

# Make It PHun & Make Some Friends



Market Transformation Through Community Building



Hi 🖐️



# A stranger comes to town



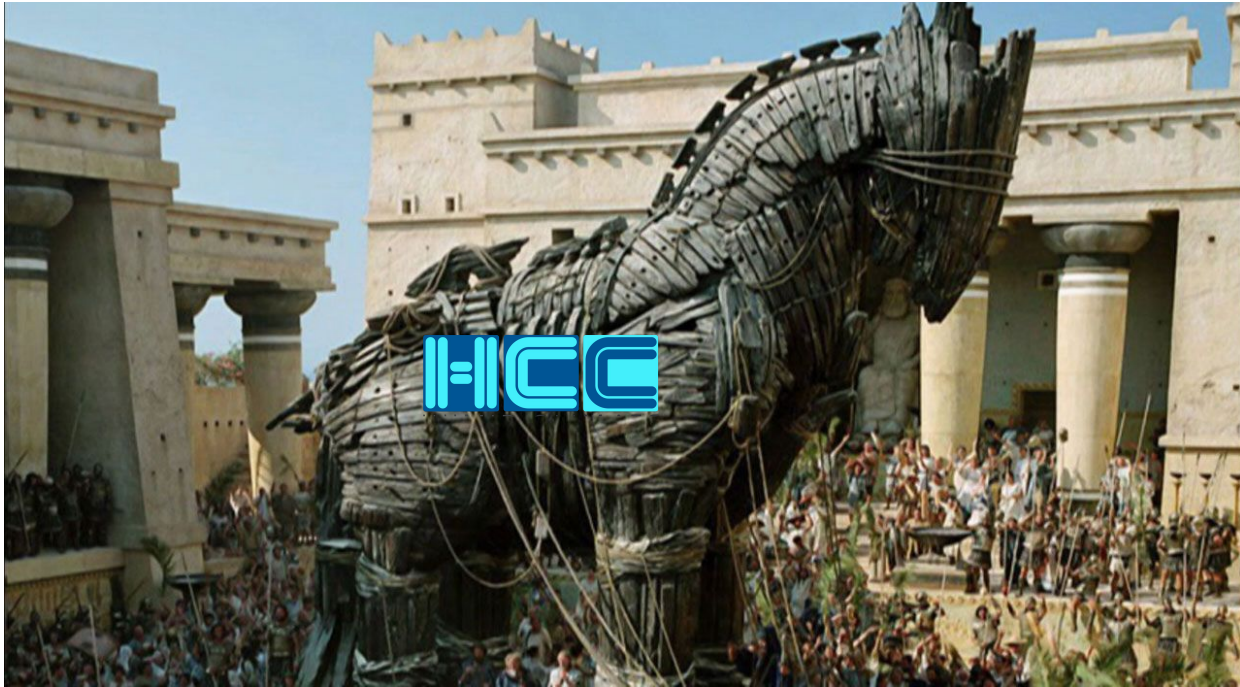
# Skepticism abounds

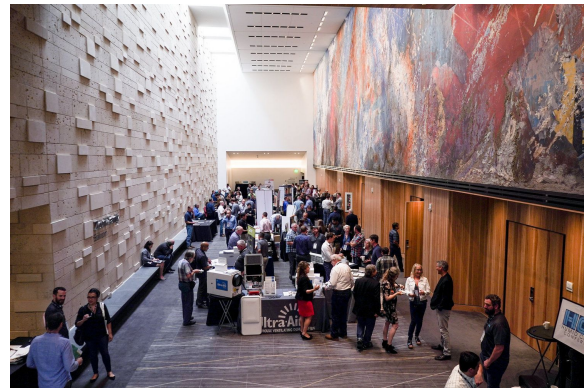


# We needed to build a community



And then trick everyone





But a conference and local chapter weren't enough

**We also needed a blood sacrifice**





# An opportunity emerges



# Build with materials already typical in the market

- **Stick frame**
- **Pier and beam (historic reno)**
- **Zip (but R)**
- **Marvin Windows**
- **Rockwool**
- **Heat pump, dehu, ERV system config (more on that later)**



