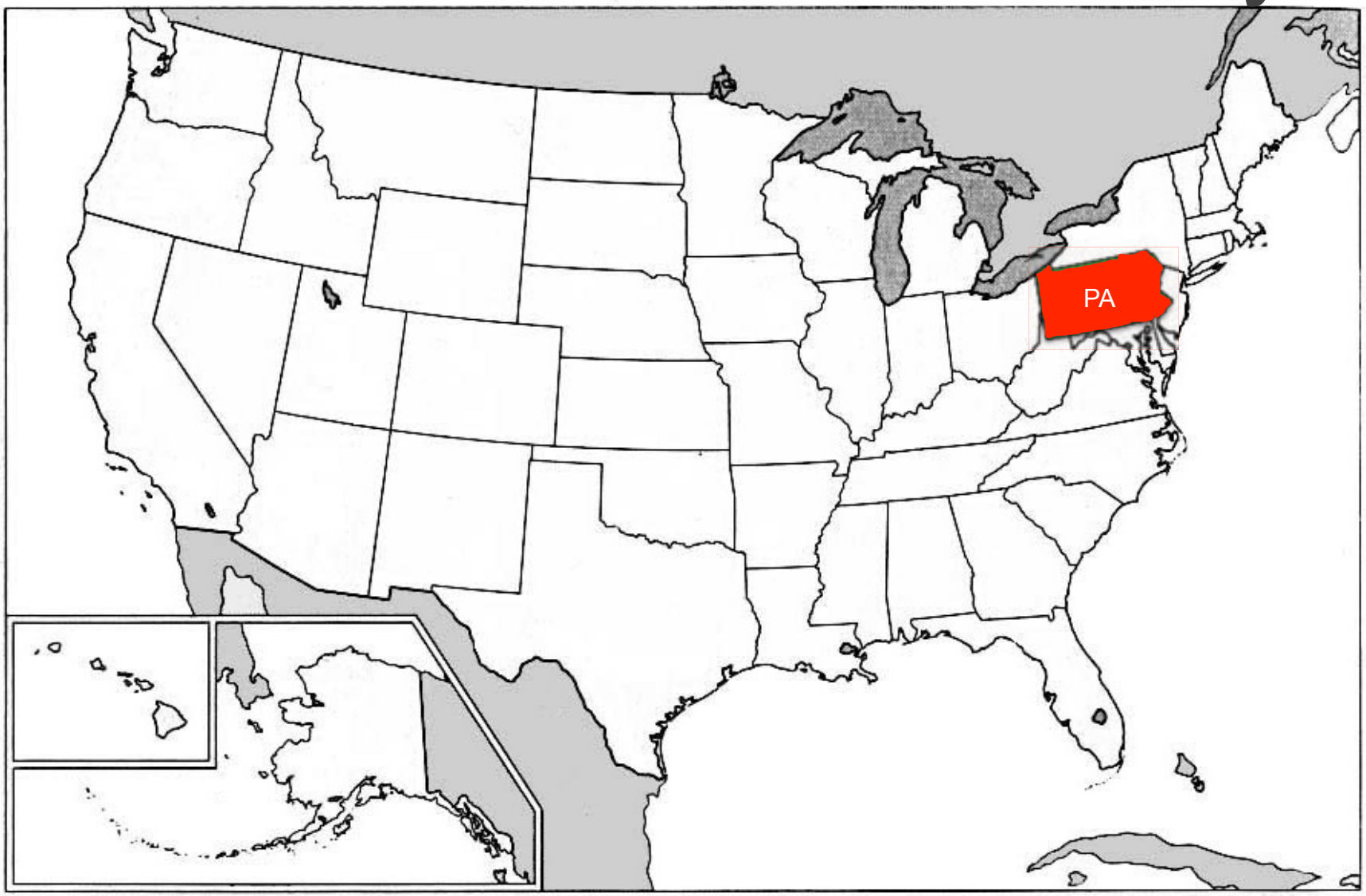
36 Housing Finance Agencies

Engaged by ARC to replicate PHFA strategy

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

PENNSYLVANIA



ARCHITECTURE
RESEARCH
CENTER

Net-Zero-Energy Affordable Housing by 2030

Philadelphia, PA

dwell

Super Green Affordable Housing Introduces Passive Design to the Masses

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

The Onion Flats rowhouses in Logan. The five-bedroom homes, which cost about $250,000 apiece to build, come with Bosch appliances and fine European windows. (ONION FLATS)

WRITTEN BY: HANNAH WALLACE MAY 3, 2015
ORIGINALLY PUBLISHED IN THE NEW AMERICAN HOME AS "PASSIVE ASSERTIVE"

Multifamily housing projects that meet Passive House standards are bringing European-style energy efficiency to a new demographic in the United States.

In North Philadelphia, the Belfield Avenue Townhomes were built to Passive House standards, making the project much more energy-efficient than a conventional building. It is one of several multifamily structures that are being built in cities across the country for moderate-income families.

Courtesy of Sam Oberter
Photo details

PITTSBURGH

Developers Get Aggressive With Passive House Design

By Donna Kimura

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

Date: Mar 31, 2015 Categories: General News

Pittsburgh, PA –

On February 26, ACTION 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 V.4 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 V.4 building, offering thermal performances up to R-3.8 or U-0.26 and SHGC<0.30 to meet Energy Star 30/30 requirements. And in the passive house certified building, the design team chose Alpen's 525-S Series windows which recently received PHIUS Certified Window Performance Data Certificates in February 2015.

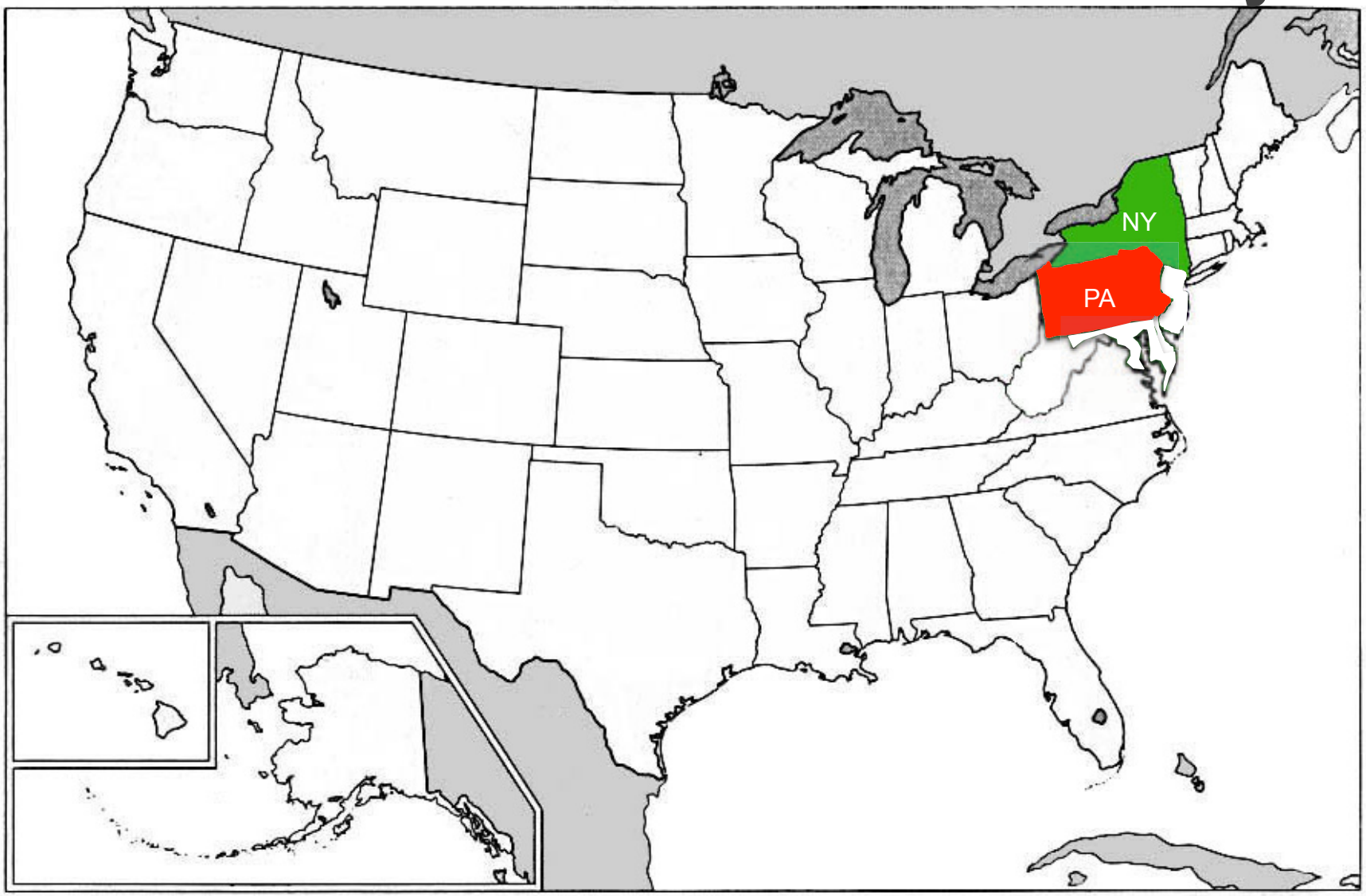
Alpen is pleased to report that we continue to receive notes of praise from the project design and construction teams, as well as people in the community and window manufacturing sector, who remark on the high quality and thermal efficiency our Alpen windows supplied to these precedent-setting projects. 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:

- ACTION-Housing
- FortyEighty Architects
- Kaplan-Thompson Architects
- Mosites Construction (three cheers for your incredible 'before-drywall' blower door test result <60 ACH-50!),

NEW YORK

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

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 minimizing heating and cooling loads through substantial insulation; the "passive" use of solar heat and internal heating sources, such as people and electrical equipment, to heat the building; solar shading to cool 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 also be supplied to living and working spaces, and stale air 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

803 Knickerbocker Avenue, Brooklyn
Architect: Chris Benedict, R.A.
Owner: Ridgewood Bushwick Senior Citizen's Council
General Contractor: Galaxy 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 airtight window air conditioning units for cooling. In addition, the building features triple-paned windows and a sculpted exterior that shade windows from the sun in the summer and maximize 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 Bushwick neighborhood of Brooklyn and was developed through HPD's Low Income Rental Program. Of the 24 units, six units will be rented to households earning up to 30 percent of Area Median Income (AMI), five units will be rented to households earning up to 50 percent of AMI, 12 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

The New York Times

REAL ESTATE

The Passive House in New York

By ALISON GREGOR MARCH 27, 2015

New York buildings adhering to passive-house principles include 803 Knickerbocker Avenue, Bushwick, Brooklyn.
Pablo Enriquez for 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 people who live in environments more temperate

NYC

REAL ESTATE

World's Tallest Passive House Breaks Ground on Roosevelt Island

By ALISON GREGOR JUNE 12, 2015

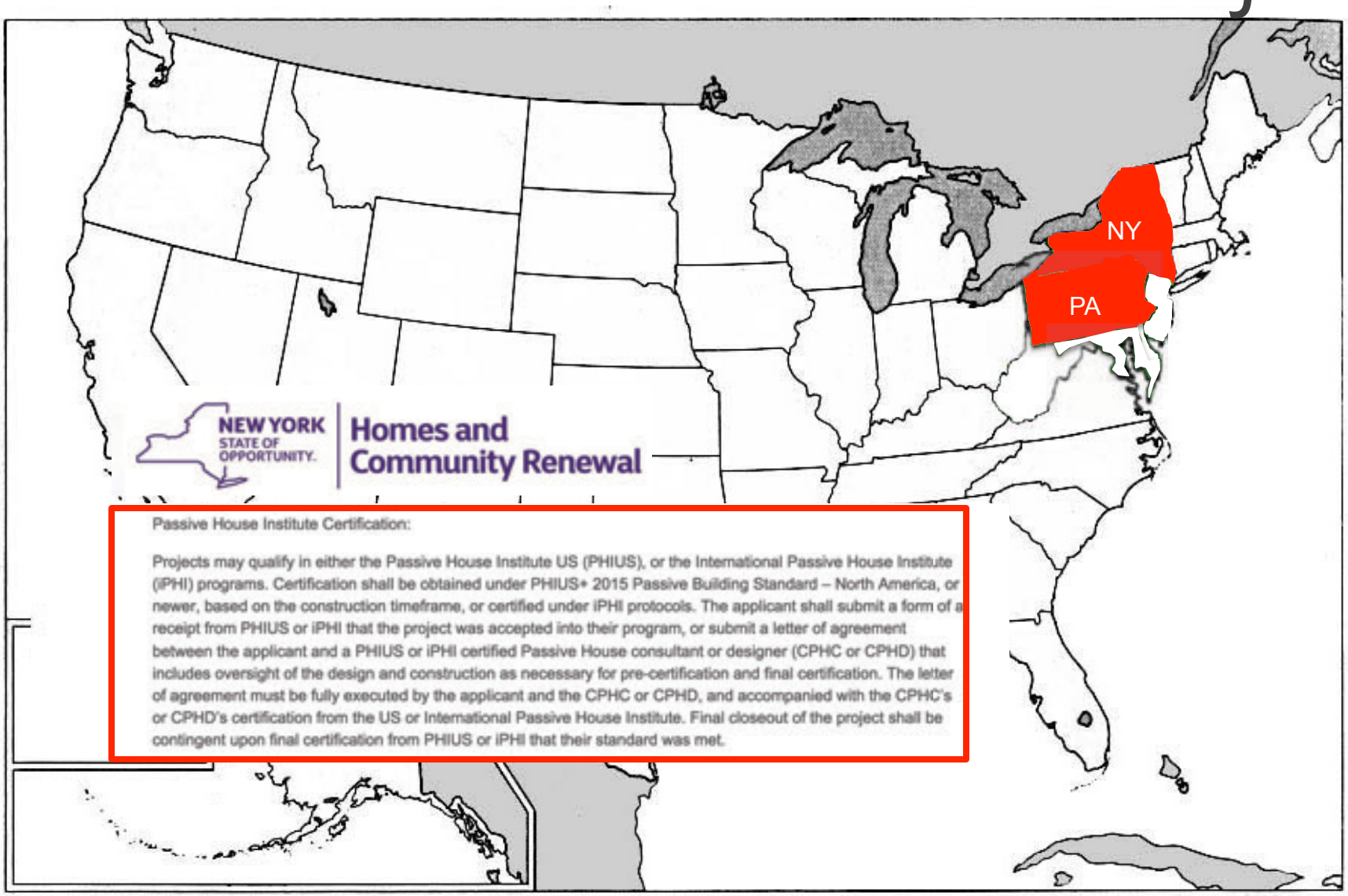
An apartment tower on Roosevelt Island that began construction this month will be the tallest passive-house high-rise in the world when it is completed in 2017, according to the Passive House Institute in Germany. And at about 270,000 square feet, it will also be the largest, said David Kramer, a principal 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. Ruth Fremson/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

White House Announces Passive House Initiative

President Obama has announced a comprehensive plan to bring renewable energy and energy efficiency to households across the U.S. Among the initiatives just announced is the establishment of a Passive House track by New York State Homes and Community Renewal (HCR)..."to encourage a significant increase in the energy efficiency of New York's affordable housing stock". The White House **press release** goes on to say:

"HCR intends to work closely with NYSERDA to monitor the ongoing energy use intensity of any Passive House projects that may be selected for funding under the RFP, in order to provide valuable data to the market to accelerate the trend toward construction of Passive House certified affordable multifamily buildings."

The HCR request for proposals can be found **here**. Passive House is referenced under the section "c. Optional Green Building Program Participation (5points)" starting on page 58, along with Enterprise Green Communities, LEED, and the National Green Building Standard. It states:

Passive House Institute Certification:

Projects may qualify in either the Passive House Institute US (PHIUS), or the International Passive House Institute (iPHI) programs. Certification shall be obtained under PHIUS+ 2015 Passive Building Standard – North America, or newer, based on the construction timeframe, or certified under iPHI protocols. The applicant shall submit a form of a receipt from PHIUS or iPHI that the project was accepted into their program, or submit a letter of agreement between the applicant and a PHIUS or iPHI certified Passive House consultant or designer (CPHC or CPHD) that includes oversight of the design and construction as necessary for pre-certification and final certification. The letter of agreement must be fully executed by the applicant and the CPHC or CPHD, and accompanied with the CPHC's or CPHD's certification from the US or International Passive House Institute. Final closeout of the project shall be contingent upon final certification from PHIUS or iPHI that their standard was met.

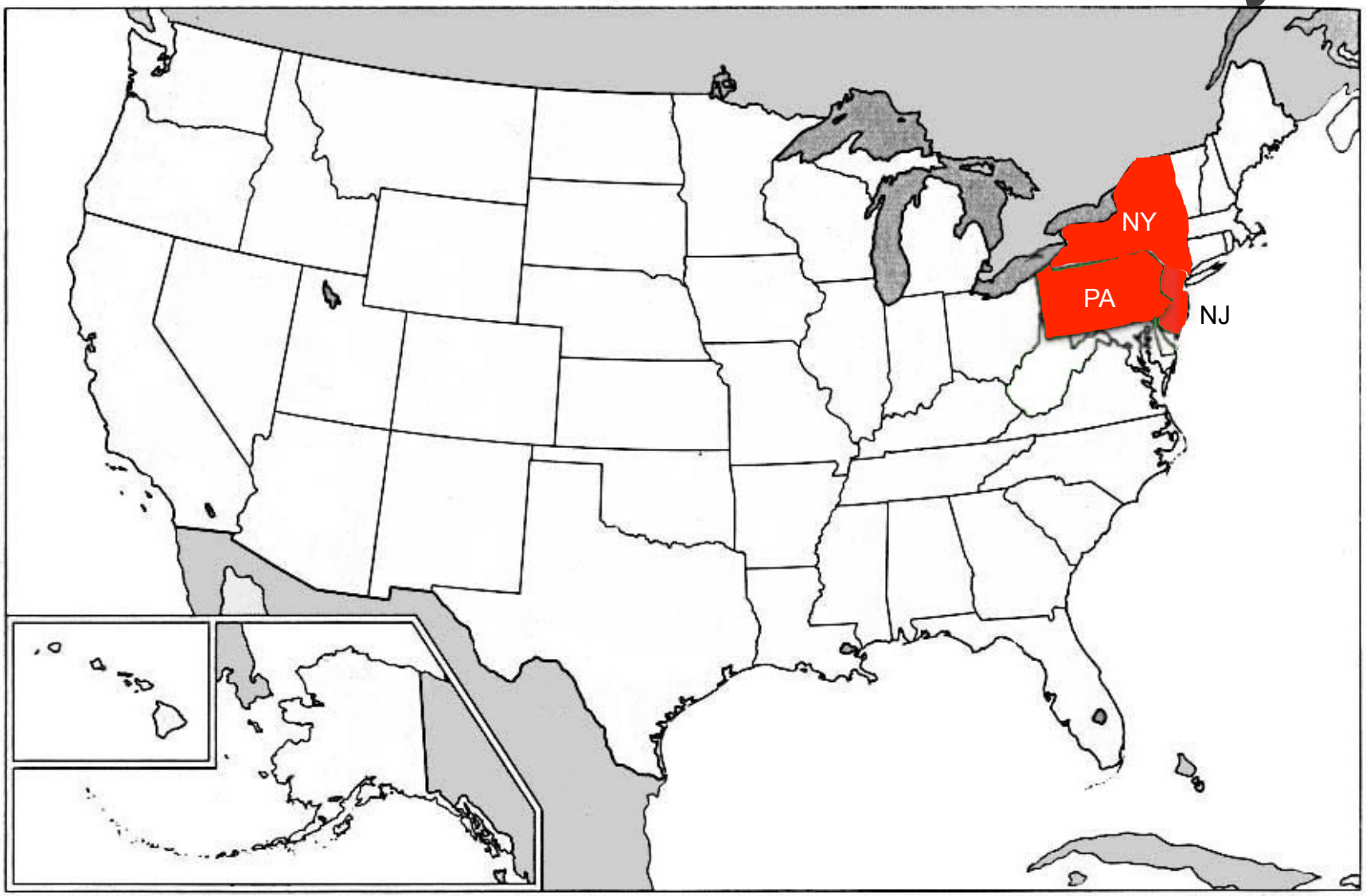
ARCHITECTURE
RESEARCH
CENTER

Office of the Governor, Homes and Community Renewal

COMMITTED!!!!

