

Owner's Roundtable #3:

Owners' Feedback Loop:
Occupancy, Measurement, and
Management

Insights from the virtual conference

Passive House 2020: Choose Your Future

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Introduction

A climate emergency, global pandemic and social crises ask: How will you change? What will you choose to do? #PH2020, embraced these tough fundamental questions and provided participants with actionable answers. A goal of the conference was for attendees to achieve clarity about the role of Passive House, in conversation with building developers who've done it, through a series of owner roundtable discussions. Industry leaders shared the inside story and discussed important themes such as opportunities to leverage changing public policies, consumer awareness, and industry competence, to make built environments that support the business and life goals most meaningful to all of us. Owners shared how they think about Passive House, what's involved in the process of taking on something like Passive House, and then what choices and decisions they made along the way.

This is the third of a series of three eBooks which will provide you with highlights of the Owners Roundtable Sessions.

The formula is simple: put together a group of experts and ask them to share their insights and experiences bringing their projects from concept to implementation. Panels are moderated by Beth Eckenrode, Co-founder of Auros Group, and consist of guests with diverse backgrounds, perspectives and experiences in Passive House.

During the first session, *Owner's Roundtable #1: Deciding To Do It - How Owners Choose Passive House*, five panelists explored how owners decide to pursue the Passive House Standard and the role that certification plays in team clarity and decision making.

In *Owner's Roundtable #2: How Owners' Do it. Making Passive House Good Business*, the roundtable explored how owners go from concept to implementation and talk about the process of going through design, construction, and commissioning on a Passive House project.

Now in this concluding session, *Owner's Roundtable #3: Owners' Feedback Loop: Occupancy, Measurement, and Management*, panelists explored what owners and developers should consider when it comes to operations. Once they have certified Passive House and done everything to get performance, how does one know their property is performing and achieving all the goals previously established? In this conversation, building developers shared their learnings and experiences while the audience chimed in to add their own perspectives.

Together the three roundtables and eBooks provide a full picture of the challenges, opportunities and decisions made by owners, in their own words.

How the eBook was made

During the multiple-day live event, crucial thoughts and ideas bubbled up through the speakers' conversation, the attendee chat and the popup questions. Through carefully curating and reflecting on the subsequent transcripts and popup data, the information was organized to render the essential intellectual output of the sessions accessible to anyone who browses this eBook!



Owner Roundtable #3 Speakers

The attendees' conversations were set in motion by the following speakers who generously gave us their time, thoughts, and themes of discussion. Thank you!



Beth Eckenrode, RESET AP - Moderator

Co-Founder
Auros Group
Pittsburgh, PA



Alex Kaplan

Project Manager
Hudson Companies
New York, NY



**Emma Osmundsen, BSc (Hons) Pg Dip (Arch Conserv) MA
MRICS**

Managing Director
Exeter City Living Ltd (Exeter City Council)
Exeter, UK



Ryan Cassidy, CPHC

Director of Sustainability & Construction
RiseBoro Community Partnership
New York, NY



Tim McDonald, RA, CPHC, CPHT

President
Onion Flats
Philadelphia, PA



Tom Shircliff, Counselor of Real Estate (CRE)

