



High-Performance Home Certification as a Service

Sam Rashkin

Casey Murphy

RaterFest! 2023

September 23, 2023



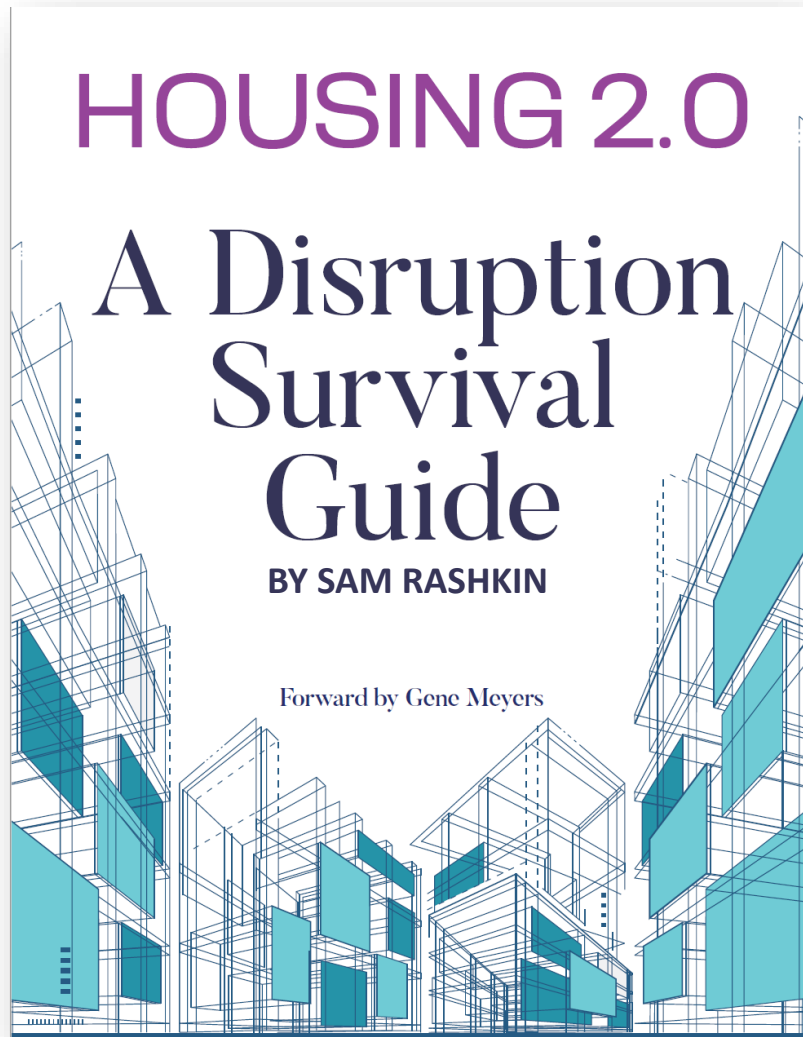
Question: A or B

How much do builders value HER rater services?

- A. Builders see HERS raters as an integral part of their success seeking their guidance to get the most out of HPH certification.
- B. Builders see HERS raters as a necessary HPH certification requirement that they want to achieve with the least cost and burden.



A Word About the Future



Goal:

Prepare high-performance housing professionals to become UX leaders:

- 420+ pages
- 150+ UX best practices
- 100's graphics
- 360+ citations
- 7 guest expert essays
- 5-plus years vetting with 100's housing executives

Website:

<https://www.greenbuildermedia.com/housing-2.0>

Personal Transportation 1903: Two Options



1903 Horse and Buggy



1903 Automobile

Disruption Happens: Easter Parade – 5th Ave., NYC



1903



1913

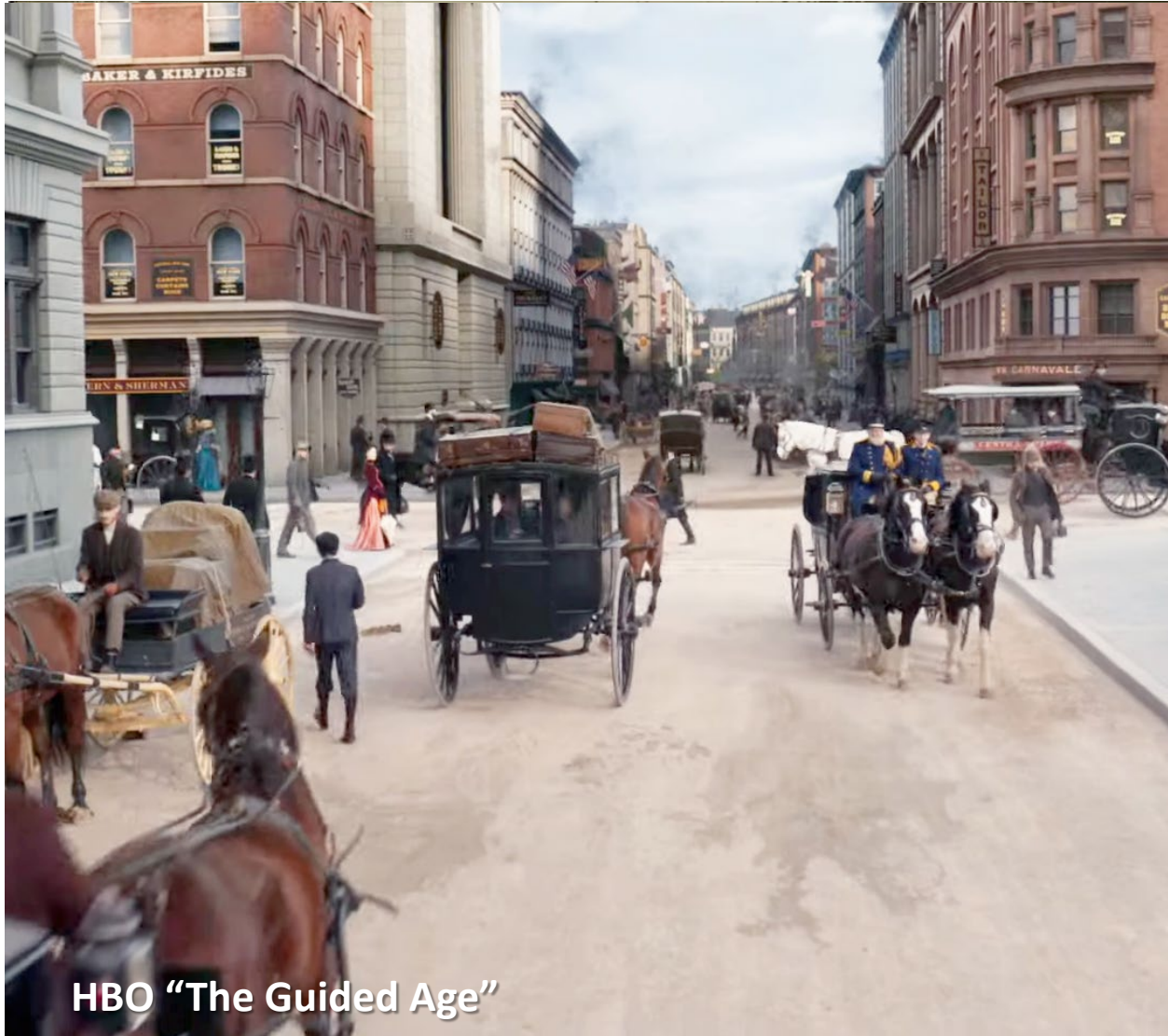
1. Driving Force for Change:

- Problem, and/or
- Opportunity to Improve UX

2. Innovation:

- Solution to Problem, and/or
- Superior UX

Note: Disruption hyper-accelerates when a problem becomes a crisis.



- **Problem**
 - 100,000 Horses
 - 2.5 M lbs. Manure/Day
- **UX Fiction:**
 - Visually Beautiful
 - No Odors
 - No Health Epidemic

NYC 1890s Reality: Beyond Problem onto Crisis



MORTON STREET, CORNER OF BEDFORD, LOOKING TOWARD BLEECKER STREET,
MARCH 17, 1893.

- **Problem**
 - 100,000 Horses
 - 2.5 M lbs. Manure/Day
- **UX Crisis Reality:**
 - Visual Crisis
 - Odor Crisis
 - Health Crisis

Source: 'The Big Crapple: NYC Transit Pollution from Horse Manure to Horseless Carriages,' Kurt Kohlstedt, 99% Invisible, November 6, 2017

