# How To Talk To Developers & Home Buyers

# Where Is The Market?

#### **Architects & Builders Can't Wait For Answers**

Where is the demand?

Is there enough work to support my firm?

Should I invest in training more of my staff?

How and where can I find more clients for passive house?

#### Timing is important.

How much time exists between the investment and the ability to sell in various market segments?

What's going to happen to the business that makes a lot of investments and then can't find customers?

# The First Thing

When looking to discover a market the first thing you do is look for unmet and underserved needs.

So do these exist here? Yes.

Are these sufficient to drive rapid growth? Yes.

#### What Is A Market?

A market is best understood as a collection of needs and not as a series of transactions.

Price is derived from value and value is derived from what the person is trying to do (the urgency of the needs and the extent to which they are satisfied).

So value will be discovered when we look closely at populations. (But if we're always watching the price then we'll ignore populations.)

## Things To Remember

- People are solution neutral.
   A market is defined by needs.
- 2. Value is discovered at the level of populations.
- 3. This is not a commodity market but a differentiated market.
- Don't confuse manufactured cost (you want to push this down) and price (you want to push this up).

# What's going to trigger a rapid increase in demand?

Reduced manufactured cost? No.

Code? Not yet, no.

At what point does demand rise 10x or more?

# Focus On The Decision Maker

## Why Focus On The Decision Maker?

Because this market is going to be built one decision at a time.

The lender

The developer

The reviewer of the building application

The insurer

The home buyer

The renter

The company or school or institution or

business owner

It's costly to rely on assumptions about these people. We need to see what's behind their decisions.

## **Building A Picture Of The Decision Maker**

We use many sources of information and a rigorous process.

- Peer reviewed behavioral studies
- Financial analysis
- What you tell me
- Interviews with the decision maker

We plug this information into the behavioral models and we get a pretty good picture of what's driving the person or population. We uncover many things that can help us.

# Seeing What Shapes A Particular Behavior

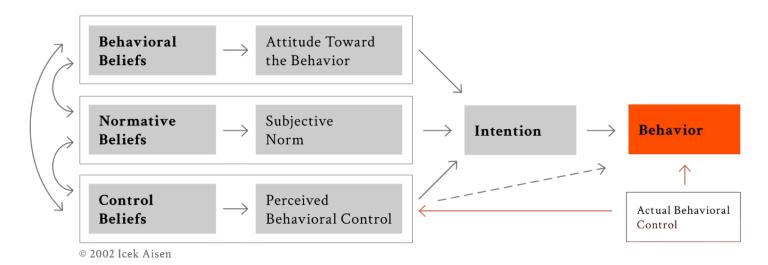
#### A decision **is not** a flash

...but a more like a train that follows a track and is diverted one way or another by switches along the way. Looking at those tracks and the switches along the way will show us what we need to do.

## Using A Model To Predict Behavior & Elicit Desired Ones

#### The Theory Of Planned Behavior

is an evidence-based theory designed to predict if an individual will perform a certain behavior. It also can be used to develop mechanisms to elicit a certain behavior.



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## Why Focus On The Decision Maker?

#### Because

- It allows us to find specific populations who want this product
- We can see exactly where the barrier is and what we need to do
- It shows us precisely what is not working in the market and points to opportunities that might not be seen otherwise.
- It tells us who is sitting across from us in a prospect meeting.
- The information about the decision maker tells us what value is being assigned to the different attributes of passive building and why.
- It allows us to use science, not hunches
- It give us more influence over what occurs and we can make a market faster.

#### There's An Established Process

There is an established process for how to develop these levers and it's been applied to a number of different areas. The process is **rigorous, based in** evidence and peer reviewed research and proven.

Retirement savings

College enrollment

Medical self-exams

Smoking cessation

Water saving

# Two Machines

#### **Two Machines**

A firm is two comprised of two machines, each with inputs and outputs. One produces clients, the other produces buildings.

#### Two machines, two outputs: Clients and buildings.

The client output machine: Is it a good system or a lousy one?

How many passive clients does this system output? What is the production rate? What are the parts of this system? How much do you put into this system and how much do you get out of it?



If either of these machines is deficient, the firm may not be viable.

#### **How Effective Is This Machine?**

#### **Metrics:**

Here are a few metrics to see if this system is a good one.

- Conversion rate %
- Time to contract
- · Durability of commitment

#### Noise

Things that don't count.

- · Number of enthusiastic responses
- Number of meetings
- Number of designs

(Note: Until you focus on the variables, you cannot see what's behind them or exert influence on them—or see how they are affecting you on a daily basis.)

#### **Low Conversion Rate**

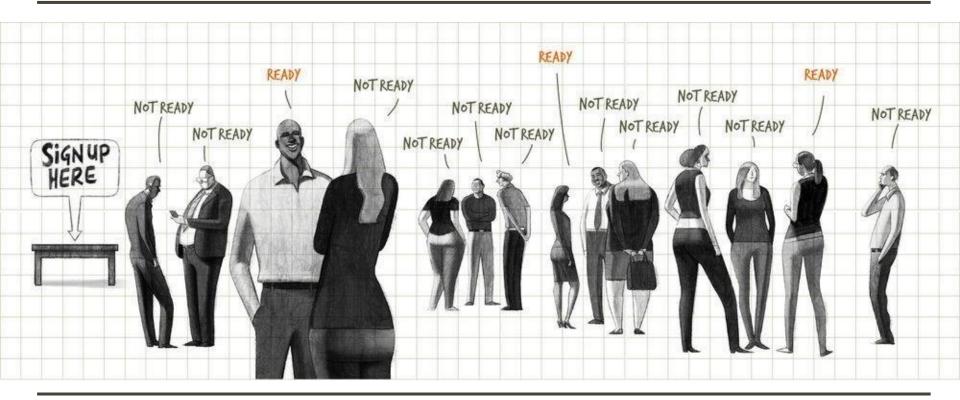
Only a **small percentage** of the prospects presented with the option of building a passive or zero energy home each year end up opting for a passive house.

#### Who does this hurt?

Architects, builders, manufacturers, and the home buyer.

How do we turn more of this population to passive buyers?

# Who Is Sitting Across From Me?



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# The Cost Benefit Analysis Machine

# What would a flawless cost benefit analysis machine do?

It would weigh long and short term benefits and costs and make a decision with the best possible outcomes.