Co-Founder & Principal
Intelligent Buildings, LLC
Charlotte, NC

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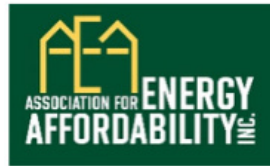
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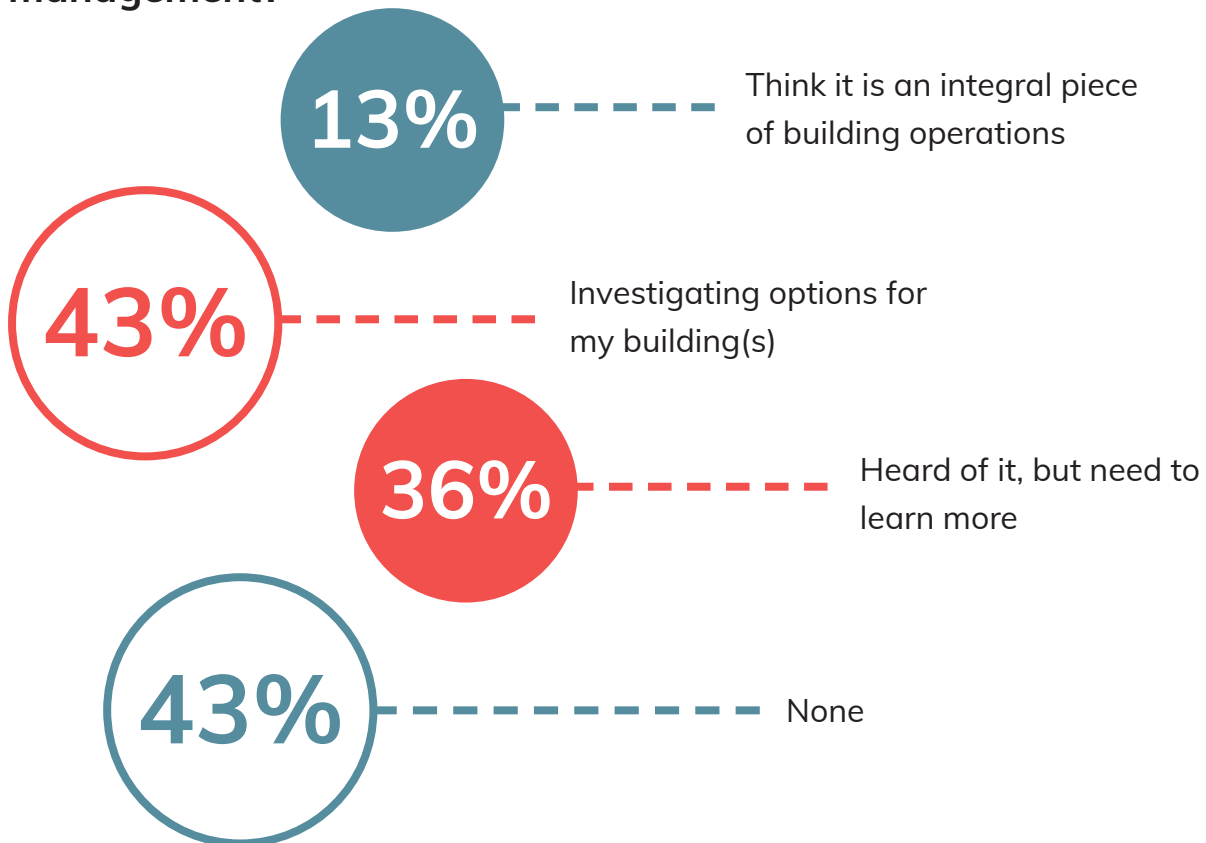
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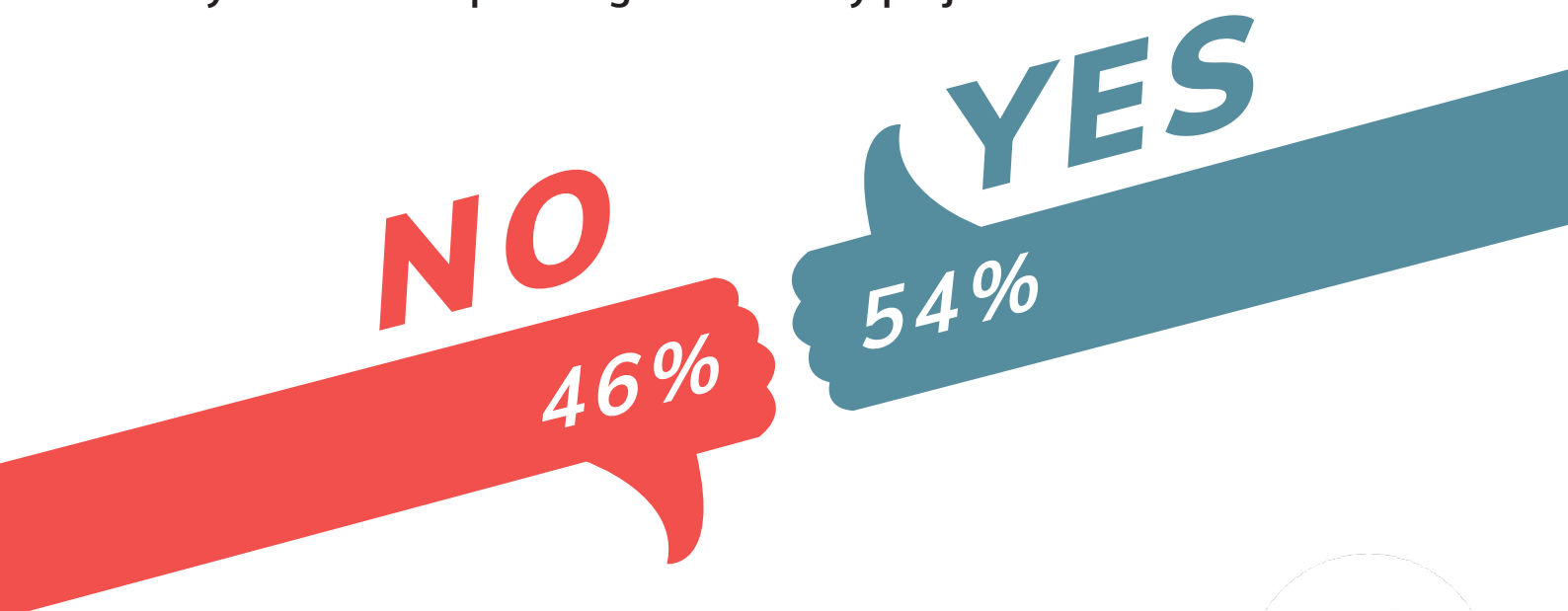
Data Visuals

