...16 ON THEIR WAY!!

**MAINE**

VERMONT  
MARYLAND  
KENTUCKY  
INDIANA  
MICHIGAN  
MISSOURI  
OKLAHOMA  
WISCONSIN  
MINNESOTA  
IOWA  
MONTANA  
UTAH  
WASHINGTON  
OREGON  
NEVADA  
ALASKA

**BANGOR DAILY NEWS**

Brewer’s ‘passive housing’ project largest of its kind in US

A 48-unit passive housing project is in the works at the former State Street School site in Brewer.

**Village Centre Passive House, Brewer, Maine, 48 units**

**Bayside Anchor Passive House, Portland, Maine, 45 units**
16 ON THEIR WAY!!

MAINE
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WASHINGTON
OREGON
NEVADA
ALASKA
Passive House Work in Kentucky and the QAP
Have you heard about Passive House? If not, you will soon, as it will likely factor into KHC’s 2019 Qualified Allocation Plan (QAP)! Join us for this session where a panel of experts will present information on the existing Passive House consulting and certification experience available in Kentucky; how the concept has been received and incorporated in other state's QAPs; and the basic Passive House principles, how they work, and why they are affordable.
Minnesota Housing Finance Agency
QAP discussions informed by large PH projects
....16 ON THEIR WAY!!

This Is The Largest Passive House Building In The US

November 19th, 2014 by Steve Hanley
DELAWARE VALLEY GREEN BUILDING COUNCIL
2017 NEW GRAVITY HOUSING CONFERENCE
CLIMATE CHANGE AND THE IMPERATIVE OF HIGH PERFORMANCE AFFORDABLE HOUSING

AUGUST 3 & 4, 2017 @ TEMPLE UNIVERSITY
Conference specifically focused on BUILT Passive House Affordable housing projects in the US
PRACTICAL, LESSONS LEARNED, COST ANALYSIS INFORMATION SHARING

<table>
<thead>
<tr>
<th>TIME</th>
<th>AUGUST 3rd SCHEDULE</th>
<th>TIME</th>
<th>AUGUST 4th SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 8:30</td>
<td>Registration, Breakfast, and Expo</td>
<td>7:30 - 8:30</td>
<td>Breakfast on Vendor Floor</td>
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<td>8:30 - 9:15</td>
<td>Welcome: Alex Enwe, Tim McDonald, Wade Romburger, Holly Glauser</td>
<td>8:30 - 9:15</td>
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<tr>
<td></td>
<td>Track 1</td>
<td>9:20 - 10:20</td>
<td>Session 6</td>
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<td></td>
<td>PHFA Passive House Multi-Family Experience: What makes sense, what doesn't, and recommendations for future implementation</td>
<td>Track 1</td>
<td>The PHFA Building Passive House Addition</td>
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<td>Track 2</td>
<td>Track 2</td>
<td>Wax Romburger, PHFA, Ryan Guenther, Passive House Science</td>
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<td>Track 3</td>
<td>Barbara L. Dobbs, Murray Associates, Architect P.C.</td>
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<td>Real World Challenges of Passive House in the Mainstream Market</td>
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<td>Lisa White, PHA/CE, Karen Enright, PHASIS</td>
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<td>Michael Ingui, Beal, legal architect, Jordan Denz, The Levy Partnership</td>
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<td>David Fortenot, Urban Adams, LLC</td>
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<td>Alex Blackmore, Invited, John Kresse, University of Pennsylvania</td>
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<td>10:30 - 11:00</td>
<td>St. John Neumann Place II: Why, how, and would we do it again</td>
<td>10:30 - 11:30</td>
<td>Session 7</td>
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<td></td>
<td>Affordable Housing: An equation or realistic expectation?</td>
<td>Track 1</td>
<td>The Distillery Project: A 60-unit passive house retrofit in Boston</td>
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<td>Jim Lent, Permanent Properties</td>
<td>Track 2</td>
<td>Fred Collins, Second Street Associates, LLC</td>
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<td>The Community Builders Team, New Markets, New Construction Services</td>
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<td></td>
<td>Shawn Schenk, Kitchen &amp; Associates</td>
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<td></td>
<td>Michael D. Missios, commercial, residential, and multifamily services</td>
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<td></td>
<td>Two Architects and Their Stunning Successes with Passive House Affordable Multi-Family Housing in Cold, Old New England</td>
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<td>Michael Whitehead, Edelman, Whiwekki, Architecture</td>
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<td>11:30 - 12:00</td>
<td>Lunch and Expo</td>
<td>11:30 - 12:00</td>
<td>Session 8</td>
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<tr>
<td>12:35 - 1:00</td>
<td>Keynote Speaker: Jonathan F.P. Rose (Welcome from Homer Robinson)</td>
<td>12:00 - 1:00</td>
<td>The Trim Tab Effect: Six multi-family passive house projects across the country</td>
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<tr>
<td>1:00 - 1:45</td>
<td>Keeping the Affordability in Affordable Multi-Family Passive House Projects</td>
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<td>Allen Morris, Brian Morris, Energy Efficiency Consulting, Inc.</td>
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<td>Strategies for Ventilating Multi-Family Buildings Seeking Multiple Certifications</td>
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<td>Michael Fields, Passive House, K2K Architects, Enterprise Community Partnerships, Inc.</td>
<td>1:30 - 2:15</td>
<td>Lunch</td>
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<td>Habitat for Humanity: Pushing the envelope</td>
<td>2:15 - 2:30</td>
<td>Closing Remarks</td>
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<td>Centralized vs. Decentralized Ventilation Throedown</td>
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<td></td>
<td>Lauren Lebowitz, Habitat for Humanity, John Gibson, K2K Architects, Habitation and Partners</td>
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<td>Capital II</td>
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<td>Habitat for Humanity: Pushing the envelope</td>
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<td>Wynne Theater</td>
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<td>Audrey Gammage, Zonda Architects, John Eberhardt, A2K Architects, Pennsylvania, Habitat for Humanity</td>
<td>3:30 - 4:00</td>
<td>St. John Neumann II</td>
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<td>Centralized vs. Decentralized Ventilation Throedown</td>
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<td></td>
<td>Happy Hour on Vendor Floor</td>
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<td></td>
<td>Lunch and Expo</td>
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### Conference specifically focused on BUILT Passive House Affordable housing projects in the US