#### Now What Do People Do?

- We don't do a full cost benefit analysis
- We exclude many variables from consideration, boiling things down to a small set of criteria
- We choose the familiar over the unfamiliar even if the unfamiliar is measurably better
- We favor short term rewards over long term ones
- We rely on feelings informed by shortcuts and biases

## System 1 & System 2

#### System 1

- Automatic
- Beyond conscious control or awareness
- Fast
- Effortless
- Produces a feeling
- "Scripts" and shortcuts

#### System 2

- Deliberate
- Within our conscious control
- Slow
- Energy intensive
- Used sparingly

#### **One Of These Shortcuts**

"People tend to stick with what they know even when a better alternative is available to them (Samuelson & Zeckhauser, 1988). This makes it hard to motivate switching behavior – status quo bias suggests consumers have a built-in aversion to change and feel regret if they make an active choice and it goes badly (Kahneman & Tversky, 1982)."

- Tim Blomfield, "Having the Energy to Make Better Consumer Decisions"

#### **Another Shortcut**

People focus on what is easy and not what is important.

"When objects are evaluated separately rather than jointly, decision makers focus less on attributes that are important and are influenced more by attributes that are easy to evaluate. The less-is-better effect suggests a preference reversal when objects are considered together instead of separately".

- **BE Guide,** 2018

# **Promoting & Inhibiting Pressures**



Behind every behavior are promoting and inhibiting pressures.



We often focus when thinking about a product on promoting pressures – energy savings, air quality – without ever looking at the inhibiting pressures – aversion to the unfamiliar, hyperbolic discounting, uncertainty, noise in the decision process, upfront costs, increased planning burden.

## The "Knowing Is Enough" Fallacy

Without being aware of it we often assume that "knowing is enough" or that "knowing is half the battle."

**But these are fallacies.** Giving a person a piece of information is not enough to change behavior.

This is why certain efforts to educate people about this technology is unlikely to do very much to increase the rate of adoption.

There are no shortage of expensive education campaigns that had little to no effect.

# **Knowing Is Only The Beginning**

We need to identify what else is behind a behavior in order to elicit it.

BEHAVIOR	Information Only Group	Intervention Group	Difference In Impact
Hospital hand washing	9%	90%	10X
Testicular self exam	23%	42%	2X
Smoking cessation	5%	15%	<b>3X</b>

# The Meeting Map

Changing the percentage of home buyers who opt for a passive house.

#### What's Going On In The Decision Process

Home buyers unconsciously dismiss certain variables and underweight others:

- Bias toward the familiar
- Hyperbolic discounting reduces the perceived value of attributes
- No technique to make this decision or reduce its complexity
- No objective measures about what makes a good house
- Home buyer often unable to differentiate between expert and non-expert advice
- Decision is not based on long term outcomes
- One to one comparison between passive and conventional homes.

These are all barriers to a person opting for a passive house.

## What Is The Meeting Map?

It's a way to structure the architect's meetings with the home buyer.

It breaks down the meeting to a number of stages and uses a variety of means to increase the likelihood a home buyer will opt for a passive house.

#### **Meeting Structure**

Pre-Meeting Introductions Evaluation	Criteria: Defining the choice and learning what is at stake	Collecting information about the prospect's desires	Implementation intentions and next steps
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#### A Procedure To Make A Decision

#### Make The Decision Easier: A Technique With Objective Measures

A checklist provides them with a number of objective measures and these measures tie the choice to specific and salient life outcomes.

#### **Look At Criteria Independently Of The Others**

By looking at a house one criteria at a time, and applying each criteria independently (as opposed to considering them all simultaneously and then producing a general intuition about how well the house satisfies those criteria).

#### **Use Contrasts**

The contrasts along several dimensions makes the decision easier and prevents the person from making one to one comparisons between a conventional and a passive house.

#### **Use Consistency Bias To Increase Motivation**

Lastly, pledges and public commitments are employed to used to get the subject of this intervention to follow through with their stated implementation intentions to use these criteria when evaluating a house.

#### Salience

Make what is presented to the person easy for them to process.

# Stage Three Of Meeting



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## Connecting The Decision To Important Life Outcomes

1

# Cold Zones & Hot Zones

Closing a door of a room because that room is colder than the rest of the house. Putting on a sweater because of a chill from a closed window. Using certain areas of a house less because they are too cold or too hot.

These experiences (or lack of them) can tell us a lot about a house.

Many houses have high variations in temperature from room to room or area to area but **some homes** use current building science to deliver

Some avoid home exace of art certa room varial Hot al Wet o

These

can d

#### **Contrasts**

Many Houses	Some Houses
Limitations on how certain areas of the house are used due to variations in temperature or moisture	All areas of the house are fully usable
Cold and hot zones	Consistent temperatures (No cold and hot zones)
Chills near windows and some walls are common	No chills
Bedrooms used as storage space because they are too hot or cold	Bedrooms used as bedrooms
Damp basements with cold floors and little air circulation	Dry basements with warm floor and plenty of fresh air

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#### **Loss Aversion**

Who Decides
The Volume Level
In Your House?
Others/You

Number Of Nights With Noises Above 40 Decibels Few/Many

## **Independent Evaluation Of Each Criteria**

# House Evaluation Checklist

As you consider your many options, look at existing homes or think about building a new one, keep this list handy and review it to see what house is best for you.

What is the score of this house? Does this house protect what's most important to you?

House Evaluation Criteria	YES	NO	N/A	Technical Components & Systems	YES	NO	N/A
Usable space				Moisture infiltration reduction system			
(dry basements, no hot or cold zones)				Air tight building envelope			
Reduction of external noise (sleep and focus)				Fresh air system			
Low heating and cooling costs				Radon infiltration reduction system	-		
Reduced long term repair requirements				Energy Star® rated appliances			
Continuous supply of fresh air				AirQuality Plus rated			
Parala value				Safe building materials			

## See Distraction, Bring Them Back, Repeat

Consider the experience of the gym trainer. What must be or she do? What is their role?

What can he or she do to prevent things from standing in the way of the person's own long term interests and stated goals?

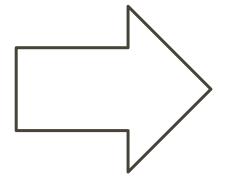
The gym trainer must be the guardian of the person's long term outcomes.

# **Effect On The Process**

Looking again at the system that produces a client.

