

Advancing Passive House Policy

NAPHN 2016 policy sessions

“The building sector offers the largest low-cost potential in world regions to lower emissions.”

*- Dr. Diana Urge-Vorsatz, Vice Chair,
Intergovernmental Panel on Climate Change (IPCC)*

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overview

Credit: Think! Architecture and Design pllc

A rendering of Hanac Inc. Corona Residence - Queens, New York

The following briefing summarizes the content of two breakout sessions focused on advancing the Passive House building performance standard as a policy framework. The sessions were held in New York City, on June 13th and 14th, 2016, concurrent with the North American Passive House Network annual conference. Public and private policy stakeholders from across North America and Europe attended.

Each session focused on the opportunities and challenges that result from using the Passive House building performance standard as a policy tool. The first session focused on new construction policies and the second on retrofits. By formalizing the networking that characterizes conferences, and taking advantage of the diverse set of individuals attending the NAPHN conference, the sessions were designed to maximize knowledge sharing and create a fertile environment for progressive action.

This document describes the content of both the professional presentations delivered, as well as the discussions that followed. It also summarizes recommendations for action and suggests steps that might be addressed in future policy round-table sessions.

context: the passive house policy climate

The North American Passive House Network (NAPHN) is a legal cooperative of regional Passive House advocacy groups created to share resources, information, benefits and responsibilities with the common mission of promoting the international Passive House standard. The annual NAPHN conference is the flagship activity of the organization. Located in a different North American city each year, the gathering attracts hundreds of attendees from across the globe and dozens of vendors of high-performance products and systems.

Building on the global recognition of the role buildings must play in dramatically reducing climate change impacts, the theme of the 2016 conference was 'Decarbonize Our Future Today.' In addition to a full slate of panel discussions and presentations, the conference featured multiple technical workshops and other opportunities for knowledge sharing on technical subjects related to Passive House certification and building science.

With New York City and other municipalities laying out aggressive carbon emission reduction goals, Passive House has recently become the subject of intense focus in local, State and Federal policy circles. As one of the few building performance standards with a strong and long-term track record of delivering deep efficiency, Passive House is widely considered one of the most important tools in our fight against climate change. A diverse set of public and private stakeholders in communities across the globe are simultaneously struggling with similar questions about which elements of the Passive House standard might be incorporated into codes and regulations.

With this front of mind, NAPHN asked the Building Energy Exchange (BEEEx) to develop a pair of policy breakout sessions that would provide a formal setting for knowledge sharing and dialogue among an invited group of participants. NYSERDA supported the development of the session focused on retrofits. The content was designed to build on similar sessions held at the 2015 NAPHN Conference, in Vancouver, Canada, as well as prepare the ground for additional policy discussions to be held at the 2017 conference in San Francisco, CA.

Steering, Outreach & Location

BEEEx developed the NAPHN 2016 Policy Sessions in partnership with the New York State Energy Research & Development Authority and New York Passive House. The sessions benefited additionally from outreach by the following individuals:

Robert Cavey, Praxis
Dave Ramslie, Integral Group
Bronwyn Barry, Passive House California

Parsons School for Design generously hosted the sessions at Wollman Hall.

Content & Format

Among policy stakeholders there is a clearly recognized divide between the policies necessary to encourage progressive measures on new construction or whole building renovation projects, and the measures needed to ensure more frequent and more comprehensive incremental retrofits of existing buildings. This divide between new and existing buildings defined the two sessions.

The first session, titled "*Implementing Passive House Policy*", benefited from the few communities that have required Passive House as a kind of energy code or for a specific sub-set of buildings. The second session, "*Catalyzing Retrofits*", focused on the much less mature issue of how to encourage deep retrofits of existing buildings.

In each session, four carefully selected speakers were asked to provide a 10-12 minute presentation to spark dialogue on a specific set of issues. The agendas were structured such that two speakers with similar programs or messages presented back-to-back, followed by a facilitated group discussion. Opening and closing remarks were limited to ensure the maximum time for group dialogue.

The sessions were invite-only and were not recorded to ensure a frank and open dialogue, including a focus on challenges or areas where policy prescriptions have not met expectations.



executive summary

Credit: Marken Design+Consult
A rendering of MURB - Vancouver, BC

The most important point of consensus reached during the policy sessions was the simple fact that the Passive House standard and its retrofit counterpart, EnerPHit, are policy tools that can be successfully utilized to drive down energy use across most segments of the building sector. Accelerating the retrofit of existing buildings was identified as perhaps the most difficult challenge that cities face. There was general agreement that communities should provide guidance to building owners and managers to help them avoid shallow retrofit measures that might preclude future savings and place climate action goals out of reach. To achieve significant progress, comprehensive education and training is needed across all building industry stakeholders, from owners and engineers to contractors and tenants. Acclimating a market sector with so much financial and cultural inertia requires patience and careful planning, especially in large urban markets.

session 1: policy implementation

June 13, 2016, 12:30 – 2:30pm

A number of communities have either implemented Passive House as energy code, or are in the process of integrating Passive House principles into their regulations. The goal of this session was to learn from policy stakeholders directly engaged in this work about the degree to which Passive House is being used as a policy tool, the specific challenges jurisdictions have encountered while doing so, and the specific solutions implemented to reduce friction for those policies.