# Build with “normal” materials



# Build with "normal" materials



# Do the free-and-reduced-cost-hustle-shuffle



# Project breakdown: parts & pieces

PROJECT 1505

## Theresa Passive House

Austin, Texas

BUILDING FUNCTION

Single-Family

PROJECT TYPE

Addition

ASHRAE CLIMATE ZONE

2A - Hot - Humid

CONSTRUCTION COMPLETION

2020

STATUS

Final Certified

INT. CONDITIONED FLOOR AREA

2218 sq. ft.

### Core Project Team

PHIUS CERTIFIED RATER

Ned Fischer

PHIUS CPHC (LEAD)

Trey Farmer

PROJECT SUBMITTER

Trey Farmer

# Project breakdown: parts & pieces



## BUILDING FUNCTION

Single-Family

## CONSTRUCTION TYPE

Wood Frame

## PROGRAM VERSION

PHIUS+ 2018

## INT. CONDITIONED FLOOR AREA

2218 sq. ft.

## ADD'L CERTIFICATIONS

DOE ZERH, ENERGY STAR for Homes, EPA  
Indoor airPLUS

## PROJECT TYPE

Addition

## NUMBER OF UNITS

1

## ADD'L CERTIFICATION BADGES

PHIUS+ Source Zero

## MARKET CATEGORY

Market Rate

## PROJECT DELIVERY METHOD

Integrated Project Delivery (IPD)

# Project breakdown: parts & pieces



- Modeled

ANNUAL HEATING DEMAND

2.9

PEAK HEATING LOAD

5.58

SITE ENERGY USE INDEX (EUI)

12.66

COMPLIANCE SOFTWARE

WUFI Passive

ANNUAL COOLING DEMAND

12.07

PEAK COOLING LOAD

3.73

SITE ENERGY USE INDEX (W/RENEWABLES)