Disruption Doesn't Happen: 1903 Automobile



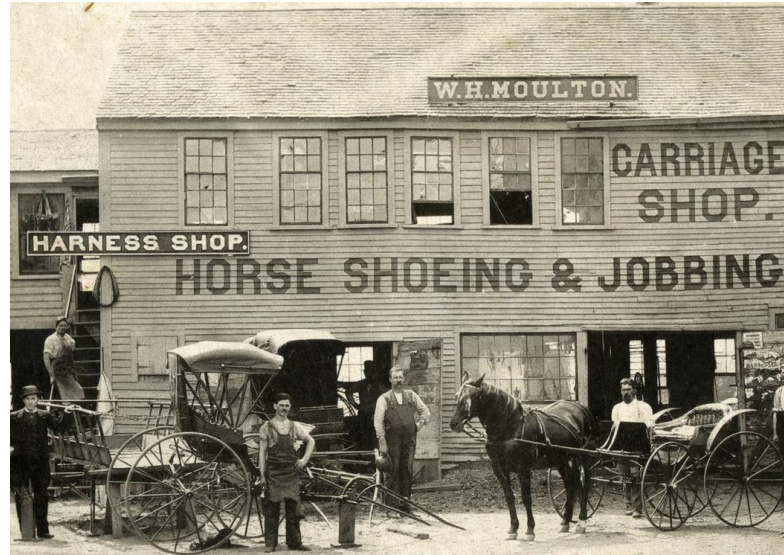
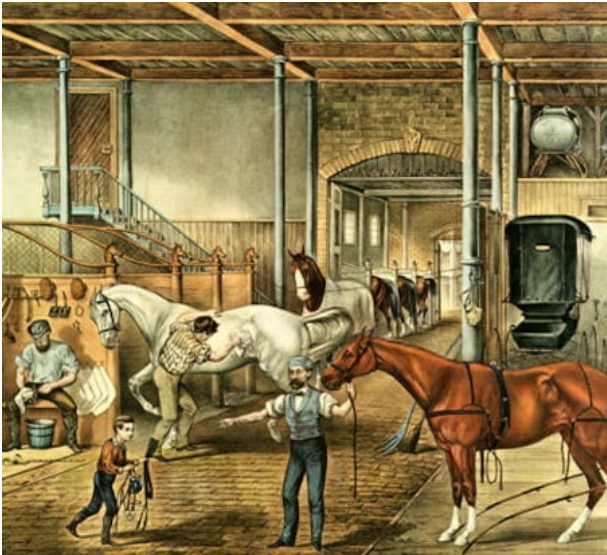
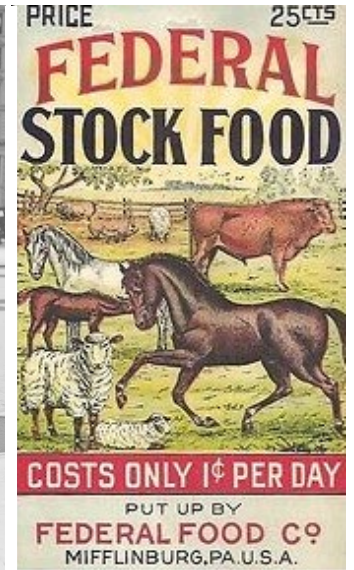
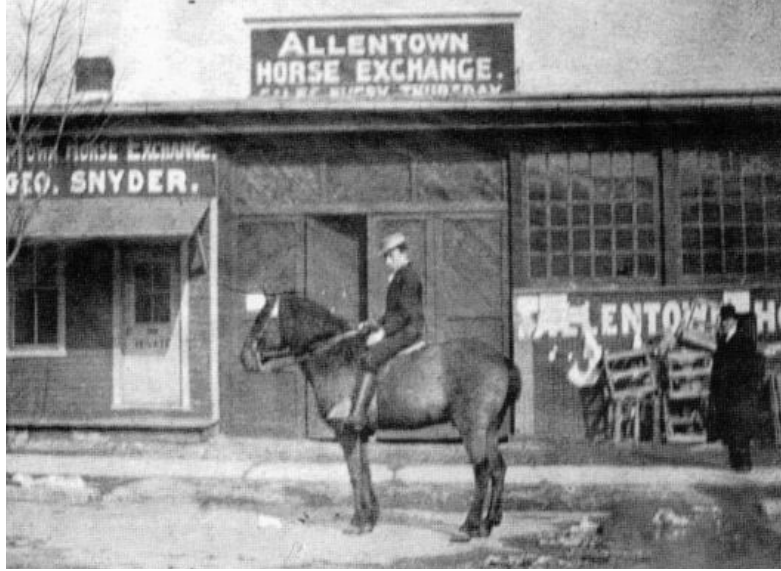
- **Manure Solution:**
 - Cars Don't Poop, but ...
- **UX Problem:**
 - High Cost
 - Slow Production
 - Clunky, Awkward Driving
 - High Maintenance



- **Manure Solution:**
 - Cars Don't Poop, and ...
- **UX Solution:**
 - **85%** Cost Reduction
 - 1908: \$2,000 (12+ hours)
 - 1913: \$850 (1.5 hours)
 - 1926: \$290
 - Ease of Maintenance
 - Enhanced Drivability