The following visual representations provide an overview of Passive House 2020 highlights!

What is your level of understanding of real-time energy management?



Do you have an upcoming multi-family project?



Conversation Highlights

During the third roundtable, Beth Eckenrode was joined by Alex Kaplan, Project Manager at Hudson Companies; Emma Osmundsen, Managing Director, Exeter City Living Ltd; Ryan Cassidy, Director of Sustainability & Construction; Tim McDonald, President, Onion Flats, and Tom Shircliff, Principal, Intelligent Buildings, LLC. who shared their experiences on capturing the right data and measuring the performance of their buildings.

How Much Do You Measure?

One of the first questions that comes to mind when trying to assess performance is what data need to be captured and measured. How much is enough and how much is too much? Developers many times are overwhelmed by the amount of work and possibilities when make case for Passive House.

Being one of the pioneers in Passive House in the United Kingdom, Emma Osmundsen, of Exeter City Living, confessed that data collection was critically important to their early projects, as many were 'UK firsts,' as they worked to establish their credibility early on. "Our earlier projects had a lot of monitoring equipment built into them, looking at not just kind of the energy efficiencies, but actually how the buildings were performing in terms of thermal comfort, level of humidity, acoustic comfort. We hardwired a lot of hard monitoring equipment, as well as undertaking quite a lot of soft monitoring. We were interested in terms of getting feedback of how our residents felt and used their homes," she explained, adding that the amount of monitoring has decreased over the years, as their reputation has been established. "We monitor far less now because we have 12 years of tried and tested Passive House homes that perform, and we've been able to refine the feedback learning loops on each and every project to just get better and better."



Alex Kaplan, of Hudson Companies shared her experience serving a very distinct yet engaged population: Cornell Tech School Students. “We actually implemented a dashboard in the lobby that tracks all electricity and all utility consumption. The idea was always to have floor by floor competition, so we were always aggregating on a floor by floor basis,” she said. “Our assumptions were students were going to be really engaged in the green part of the building, but actually they’re engaged in the money saving part of the building and that’s led them to the green conversation,” she concluded.

How Do You Measure What Matters?