NEW JERSEY

THE PHFA PROJECT



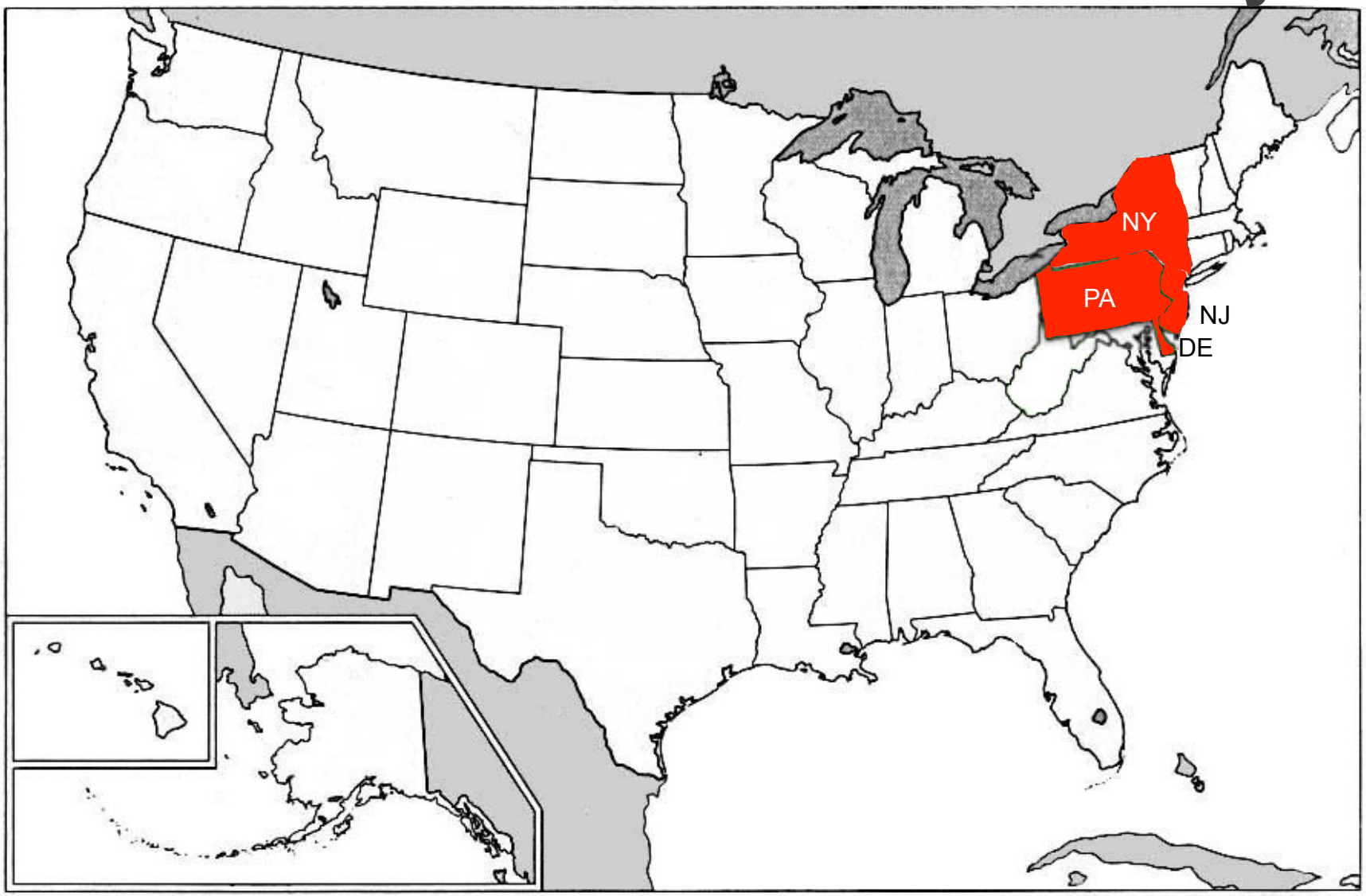
ARCHITECTURE
RESEARCH
CENTER

State of New Jersey Housing and Mortgage Finance Agency

COMMITTED. Updated QAP in Fall 2015

DELAWARE

THE PHFA PROJECT



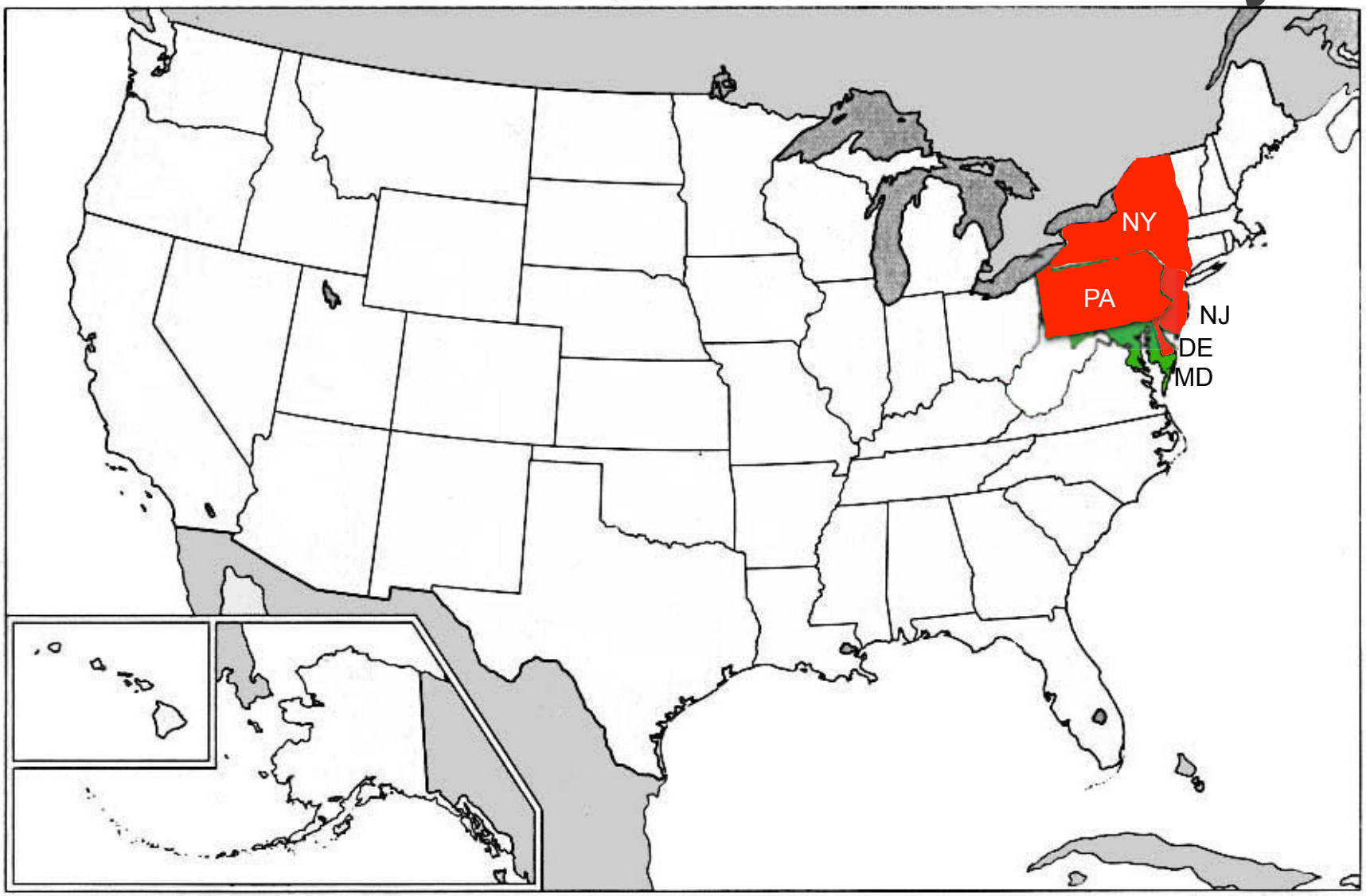
ARCHITECTURE
RESEARCH
CENTER

Delaware State Housing Authority

COMMITTED. Updated QAP in Fall but not signed by Governor

THE PHFA PROJECT

MARYLAND



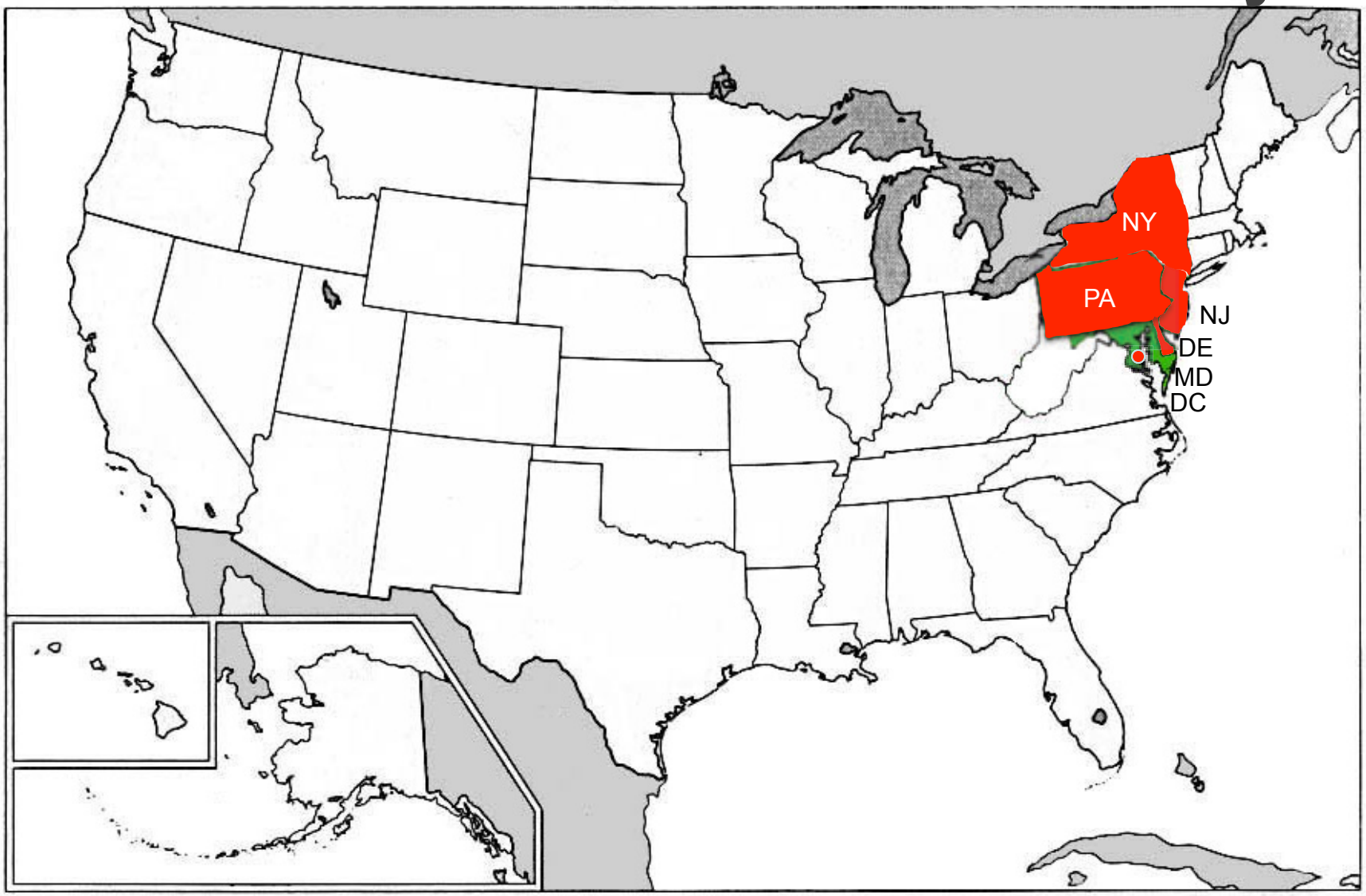
ARCHITECTURE
RESEARCH
CENTER

Maryland Dept. of Housing and Community Development

QAP comments submitted

THE PHFA PROJECT

DISTRICT OF COLUMBIA



ARCHITECTURE
RESEARCH
CENTER

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

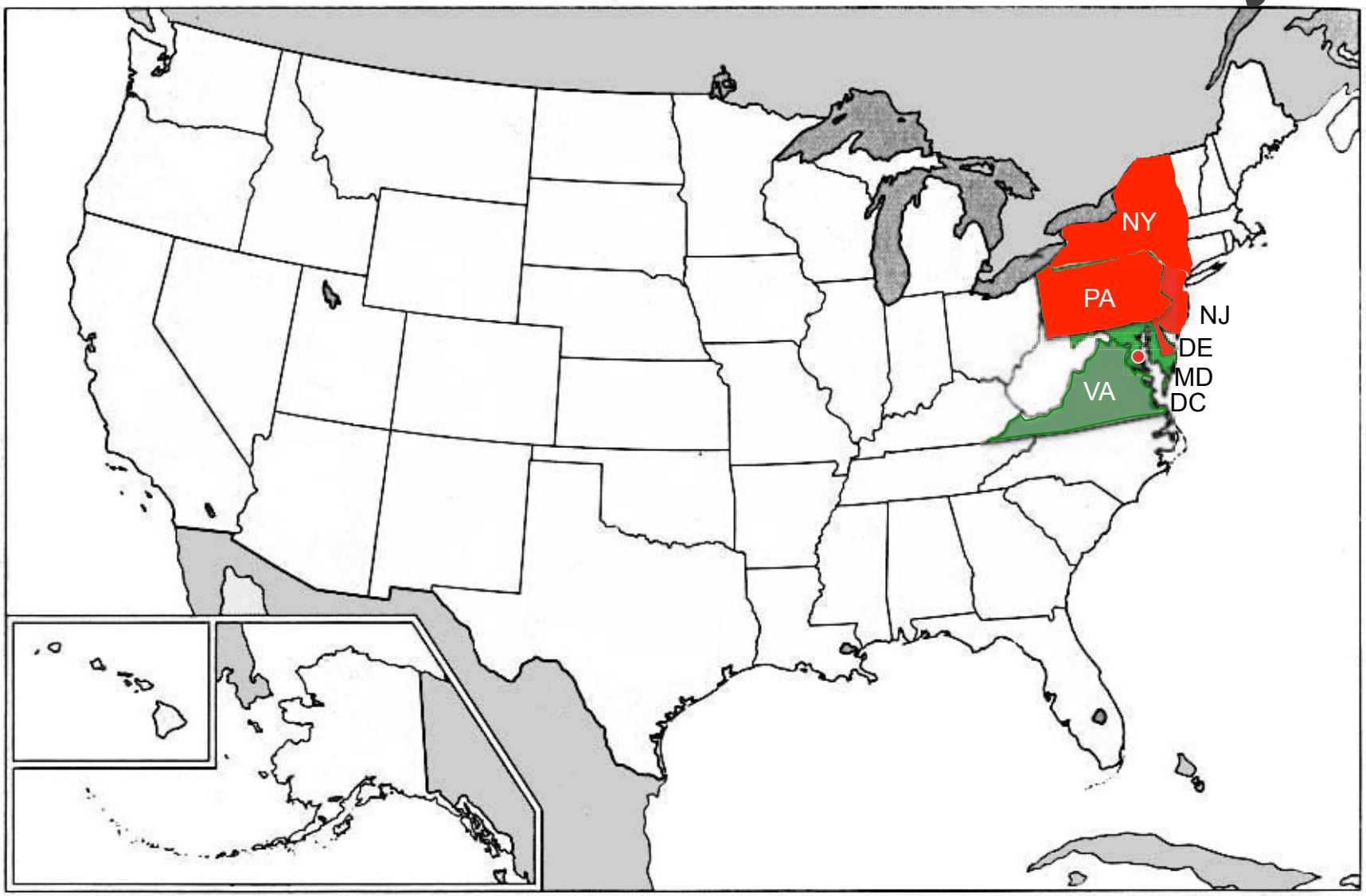
NEW YORK, Nov. 20, 2014-Two years after New School students designed and built an affordable, energy-efficient home for low-income families in Washington, D.C., three leaders of the project will be honored at Habitat For Humanity of Washington D.C.'s Raising The Roof celebration fundraiser on Thursday,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

The event at Union Station, 40 Massachusetts Ave. NE will honor **Sheila 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 Deanwood, a neighborhood of Washington, D.C.