But Future Emissions Problem

Disruption Happens: Adapt or Be Left Behind



Disruption Happens Again: EV Innovation



65+%

battery electric vehicles for
new global light-vehicle sales
projected by 2035

Source: "Automotive Powertrain Suppliers Face a Rapidly Electrifying Future," Mckinsey & Company, March 31, 2023



- **Emissions Solution:**
 - No Emissions, and ...
- **Superior UX:**
 - **~75%** Lower Fuel Cost
 - Ultra-Low Maintenance
 - Enhanced Drivability
 - Enhanced Quiet
 - Enhanced Safety
 - Hands-free Driving coming
 - Wireless Charging coming

But Future Landfill Problem



Why Disruption Happens to Housing

Problem:
5 Crises
Driving Pain

UX Readiness Crisis: Performance a Must-Have but...

Housing Crises

User X

Affordability

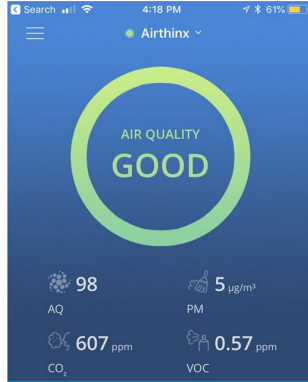
Trades

Productivity

Digitization



Zero Energy



Health



Open Space



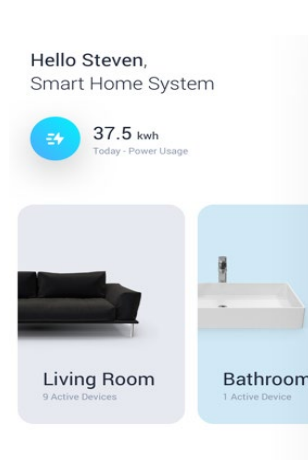
Daylight / Fresh Air



Outdoor Living



Storage



Smart



Work-at-Home



Advanced Lighting



Color

UX Readiness Crisis: 4- and 5-Star Reviews

Housing Crises

User X

Affordability

Trades

Productivity

Digitization

CONSUMERAFFAIRS		Buyers Guides	News
[Redacted] ★★☆☆☆ READ 233 REVIEWS [Redacted] has been one of the most popular home building companies in the United States since its establishment in 1954. Headquartered in Miami, Florida, the company builds a variety of home types in cities across the country.	[Redacted]	[Redacted] ★★★★★ READ 1450 REVIEWS [Redacted] homes in all sizes, ranging from tiny homes to homes over 2,000 square feet. Home prices range from under \$30,000 to over \$200,000. Their ENERGY STAR certified modular homes help homeowners keep costs down. Find out more	[Redacted]
[Redacted] ★★☆☆☆ READ 266 REVIEWS [Redacted]s builds in nine states, offering energy-efficient living spaces across the country. Building 100 percent Energy Star certified homes, the firm's designs can save home owners up to 20 percent on annual utility costs.	[Redacted]	[Redacted] ★★★★★ READ 1011 REVIEWS [Redacted] founded in 1957 and has helped more than 550,000 families and individuals build their dream homes. The firm is a recognized leader in energy- and water-efficient building and has been honored by Energy Star. Find out more	[Redacted]
[Redacted] ★★☆☆☆ READ 201 REVIEWS [Redacted]s a home building company that was founded in Pittsburgh, Pennsylvania, in 1948. The company specializes in building suburban, active-adult, and resort communities in several Eastern and Midwestern states.	[Redacted]	[Redacted] ★★★★★ READ 841 REVIEWS [Redacted] been building housing developments in the United States since 2002. They focus on building quality, affordable homes in active communities across the country. Find out more	[Redacted]
[Redacted] ★★☆☆☆ READ 161 REVIEWS Offering [Redacted] homes in more than 25 states, [Redacted] Homes combines innovative design with functionality. The company was founded in 1950, and it is headquartered in the Buckhead section of Atlanta, Georgia.	[Redacted]	[Redacted] ★★☆☆☆ READ 871 REVIEWS [Redacted] was founded by [Redacted] in 1979. The company started building homes in the Dallas area, and today, it provides services in Texas, Florida, Georgia, North Carolina, Minnesota and North Carolina.	[Redacted]