For Tom Shircliff, of Intelligent Buildings, LLC, the answer lies with another question: What are your goals and what are you trying to accomplish? “Ironically, even though we are a smart building services company, we typically start with a use case conversation, which is not about technology. What do we want to occur? What do we want to happen? And there’s so much technology we can make it so, plus it’s easier to have the conversation in non-technical terms,” he explained, warning that companies should not be creating additional burdens when it comes to performance measurement. “Whereas you would assume that almost every organization has existing organizational goals and smart technology and even data really should be going towards that, not creating measurements you didn’t have before.”

Ryan Cassidy confessed his thoughts on the issue have evolved. “We started really simply with designs that didn’t measure anything and we just expected the buildings to perform because we had a really great architect, Chris Benedict, who guided us along that path. And now we are almost compelled, because as the city learns more and has more stakeholders learn more about Passive House, they’re asking more questions. It’s a good point that’s already been raised here about getting sucked into these data mines of operational goals that maybe we don’t need to be in, especially if the expectation around the underwriting. If you are not underwriting to the full Passive House performance, then there is a lot of protection there in terms of risk about how your building performs. Our early buildings had no measurement whatsoever. We were just getting utility bills and paying them, and we were not underwritten to do anything special. We just had a building that cash flowed well. But now I find myself having long conversations with government agencies about what we are submitting and who is paying for what,” he concluded.

Osmundsen urged the audience to be conscious when requesting input. “When you are thinking about monitoring, you are mindful of what feedback you’re seeking and how you’re going to use that feedback. Because for us, the most compelling feedback that we have that wins the political support and has allowed us to really grow our portfolio is from our occupants. When we have occupants that tell us, ‘I love my home.’ We know that 60% of our occupants haven’t switched the heating on for some of them for 12 years. That completely blows people’s perception of what Passive House is about and it gets them interested. I think it’s the strength of the occupier feedback that really is allowing us to have Passive House really catalyze into a much bigger movement,” she shared enthusiastically.

Making the Business Case

Tim McDonald, of Onion Flats, highlighted the difference affordable housing funding and institutional funding. “I want to make a really clear distinction between affordable housing and how it gets funded versus institutional funding, a typical conventional market rate funding. They are fundamentally different. What I find is there is not enough data out there to change the market rate as much as there is to change the affordable housing world. Why? Because the way affordable housing gets funded is through competition. That is not the way market rate housing gets funded. It is competition, it’s through tax credits. There are not enough tax credits to go around and every state has a funding agency that delivers these tax credits every year. About two thirds of the developers that apply for that funding don’t get funded. That means serious competition,” McDonald explained. “In this case, getting buy-in from major stakeholders and decision-makers is paramount. “We convinced an affordable housing agency, the Pennsylvania Housing Finance Agency, to just simply add more points, 10 more points, optional points if developers went after Passive House. No developer understood what that was. They did not know what Passive House was, and yet more than 30% of the applicants, took the Passive House points. We call it nudging the industry in that direction. They were not happy about it. Let me be clear, they were in a sense not being nudged, being forced, because if they didn’t choose those points, somebody else would choose those points,” McDonald said with a bit of pride, before concluding that the majority of state agencies that had spoken with was more skeptical and said they needed more data to start requiring best efforts in Passive House. However, he is confident the shift will happen as data become available.

Osmundsen believes that Passive House itself is the business case. “We take a triple bottom line approach to all our developments, whether they’re open market sale, affordable housing or a commercial property. Increasingly I’m finding that funders are more interested in developments that can offer triple bottom line outcomes. We want basically buildings that are environmentally responsible. Well, Passive House ticks the box. We want homes that are socially responsible or buildings that socially responsible. They’re looking at the health benefits and the welfare benefits of those people that occupy them or utilize those people that occupy them or utilize those buildings. We want buildings that are financially responsible, and Passive House doesn’t need to be expensive. It does not need to be a premium for Passive House,” she added.