THE PHFA PROJECT

VIRGINIA



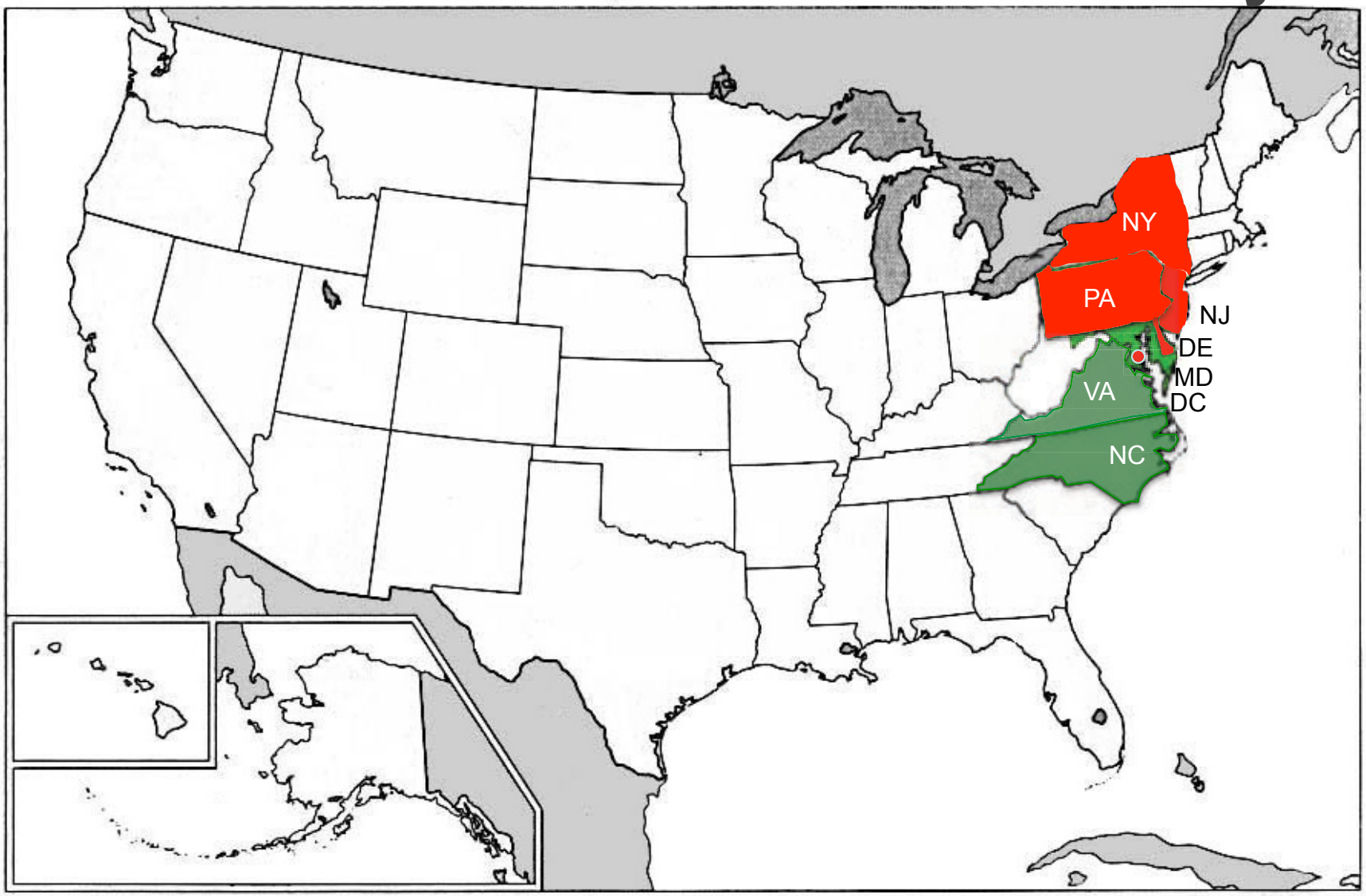
ARCHITECTURE
RESEARCH
CENTER

Virginia Housing Development Association

EARTHCRAFT; not updating QAP in 2016; continuing pursuit

NORTH CAROLINA

THE PHFA PROJECT



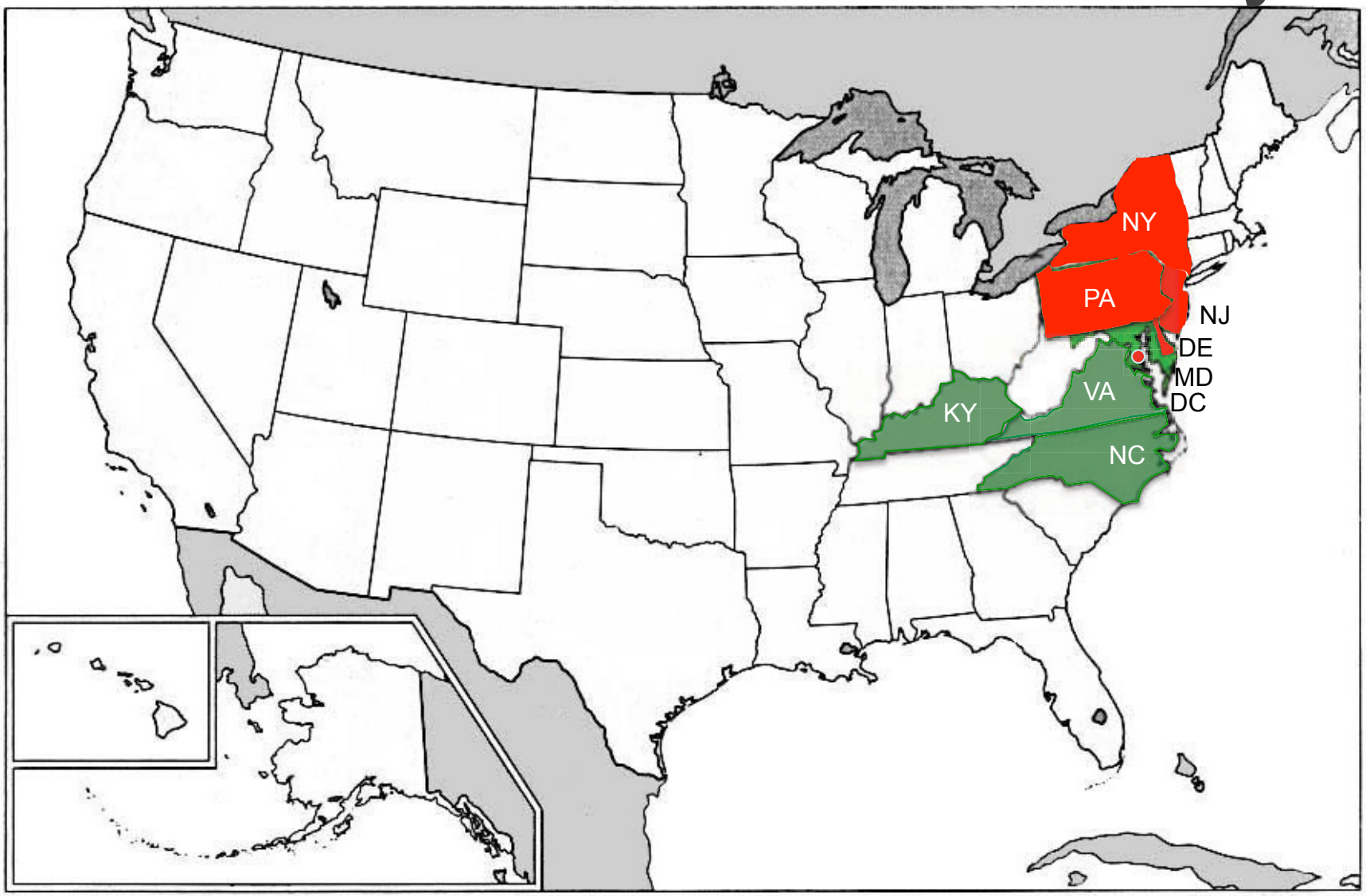
ARCHITECTURE
RESEARCH
CENTER

North Carolina Housing Finance Agency

"…developers not interested in energy efficiency…."

KENTUCKY

THE PHFA PROJECT



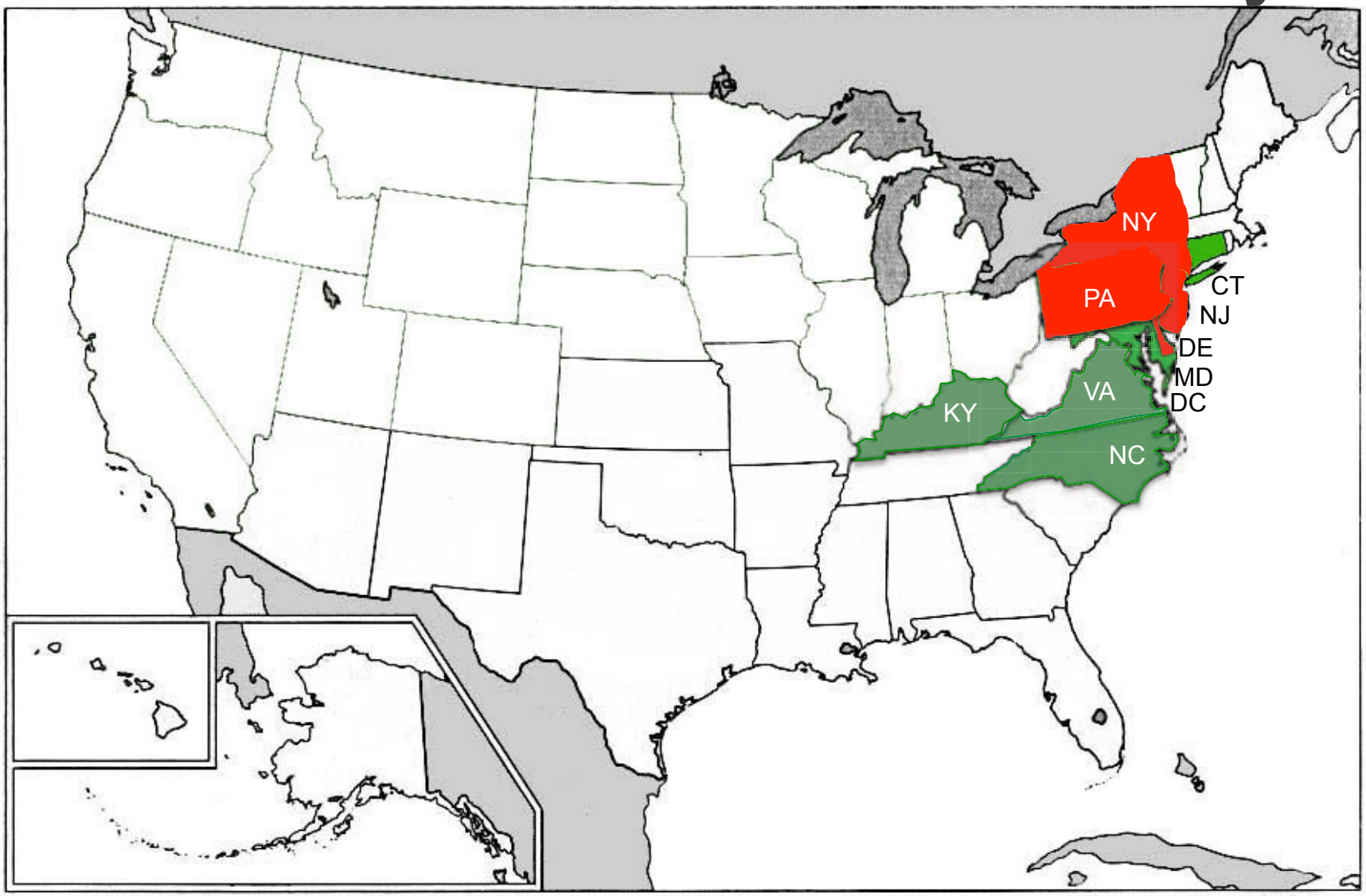
ARCHITECTURE
RESEARCH
CENTER

Kentucky Housing Corporation

VERY INTERESTED: Webinar November 12

CONNECTICUT

THE PHFA PROJECT



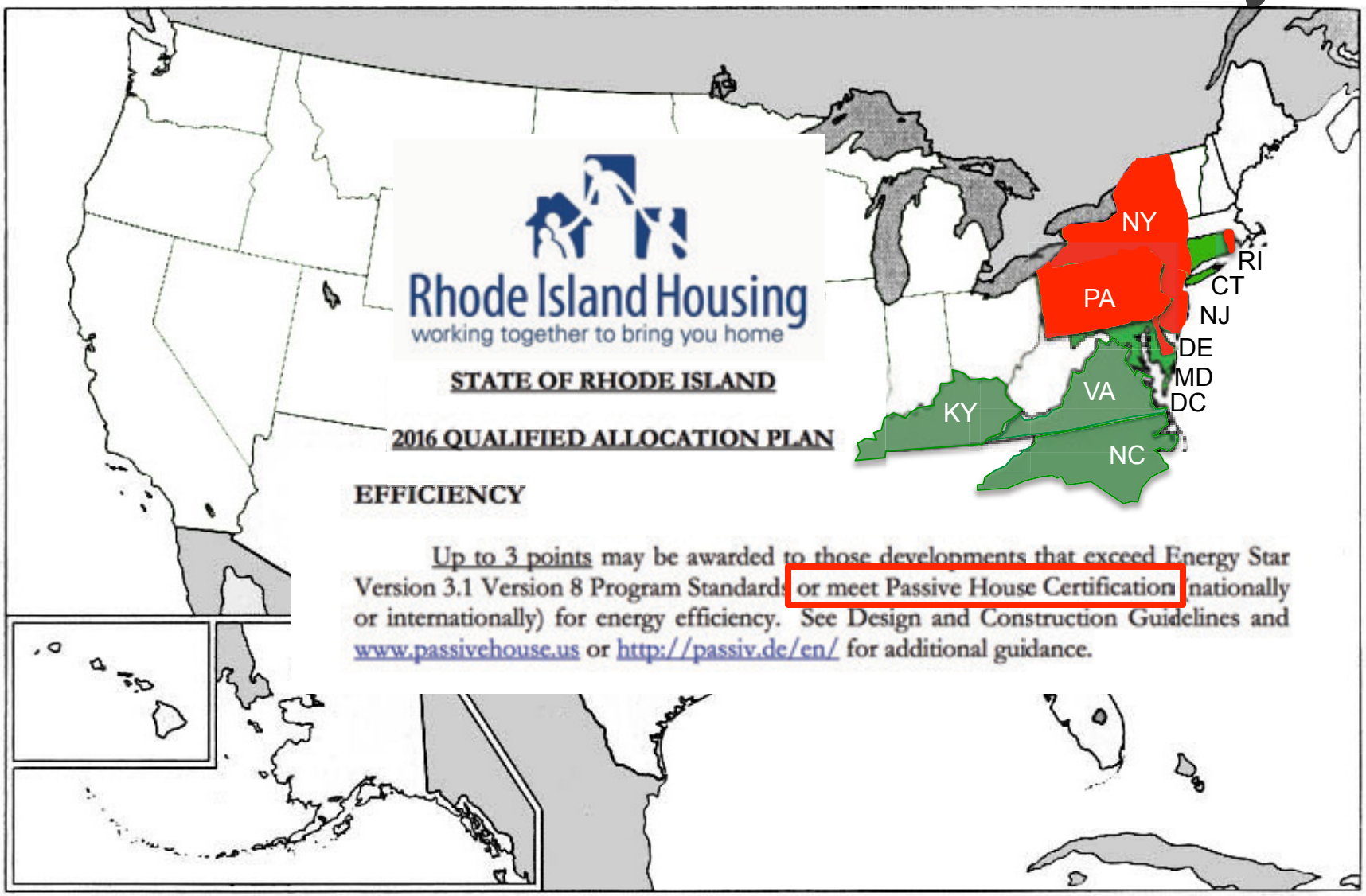
ARCHITECTURE
RESEARCH
CENTER

Connecticut Housing Finance Authority

VERY INTERESTED; 2017 QAP, Presentation on Nov 4

RHODE ISLAND

THE PHFA PROJECT

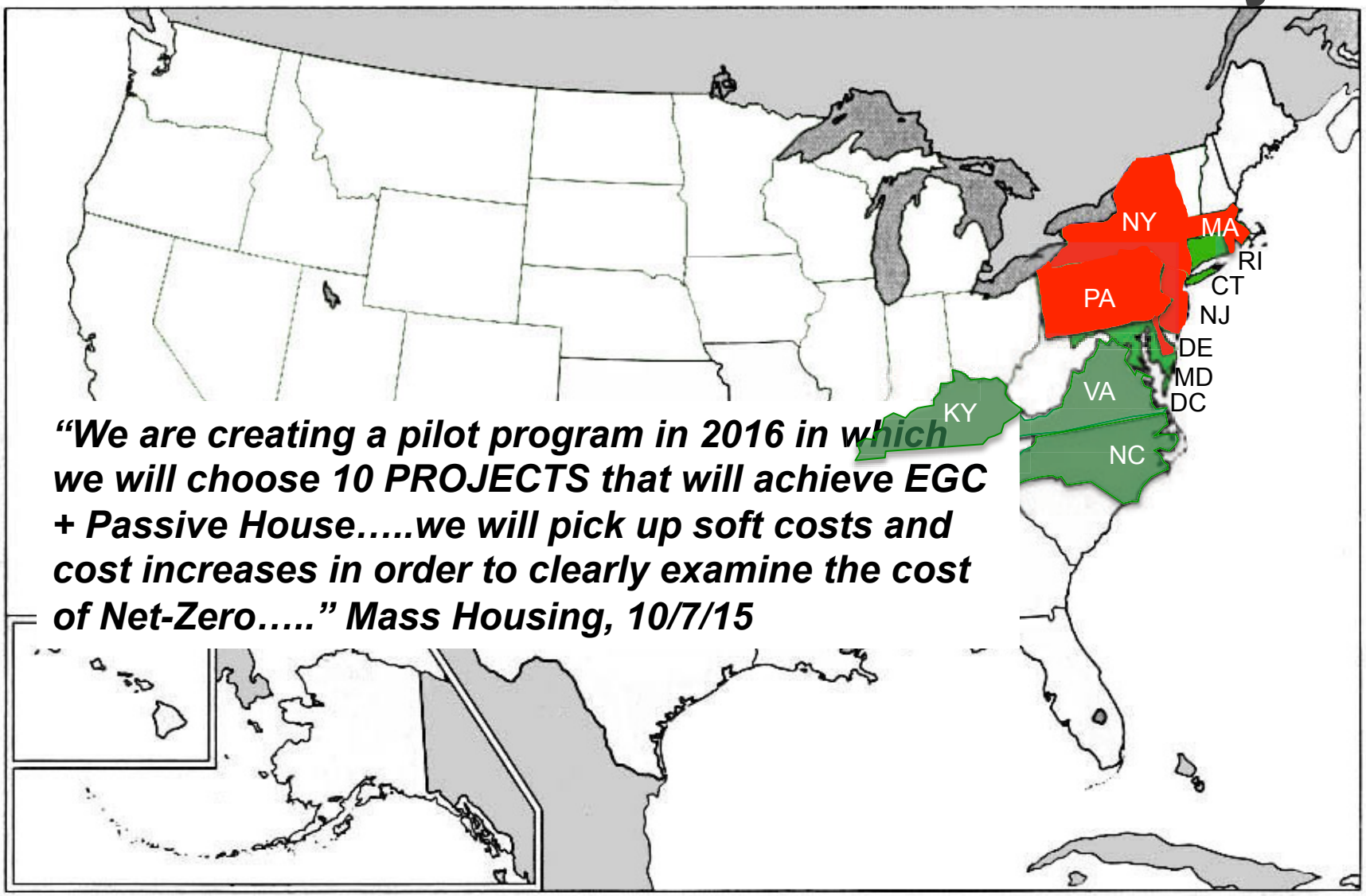


ARCHITECTURE
RESEARCH
CENTER

Rhode Island Housing
COMMITTED!!!!

MASSACHUSETTS

THE PHFA PROJECT



"We are creating a pilot program in 2016 in which we will choose 10 PROJECTS that will achieve EGC + Passive House…..we will pick up soft costs and cost increases in order to clearly examine the cost of Net-Zero….." Mass Housing, 10/7/15