<2-Stars

Average star rating for 75+% of listed builders

Source: Tabulation of builder reviews at ConsumerAffairs, April 29, 2022

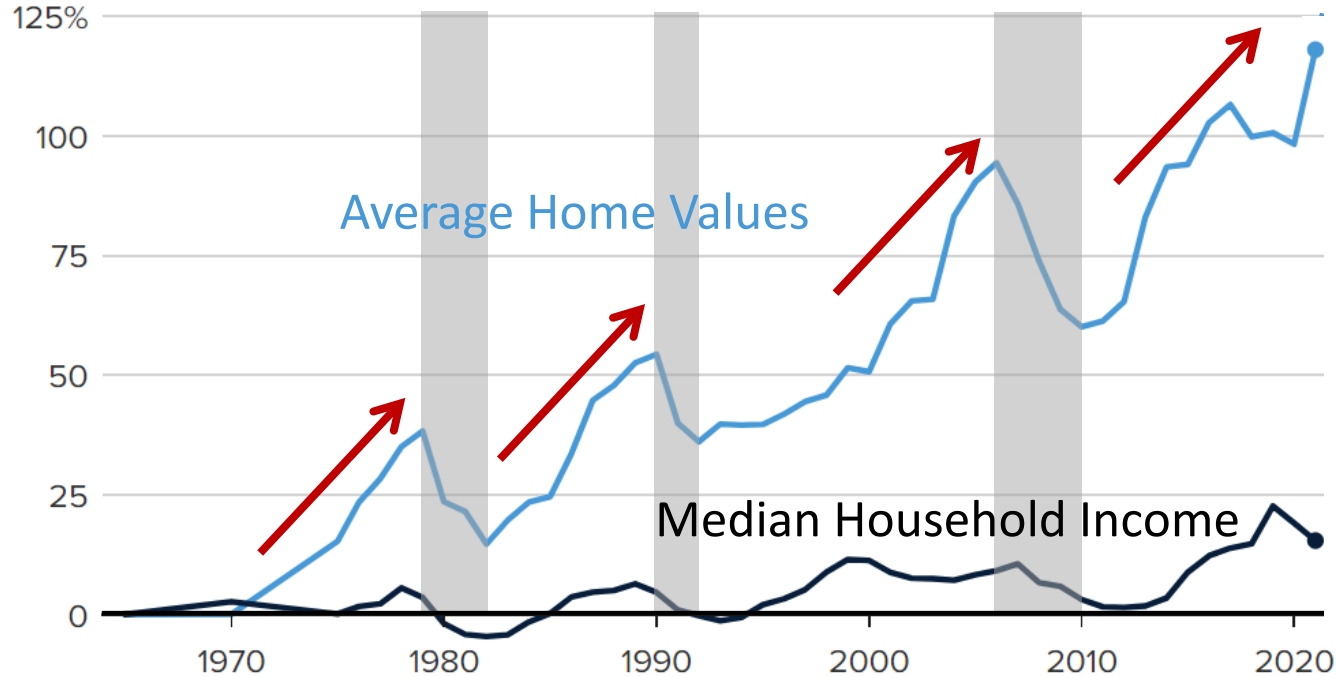
3.4-Stars

Average star rating required for a consumer to consider engaging with a business

Source: "2021 State of Reviews," Podium

Growth in U.S. home values outpaces that of incomes

Change since 1965



Source: Real Estate Witch analysis of U.S. Census Bureau data

2X

2021 Price/Income Gap:

- **\$144,192**
Average household income needed to afford a home
- **\$69,178**
median household income

Source: Clever Real Estate

9,845 views | May 24, 2018, 08:32am

40% Of Americans Can't Pay \$400 Emergency Expense



Zack Friedman Senior Contributor



Photographer: Daniel Tepper/Bloomberg

A new report from the Federal Reserve found that four in 10 Americans don't have the cash to pay for an unexpected expense without selling a belonging or borrowing funds.

FORTUNE

Nearly two-thirds of Americans are living paycheck to paycheck, study finds

BY CHRIS MORRIS

August 31, 2023 at 11:58 AM EDT



Nearly two-third of Americans are living paycheck to paycheck. GETTY IMAGES

Nearly two out of every three adults in the U.S. are just scraping by, due to inflationary pressures, according to a new study.

Research from LendingClub finds that 61% of adults were living paycheck to paycheck as of July 2023, a two-point increase from the previous year. That comes even as inflation rates have dropped from 9.1% last July to 3.2% this year.

THE HILL

News Policy Opinion Events Jobs Newsletters

62% of Americans Worried About Paying for Housing in the Next Year

BY CHLOE FOLMAR 08/15/22 7:42 PM ET



Associated Press/Robert F. Bukaty

Builders work on a four-story, 45-unit condominium building under construction May 31, 2022, in Portland, Maine.

Most Americans are worried about paying for housing, according to a survey conducted by market financing company Freddie Mac.