Kaplan believes that we are about to witness a shift in the way different stakeholders see Passive House, especially the public. “We’re talking about the people doing and building Passive House, we’re talking about the governments. But I think what’s going to shift and you’re going to see a shift with actual people on their view on Passive House,” she explains, adding that as consumers get more educated, Passive House will become more attractive. “I heard a great statistic that between 2004 and 2014, the average utility cost for a household in the US went up 39%, but income growth went up 0.9%. With all of the eyes opened to people facing injustice and all of the things going on and the various political movements that we see outside of our windows every day, I think you’re going to see a real shift to how energy is involved in this,” Kaplan adds.

Better and Healthier Buildings

With COVID-19 and the increased amount of time we have all spent inside our homes, indoor quality has become a more significant issue and so has space maximization. Osmundsen has seen it firsthand. “The lockdown in the UK has obviously forced a lot of people to spend awful lot of time in their homes. We are going to be seeing a change in terms of people’s expectations and wishes with regard to the design of their homes. They are going to be looking at greater outside space or balcony space, as well as having more fluid internal layout, so that homeworking becomes more feasible. And that the environment that people are then spending 90% plus of their time is much more conducive to their health and wellbeing,” she said with optimism. She indicated that selling points for Passive House are likely going to change as well. “When we look to sell our Passive House homes, we probably market more of the health benefits than we do the energy. We find that consumers are far more likely to invest in their health and wellbeing than they are at energy, notwithstanding the fact that as we move to a decarbonized rate, then energy costs are likely to grow increasingly, Osmundsen explained.

Cassidy, of RiseBoro Community Partnership, said his group has always looked at Passive House more holistically. “I’ll say that we’ve always framed Passive House as just a better building method – in terms of thermal comfort, occupant health, energy. It is really a quality building system as much as it is in energy measure. One of the outputs of a quality building is that if you’ve got controlled ventilation, you’re providing fresh air to all your tenants all the time. That’s a great thing and almost no other buildings, especially here in New York, can say,” pointing out a significant competitive advantage. He encouraged developers to go beyond the efficiency selling point and go the extra mile to show that their buildings are indeed healthier. “If you can show that your tenants are healthier in these buildings, and their tenants that are on Medicaid or Medicare, these are really powerful levers now that we can use to build more affordable housing and better quality of the house,” he concluded.

Kaplan agreed, adding that in their building at Cornell Tech, they have a large international population and some of those residents who come from very dense and polluted cities in China have said they have seen their asthma significantly improve upon moving into the building. “COVID will shed a light on this, but once there is more of a full understanding of all of the public health impacts and results from living in Passive House, you’re going to see a broader shift,” she reiterated.

Shircliff also pointed out that his group had also started talking about health risks as an important driver to build Passive House. “I would say that for what we’ve seen with our customers, the conversation has gone from health and wellness to public health. The subtle difference is ‘health and wellness’ is making myself a little bit better. Public health is: don’t make it worse. That’s been a much stronger driver, for example, not only with indoor air quality, but even things like Legionella in the water, either portable or processed water, Legionella and COVID, there’s never turning from that combination if you get those,” he cautioned the audience.

Getting Buy-In and Educating Stakeholders

To Shircliff buy-in from the top layers of an organization is key but it needs to trickle down. “You’ve got to speak to the highest levels of the organization that we’re going to help get the organization there. That will give you that constant top down support. However, in implementing it, you have to be empathetic and courteous and understand how people’s day jobs actually go. And if you do those two things, you will get there,” he warned the audience. Osmundsen said she has invested a significant amount of time educating their stakeholders. “The success of a lot of our Passive House projects is completely embedded in education. From a facilities management viewpoint, we engage with our facilities managers during the design process for each project, so that we understand the culture of what we are seeking to achieve. But they also understand the physics of Passive House, and I think by involving them early on, they get the Passive House bug. They are actually extremely interested. They maintain a degree of curiosity.”

Words of Wisdom and Parting Thoughts

“The real core of this is developing a Passive House that works, and that Passive House is inherently, if it’s built correctly, going to perform. It is important for the Passive House community to relay that this method of building is driving down your energy use in such a dramatic way that if you are off by five or 10%, it’s not breaking your budget the way when you’re off five or 10% on a standard building.”