#### **Trust**

Perceived as a working in own interest (low trust and credibility)

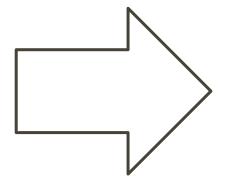


Perceived as working in prospect's interest (high trust and credibility)

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### **Ease Of Decision**

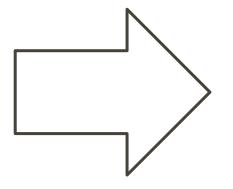
**Difficult** due to complexity and lack of objective measures



**Easier** due to objective measures, salience of criteria and use of contrasts

#### Commitment

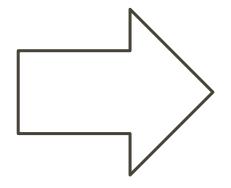
**Weak** due to poor weighting of variables



**Strong** due to pledge to use criteria, connection between criteria and outcomes

#### **Conversion Rate**

**Low** due to high number of alternatives and high number of barriers



**Higher** due to reduced number of alternatives and reduced barriers

#### The Result

- More clients
- More passive houses
- Stronger and more durable commitments from clients

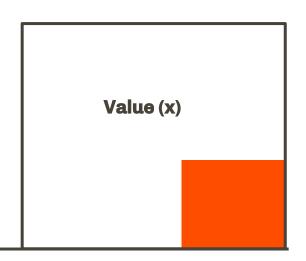
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### **Changes How Clients Value Your Services**

What value do clients assign to your services?

**Business 101** is that through your product or service you produce X value for the customer and you capture some portion of that value in revenues (Y).

X (value) x Y (% of value captured)= **Net Revenue** For example: \$1,000,000 (value) x 5% = \$50,000



#### **Validation**

#### **Getting The Numbers**

What percentage of the population that is now saying no will this convert to a yes?

What percentage of the users will evaluate the criteria independently from each other?

What will be the change in perception?

- 1. RESEARCH
- 2. IDENTIFY BARRIER
- 3. DESIGN INTERVENTION
- 4. VALIDATE



### Climate Action, Building by Building

Today you can build a healthy zero carbon building that makes economic sense.



### Developing Green Buildings Can Feel Like Risky Business.



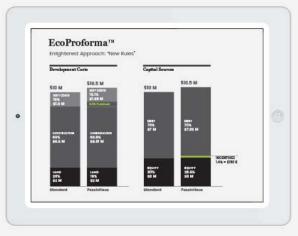
#### **NK ARCHITECTS**

### We Focus on Certainty

**PASSIVE HOUSE** 

## **Certainty in Building Performance**









**ECO PROFORMA** 

## **Certainty in Financial Performance**

THE NK WAY

**Certainty in Delivery and Quality** 



### The Goal

# Get Mission-Driven Developers to Use Passive House



1:

### **Familiarity Bias**

2:

# Identity as Prudent Steward of \$

3:

"Green Project Teams Do It Like This."



**4**:

### Fear of Loss of Control Over Process

**5**:

# Perception of High Cost



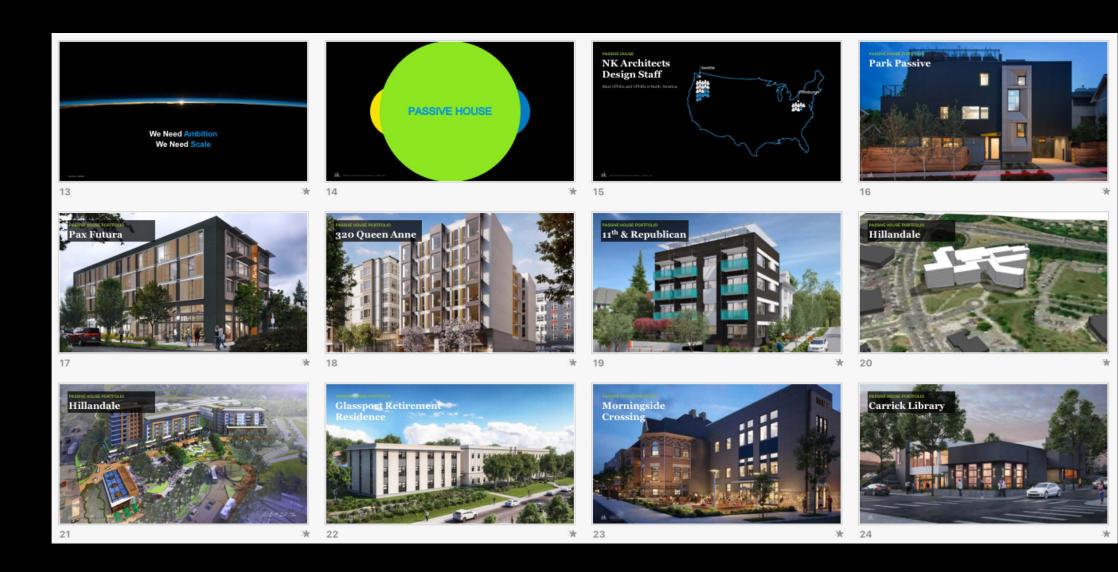
## Birth of The "Monster Deck"

- Address Relevant Beliefs
- Show Developers Variables They Haven't Considered Before
- Push Toward Desired Behaviors