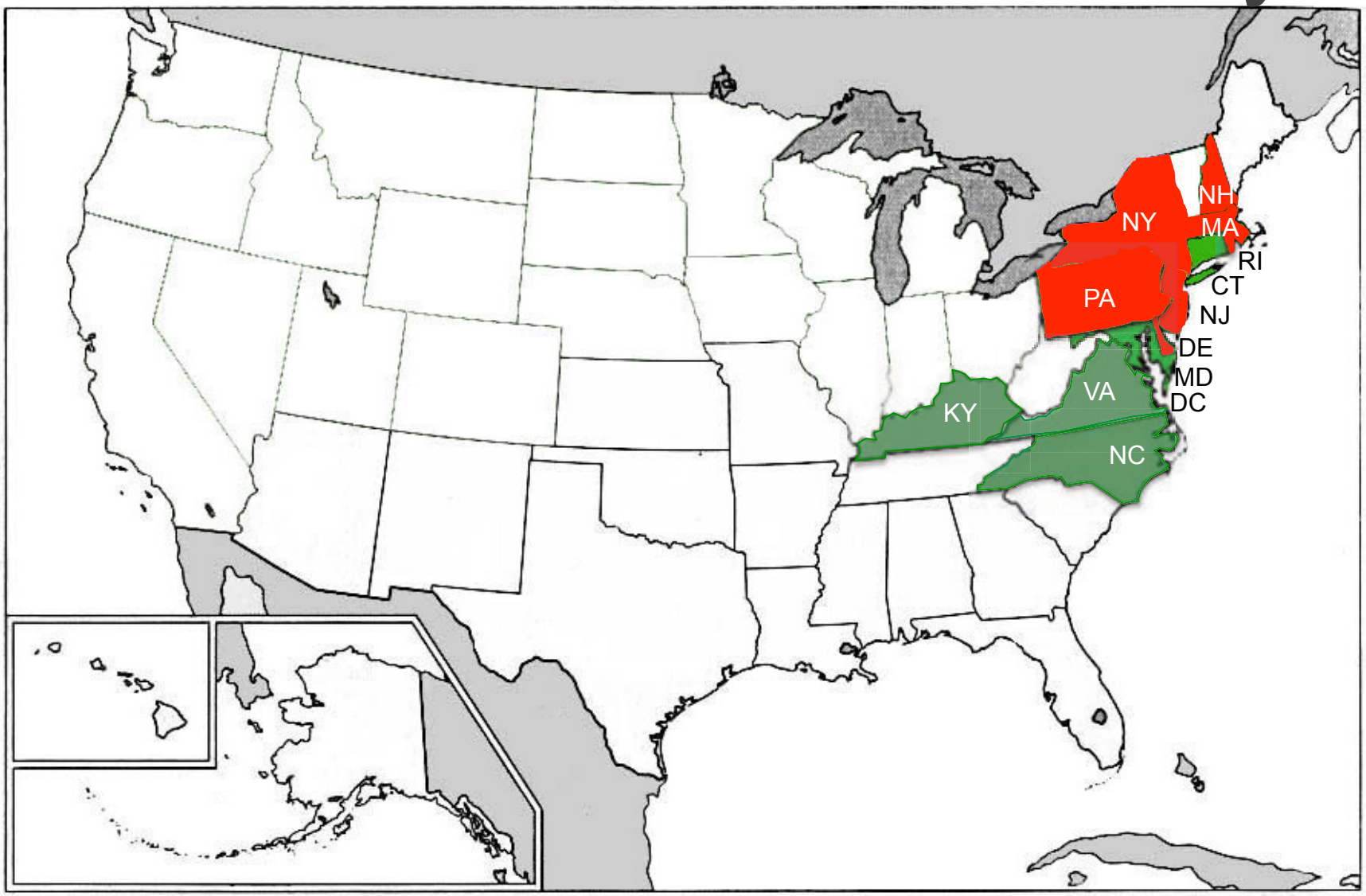
ARCHITECTURE
RESEARCH
CENTER

Executive Office of Housing and Economic Development

COMMITTED: Pilot program in 2016

THE PHFA PROJECT

NEW HAMPSHIRE



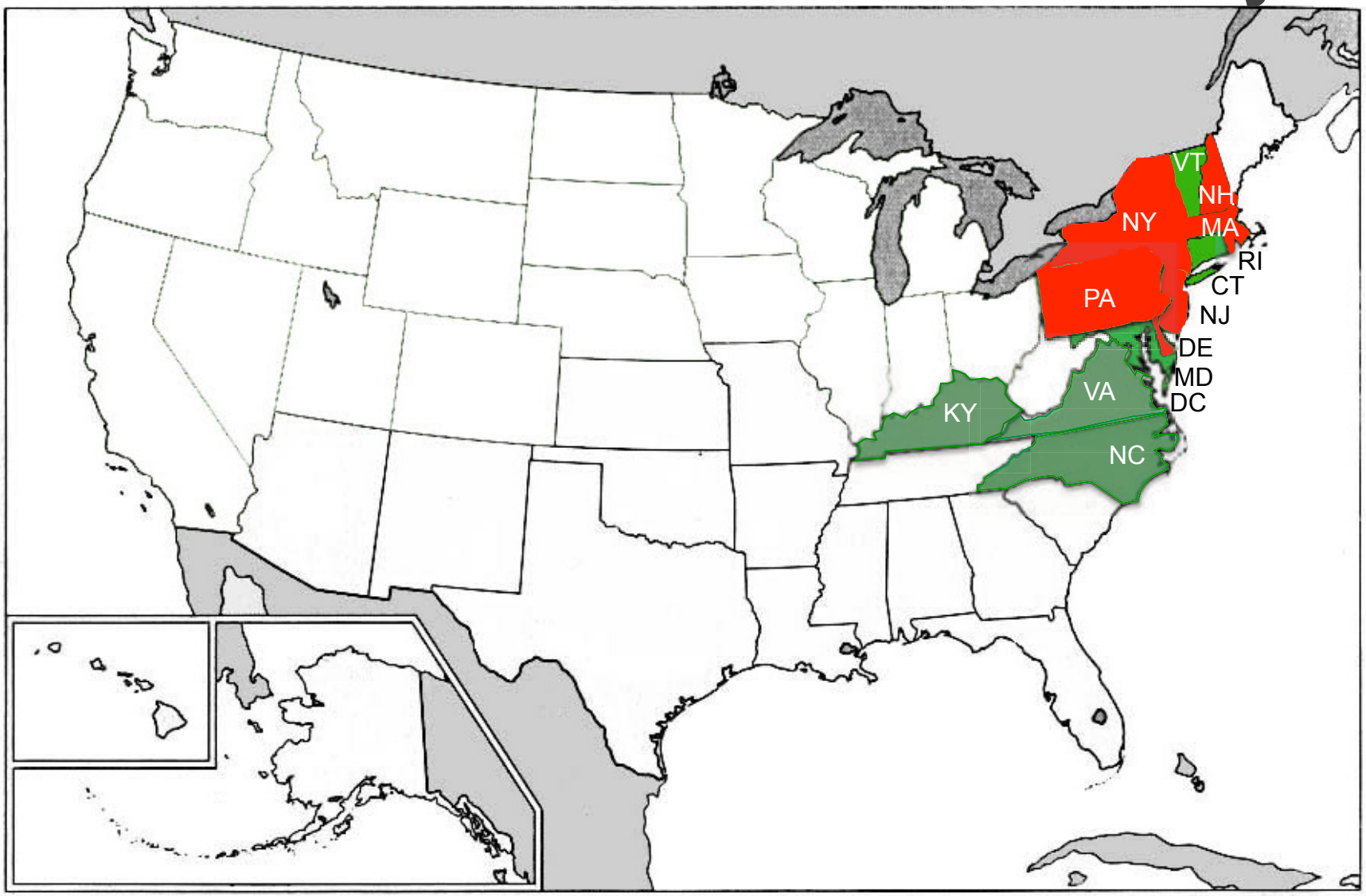
ARCHITECTURE
RESEARCH
CENTER

New Hampshire Housing Finance Authority

COMMITTED: CPHC in Dept!! Introducing PH into QAP in 2016

VERMONT

THE PHFA PROJECT



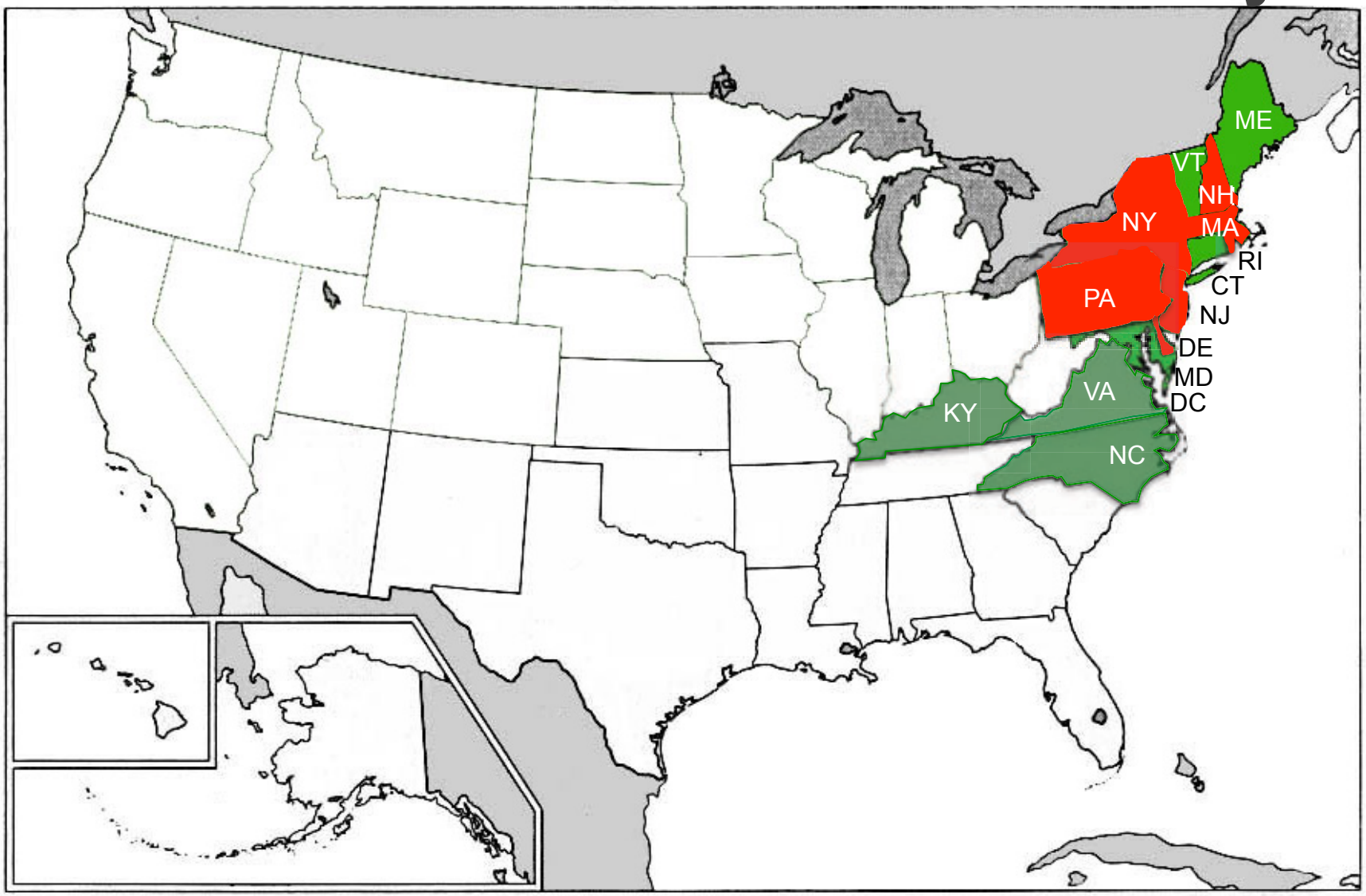
ARCHITECTURE
RESEARCH
CENTER

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.

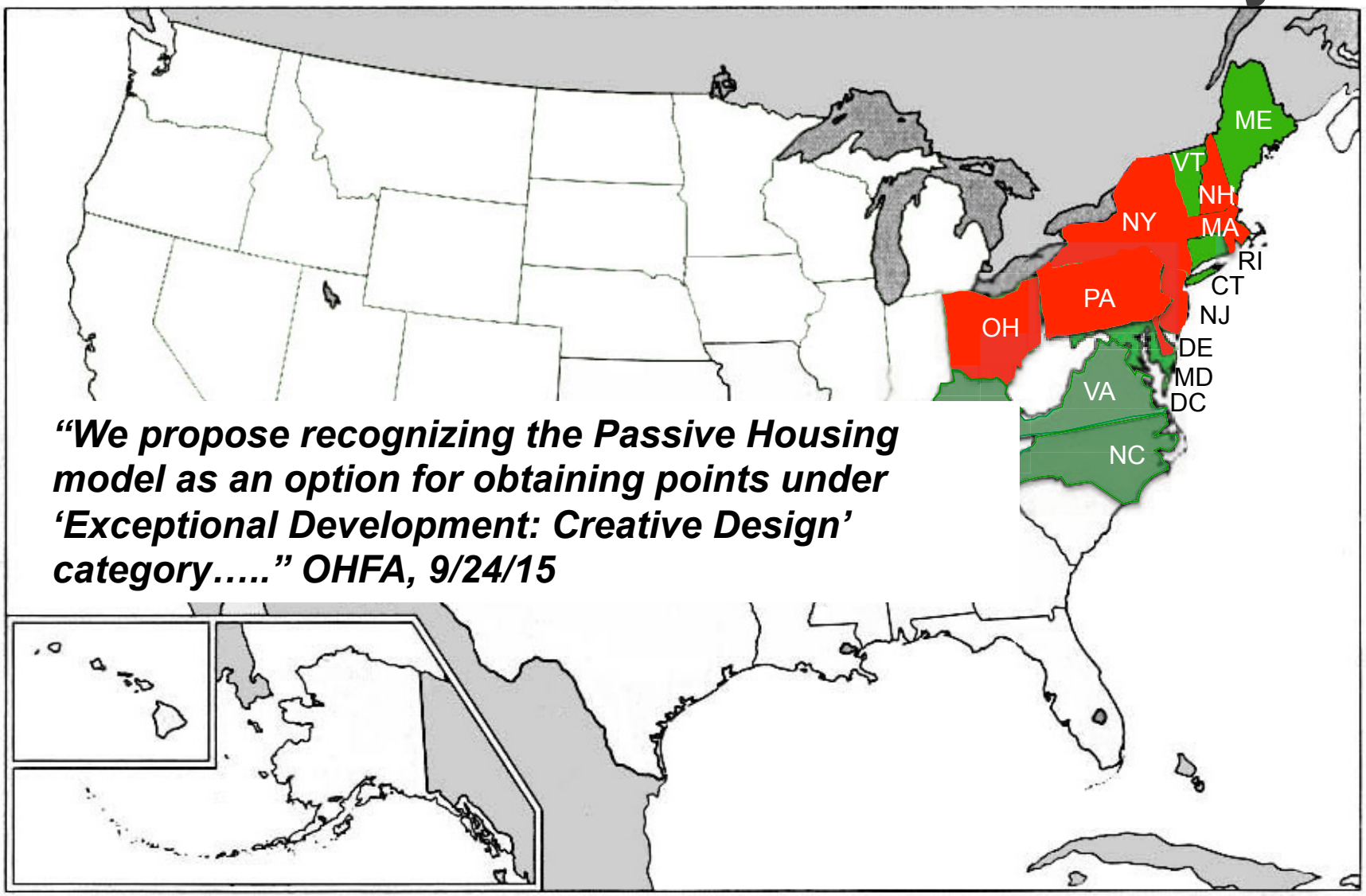
BREWER, Maine — Construction began Wednesday on what's expected to be one of the largest passive housing projects in the United States.

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

THE PHFA PROJECT

OHIO



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

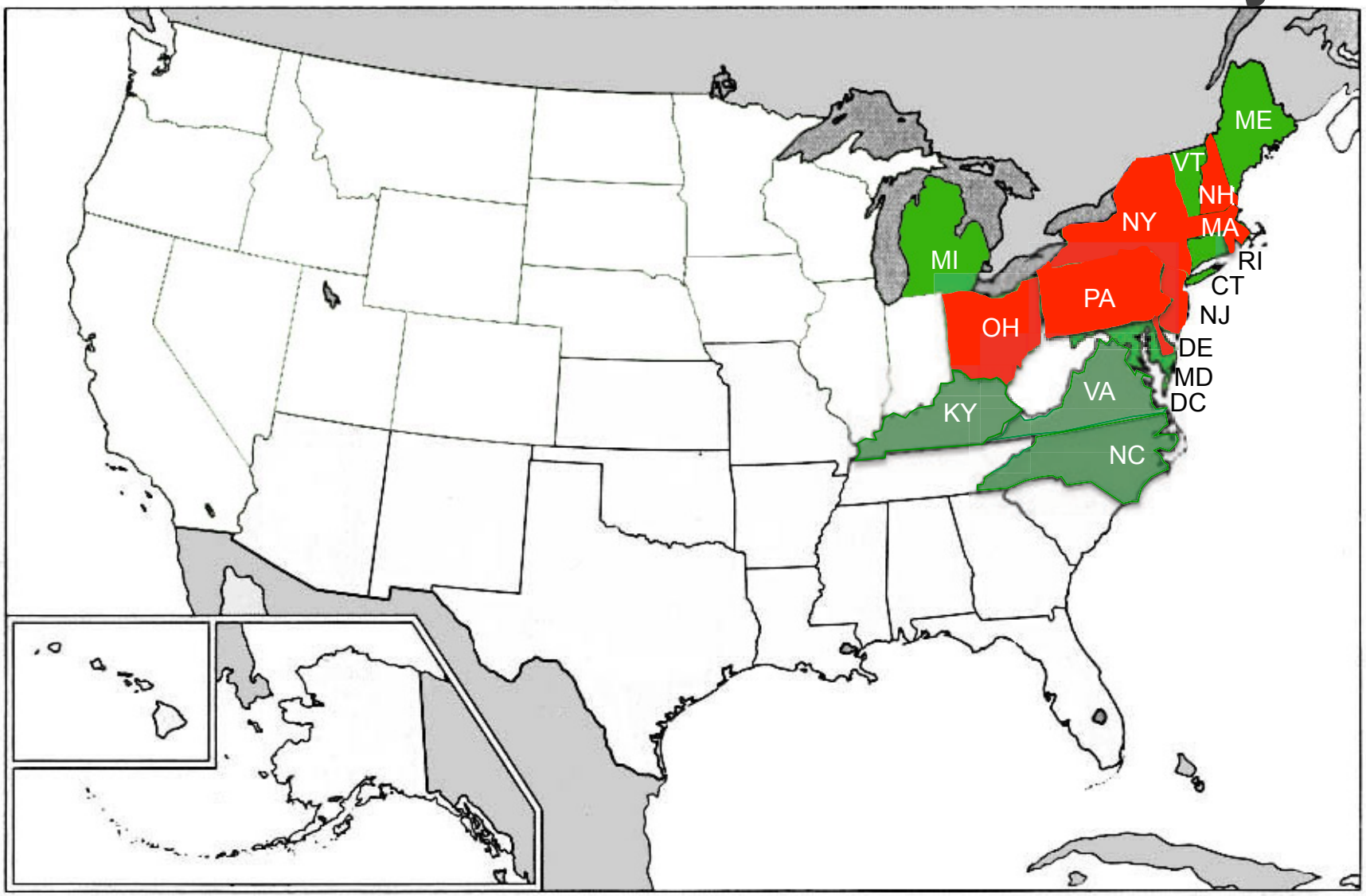
ARCHITECTURE
RESEARCH
CENTER

Ohio Housing Finance Agency

Introducing PH into "Creative Design" points

THE PHFA PROJECT

MICHIGAN



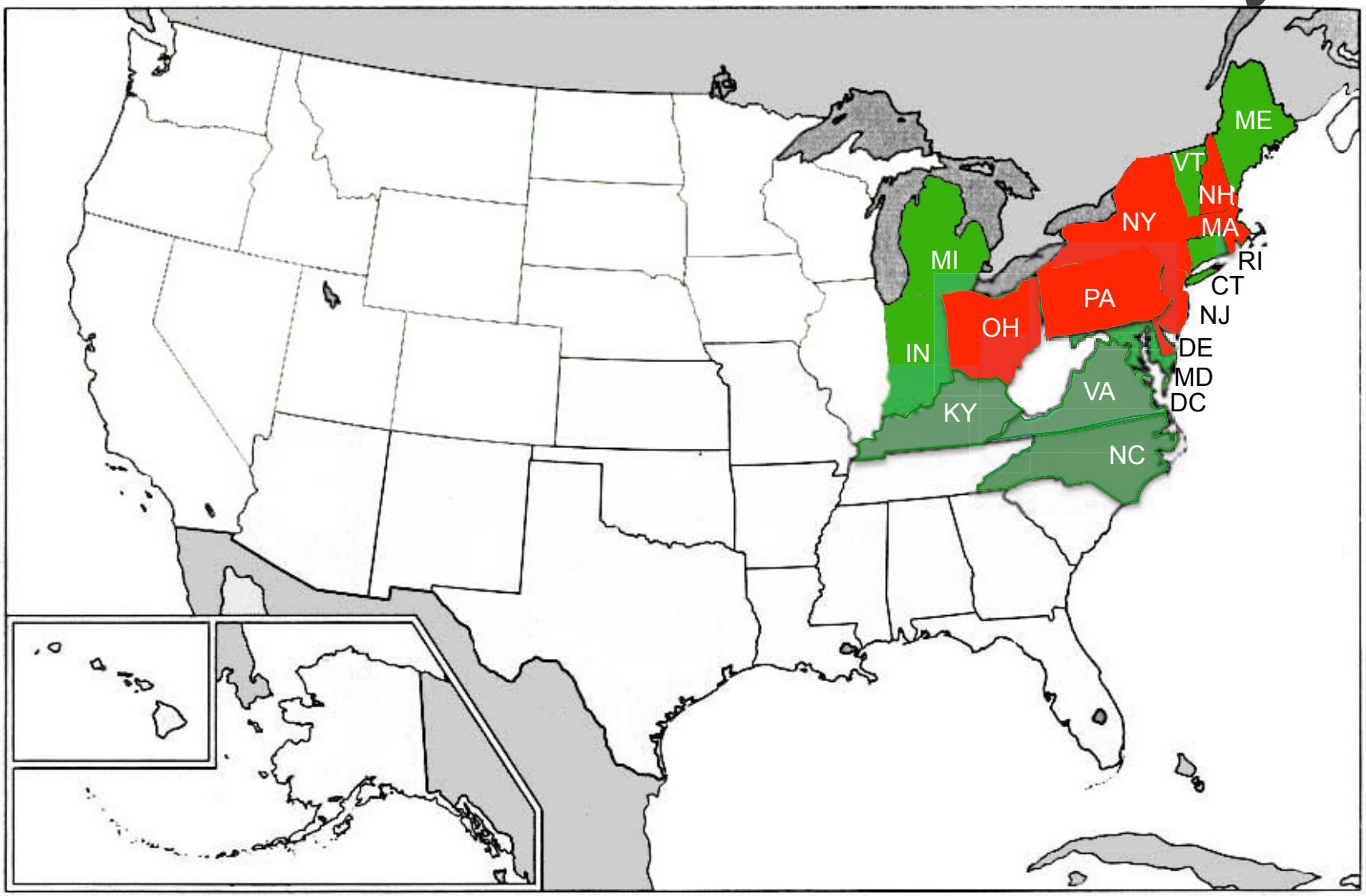
ARCHITECTURE
RESEARCH
CENTER

Michigan State Housing Development Authority

Updating QAP in Spring, PH is "included in discussions"