#### AUGUST 3rd SCHEDULE

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
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<th>Session 2</th>
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<tbody>
<tr>
<td>7:30 - 8:30</td>
<td>Welcome</td>
<td>8:30 - 9:15</td>
<td>Registration, Breakfast, and Expo</td>
<td>10:30 - 11:00</td>
<td>Coffee and Expo</td>
<td>11:00 - 11:45</td>
<td>How to Deliver Performance and Value: A method for cost effective, high performance construction</td>
<td>11:50 - 12:35</td>
<td>Lunch and Expo</td>
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<tr>
<td>8:30 - 9:15</td>
<td>Richards at Chesco and Beyond: Finding our way to higher levels of efficiency while managing costs</td>
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<td>9:00 - 10:00</td>
<td>Effective Passive House Multi-Family Experience: What makes sense, what doesn’t, and recommendations for future improvements</td>
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<td>10:45 - 11:30</td>
<td>Two Architects and Their Mandatory Success: Passive House Inspired Affordable Housing: What does the performance data tell us?</td>
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<td>Lunch and Expo</td>
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<td>1:00 - 1:45</td>
<td>Keynote Speaker: Jonathan F.P. Rose</td>
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<td>11:30 - 12:15</td>
<td>Affordable Passive House Multi-Family: A report from two guinea pigs</td>
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<td>12:30 - 1:15</td>
<td>Lunch and Expo</td>
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<td>1:45 - 2:30</td>
<td>Keynote Speaker: Zack Semke</td>
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#### AUGUST 4th SCHEDULE

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<td>7:30 - 8:30</td>
<td>Keynote Speaker:</td>
<td>8:30 - 9:15</td>
<td>PHFA Building Passive House Projects</td>
<td>9:30 - 10:30</td>
<td>PHFA</td>
<td>10:30 - 11:30</td>
<td>The Trim Tab Effect: Six multi-family passive house projects across the country</td>
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<td>8:30 - 9:15</td>
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<td>9:30 - 10:30</td>
<td>PHFA Projects</td>
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<td>11:30 - 12:00</td>
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<td>1:30 - 2:15</td>
<td>PHFA Projects</td>
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</tbody>
</table>
Affordable East Harlem development will have 655 passive house rentals

The nearly block-large project will bring amenities like a supermarket, YMCA, and health care facility to the neighborhood

BY ZOE ROSENBERG | @ZOE_ROSENBERG | FEB 7, 2017, 9:33AM EST
Over 40 Projects, mostly BUILT, presented!