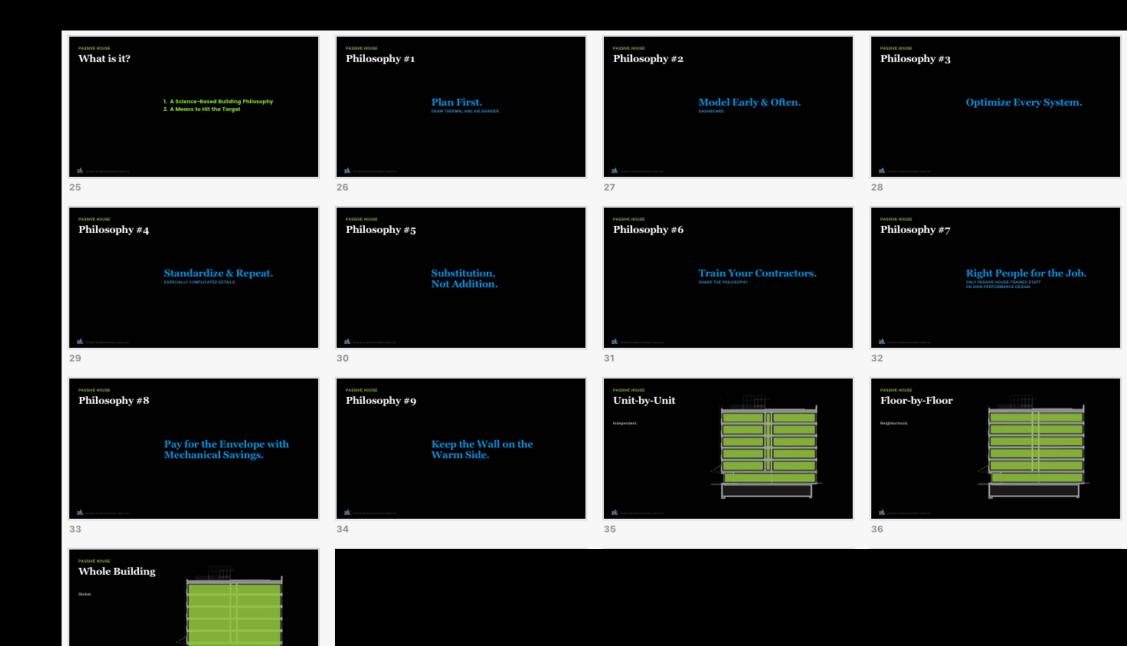




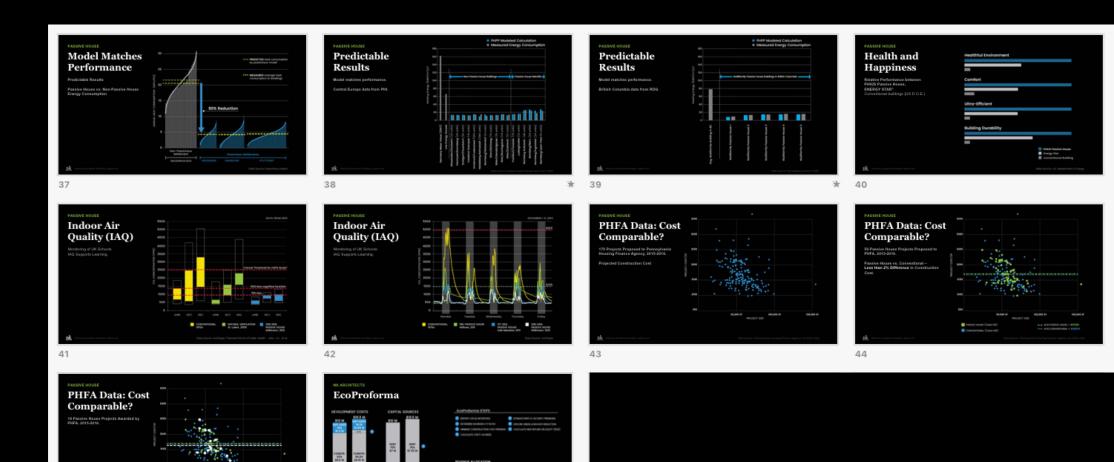
# Proof of Work Slides



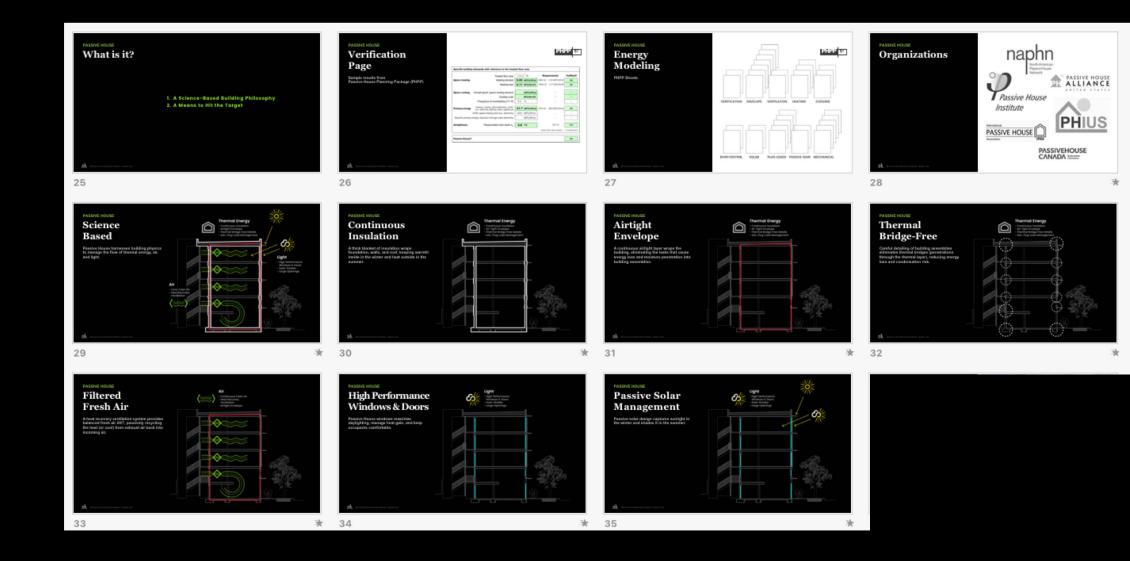
### Philosophy Slides



### Benefits Slides



# What Is