THE PHFA PROJECT

INDIANA



ARCHITECTURE
RESEARCH
CENTER

Indiana Housing & Community Development Authority

PH in "Innovation Round": Working with Energy consultant

THE PHFA PROJECT

ILLINOIS

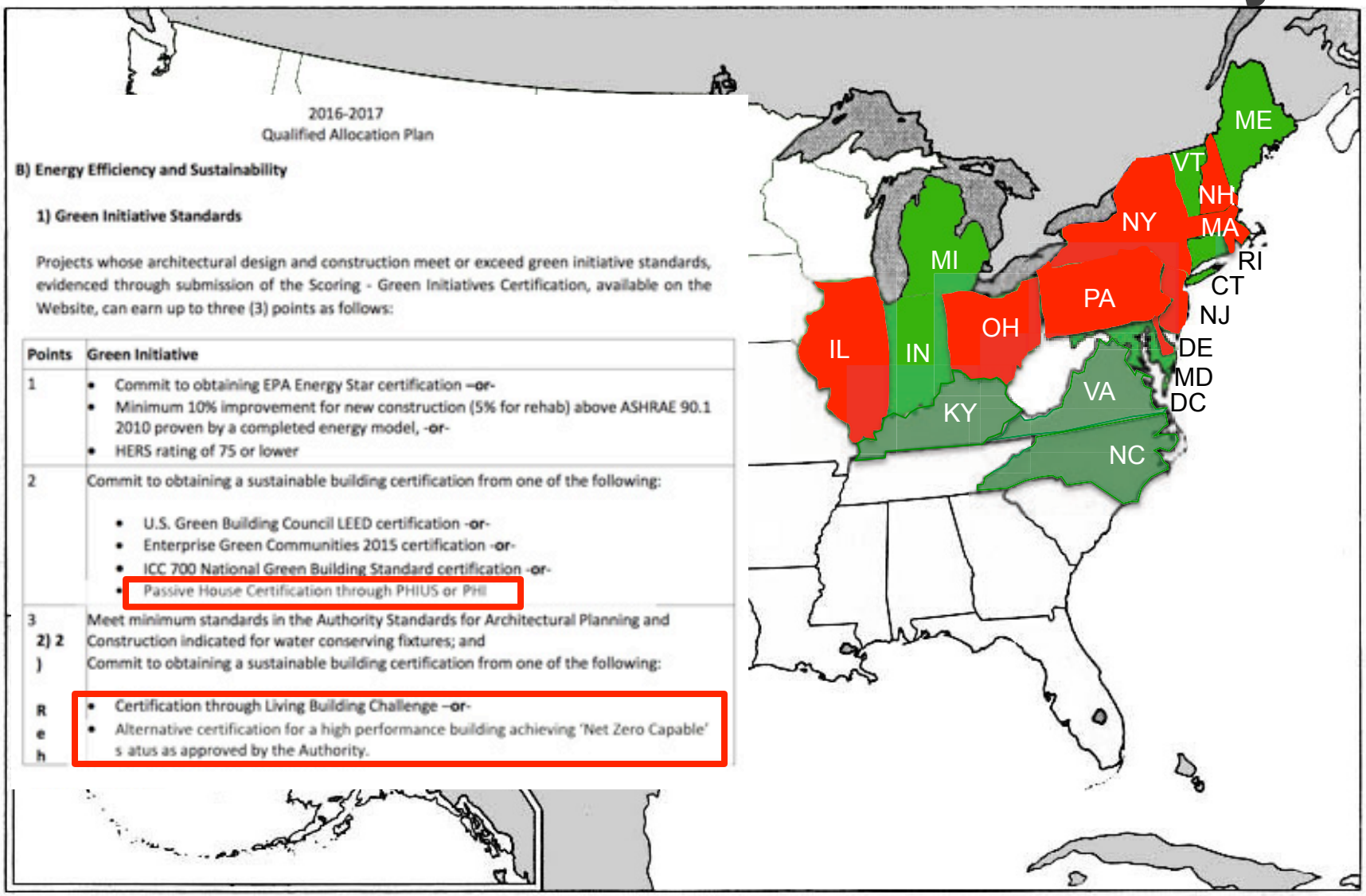
2016-2017
Qualified Allocation Plan

B) 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 75 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 2015 certification **-or-** • ICC 700 National Green Building Standard certification **-or-** • Passive House Certification through PHIUS or PHI
3 2) 2) R e h	Meet minimum standards in the Authority Standards for Architectural Planning and Construction indicated for water conserving fixtures; and Commit to obtaining a sustainable building certification from one of the following: • Certification through Living Building Challenge **–or-** • Alternative certification for a high performance building achieving 'Net Zero Capable' s atus as approved by the Authority.



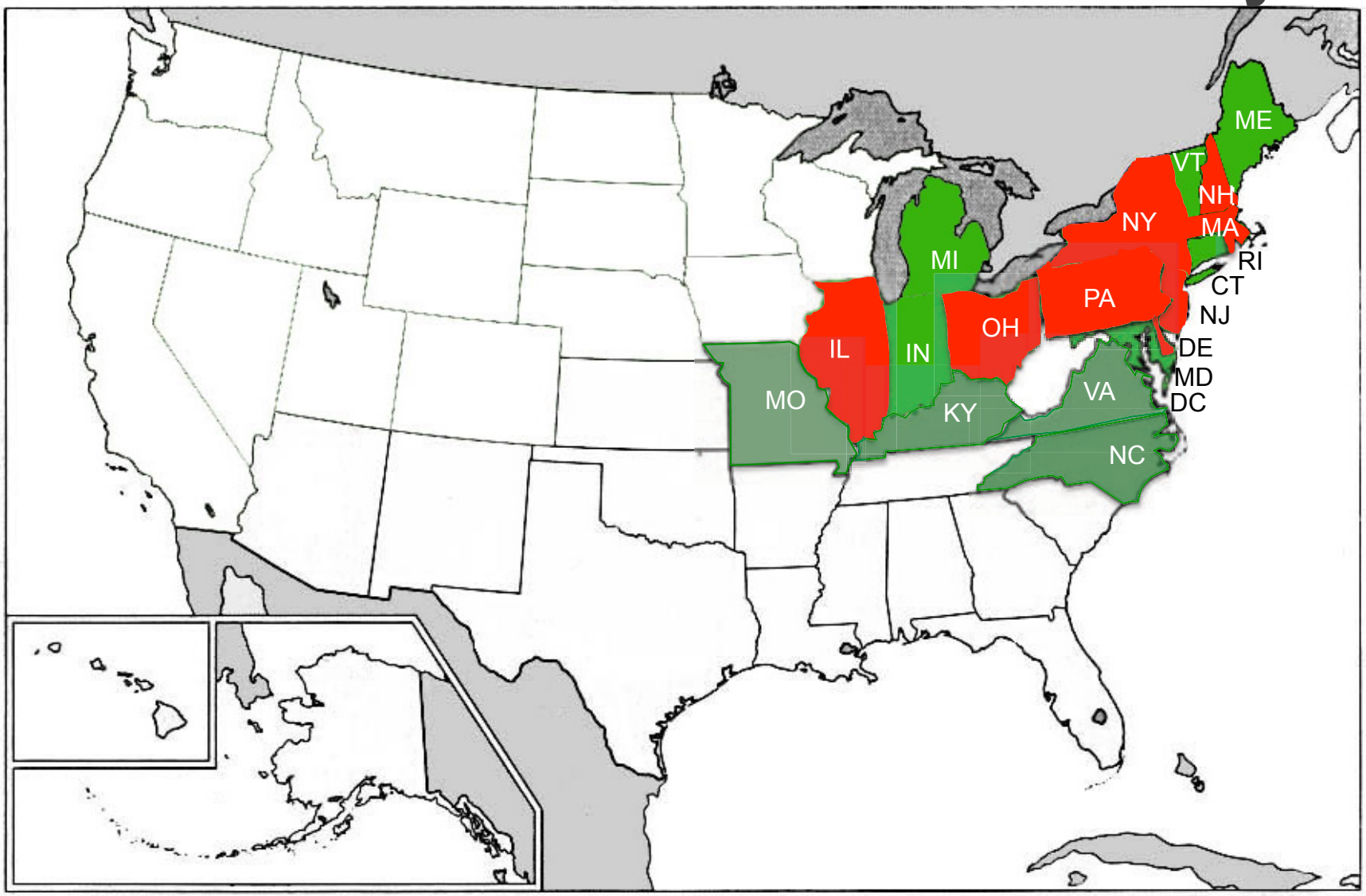
ARCHITECTURE
RESEARCH
CENTER

Illinois Housing Development Authority

Committed!!! PH built into 2016 QAP

MISSOURI

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Largest PH multi-family housing project in country underway

Kansas City, MI

Green Building Advisor

The Complete Source for Building, Designing, and Remodeling Green Homes

Passivhaus Apartment Complex Would be a Giant

0 Helpful?

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.

Image 1 of 2

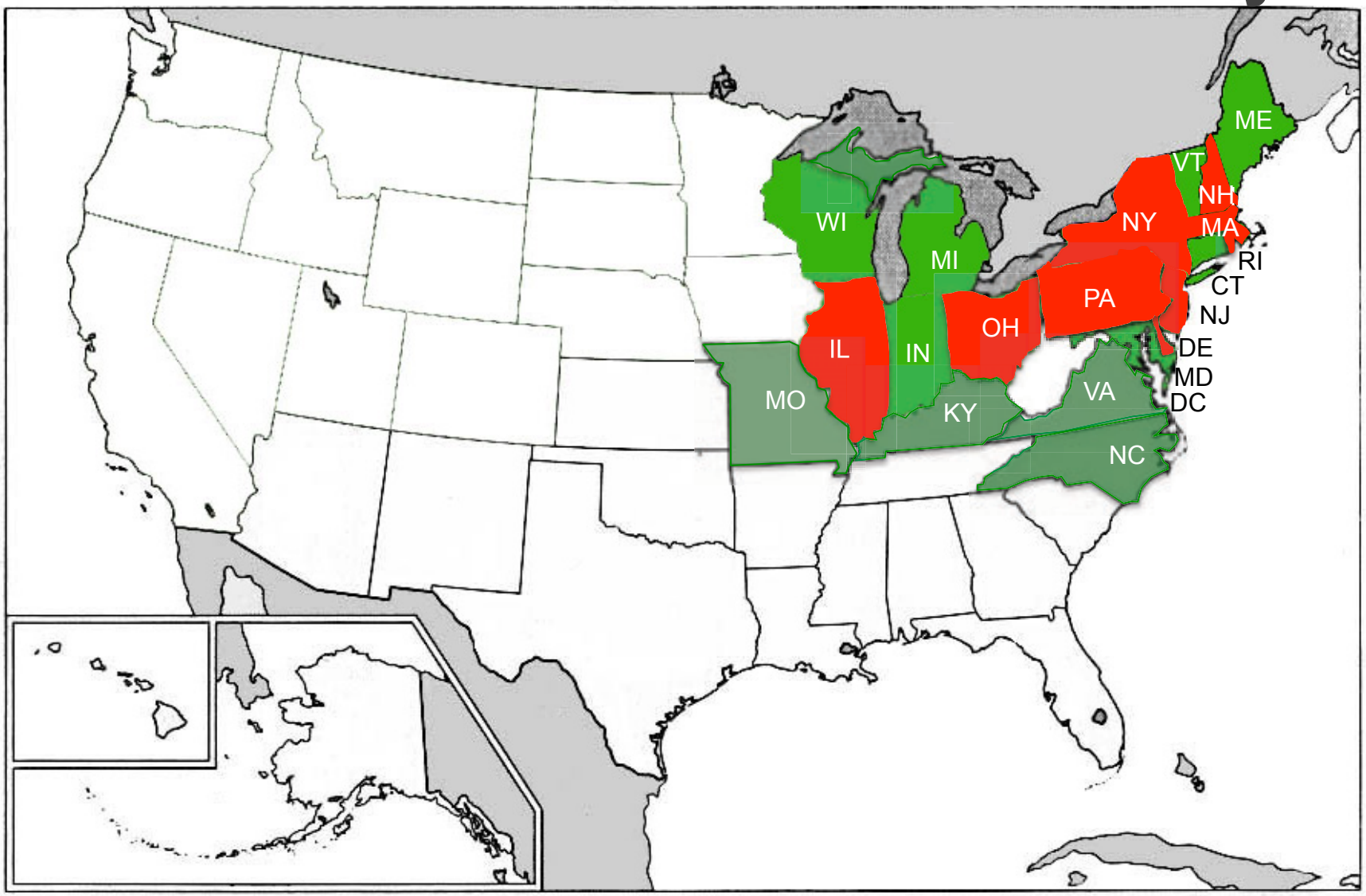
This illustration shows a proposed 276-unit apartment complex in Kansas City. Once built and certified, it would become the largest Passivhaus building in the country. Developers hope to open the doors to tenants in 2017.

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.

WISCONSIN

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Wisconsin Housing and Economic Development Authority

New QAP in June 2017, working with team on PH info

THE PHFA PROJECT

WISCONSIN

STATISTICS

37,500 GSF
4 STORIES

60 STUDIO UNITS (325NSF)
- SUPPORTIVE HOUSING SERVING THE FORMERLY HOMELESS OR THOSE AT RISK OF HOMELESSNESS
- SINGLE OCCUPANT UNITS

HEARTLAND ALLIANCE HOUSING

4% Premium for Passive House

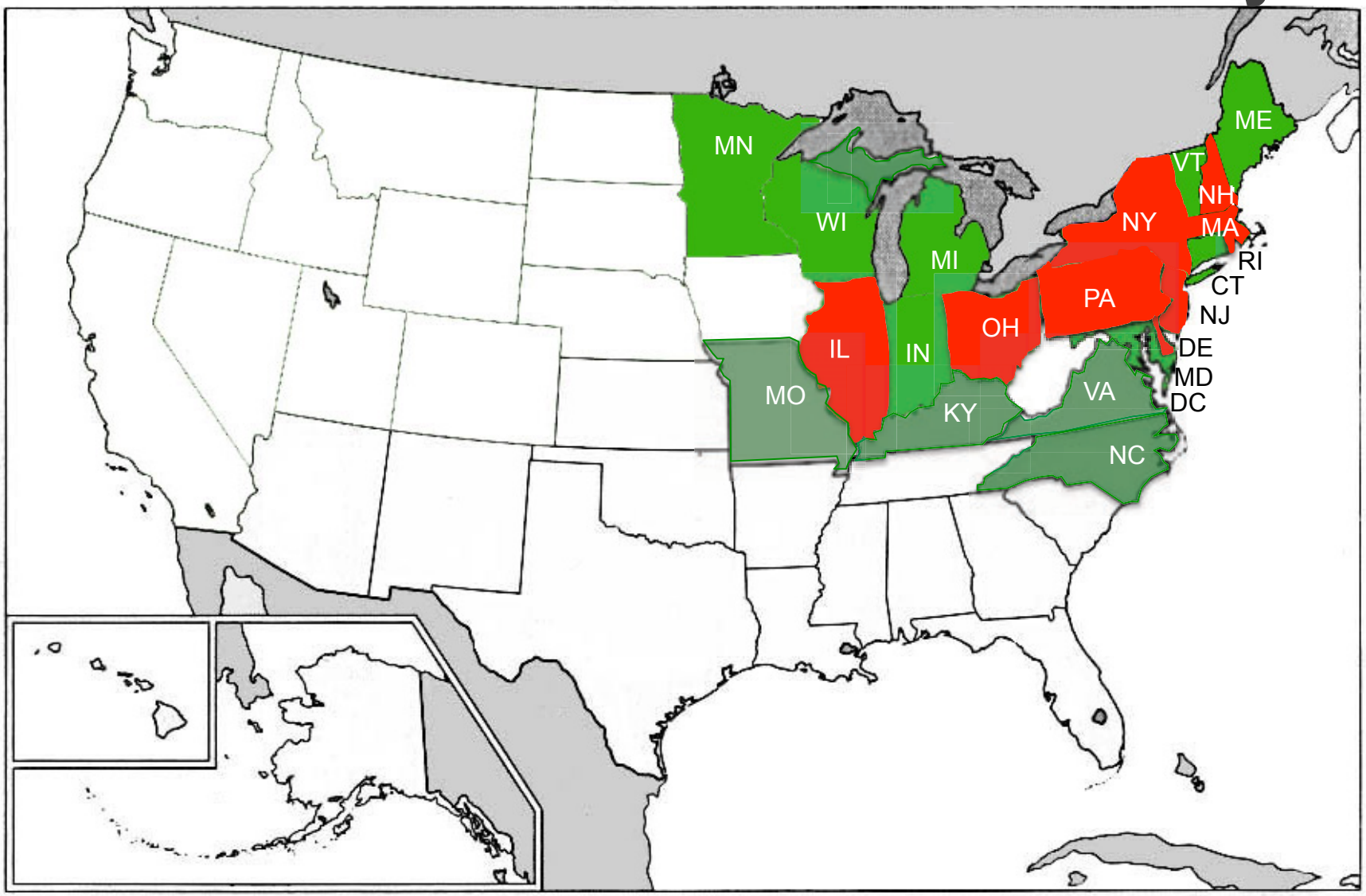
ARCHITECTURE RESEARCH CENTER

Wisconsin Housing and Economic Development Authority

Heartland Housing project in Madison; New QAP in June 2017

MINNESOTA

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

Minnesota Housing Finance Agency

QAP discussions informed by large PH projects

MINNESOTA

The Rose

Home / News / Sustainable: Aeon building ultra-efficient affordable apartments

Gina Ciganik, Aeon's vice president of housing development, stands on the construction site of The Rose, an affordable apartment development at 1920 Portland Ave. S. in Minneapolis. "It is poor people in poor communities who are most in need of healthy great places to live because they have such limited options," Ciganik said. (Staff photo: Bill Klotz)

Sustainable: Aeon building ultra-efficient affordable apartments

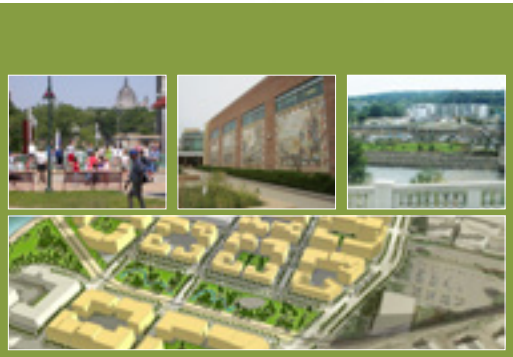
By: Frank Jossi February 2, 2015 1:40 pm 0

A new four-level apartment building under construction in south Minneapolis is considered one of the largest projects in the country designed to meet the rigorous building certification tool called "The Living Building Challenge."

The Seattle-based International Living Future Institute sponsors the Living Building Challenge, which has been called "LEED on steroids," a reference to Leadership in Energy and Environmental Design certification program developed by the U.S. Green Building Council of Washington, D.C.