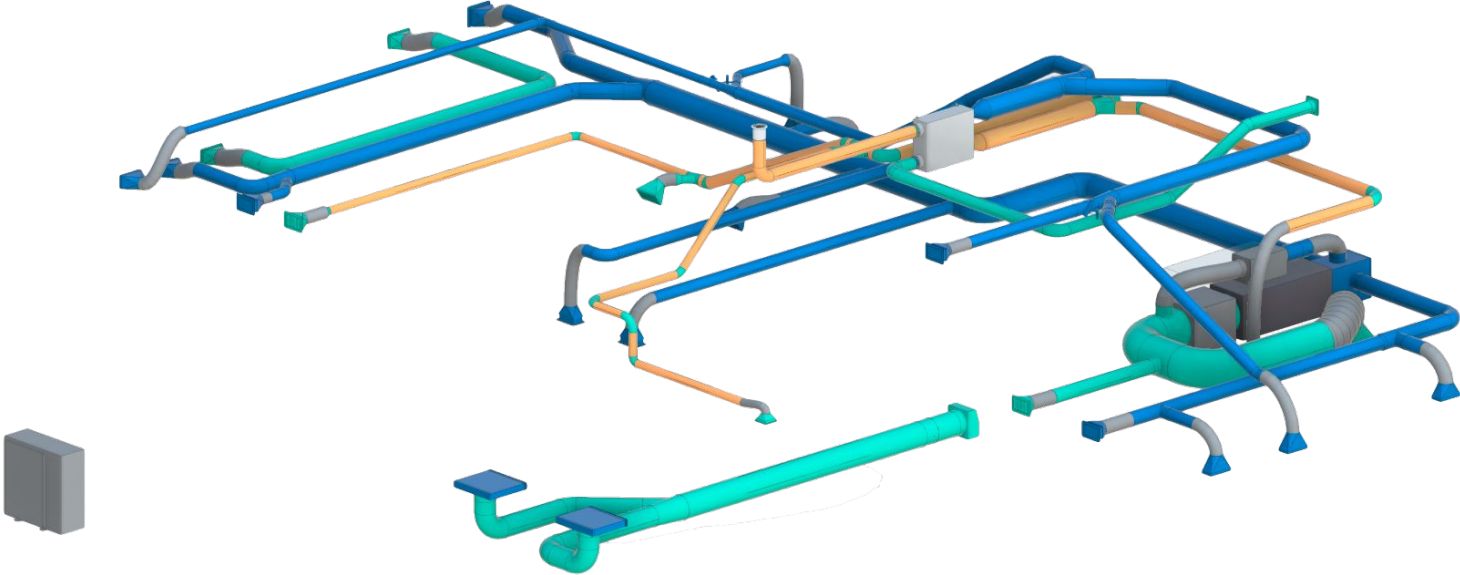
-1.76

SOURCE ENERGY (RESIDENTIAL)