It? Slides



#### **PASSIVE HOUSE**

# Optimizing The Parts

1: WALLS

2:
AIR
SEALING

3:
THERMAL
BREAKS

4:
windows

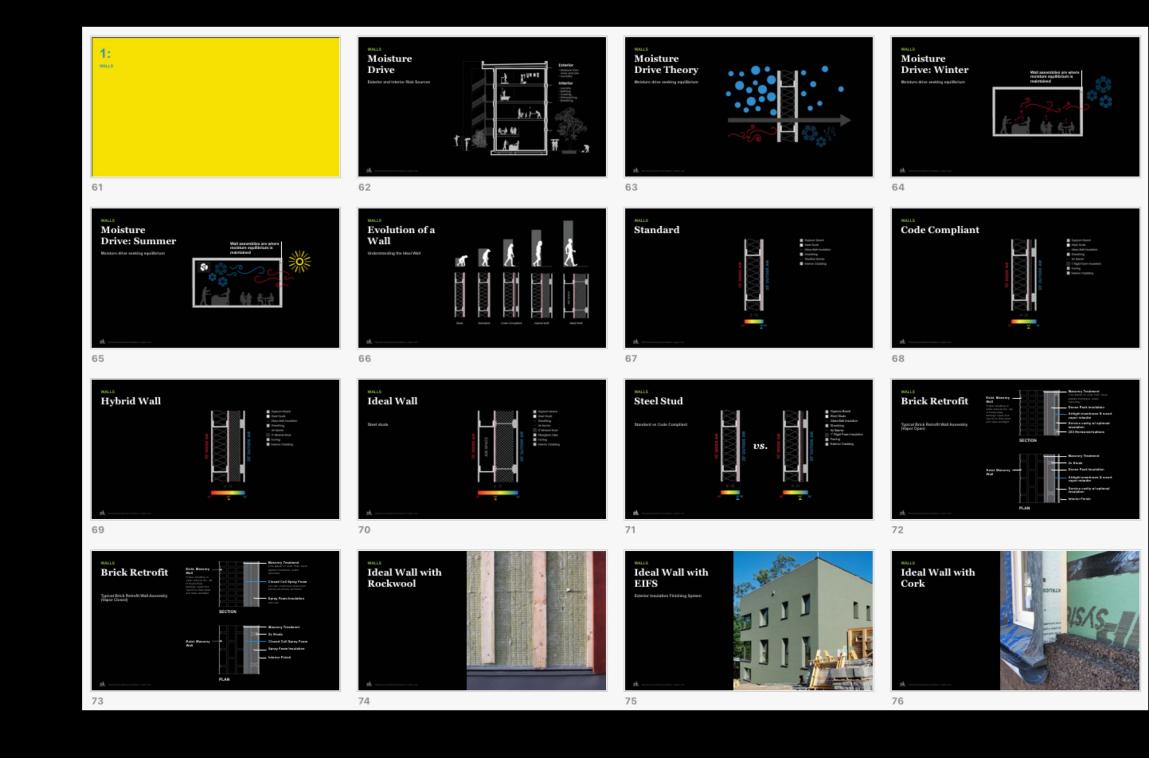
**5**:

HVAC

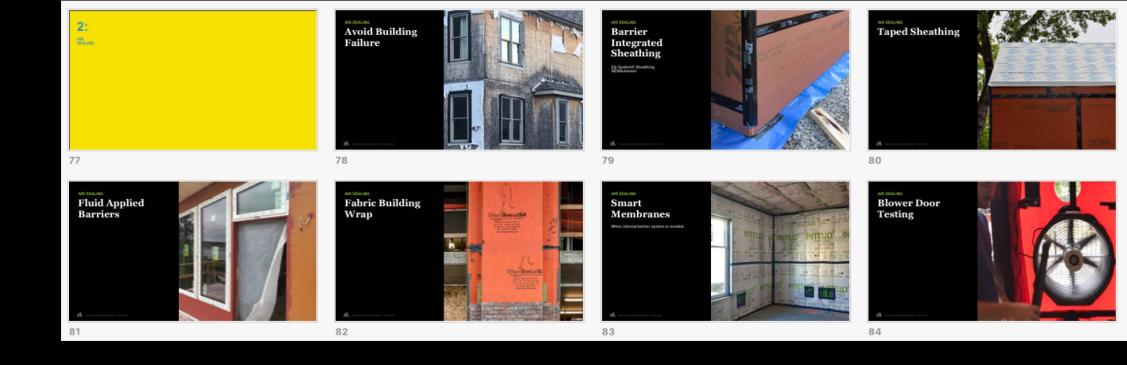
6:

**HOT WATER** 

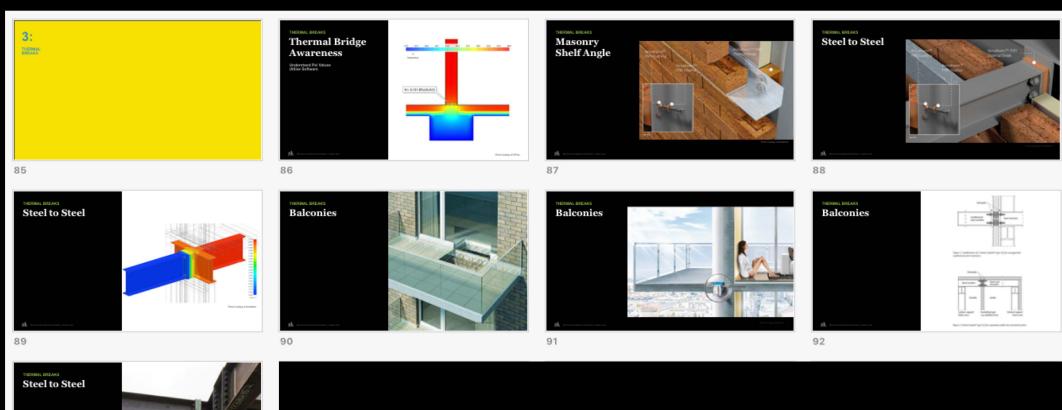
### #1 Walls



### #2 Air Sealing

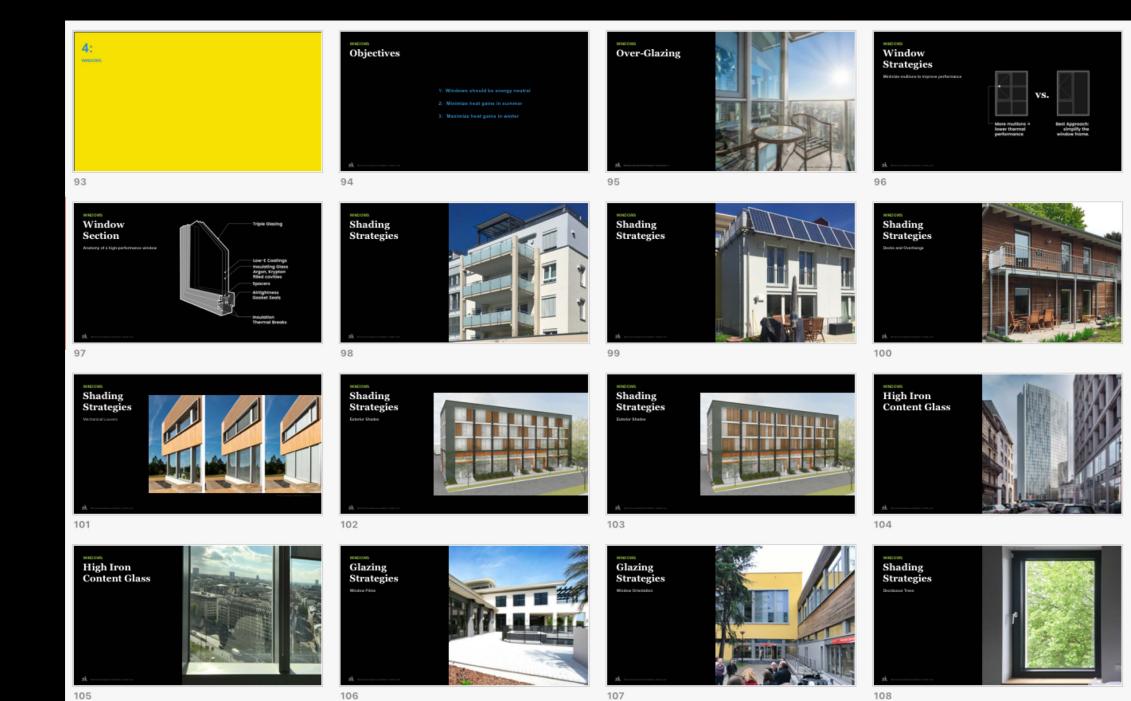


# #3 Thermal Breaks





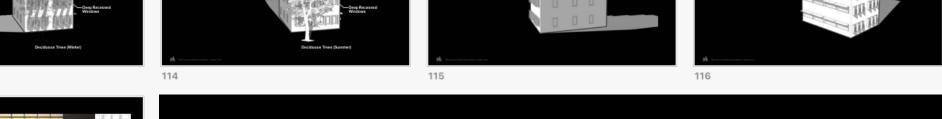
### #4 Windows



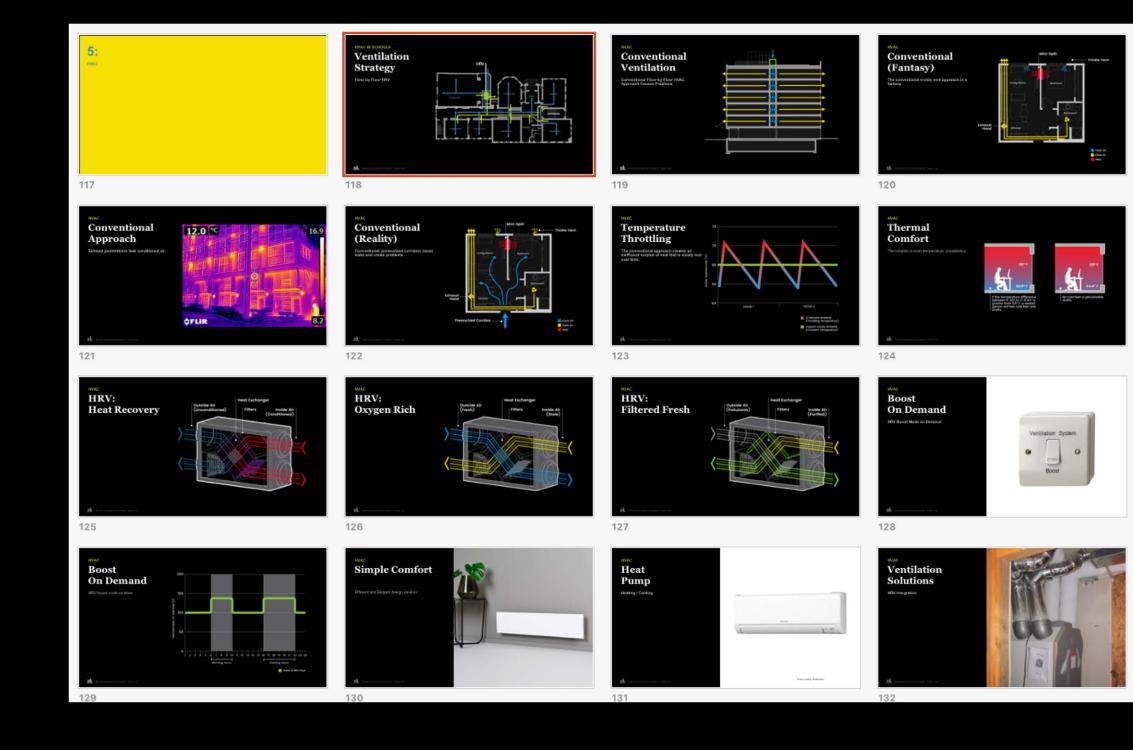
# #4 Windows (Cont.)