THE PHFA PROJECT

MINNESOTA, St. Paul



West Side Flats

MASTER PLAN & DEVELOPMENT GUIDELINES

DRAFT FOR PUBLIC REVIEW

DECEMBER 5, 2014

ARCHITECTURE RESEARCH CENTER

St. Paul Planning and Economic Development

Committed!!!! Two large projects built to PH in West Side Flats

THE PHFA PROJECT

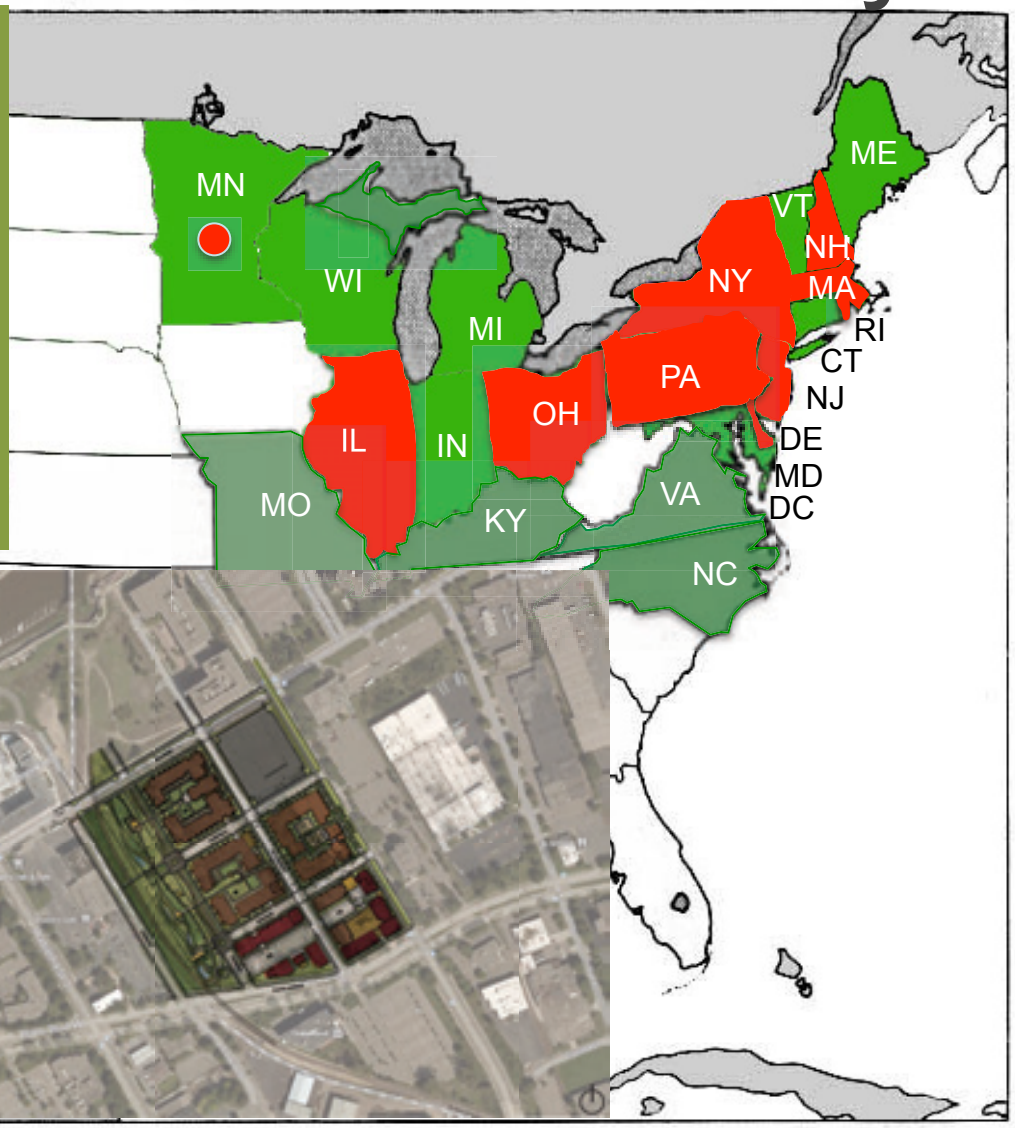
MINNESOTA, St. Paul

West Side Flats

MASTER PLAN & DEVELOPMENT GUIDELINES

DRAFT FOR PUBLIC REVIEW

DECEMBER 5, 2014



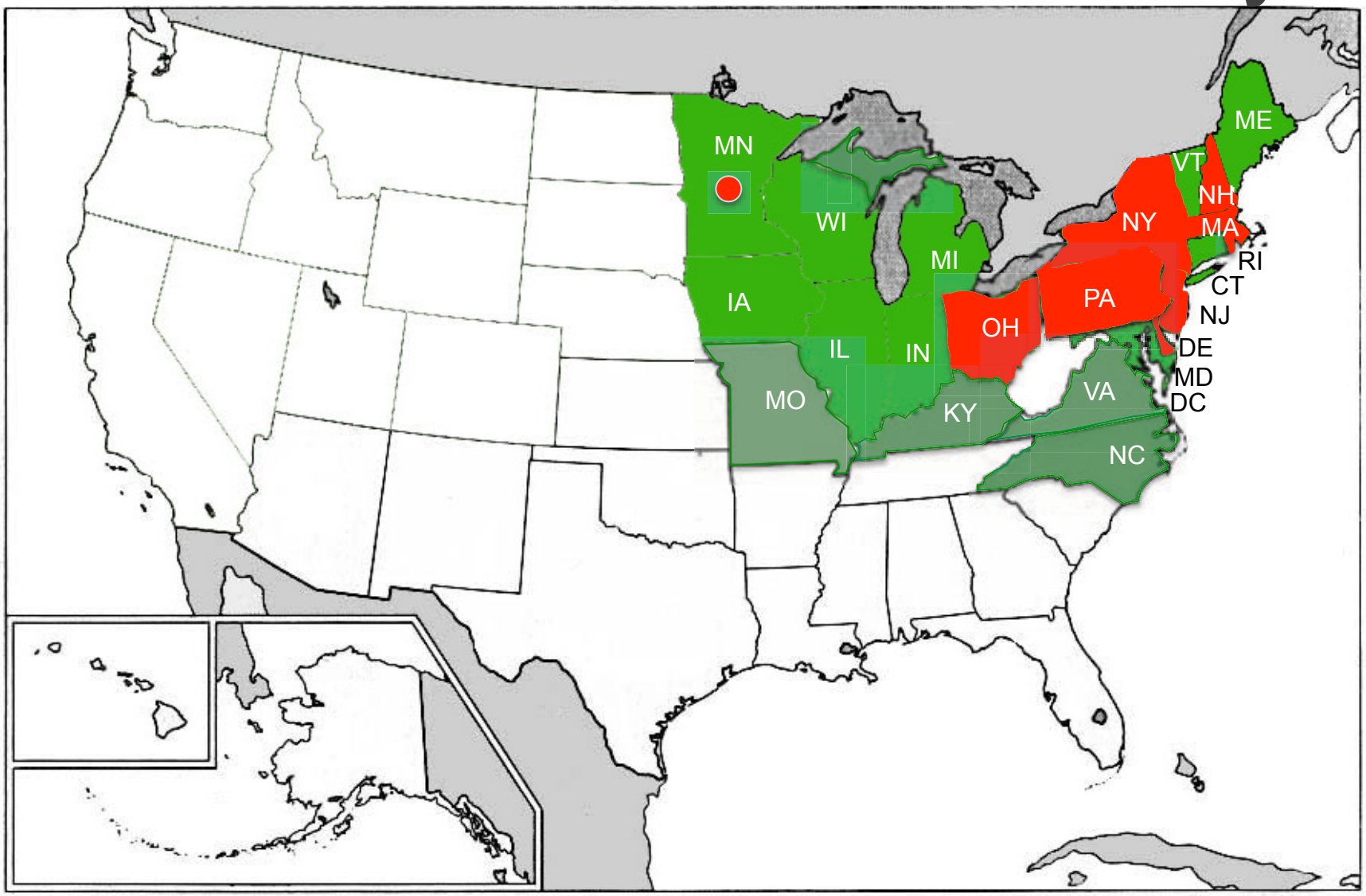
ARCHITECTURE RESEARCH CENTER

St. Paul Planning and Economic Development

Committed!!!! Two large projects built to PH in West Side Flats

IOWA

THE PHFA PROJECT



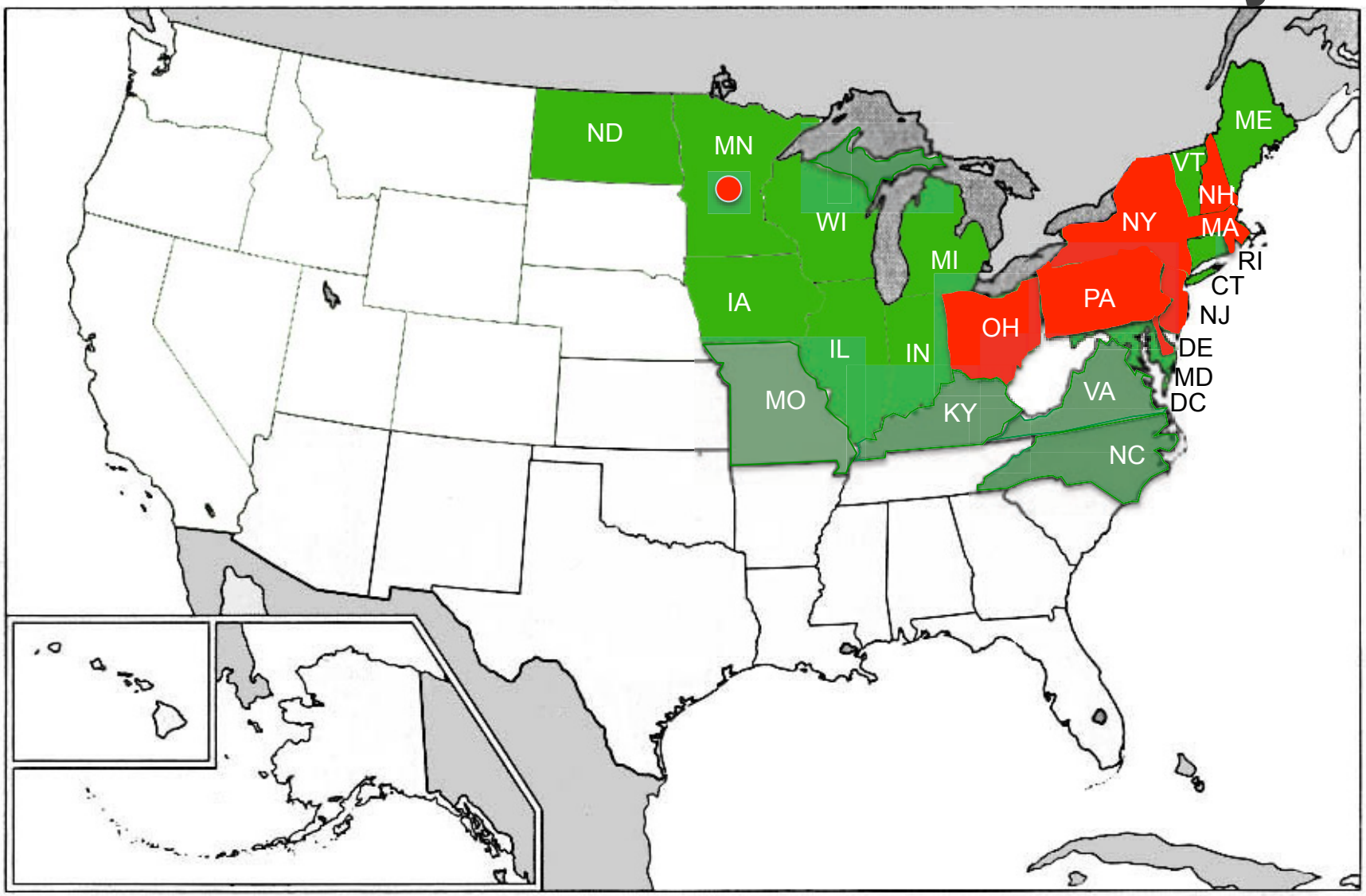
ARCHITECTURE
RESEARCH
CENTER

Iowa Finance Authority

INTERESTED, PRESENTED AT HOUSING CONFERENCE, Sept 9

NORTH DAKOTA

THE PHFA PROJECT



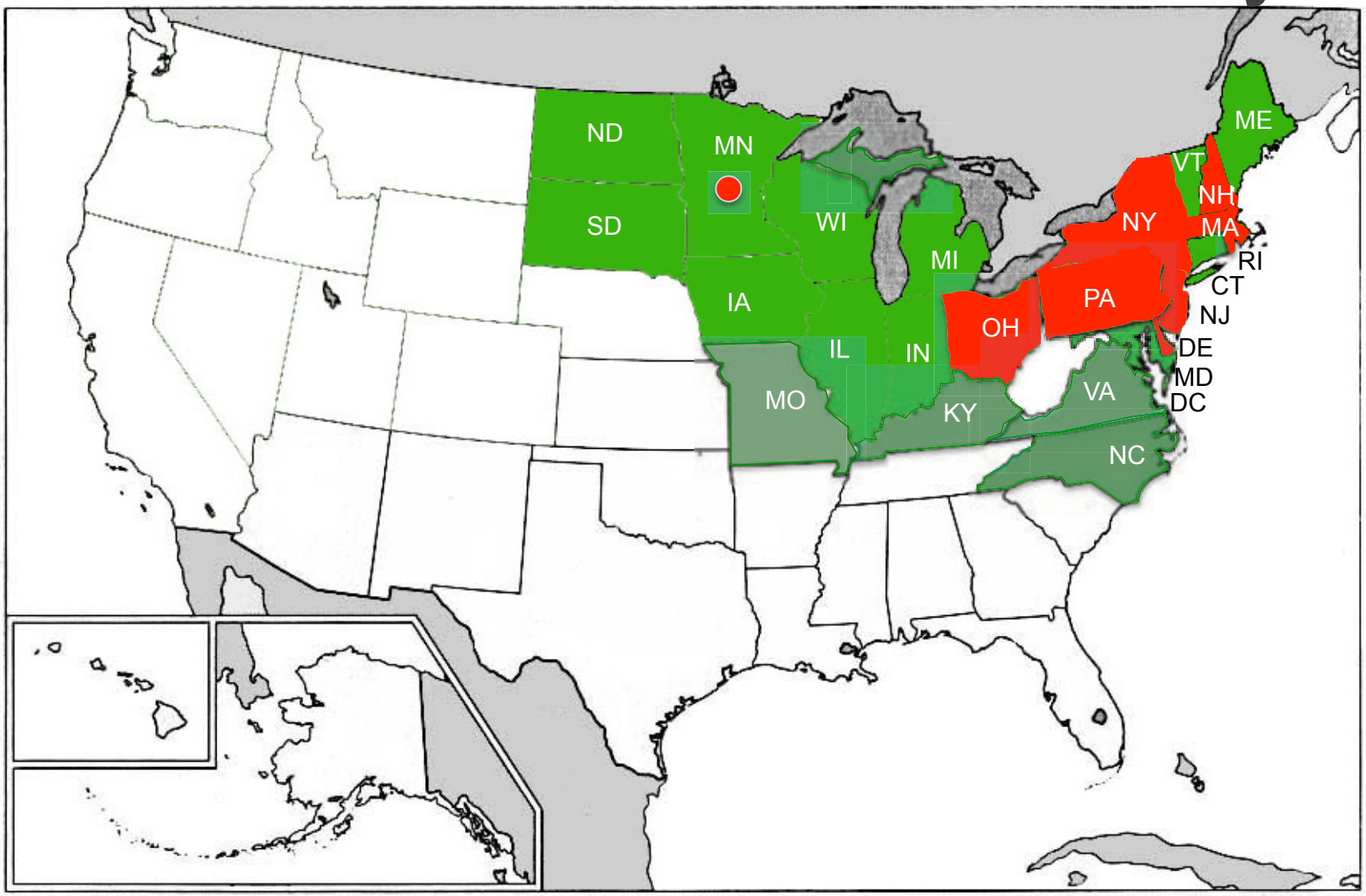
ARCHITECTURE
RESEARCH
CENTER

North Dakota Housing Finance Agency

Call June 16; several follow-ups, too busy…

SOUTH DAKOTA

THE PHFA PROJECT



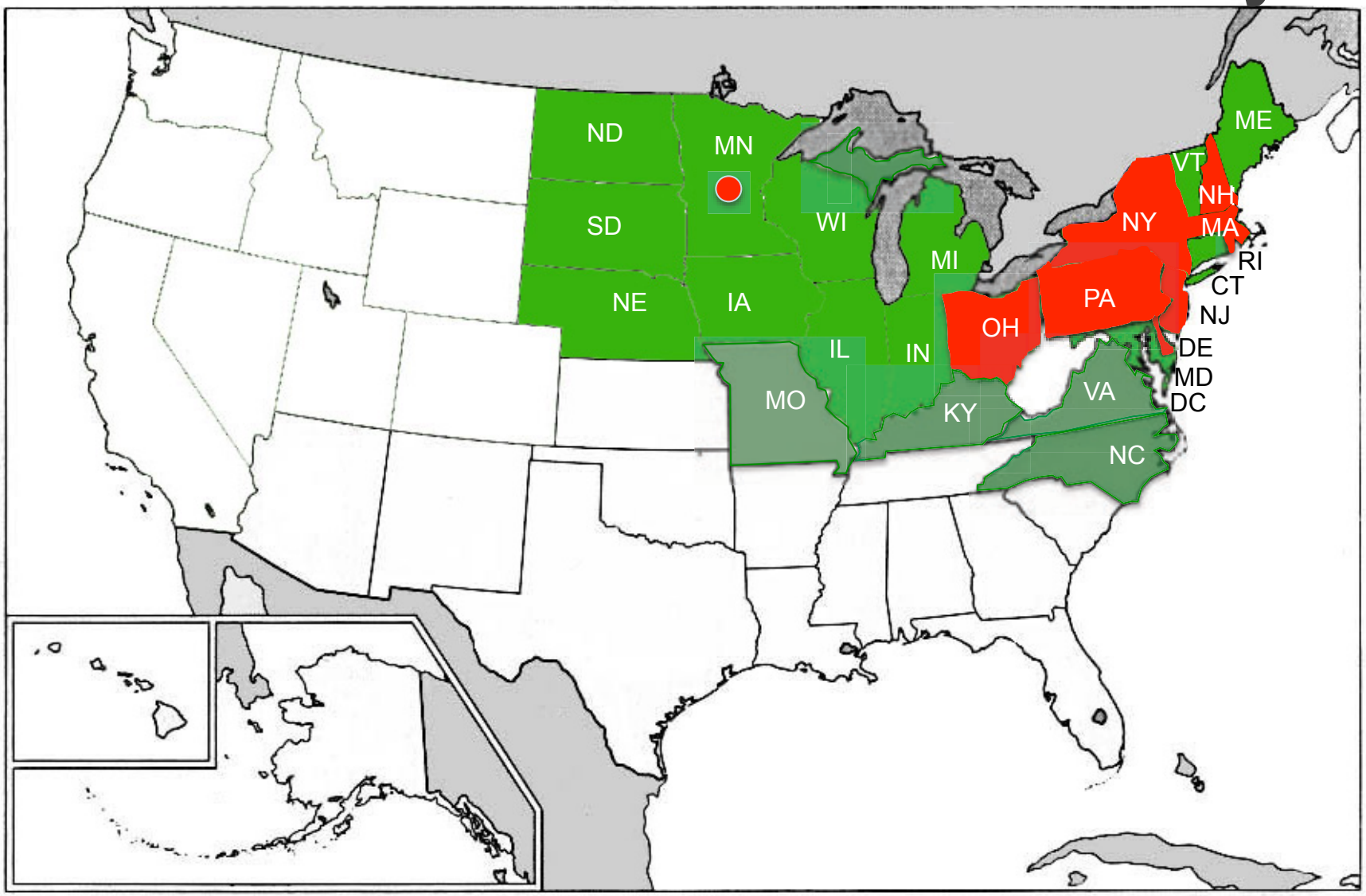
ARCHITECTURE
RESEARCH
CENTER

South Dakota Housing Development Authority

VERY INTERESTED; CPHC in Dept!!