Ryan Cassidy

“I’ve found success in trying to get either individual developers or housing finance agencies or clients to take on Passive House by treating it unlike what a lot of early Passive House people did. They talked about how big the walls are, how unique everything is. I do the exact opposite. I say how simple it is. I demonstrate by showing them. It is all about demystifying this idea of monitoring because people see just like they see triple pane windows, ‘Oh, that’s an addition to my budget. Monitoring, that’s an addition to my budget.’ No. I will show you why it’s actually reducing your budget because I distinguish between metering versus monitoring.”

Tim McDonald



St. Sidwells Leisure Centre
Image credit: Exeter City Living Ltd.



"With Passive House, it's so much more than just monitoring. It is about the physics performance. I would urge clients or potential clients to think about Passive House way beyond energy consumption and look toward its comfort for months. The Passive House Institute spent 30 years developing, tweaking, refining, fine tuning, so all the hard work's been done. You just need to have confidence and understand that this is a standard that is tried and tested, and will work for you, and it won't disappoint."

Emma Osmundsen

"If data is intimidating to you, at least start by the Hippocratic Oath: first do no harm to getting the data. Get non-proprietary systems, think a little bit about cyber security and how you are going to eventually collect that data. So by choosing a non-proprietary and secure solution, at least you've enabled yourself. And if you want more data later or find out more things to do with it, you are allowed to do that."

Tom Shircliff

You can get into analysis paralysis all you want, but when thinking about Passive House, it's important to think about the cost of not doing it at this point, both monetarily and beyond that. I think that once you started thinking about all the benefits globally, it becomes a straightforward choice."

Alex Kaplan

Q&A from Popups

For the entire duration of the virtual event, an attendee chat function allows all stakeholders to interact and develop the conversation in whatever organic direction it takes. For the specific, designed questions that we want to ask all virtual attendees, we have pop-ups! The following question appeared to the entire audience.

How much Passive House construction is Renovation vs. New Construction?

Mostly new construction **67%**

Mostly retrofits **6%**

Roughly equal **27%**

What is the biggest challenge a new development faces as shifts from construction to occupancy?

Achieving high occupancy rates **3%**

Completing construction on time **30%**

The handoff from construction to operations teams **13%**

Training operations staff to properly operate new equipment **54%**

How would you rate Passive House growth in North America?

Moderately greater **25%**

Much greater? **14%**

Same as construction in general **18%**

Slightly greater **43%**

Q&A Within the Chat

As the event sessions played, the attendee chat came to life with questions and comments about topics being touched upon. Here are a few exchanges between event participants:

Regarding House at Cornell Tech, as students look to move back into a dorm environment post COVID, do you think there will be more interest in continuous monitoring of Indoor air quality?

I do think they will be thinking about indoor air quality in a new way as we have all woken up to some of the systems that were “invisible” to the average apt bldg resident” and are seeing them in a new light. In particular the filtration through the ERV.

As other developers and city leaders are just now “cutting their teeth” on PH, the ability to continuously monitor performance allows for earlier recognition of success. Do you think having early indication of success in performance is important for leaders to gain confidence in PH, especially in the early days?

Adoption of monitoring for early projects is vital for securing confidence particularly for your critics! I would monitor hard data as well as qualitative feedback from building occupants - they usually provide the most compelling evidence for adopting passive house!

It is often more expensive to install metering in multi-residential passive house developments than the cost of the heating!

You need to be mindful that you do not overwhelm your audience with too much data - sometimes less is more.

Passive House is simple - honestly. It's a message that sells to developers once they get it.

Advice from a sales professional; Sell EMOTION and VALUE. That's really all anyone is looking for unless they are a nerd

Community Takeaways

As the pre-recorded session played, an attendee chat allowed all stakeholders to interact and develop the conversation in whatever organic direction it took. We invite you to enjoy the selected questions, comments, stories, ideas and resources shared below.