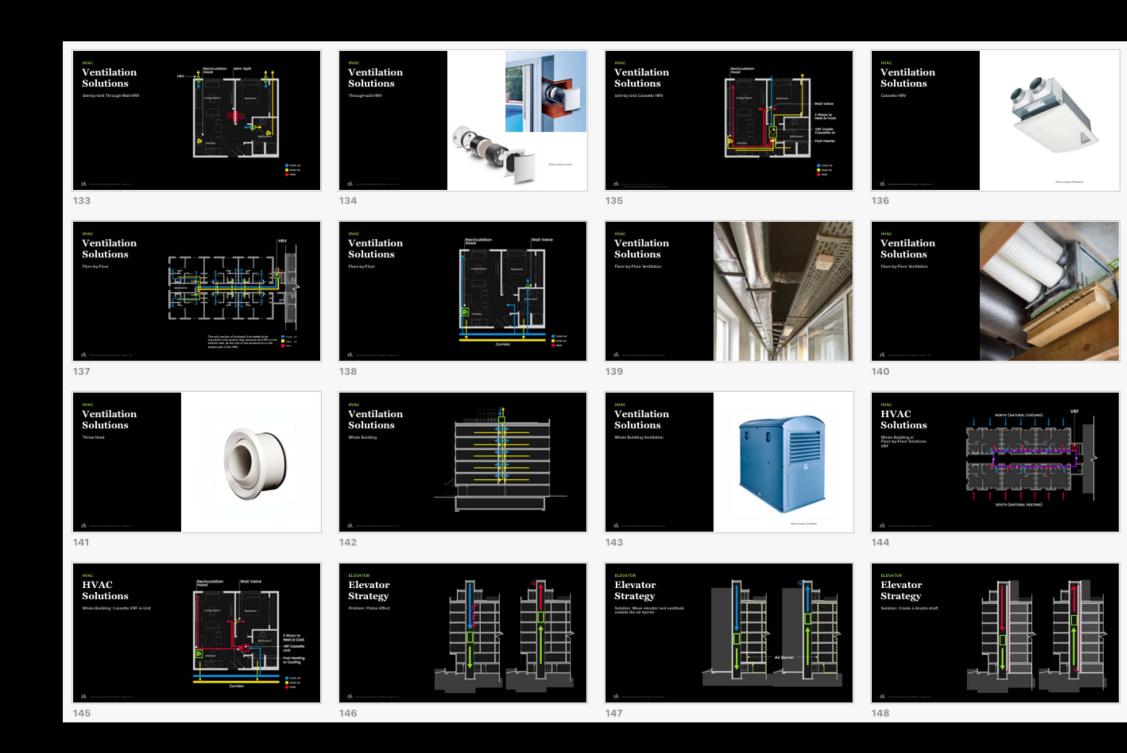




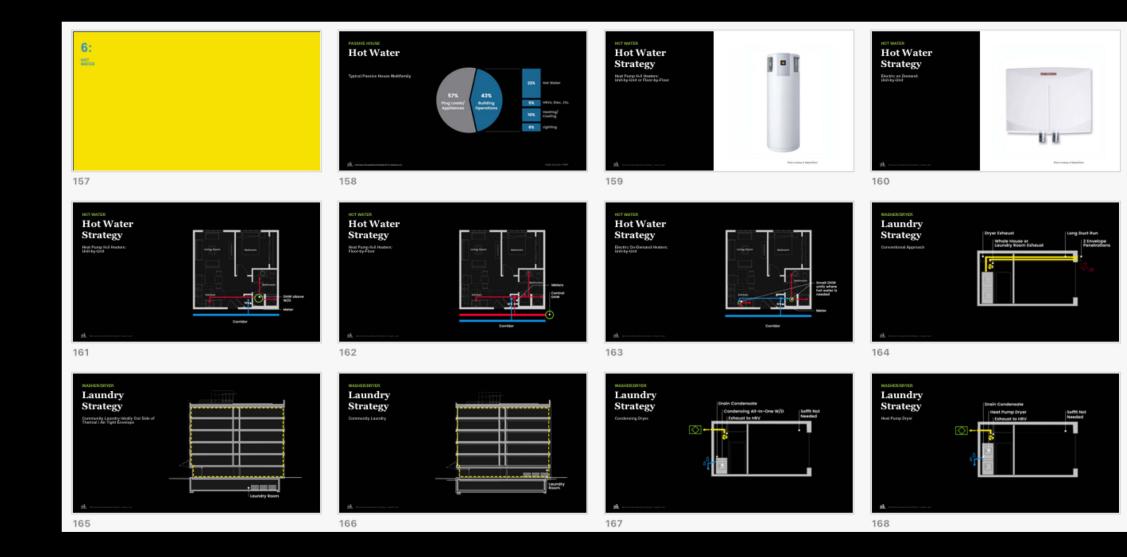
### #5 HVAC



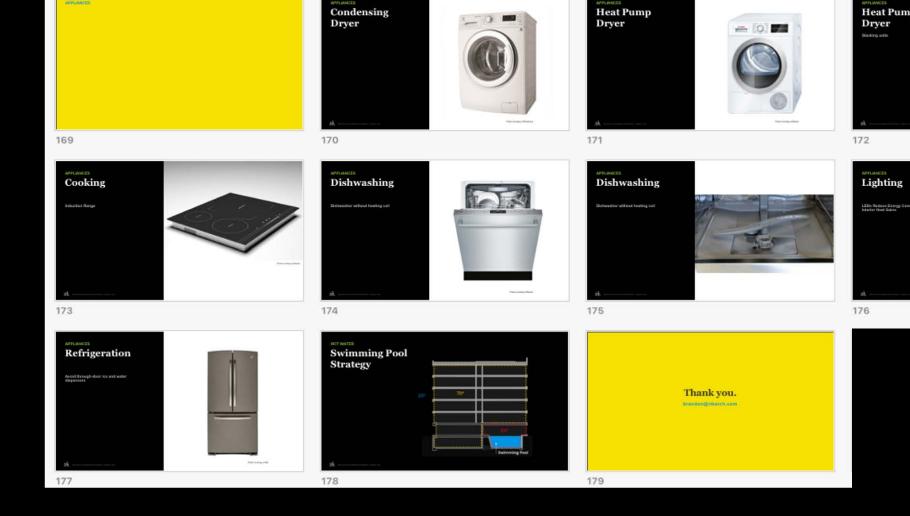
### #5 HVAC (Cont.)



### #6 Hot Water



### Appliances



# It Worked. Why?



# The New Beliefs • Less Familiarity Bias That We Want

## The New Beliefs That We Want

- Less Familiarity Bias
- "I Understand How Passive House Works."

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- Expand "Prudent Steward" Identity to:

  "I Know a Great Opportunity When I See
  One." (FOMO)

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- "Smart Project Teams Know the Power of Passive House."

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  One." (FOMO)
- "Smart Project Teams Know the Power of Passive House."
- "Passive House Provides Me Flexibility."
- "Savings in Mechanical Can Help Pay for a Better Building."



## Ideas for Improvements



## Improvement: Quotes to Provide "Social Proof"

"I use Passive House on all my projects because I care about quality."

"As an engineer, I can tell you that Passive House design allows me to dramatically reduce equipment size and complexity."

"Simply put, this is the way to build in the 21st Century."