NEBRASKA

THE PHFA PROJECT



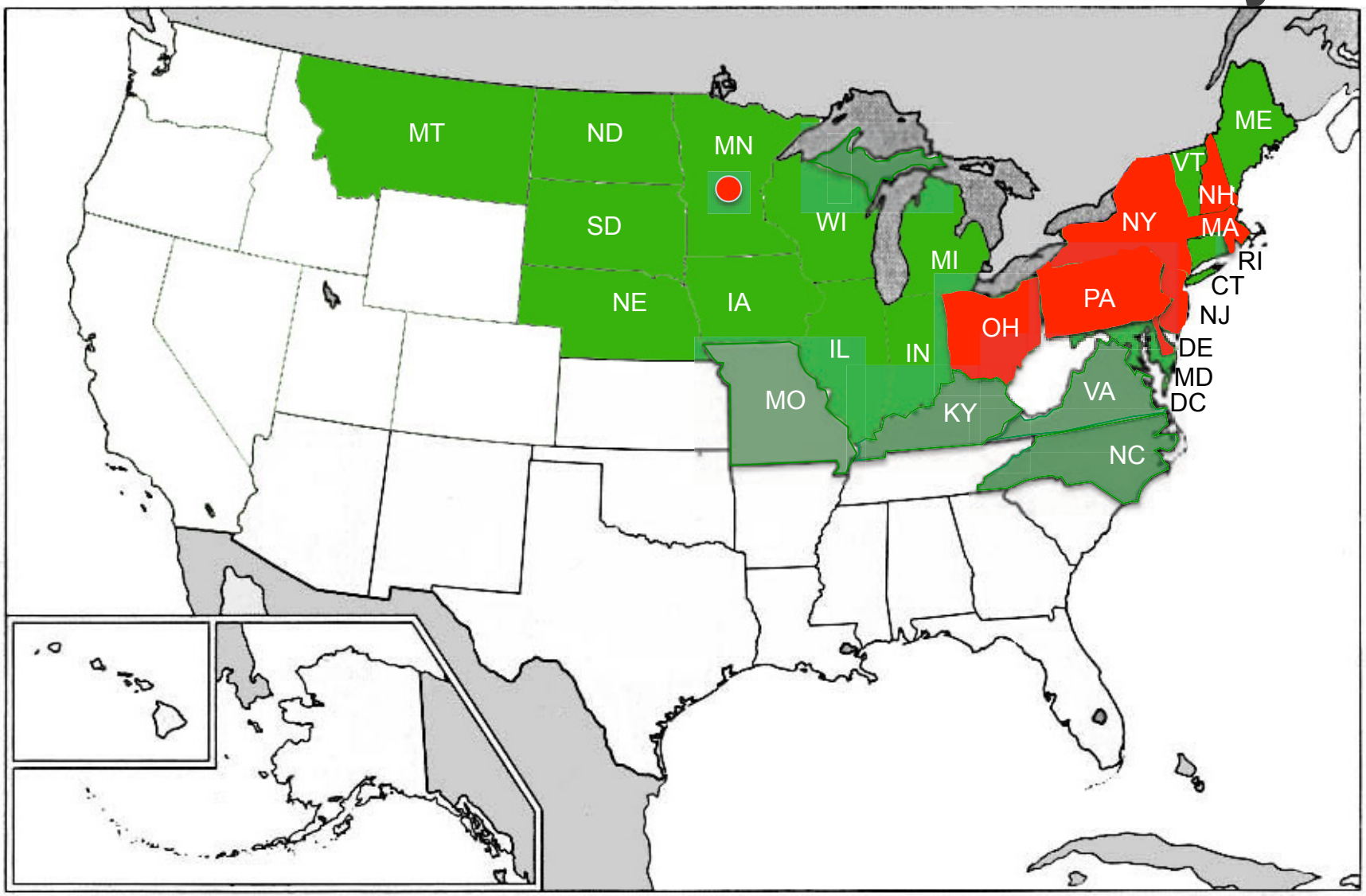
ARCHITECTURE
RESEARCH
CENTER

Nebraska Investment Finance Authority

Multiple calls, non-responsive

MONTANA

THE PHFA PROJECT



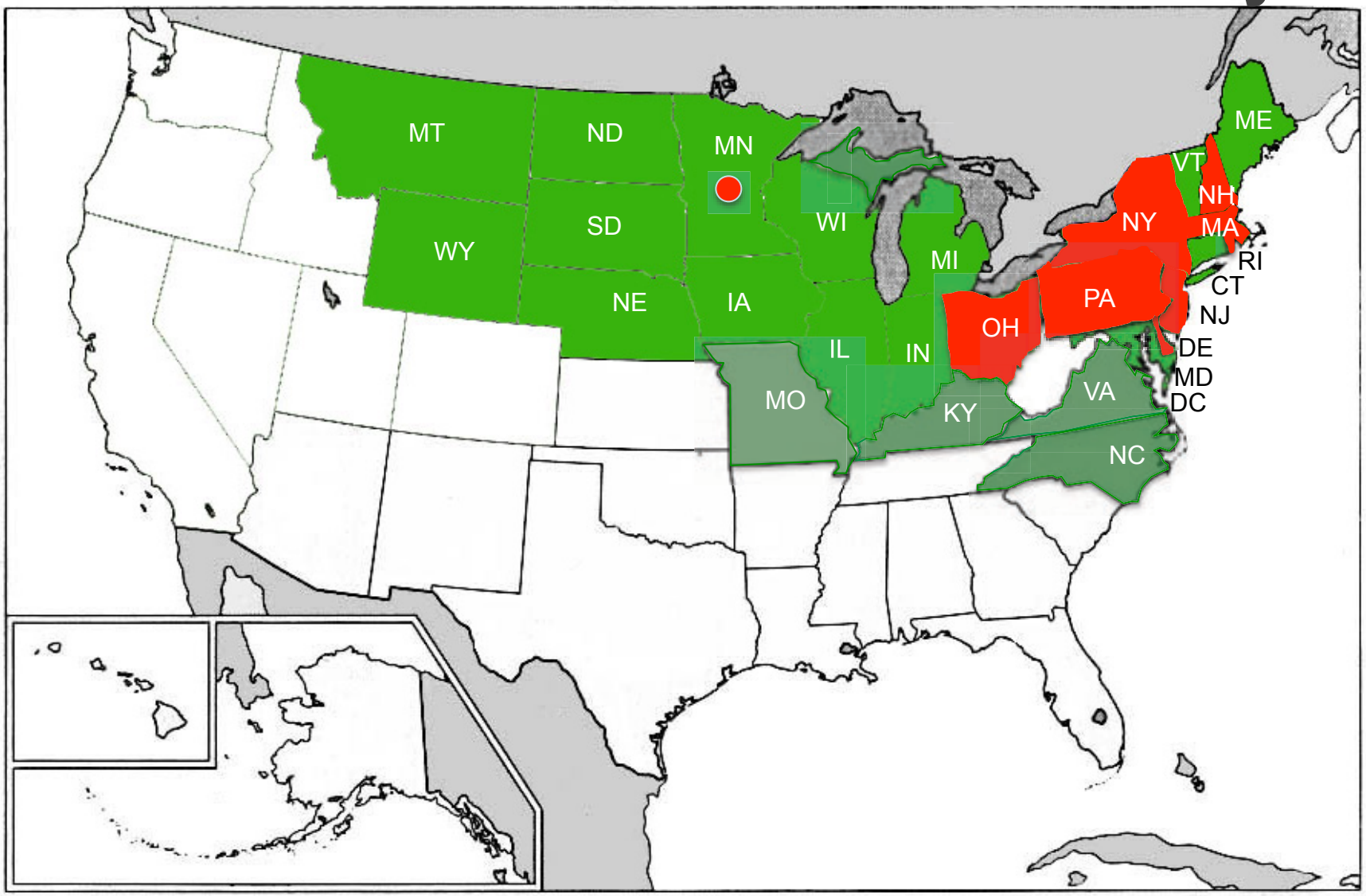
ARCHITECTURE
RESEARCH
CENTER

Montana Housing Division

Invited to give presentation at QAP discussion January 26, 2016

WYOMING

THE PHFA PROJECT



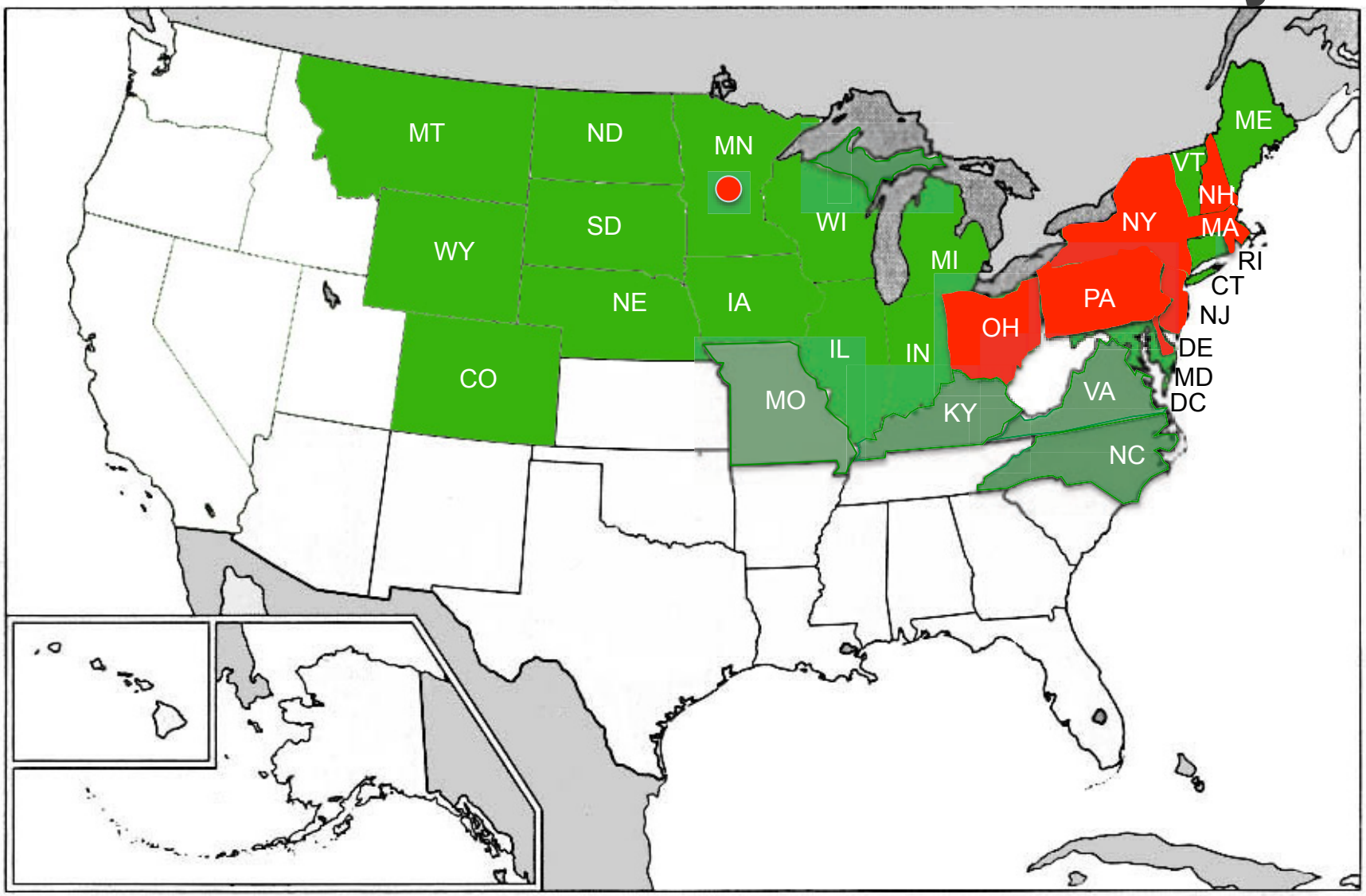
ARCHITECTURE
RESEARCH
CENTER

Wyoming Community Development Authority

Sent official public comments to QAP

COLORADO

THE PHFA PROJECT



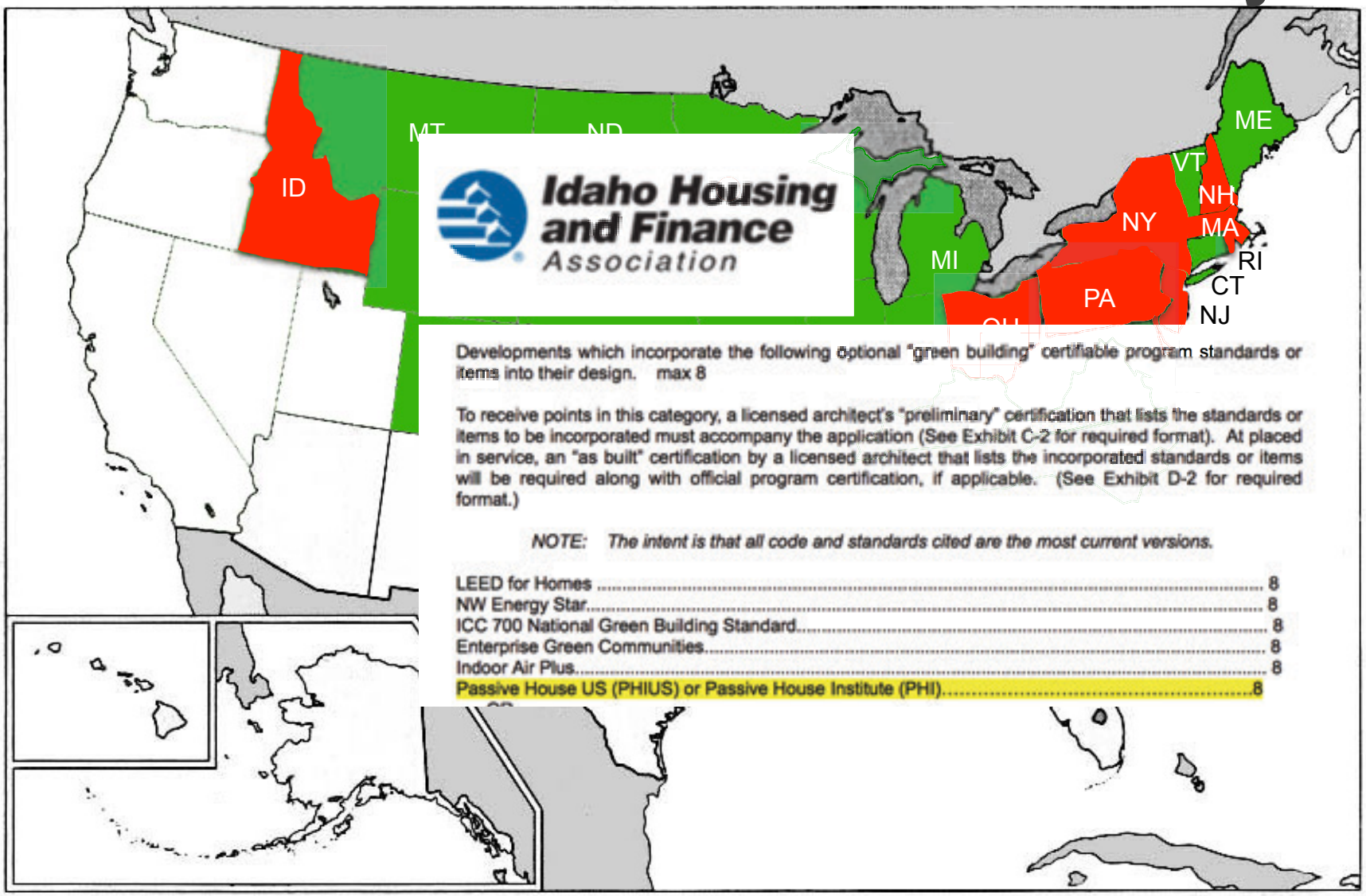
ARCHITECTURE
RESEARCH
CENTER

Colorado Housing and Finance Authority

Very busy but dialogue progressing

IDAHO

THE PHFA PROJECT



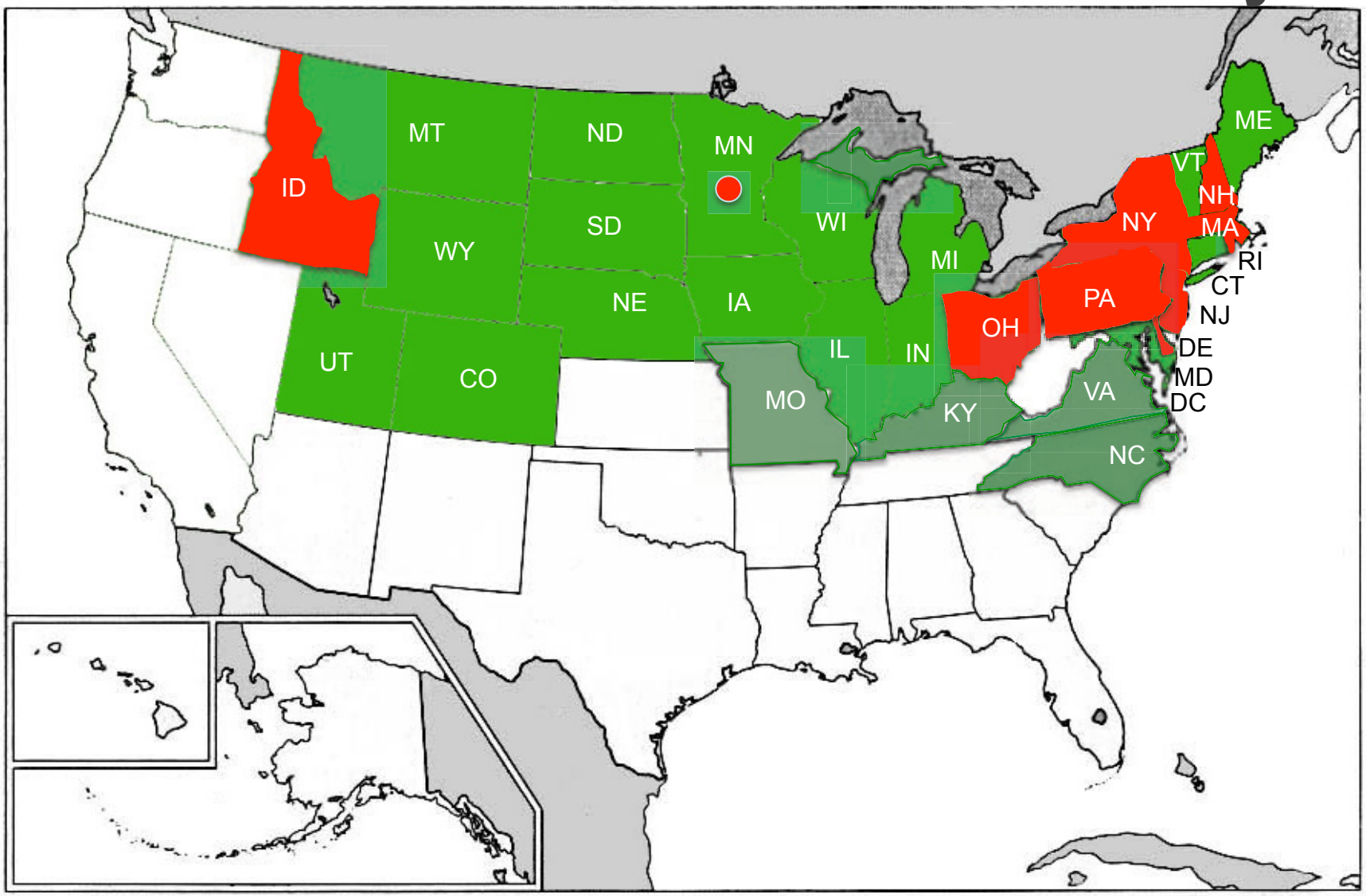
ARCHITECTURE
RESEARCH
CENTER

Idaho Housing and Finance Association

COMMITTED PH built into QAP in 2016

UTAH

THE PHFA PROJECT



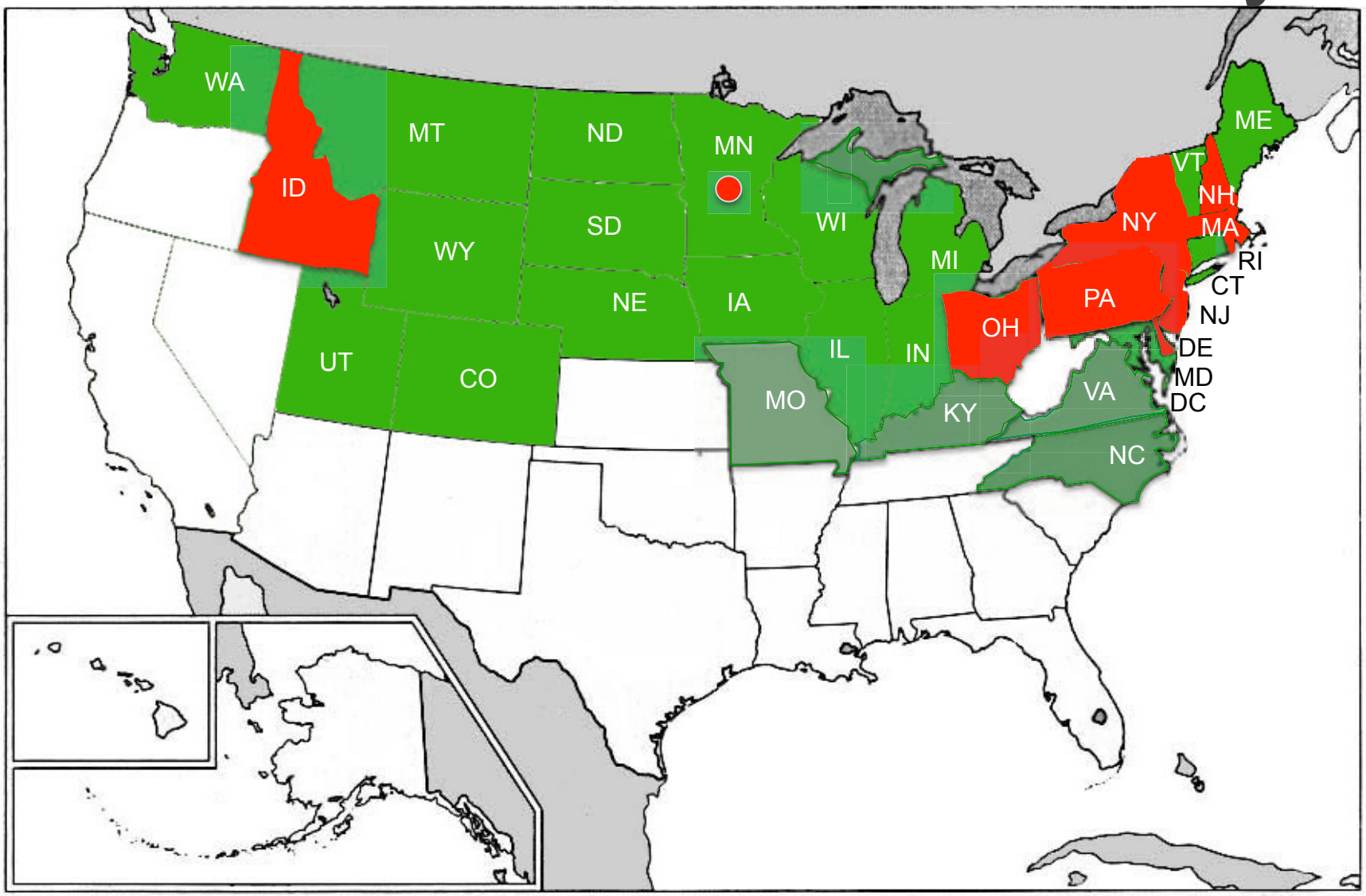
ARCHITECTURE
RESEARCH
CENTER

Utah Housing Corp

Presentation at Conference Oct 21: invited to QAP discussion

WASHINGTON

THE PHFA PROJECT



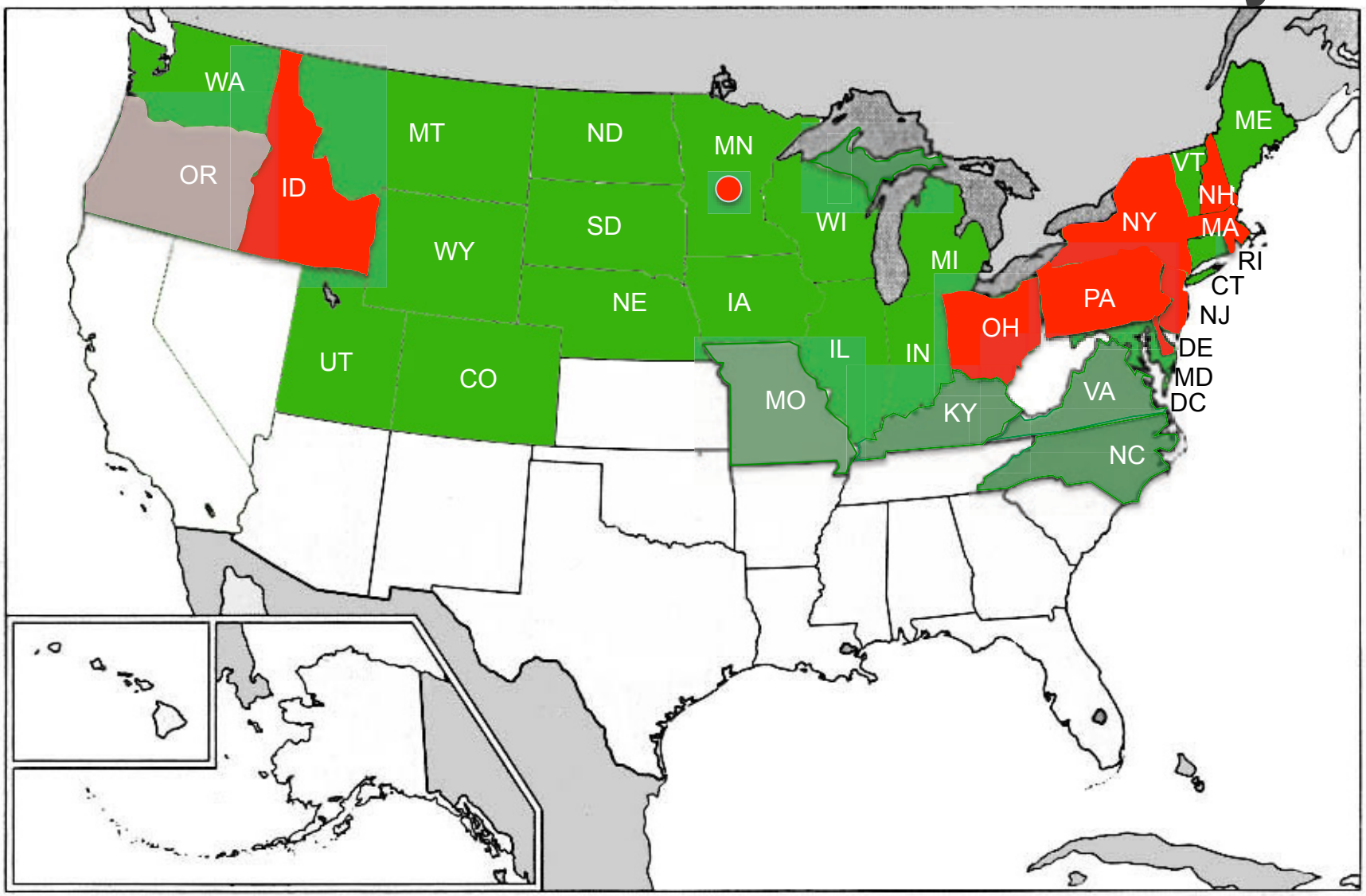
ARCHITECTURE
RESEARCH
CENTER

Washington State Housing Finance Commission

Meeting June 25; VERY INTERESTED; 2017 QAP in Spring

OREGON

THE PHFA PROJECT



ARCHITECTURE
RESEARCH
CENTER

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 Hanley

What do you think about this?

▲ Interesting 1 ▼ Not Interesting

Originally published on Green Building Elements.

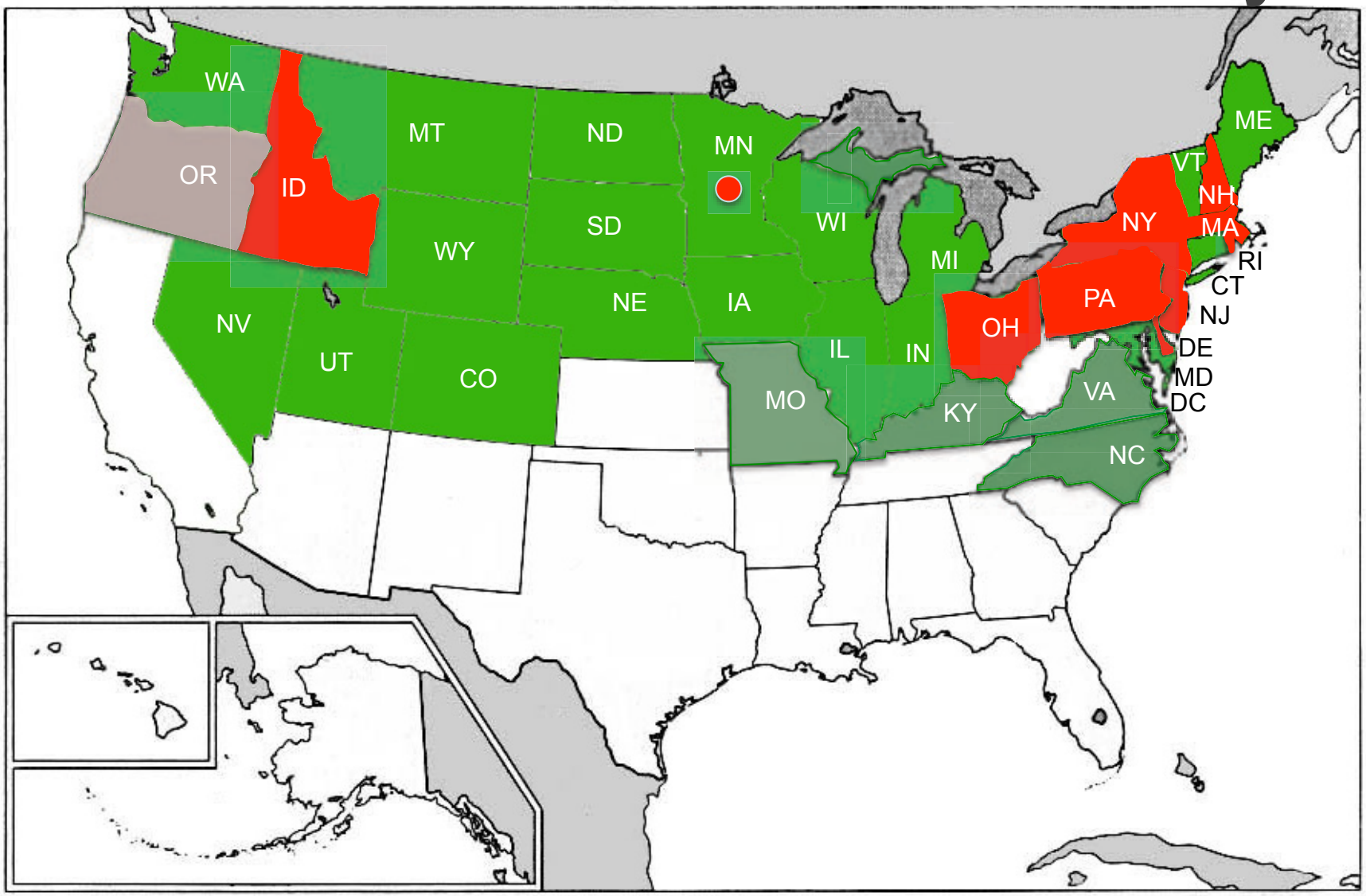
The largest Passive House structure in the US, called The Orchards At Orenco, is under construction in Hillsboro, Oregon, a suburb of Portland. The 57 unit residential building is being built by REACH Community Development, a non-profit developer dedicated to lowering overall living costs for residents. REACH 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



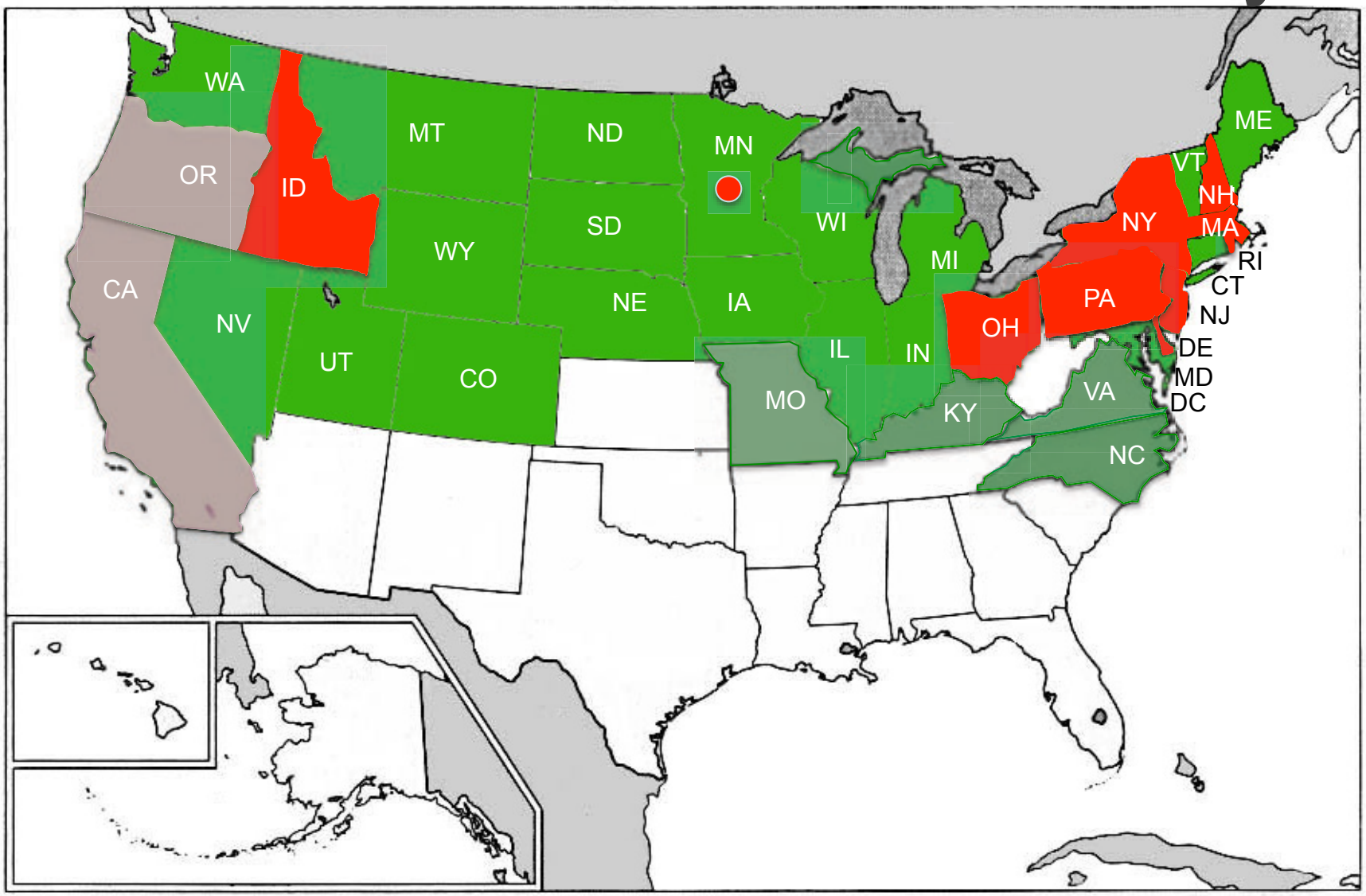
ARCHITECTURE
RESEARCH
CENTER

State of Nevada Housing Division

Call June 9; INTERESTED; Updating QAP in Fall

THE PHFA PROJECT

CALIFORNIA