6459



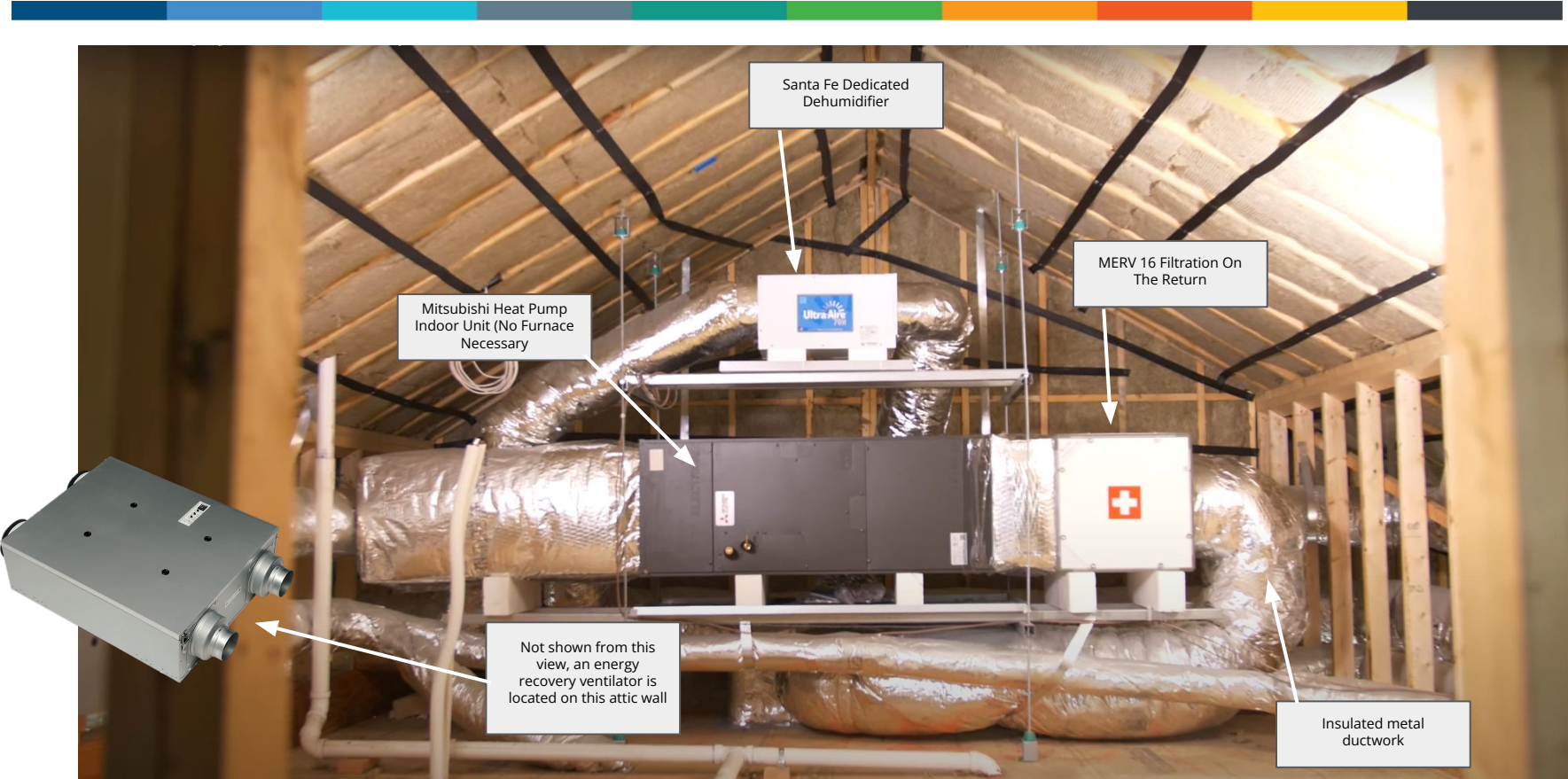
# Project breakdown: parts & pieces



# Project breakdown: parts & pieces



# Project breakdown: parts & pieces



# Challenges in 2A



- Vocal skeptics armed to the teeth with anecdotes
- Fear of the unknown
- Humidity, humidity, humidity, humidity, humidity
- Air Sealing (Culture/Code)
- Heating targets (perverse incentives bc we're SO cooling dominant)
- Ventilation strategy & local code compliance (reducing exterior penetrations)
- Fear of "vapor barriers"
  - (this is Texan for "idk what i'm doing with this building science stuff")

Use your friends to make the project. Use the project to make friends.



## Show & tell

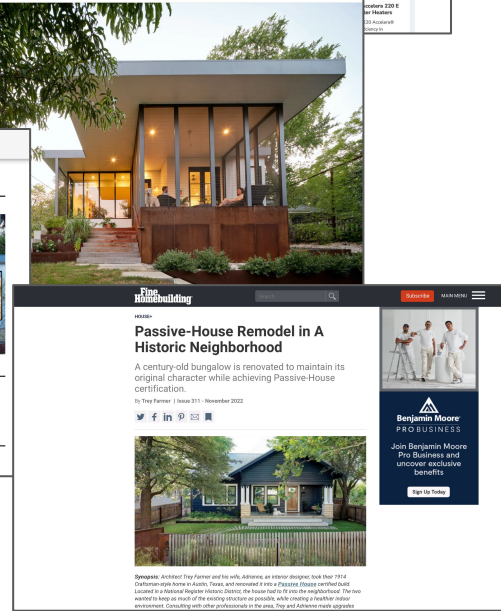
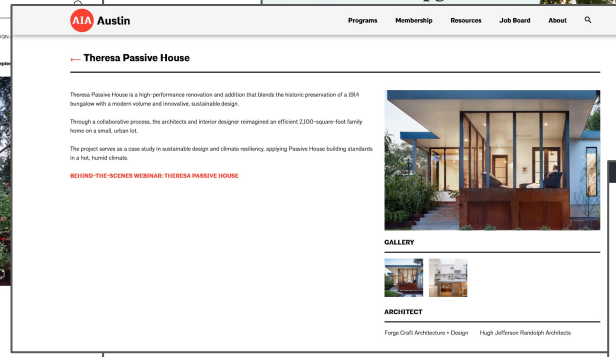
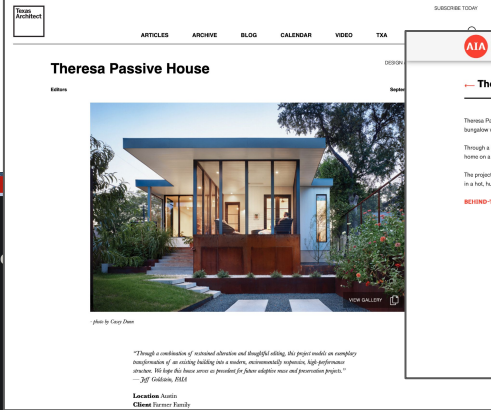
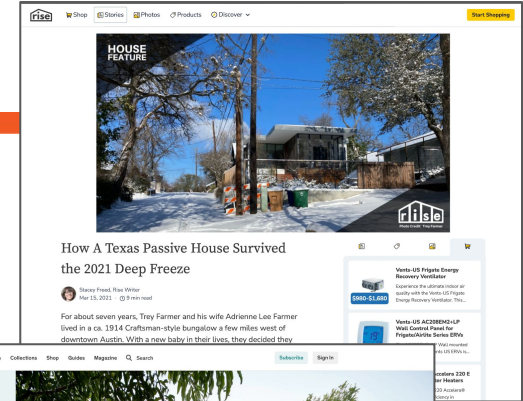