- Cost data being collected and compared to “typical” costs from multiple regions
- Performance Data beginning to be collected
- Developing ‘MANUAL’ of cost-effective envelopes/systems/strategies for multi-family PH
Over 40 Projects, mostly BUILT, presented!

- Cost data being collected and compared to “typical” costs from multiple regions
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HILLCREST
Pittsburgh, PA
66 Units
Community Builders/RDL/Sota
$150/sf: 2% above code building

Passive House, Affordable, Two Architects and their

Jesse Thompson - Portland, Maine

8%0%&&.*-#/A"'88$%$)+(43&%$BA"4$&-7'C*)):&-

Passive House Institute US
Over 40 Projects, mostly BUILT, presented!

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**ELM PLACE**

Burlington, VT
30 Units
DWA/Cathedral Square
$183/sf (1-2% upcharge)

Passive House Institute US

**Passive House, Affordable, Stunning Successes with Two Architects and their 37 Years of Affordable Housing on Martha’s Vineyard**

Michael Wisniewski - Burlington, VT

**Passive House, Affordable, Stunning Successes with Two Architects and their 37 Years of Affordable Housing on Martha’s Vineyard**

Jesse Thompson - Portland, Maine
Over 40 Projects, mostly BUILT, presented!

- Cost data being collected and compared to “typical” costs from multiple regions
- Performance Data beginning to be collected
- Developing ‘MANUAL’ of cost-effective envelopes/systems/strategies for multi-family PH

BAYSIDE ANCHOR

Portland, Maine
45 Units
Kaplan Thompson/Portland Housing Auth
$156/sf ($5.9M)
On Budget
Over 40 Projects, mostly BUILT, presented!

- Cost data being collected and compared to “typical” costs from multiple regions
- Performance Data beginning to be collected
- Developing ‘MANUAL’ of cost-effective envelopes/systems/strategies for multi-family PH

**ORCHARDS AT ORENCO: Phase 1**
Hillsboro, Oregon
57 Units: Phase 1
Walsh Construction
.13 ACH20
Modeled Performance: 22.5 EUI
Measured Performance: 20.9 EUI
$158/sf ($159k/unit), 11% over typical project

**ORCHARDS AT ORENCO: Phase 2**
Hillsboro, Oregon
58 Units: Phase 2
Walsh Construction
.59 ACH20
Modeled Performance: 22.5 EUI
Measured Performance: Aug 2017
$173sf ($147k/unit), 8% less than Phase 1, 5% premium over typical
Over 40 Projects, mostly BUILT, presented!

- Cost data being collected and compared to “typical” costs from multiple regions
- Performance Data beginning to be collected
- Developing ‘MANUAL’ of cost-effective envelopes/systems/strategies for multi-family PH

- AFFORDABLE + MARKET RATE take aways:
BRINGING VETERANS HOUSING TO CHESTER COUNTY: THE WHITEHALL

Renovation: Existing Whitehall Inn
New Construction: 49 units of affordable housing (39,000 sf)
  40 1-bedroom units
  3 2-bedroom units
  5 3-bedroom “suite” units
  1 on-site manager unit

Awarded 35 HUD-VASH Vouchers; preference for Veterans in all units

Building amenities: community room, computer room, laundry room, on-site support service, fitness room and management office
Chip Darling: Director of Real Estate, Phila Region
Mission First

Catherine Panas: Project Manager
Mission First

THE WHITEHALL
Chip Darling: Director of Real Estate, Phila Region
Mission First

Catherine Panas: Project Manager
Mission First

THE WHITEHALL
2nd/3rd Floor Plans
FINAL BLOWER DOOR TEST
April 17, 2017
.42 ACH50
Certificate