## Improvement: Illustrate the New Identity



# Improvement: Demonstrate PH Design Flexibility with Dashboard

### OUTPUT

#### PERFORMANCE METRICS

#### PASSIVE HOUSE VERIFICATION

	Results	Limit	_	% Over/Unde
Heating Demand	0.53	5.10	kBTU/ft².yr	10%
Heating Load	2.14	3.70	BTU/hr.ft <sup>2</sup>	58%
Cooling Demand	1.01	1.00	kBTU/ft².yr	101%

Cooling Load 1.78 3.40 BTU/hr.ft² 52%

Overheating 8% 732 hr/y

#### Primary Energy Demand

Target Category Non-renewable (PE) Renewable (PER) PER Energy Generation

PE Classic			
52.6	40.0	kBTU/ft².yr	131%
	0.00	kBTU/ft².yr	0%
0.00	0.00	kBTU/ft².yr	0%

#### BENCHMARK COMPARISON

2030 Baseline	39.0	kBTU/ft².yr
2030 Target	11.7	kBTU/ft².yr
Modeled EUI	16.6	kBTU/ft².yr
Modeled EUI with PV	16.6	kBTU/ft2.yr

#### SITE ENERGY CONSUMPTION

Space Heating	0.2	1%	kBTU/ft².y
Space Cooling	0.2	2%	kBTU/ft².y
Water Heating	4.6	28%	kBTU/ft².y
Lighting, Appliance & Elec.	11.0	66%	kBTU/ft².y
HRV, Pumps, & Aux. Elec.	0.5	3%	kBTU/ft².y
Total Site Demand EUI	16.6		kBTU/ft².y

PV Generation		
<b>Net Site Demand</b>	(Net	EUI

	#VALUE!	kBTU/ft².yı
16.6		kBTU/ft².yı

\$/kWh	\$	0.10
\$/therm	\$	1.00
Space Heating	\$	93
Space Cooling	S	131
Water Heating	S	2,147
Indoor Lighting	S	1,000
Outdoor Lighting	S	100
Large Appliances	S	2,678
Plug Loads	\$	2,000
HRV, Pumps, & Aux. Elec.	\$	276
Total	\$	8,425
Monthly Avg	S	702.04

#### PASSIVE HOUSE VERIFICATION





# Improvement: Illustrate Savings/Cost More Clearly

## Savings

## Costs

Better Insulation & Airtightness

Better
Windows &
Ext. Shades

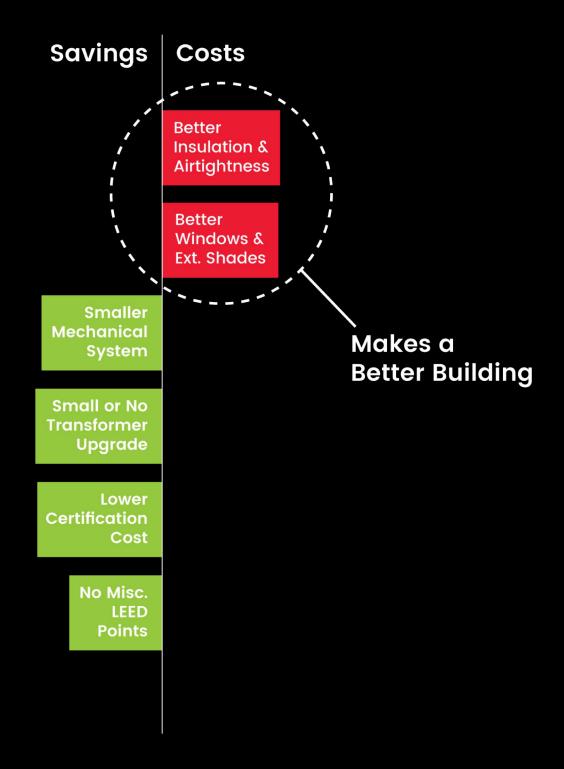
Smaller Mechanical System

Small or No Transformer Upgrade

Lower Certification Cost

> No Misc. LEED Points

# Improvement: Illustrate Savings/Cost More Clearly



# Improvement: Illustrate Contrast with LEED

### **LEED**

- Integrative Process
- □ Floodplain Avoidance
- □ Site Selection
- Compact Development
- Community Resources
- Access to Transit
- Construction Activity Pollution Prevention
- No Invasive Plants
- Heat Island Reduction
- Rainwater Management
- Non-Toxic Pest Control
- Water Metering
- Indoor Water Use
- Outdoor Water Use
- Minimum Energy Performance
- Energy Metering
- Education of Owner, Tenant, or Manager
- Annual Energy Use
- Efficient Hot Water Distribution
- Advanced Utility Tracking
- Certified Tropical Wood
- Durability Management
- Durability Management Verification
- Environmentally Preferable Products
- Construction Waste Management
- Ventilation
- Combustion Venting
- Garage Pollutant Protection
- Radon-Resistant Construction
- Air Filtering
- Environmental Tobacco Smoke
- Compartmentalization
- Enhanced Ventilation
- Contaminant Control
- Balancing of Heating & Cooling Distribution
- Enhanced Compartmentalization
- Enhanced Combustion Venting
- Enhanced Garage Pollutant Protection
- Low Emitting Products
- No Environmental Tobacco Smoke
- Innovation
- Regional Priority



# Improvement: Illustrate Contrast with LEED

### **LEED**

- Integrative Process
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- No Environmental Tobacco Smoke
- Innovation
- Regional Priority

## **Passive House**

4.75 kBtu/sf/yr • Heating & Cooling Demand

38.1 kBtu/sf/yr • Primary Energy

0.6 ACH50 • Airtightness

## **Next 12 Months**

## **Next 12 Months**

## What do you want out of the next 12 months?

- # of PH building contracts to close
- To convert higher % of clients to PH
- Higher % of employees trained in PH
- # of new clients

- Increase % of prospects who go to contract
- Reduce the time it takes to get a client to go to contract
- YOY % increase in PH revenues

## ERASE**40.**org



## **Our Function**

- Coordinated response to the market
- Market based efforts to spur demand now
- Efforts aimed at decision makers (home buyers, renters, developers, lenders, institutional investors)
- Fill in the pieces necessary for there to be a robust market for passive buildings

## 3 Ways To Elicit A Behavior

We have three options if we want to get an individual or a population to choose passive buildings over conventional ones.

1	<b>Mandate change</b> via policy or code changes	Slow

- **2** Give financial incentives to developers, home buyers and others
- Find small behavioral levers Fast that drive up demand for these buildings

## **Teams**

Behavioral interventions team

Financial instruments team

Media team

Community team

## Our People

## People

**James Geppner** 

**Executive Director** 

**Shari Short** 

Program Designer

Julian Leon

Materials & Experience Design

### **Advisors**

**Daniel Platz** 

**United Nations** 

**Alan Gibson** 

**GO** Logic

**Jeff Domanski** 

**IBTS** 

**James Hartford** 

**River Architects** 

**Tim Houlihan** 

Behavioral Alchemy

**Kurt Nelson** 

Lantern Group

## Set Up A Time To Speak

Send a text or email to set up a time to discuss further.

James@Erase40.org

Text: 917-803-3888