Lessons from Abroad

Jocke Dockx
Policy Advisor, Brussels, Belgium, EU

Emma Osmundsen
Housing Development Manager, Exeter, UK

North American Perspectives

Sean Pander
Green Building Manager, Vancouver, British Columbia, Canada

John Lee
Deputy Director for Green Building & Energy Efficiency, Mayor's Office of Sustainability New York City, US

Session 1 Summary

The session 1 presentations and discussions included the following actionable ideas:

- Policy makers should not rush into using Passive House as a regulation. Time and attention will be required to acclimatize the community to the concepts and requirements of Passive House.
- At the level of permitting and certification, a uniform calculation method is suggested. Where feasible, use existing modeling or compliance software.
- The first generation of Passive House projects may not experience severe growing pains due to those projects having highly motivated teams of professionals involved.
- Requiring occupants to use unfamiliar systems can backfire, reducing anticipated efficiency. Before incentivizing unfamiliar systems, consider using standard systems to achieve sufficient efficiency without the risk of operational problems.
- Communicating costs of Passive House projects will evolve as market entry grows, with a reduction in design, labor and equipment costs as each generation of deep efficiency is completed.
- Measuring energy use and interior conditions is critical to ensure long term support from public and private policy stakeholders, allowing data to dictate mid-course corrections. Data should be made available to the industry, including the press.
- Providing broad education for designers, consultants and contractors is critical to the success of Passive House projects. These industries will need specific tools to achieve the goals of Passive House projects. Focusing on education is fundamental to promoting this way of building.
- Careful understanding of the local climate and associated heating and cooling needs for each sector is critical to mapping successful approaches to Passive House.
- Financial incentives make a difference in attracting initial attention within the real estate and building industry. Incentives may be phased out as evidence of Passive House performance speaks for itself.
- Tackling building energy use, especially within existing buildings, requires a "silver buckshot" approach. There is no single answer to the problem.



Credit: Dujardin

A rendering of Frontispice - Brussels, Belgium

session 2: catalyzing retrofits

June 14, 2016, 12:30 – 2:30pm

For most communities, retrofitting existing buildings represents a critical challenge to meeting carbon reduction goals. Even if all new buildings were to achieve net-zero energy use, most communities would still need significant carbon reductions from within their existing building stock. The older and denser a city is, the more paramount this issue becomes.

The second session focused on the challenges of pursuing Passive House level retrofits, and the tools and resources that might reduce friction for these high-performance projects. Special attention was paid to the challenge of working in occupied buildings, the role of sharing data, and best-practices for energizing this critically important market.

Private Sector Motivators

Scott Short

*Assistant Executive Director, Ridgewood Bushwick
Senior Citizens Council*

Dana Schneider

*Managing Director, Energy & Sustainability
Services, Jones Lang Lasalle*

Public Sector Catalysts

Tomas O'Leary

*Co-Founder & Managing Director, Passive House
Academy*

Loic Chappoz

*Project Manager, NY State Energy Research &
Development Authority*

Session 2 Summary

The session 2 presentations and discussions included the following actionable ideas:

- Affordable housing is perhaps the most attractive sector for Passive House projects. Being tax exempt, operations are a much higher percentage of total projects costs, so reducing energy costs has a significant impact on total financial performance.
- Affordable housing organizations should consider providing points for projects that achieve Passive House certification, mandating PH for projects that are predetermined to be a strong fit for the standard; and/or requiring PH in programs like NYC's Mandatory Inclusionary Housing zoning initiative.
- Subsidized housing policy makers should consider utility allowance reform that incentivizes tenants to save even more, without huge decreases in rent for owners.
- Energy savings are much discussed, but the other benefits of Passive House are often the ones that convince tenants and occupants to support retrofits. These include: delivering cleaner air, reducing ambient noise, reducing cooking odors, managing pest and moisture problems.
- In addition to professional education for designers, engineers and consultants, the public sector should consider certification programs for critical installers, including window, façade and drywall/vapor barrier systems.
- Financial tools, like a retainer held in escrow and only paid to the developer when energy performance is confirmed, should be considered to directly motivate owners and builders to prioritize actual (rather than estimated) energy performance.
- For larger buildings attempting retrofits, energy modeling is a critical tool to define project scope, while also enabling continuous commissioning. Modeling allows for easier “tuning” of a project to the specific needs of the owners/occupants.
- The order of retrofit measures is critical. First, reduce external loads. Second, reduce internal loads. Only then, retrofit systems to match new needs.
- For continuously occupied buildings, thoughtful and committed tenant engagement is critical to limiting delays and meeting overall goals.
- Project support can be gained through packaging efficiency upgrades with more tangible upgrades that directly benefit tenants/occupants. One example was new kitchens being provided alongside ventilation and envelope upgrades.
- Communities should identify retrofit measures that are so shallow they lock out future savings, and, because capital has been expended that might be put to more effective use, can make climate action goals more difficult to reach.
- Early demonstration projects in each market segment (multifamily, institutional, etc.) are critical to spreading the story of Passive House across the entire sector, as well as motivating manufacturers to deliver relevant products.