Passive House Academy hereby certifies the following building as a

Quality Approved Passive House

The Whitehall

Client: Mission First Housing Development Corp, 2042-2048 Arch Street, 2nd floor, PA 19103, USA

Architect: Architectural Concepts PC, The Grimmet Mansion, 626 West Lincoln Highway, Exton, PA 19341, USA

PH Consultant: Timothy McDonald, Onion Flats LLC, 111 West Norris St, PA 19122, USA

Contractor: CH&E Construction, 1270 Grofftown Rd., Lancaster, PA 17602, USA

FINAL BLOWER DOOR TEST
April 17, 2017
.42 ACH50
Passive House Impact on Construction Cost

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<th>Contingency</th>
<th>Total</th>
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<td>Application</td>
<td>$7,774,250</td>
<td>$233,227</td>
<td>$8,007,477</td>
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<td>Closing</td>
<td>$7,874,250</td>
<td>$236,228</td>
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<td>Completion</td>
<td>$8,110,478</td>
<td>0</td>
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52,287 sf

$155/sf
## The Whitehall Utility Cost Comparison

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<td>Housing Authority Allowances</td>
<td>$103.0</td>
<td>$138.0</td>
<td>$169.0</td>
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<tr>
<td>Calculated Passive House</td>
<td>$42.37</td>
<td>$60.45</td>
<td>$80.97</td>
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Impact of Utility Costs on Borrowing Capacity

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<tr>
<td>Net Operating Income</td>
<td>$99,116</td>
<td>$136,292</td>
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<tr>
<td>Debt Coverage Ratio*</td>
<td>1.8</td>
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<td>Payment (NOI/DCR)</td>
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<tr>
<td>Max Mortgage (30 yrs @ 5.5%)</td>
<td>$800,000</td>
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<td>*1.07 in Year 15</td>
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CHIP: “Passive House lets you borrow/leverage more money to build more housing.”
### Impact of Utility Costs on Developer Fee

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<tr>
<td>Total Development Cost</td>
<td>$12,750,000</td>
<td>$12,750,000</td>
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<td>LIHTC Equity</td>
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<td>Soft Debt/Grants</td>
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<td><strong>Mortgage</strong></td>
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<td>Total</td>
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<td>Deferred Fee Required</td>
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<td>Gross Fee</td>
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<td><strong>Net Fee</strong></td>
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<td><strong>$1,300,000</strong></td>
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**CHIP:** “We’re a nonprofit, which means we don’t put the net fee in our pockets. We put that money into new developments. Higher net fees mean we can house more people.”
Opening Day
June 14, 2017
“WOULD WE DO IT AGAIN?”
“WOULD WE DO IT AGAIN?”

1. We built it within the budget we proposed
“WOULD WE DO IT AGAIN?”

1. We built it within the budget we proposed

2. Significant savings on utilities allows us to leverage fees to build more housing
“WOULD WE DO IT AGAIN?”

1. We built it within the budget we proposed
2. Significant savings on utilities allows us to leverage fees to build more housing
3. No major screw-ups during construction (related to Passive House)
“WOULD WE DO IT AGAIN?”

1. We built it within the budget we proposed
2. Significant savings on utilities allows us to leverage fees to build more housing
3. No major screw-ups during construction (related to Passive House)
4. Healthier, more comfortable environment for our tenants
GREEN
BUILDING
UNITED

2018 NEW GRAVITY HOUSING CONFERENCE
CLIMATE CHANGE AND THE IMPERATIVE OF HIGH PERFORMANCE AFFORDABLE HOUSING

August 2-3rd @ TEMPLE UNIVERSITY, Phila, PA
Temple University Science Education and Research Center
AFFORDABLE HOUSING
AFFORDABLE HOUSING

Architects, Engineers, Builders
AFFORDABLE HOUSING

Architects, Engineers, Builders

MARKET-RATE HOUSING
Catalyst for radical and significant transformation of the HOUSING INDUSTRY.....

AFFORDABLE HOUSING

Architects, Engineers, Builders

MARKET-RATE HOUSING
RADICAL

AFFORDABLE

SCALABLE
NET-ZERO-ENERGY-CAPABLE

RADICALLY

STANDARD
THANK YOU

Tim McDonald
tim@onionflats.com
215.783.5591