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

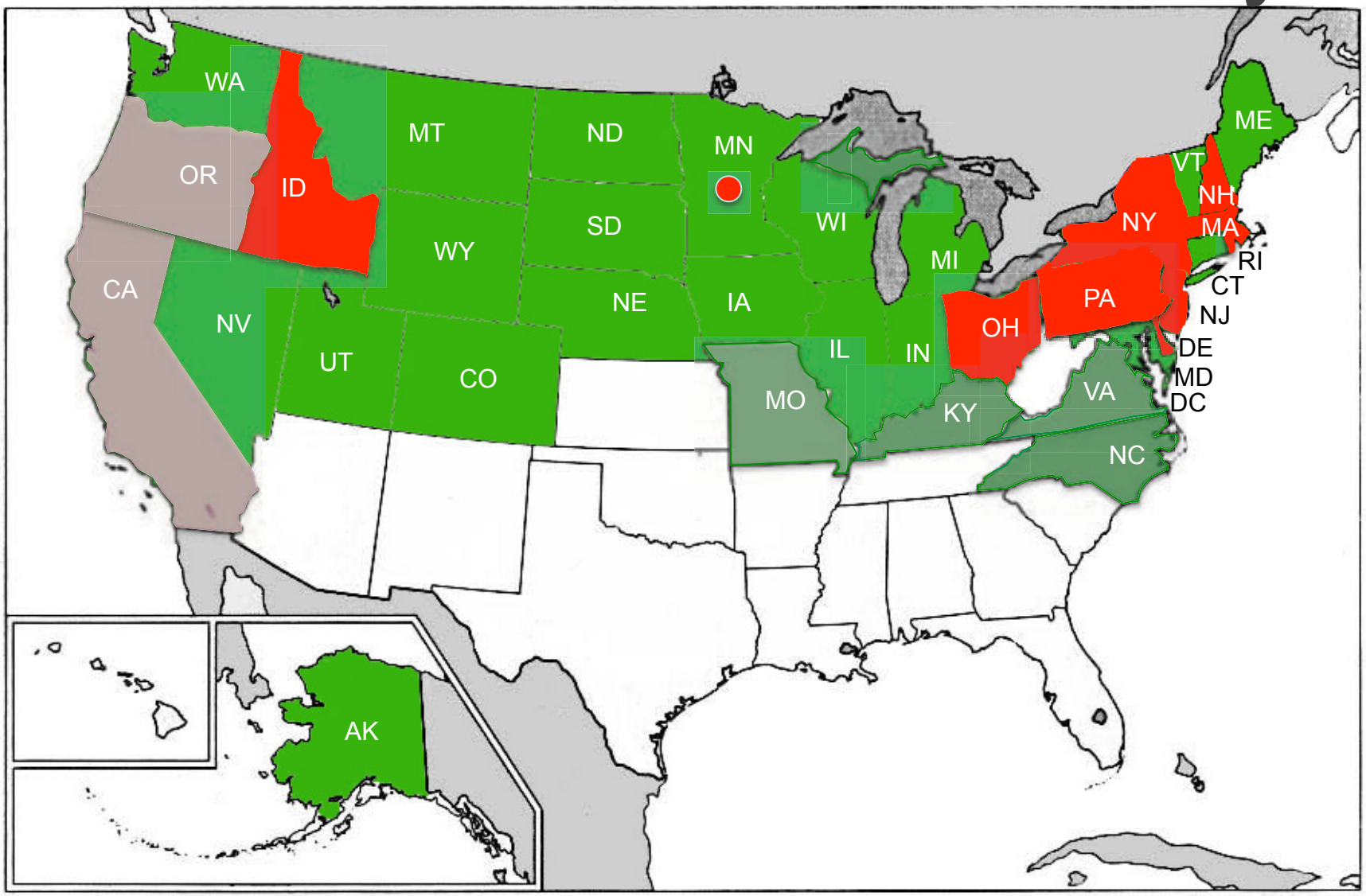
Bill Roth | Monday November 11th, 2013 | 2 Comments

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.

THE PHFA PROJECT

ALASKA



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

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

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 $51,000 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.

THE PHFA PROJECT

AFFORDABLE HOUSING

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

AFFORDABLE HOUSING

Architects, Engineers, Builders

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

AFFORDABLE HOUSING

↑ ↑

Architects, Engineers, Builders

↓ ↓

MARKET-RATE HOUSING

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

Catalyst for radical and significant transformation of the HOUSING INDUSTRY…..

AFFORDABLE HOUSING

↑ ↑

Architects, Engineers, Builders

↓ ↓

MARKET-RATE HOUSING

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

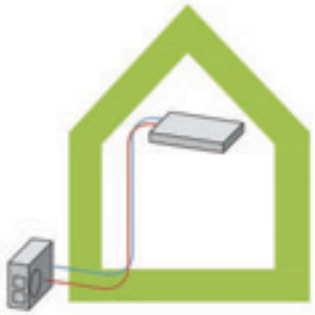
*A **National** Net-Zero-Energy Initiative*

EDUCATION + TRAINING + INDUSTRY SUPPORT

Insulation + Air-Sealing

Windows + Doors

Energy Recovery +Ventilation



Heating + Cooling

Architects + Engineers

Consultants + Trainers

ARCHITECTURE
RESEARCH
CENTER

THE PHFA PROJECT

*A **National** Net-Zero-Energy Initiative*

EDUCATION + TRAINING + INDUSTRY SUPPORT

BUILDSMART
Energy efficiency made simple

Insulation + Air-Sealing

Klearwall

Intus Windows

Windows + Doors

RenewAire
Energy Recovery Ventilation

UltimateAir
Fresh Air, Filtration + Energy Recovery

Energy Recovery + Ventilation

NILAN
OUTSTANDING INDOOR CLIMATE

Heating + Cooling

ONION FLATS

WRT

Architects + Engineers

CONSULTANT
CERTIFIED PASSIVE HOUSE CONSULTANT

CERTIFIED PASSIVE HOUSE TRADESPERSON
TRADESPERSON

DESIGNER
CERTIFIED PASSIVE HOUSE DESIGNER

Consultants + Trainers

ARCHITECTURE
RESEARCH
CENTER

RADICAL

AFFORDABLE

SCALABLE

NET-ZERO-ENERGY-CAPABLE

RADICALLY

STANDARD

THANK
YOU

ARCHITECTURE
RESEARCH
CENTER

Tim McDonald
tim.mcd@temple.edu
215.783.5591