# Show & tell



# Show & tell

- AIA Homes Tour
- Publication
- Podcasts, Presentations
- BUILD Show
- Awards





# Show & tell

## DOE Tour of Zero: Theresa Passive House by FORGE CRAFT ARCHITECTURE + DESIGN

Buildings

Buildings > DOE Tour of Zero: Theresa Passive House by FORGE CRAFT ARCHITECTURE + DESIGN



"The project's airtight envelope and filtration system ensure air quality is excellent ... even when outdoor pollution is high."

- Trey Farmer, builder, FORGE CRAFT ARCHITECTURE + DESIGN



**FORGE CRAFT  
ARCHITECTURE + DESIGN**  
Austin, TX  
ForgeCraftArchitecture.com  
Project: Theresa Passive House  
Austin, TX



# Show & tell



*“Through a combination of restrained alteration and thoughtful editing, this project models an exemplary transformation of an existing building into a modern, environmentally responsive, high-performance structure. We hope this house serves as precedent for future adaptive reuse and preservation projects.”*

— Jeff Goldstein, FAIA

# Show & tell



New BUILD : Excellent Air Conditioning System Cost? I'll tell you!

Matt Risinger 1.08M subscribers

6.9K Share Thanks Clip Save

445K views 4 years ago

On this episode of The Build Show we are looking at a Killer HVAC system in this Bungalow being built by Trey Farmer, AIA of Forge Craft Architecture. We will reveal the costs for this system AND tell you how much you should expect to pay for a system like this in your next BUILD. ...more

# Show & tell



September 26, 2022 · S8 E100 · 1 hr 5 min

## Proving Passive House Is Practical, Possible, & Promising (In Climate Zone 2A)

The Building Science Podcast >

**|| Pause**

Join Kristof as he interviews architect and Passive House nerd, Trey Farmer, in a wide ranging discussion about remodeling his personal residence. The ambitious project was an endeavor to prove to the Austin

 Passive House Is Practical, Poss September 26, 2022  

July 17, 2015 · S1 E5 · 38 min left




## Passive House At A Glance

The Building Science Podcast >

**|| Pause**

The PHIUS+ 2015 Passive Building Standard provides the climate-specific sweet spot where aggressive energy and carbon reduction overlap with cost effectiveness. It accounts for a full range of variables including climate zone, source energy, and costs.

In cooperation with [Building Science](#)

 Passive House At A Glance July 17, 2015  

April 3, 2020 · S6 E85 · 47 min

## Passive House Accelerator




The Building Science Podcast >

**|| Pause**

Join Kristof as he interviews Zack Semke and Michael Ingui of Passive House Accelerator on all the great work they're doing to build community in the building science field.

[Passive House Accelerator](#)