Credit: AFLS+P

A rendering of St Sidwell's Point - Exeter, UK

conclusions

The Passive House building performance standard represents one of the most powerful policy tools available to reduce energy use across most segments of the building sector. While Passive House presents a series of challenges, they are largely surmountable, and the deep, predictable benefits of the standard ensure that it will play a central role in policy planning for virtually every major city in North America. This is especially true in the case of new buildings or major renovations of existing buildings.

With regard to building energy use, the most difficult challenge facing many cities may be the incremental retrofitting of existing building stock. The vast majority of these buildings are not likely, in the natural economic cycle, to undertake deep, effective changes to the systems that use, or impact the use of, energy. Here as well, Passive House offers solutions in the form a retrofit counterpart to the original standard- called EnerPHit.

The policy session attendees were in general agreement that communities should provide guidance and incentives for building owners to develop long-term plans following the EnerPHit model to ensure that each time a change is necessitated in a building, the upgrade put in place will position the building to ultimately meet a very high standard of energy performance.

Education and training is required for the set of professionals that develop, design and build projects, but also for the tenants and occupants of buildings on how Passive House buildings are different, and how the systems operate most effectively. For maximum effect these educational activities should focus beyond utility savings to the significant benefits of buildings with high performance envelopes and high performance, high efficiency ventilation systems.

A sector with such considerable inertia will require significant attention to motivate action, key components will include providing direct financial incentives as well as working with the financial sector to ensure that underwriters weigh the benefits of Passive House certification when valuing assets.

NAPHN intends to organize similar sessions at their next annual conference (Oakland, California, October, 2017). There was significant interest in providing a forum for attendees to connect with one another in the interim. Since these sessions (as well as similar sessions held at the 2015 NAPHN Conference in Vancouver) focused on high level policy issues, many suggested that the next sessions should select a limited number of technical challenges and focus on how cities are surmounting them. These might include those listed above, retrofit incentives, education and training, or the role of financing.



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t.212.349.3900

June 13th, 2016

Parsons/New School, Wollman Hall, Room B500, 12:30-2:45 pm

NAPHN 2016 Annual Conference

Policy Breakout Session Agenda

Passive House Policy Implementation

The goal of this invite-only session is to understand the degree to which Passive House is being used as a policy tool, the specific challenges jurisdictions have encountered while doing so, and the specific solutions implemented to reduce friction for those policies. The session will feature short, select presentations from thought leaders in the area of Passive House policy implementation which are intended to foster robust dialogue and unreserved knowledge sharing.

AGENDA

12:30 Leave Metropolitan Pavilion

12:45 Arrive Parsons, Lunch served

1:00 Welcome & Introductions

1:10 Lessons from Abroad

Joke Dockx

Policy Advisor, Brussels Environment Administration, Brussels, Belgium, EU

Emma Osmundsen

Housing Development Manager, Exeter City Council, Exeter, UK

1:35 Dialogue

1:55 North American Perspectives

Sean Pander

Green Building Manager, Vancouver, British Columbia, Canada

John Lee

Deputy Director for Green Building & Energy Efficiency, Mayor's Office of Sustainability, New York City, US