We get financial scrutiny from a lot of places 1) agencies/ subsidy 2) lenders 3) investors. So not only do I need to share data with those 3 stakeholders, but they all need to agree on the underwriting or “savings” we expect

The relationship between buildings and occupants is everything and PH is the key to leverage the potential....goes to trust, health, cost, etc.

Generally we were able to skip the “proof” because we built at the same price as “typical” construction. That’s still the key to the new PH building. If you can build it on budget, you have less pressure to “prove”

Cost is what you pay, value is what you get!

Great discussion everyone! Also, you guys should check out Earthships if you haven’t already... They’ve been building autonomous houses & spaces out of natural and recycled materials for over 50yrs. They’re based in Taos, NM, but build all over the world. They use thermal mass & solar gain & maintain a comfortable temperature year round in any climate!

Organisation shifts to a more valued and social / environmental agenda (triple bottom line) provides an opening for Passive House promotion

We have seen over the last 10 years that the interest in Passive House has shifted from the energy agenda to the carbon agenda to now the health agenda

I have read Zack’s paper. I still think it’s important to remember that this is a process. It takes time. PHFA didn’t require certification, now they do. The States that don’t distinguish between PH and other standards will eventually when projects get built and pressure gets put on these agencies

That is what happened in CT's latest round of the Qualified Allocation Plan (QAP). PH was thrown in with other standards for the same amount of points which completely destroys the incentive to go for PH. We launched a sizable call-to-action campaign to convince them otherwise. Results are still pending.

Love the simplicity of the PH story. It's also an upstream design effort that reduces all the downstream construction headaches.

What is needed to scale PH is a Best Practices Guide and a "parking lot" where case studies and data can be shared and accessed by all so that we are not all working in silos. Wish list!

Resources

During the live chat, speakers and attendees alike chipped in with their suggestions for further reading, resources and recommendations.

Everyone wanting to promote PH credits for Low Income Tax Credit programs, read article here on Pg.23: <https://bit.ly/3kO238m>

These are the incentives being offered in Mass. Eversource is one of the utilities providing them. The response has been phenomenal: <https://bit.ly/2FOnG9H>

“Hygiene ventilation” and the case for Green Stimulus: <https://bit.ly/331ZPfw>

This is the core topic of a recent deep- dive and intense research project that the RESET team has been conducting for the last three months. Just today RESET released a PR piece about our optimization index - geared towards understanding optimization against transmission. <https://reset.build/blogs/216>

Great blog on the topic of transmission! <https://reset.build/blogs/216>

Passive House Building Database: <https://bit.ly/3d8BojD>

Passive House Institute: <https://bit.ly/2FeaZok>

Information on Certified Passive House Designer Training: <https://bit.ly/2GxLM8W>

There is also training for tradespeople available at: <https://bit.ly/3hZN89b>

Conclusion

Given our ongoing environmental, health and social crises, Passive House 2020 embraced tough questions about how we can change business-as-usual. The owners participating in the Owner Roundtables are leading by example and providing answers. They've chosen Passive House because it can make a positive impact, and lower future risks as a result.

[Watch the video of the roundtable discussion.](#)

Complementary to the roundtable discussions, NAPHN produced an Owner's Manual for the PH2020 conference. It is full of useful articles to help building developers take action today.

[Read the Owner's Manual.](#)



This event is brought to you by:

The **North American Passive House Network** (NAPHN) is an independent national non-profit educational organization, and affiliated with the International Passive House Association (iPHA) and the Passive House Institute (PHI), located in Darmstadt, Germany.

NAPHN has chapters based in New Jersey (www.njpassivehouse.com), Washington DC (www.naphnetwork.org), the Rocky Mountain Region (www.phrockymountains.com), Minnesota (www.passivehouseminnesota.org), Western Pennsylvania (www.passivehousewpa.com), and a chapter for at-large members, Passive House America.

NAPHN supports the widespread adoption of the international Passive House design and construction standards, building science principles and protocols, as a critical response to our climate crisis - providing unparalleled effectiveness in mitigating climate disruptions and adapting to rapidly changing environmental conditions.

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