Mission

 Passive House Accelerator April 3, 2020  




November 4, 2022 · S8 E101 · 1 hr 3 min

## Building Passion For Passive

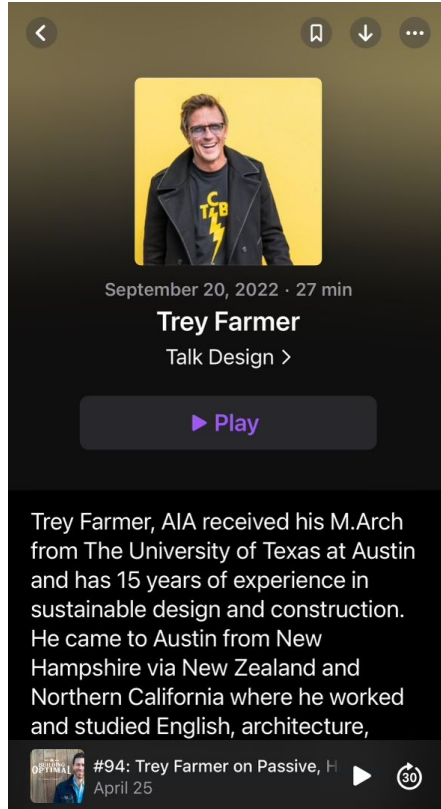
The Building Science Podcast >

**|| Pause**

Knowing how to build fantastic high performing buildings is not enough; we need to cause that to actually happen. We need high performance buildings to exist. Knowing how is necessary, but also clearly not sufficient. During this time of increasing urgency to realize new

 Building Passion For Passive November 4, 2022  

# Show & tell




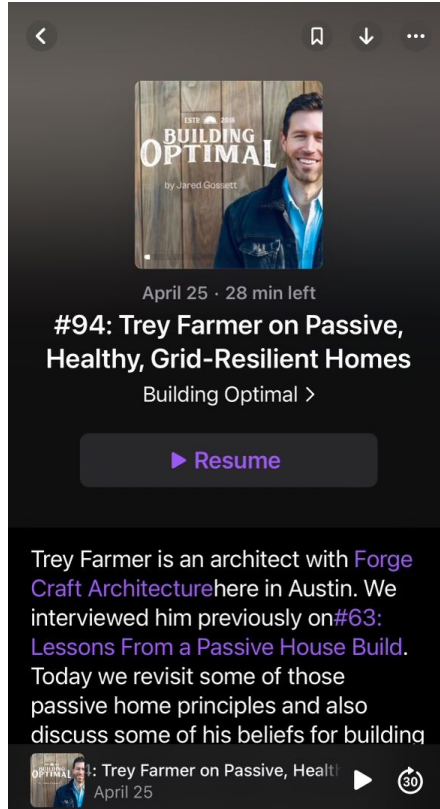
September 20, 2022 · 27 min

**Trey Farmer**  
Talk Design >

**▶ Play**

Trey Farmer, AIA received his M.Arch from The University of Texas at Austin and has 15 years of experience in sustainable design and construction. He came to Austin from New Hampshire via New Zealand and Northern California where he worked and studied English, architecture,

 **#94: Trey Farmer on Passive, Healthy, Grid-Resilient Homes**  
April 25




April 25 · 28 min left

**#94: Trey Farmer on Passive, Healthy, Grid-Resilient Homes**  
Building Optimal >

**▶ Resume**

Trey Farmer is an architect with [Forge Craft Architecture](#) here in Austin. We interviewed him previously on [#63: Lessons From a Passive House Build](#). Today we revisit some of those passive home principles and also discuss some of his beliefs for building

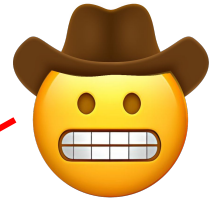
 **#94: Trey Farmer on Passive, Healthy, Grid-Resilient Homes**  
April 25

# Tapping into local interest-groups

- **AIA - Homes Tour**
- **AIA - Custom Residential Architects Network (construction tour)**
- **AIA COTE**
- **Building Enclosure Council (symposium)**
- **UT School of Architecture**
- **Building Science and Beer**
- **Building Science Philosophical Society**
- **Passive House Alliance**
- **Austin City Council Sub-Committees (advocacy)**
- **Mayoral Advisory Committee (advocacy)**
- **Austin Infill Coalition**
- **SHAPE (Green minded real estate group)**
- **People who like BBQ and/or beer**