2:20 Dialogue

2:40 NAPHN 2017 Look Ahead

2:45 Close

2:45 Return to Metropolitan Pavilion



Session 1 Attendees

Lois Arena
Steven Winters Associates

Bronwyn Barry
North American Passive House Network

Rob Bernhardt
CanPHI West

Gina Bocra
NYC Department of Buildings

Robert Cavey
Praxis

Michael Deane
Turner Construction

Christopher Diamond
NYCEEC

Jocke Dockx
Brussels Institute for Environmental Management

Seth Federspiel
City of Cambridge

Scott Foster
UNECE

Scott Frank
Jaros Baum & Bolles

Tom-Pierre Frappe-Seneclauze
Pembina Institute

James Freihaut
Penn State University

Maureen Guttman
Building Codes Assistance Project

Greg Hale
NYS Governor's Office, Energy & Finance

Christopher Halfnight
Urban Green Council

Chris Higgins
City of Vancouver

Emily Hoffman
NYC Department of Buildings

Laura Humphrey
NYSERDA

Laurie Kerr
Urban Green Council

John Lee
NYC Mayor's Office of Sustainability

Katherine Lomaskin
Siemens

Christopher Mahase
Housing Preservation & Development

Tim McDonalds
Onion Flats

Buck Moorhead
Buck Moorhead Architect / New York Passive House

Emma Osmundsen
City of Exeter

Sean Pander
City of Vancouver

Dave Ramsle
Integral Group LLC

Patricia Thompson
Praxis

Cameron Thomson
Arup

Michel Wallemacq
Embassy of Belgium to the US

Presentations

Joke Dockx
Brussels
Environment
Administration
[http://be-exchange.org/media/
NAPHN_Policy_Briefing_
Presentation_1.1-2.pdf](http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_1.1-2.pdf)

Sean Pander
Green Building
Manager,
Vancouver
[http://be-exchange.org/media/
NAPHN_Policy_Briefing_
Presentation_1.3-1.pdf](http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_1.3-1.pdf)

Emma Osmundsen
Exeter City Council
[http://be-exchange.org/media/
NAPHN_Policy_Briefing_
Presentation_1.2-1.pdf](http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_1.2-1.pdf)

John Lee
NYC Mayor's
Office of
Sustainability
[http://be-exchange.org/media/
NAPHN_Policy_Briefing_
Presentation_1.4-1.pdf](http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_1.4-1.pdf)



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June 14th, 2016

Parsons/New School, Wollman Hall, Room B500, 12:30-2:45 pm

NAPHN 2016 Annual Conference

'Catalyzing Retrofits' Breakout Session Agenda

This invite-only session will focus on the challenges of pursuing Passive House retrofits, and which tools or resources might reduce friction for these high-performance projects. Special attention will be paid to the challenge of working in occupied buildings, the role of sharing data, and how best to energize this critically important market. The short, select presentations are intended to foster robust dialogue and unreserved knowledge sharing.

AGENDA

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12:45 Arrive Parsons, Lunch served

1:00 Welcome & Introductions

1:10 **Private Sector Motivators**

Scott Short

Assistant Executive Director, Ridgewood Bushwick Senior Citizens Council

Dana Schneider

Managing Director, Energy & Sustainability Services, Jones Lang Lasalle

1:35 Dialogue

1:55 **Public Sector Catalysts**

Tomas O'Leary

Co-Founder & Managing Director, Passive House Academy

Loic Chappoz

Project Manager, NY State Energy Research & Development Authority

2:20 Dialogue

2:40 NAPHN 2017 Look Ahead

2:45 Close

2:45 Return to Metropolitan Pavilion



Session 2 Attendees

Lois Arena
Steven Winters Associates

Rob Bernhardt
CanPHI West

Robert Cavey
Praxis

Loic Chappoz
NYSERDA

Michael Deane
Turner Construction

Christopher Diamond
NYCEEC

Seth Federspiel
City of Cambridge

Scott Foster
UNECE

Tom-Pierre Frappe-Seneclauze
Pembina Institute

James Freihaut
Penn State University

Hriza Gatzoulis
Jones Lang Lasalle

Maureen Guttman
Building Codes Assistance Project

Chris Higgins
City of Vancouver

Laura Humphrey
NYSERDA

Ali Levine
NYC Mayor's Office of Sustainability

Christopher Mahase
Housing Preservation & Development

Buck Moorhead
Buck Moorhead Architect / New York Passive House

Robin Neri
Steven Winters Associates

Tomas O'Leary
Passive House Academy

Sean Pander
City of Vancouver

Dave Ramslie
Integral Group LLC

Dana Schneider
Jones Lang Lasalle

Scott Short
Ridgewood Bushwick

Patricia Thompson
Praxis

Presentations

Scott Short
Ridgewood
Bushwick Senior
Citizens Council
http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_2.1.pdf

Tomas O'Leary
Passive House
Academy
http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_2.3.pdf

Dana Schneider
Jones Lang Lasalle
http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_2.2.pdf

Loic Chappoz
NYSERDA
http://be-exchange.org/media/NAPHN_Policy_Briefing_Presentation_2.4.pdf

about this report

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Bronwyn Barry,
Co-President, Passive House California

Location of Sessions

Parsons School for Design
Wollman Hall

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