42.5

average construction
worker age

Source: Bureau of Labor Statistics

2/5

Industry is bringing in
only two new workers
for every five that age
out or retire

Source: "Spring 2023 Construction
Labor Market Report," Home
Builders Institute, 2023

Posted on: June 15, 2023



BUILDER

HBI: LABOR SHORTAGE IS LIMITING FACTOR TO IMPROVING HOUSING INVENTORY AND AFFORDABILITY

The Home Builders Institute estimates the construction industry needs to add 723,000 workers per year to keep pace with demand.

By [Vincent Salandro](#)



Adobe Stock

The skilled labor shortage remains the key limiting factor to expanding home construction and improving housing inventory and affordability, according to the Home Builders Institute (HBI).

According to the [Spring 2023 HBI Construction Labor Market Report](#), the construction industry needs to add approximately 723,000 new workers each year to meet demand and help combat the nation's estimated 1.5 million home shortage.

~723,000
new workers needed
each year to meet
demand and combat
~1.5M home shortage

Source: "The Home Builders Institute (HBI) Construction Labor Market Report," Spring 2023



1877

Source: Wood frame house on a Omaha Reservation in Nebraska, The National Archives, Smithsonian Institution)

150+
Years



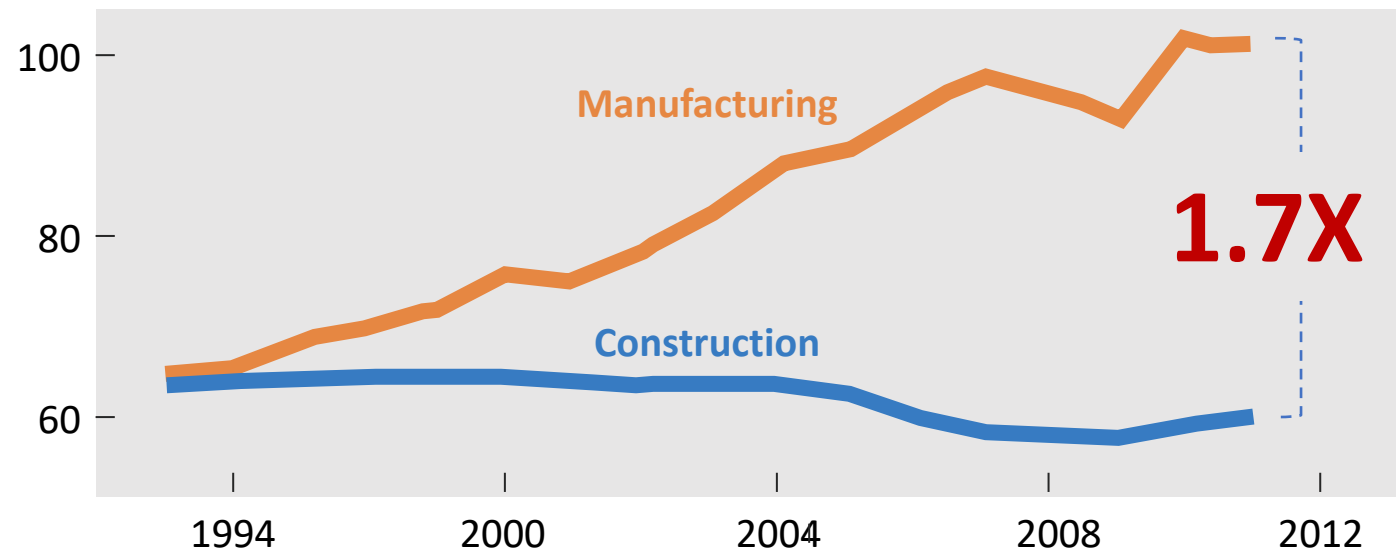
2021

Source: Wall Street Journal, *Construction Workers 'Left the Business and They Didn't Come Back'*, Oct. 13, 2015

Overview of Productivity Improvement Over Time

Productivity (value added per worker), real, \$2005

\$ Thousands per Worker



Source: McKinsey & Company

\$200 B

labor productivity gap suffered by U.S. construction industry that could be closed by adopting 21st-century manufacturing methods

Source: McKinsey & Company,

McKinsey Global Institute industry digitization index;
2015 or latest available data

Relatively low digitization Relatively high digitization
● Digital leaders within relatively undigitized sectors



Housing is the least digitized industry except for Agriculture/Hunting

Source: "Imagining Construction's Digital Future," McKinsey Productivity Sciences Center, Singapore, June 2016