# Tapping into local interest-groups



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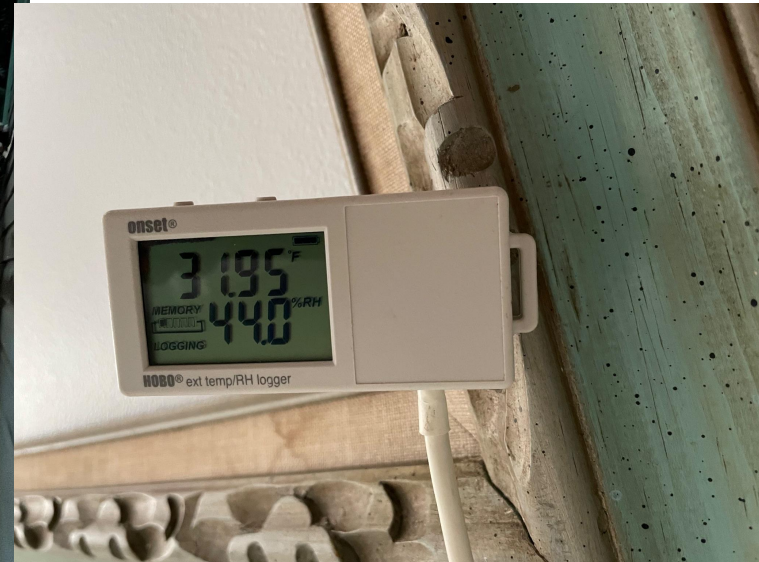
# Tapping into local interest-groups



# The great freeze



# The great freeze



# The great freeze



## HOURS OF SAFETY IN COLD WEATHER: A FRAMEWORK FOR CONSIDERING RESILIENCE IN BUILDING ENVELOPE DESIGN AND CONSTRUCTION

insight brief

February 2020

**Sneha Ayyagari**  
[sayyagari@rmi.org](mailto:sayyagari@rmi.org)

**Michael Gartman**  
[mgartman@rmi.org](mailto:mgartman@rmi.org)

**Jacob Corvidae**  
[jcorvidae@rmi.org](mailto:jcorvidae@rmi.org)

### HIGHLIGHTS

- Hours of safety is a framework that can be developed to understand how long a home can maintain thresholds of comfort and safety before reaching unsafe indoor temperature levels. This is especially important in considering the health and safety of vulnerable populations as extreme weather events increase in frequency.
- In a simulated power outage during a cold snap, indoor temperatures within homes constructed before 1950 dropped to below 40 degrees Fahrenheit within eight hours; whereas 2009 code-compliant buildings dropped to below 40 degrees after 45 hours. Weatherization efforts such as air sealing, increasing insulation, and installing storm windows can help extend the amount of time a building maintains safe indoor temperatures—helping reduce the risk of hypothermia and keeping vulnerable populations safe.
- Homes with Passive House standard building envelopes and net-zero energy buildings

# Going "all in" at the firm level



FORGE X CRAFT

ALL AFFORDABLE HOUSING COMMERCIAL CONCEPTUAL HEALTHY HOMES + HOMES MODULAR ON THE BOARDS RESIDENTIAL & MIXED USE

37

# Going “all in” at the firm level



Proud signatories of the Carbon Leadership Forum's MEP 2040 Challenge ×

[Team](#) [What We Do](#) [Awards](#) [Passive House](#)



[Friends & Partners](#) [Podcast](#) [Blog](#) [Contact](#)

## Passive House Project Collaborations

Positive Energy's mission to transform the way homes are delivered to society is deeply aligned with the mission of the Passive House building performance standard as defined by the [Passive House Institute US](#). We are lucky and proud to work with architecture firms and construction teams focused on beautiful high performance buildings.

[LEARN MORE](#)



Replicate in other markets



**PROSPECT**  
STUDIO



# We are in the sweet spot



- **We know how to do this, the general public are starting to know it, but there are still many under or completely unserved markets**
- **Building community in those places is how we win hearts and minds and see Phius projects/ethos/know-how take root**





# Parting Shot

“Ah beer-(people). The cause of and the solution to all of life’s problems.”  
-Homer Simpson