Digitization Crisis: Lagging is Costly

Housing Crises

User X

Affordability

Trades

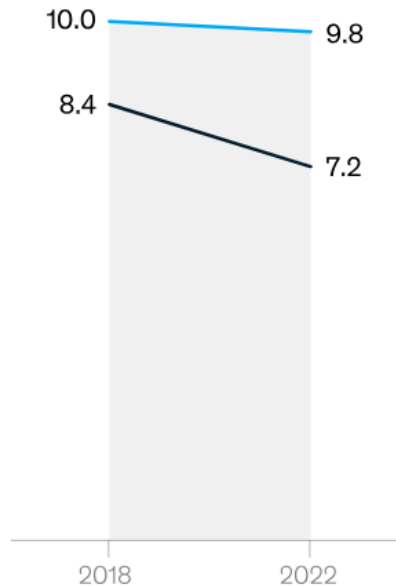
Productivity

Digitization

Retail-banking example

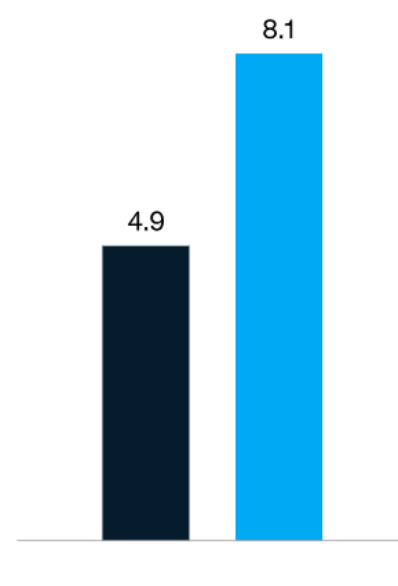
P/E ratio

Weighted peer group average of P/E ratio, next 12 months



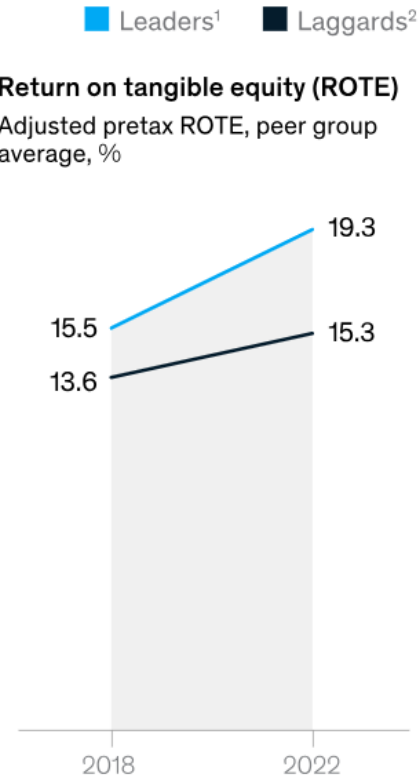
TSR

Weighted peer group average of TSR, 2018–22, CAGR, %



Return on tangible equity (ROTE)

Adjusted pretax ROTE, peer group average, %



26% – 65%

Outperformance by Digital Leaders:

- P/E Ratio
- Total Shareholder Returns (TSR)
- Return on Tangible Equity

¹Top 20 retail banks between 2018 and 2022.

²Bottom 20 retail banks between 2018 and 2022.

Source: S&P Global; Corporate Performance Analytics by McKinsey

Problem:
5 Crises
Driving Pain

Solution:
4 Innovations
Relieving Pain

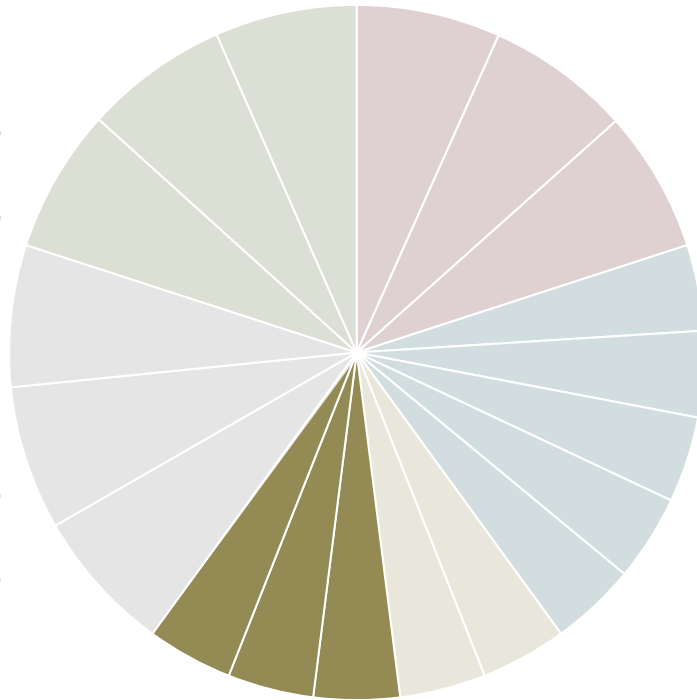
Framework:

- 5 User Experiences
- 19 Strategies
- 160+ Best Practices

for consistently
delivering better
homes at lower cost

Sales:
3 Strategies
20 Best Practices

Quality:
3 Strategies
20 Best Practices



Performance:
5 Strategies
48 Best Practices

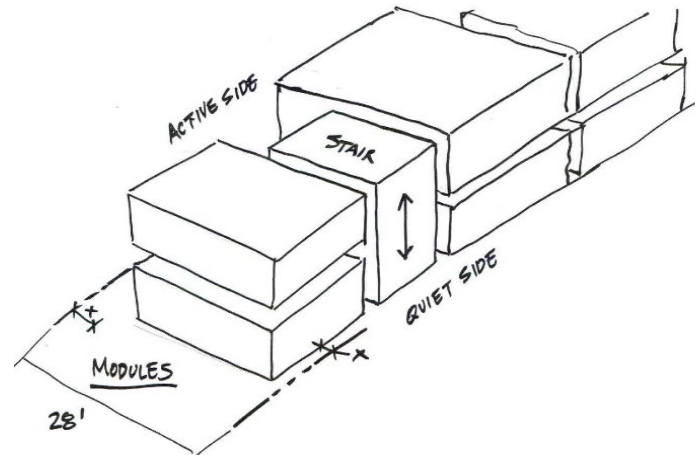
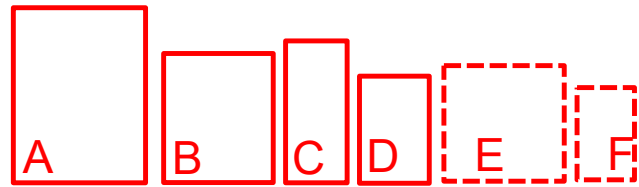
Community:
3 Strategies
24 Best Practices

Design:
5 Strategies
50 Best Practices

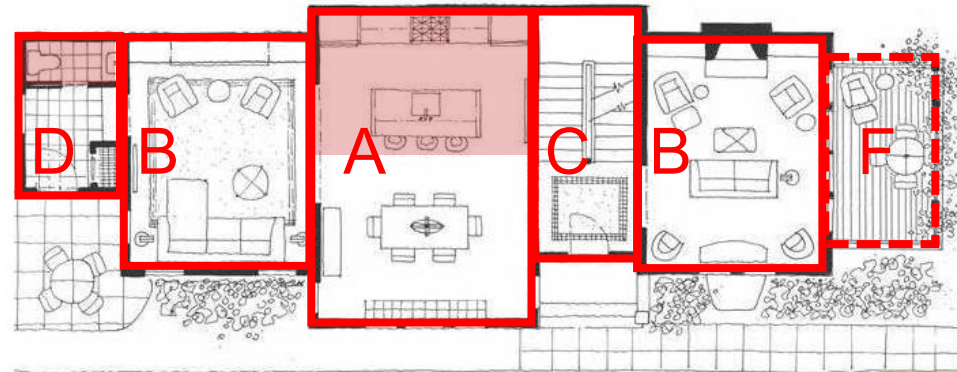
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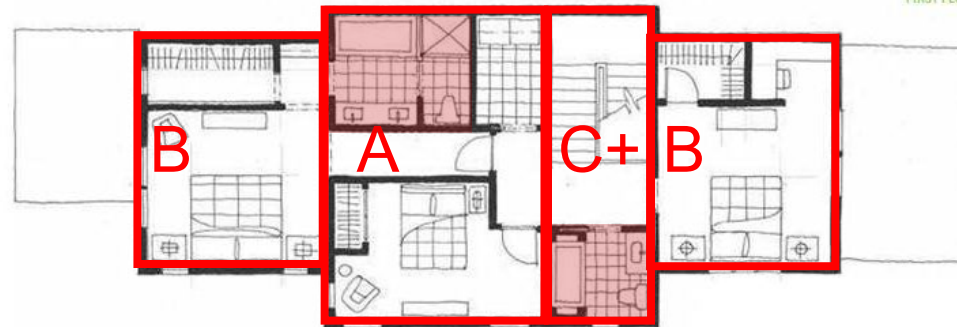
for consistently
delivering better
homes at lower cost



First Floor



FIRST FLOOR



Second Floor

Integrated Solutions:

- Design
- Building Science
- Health
- Smart Home
- Lighting
- Color
- Landscaping

Innovations

UX Optimization

Mass-Customization

DaaS/Co

Offsite Construction



2 - 3 Options:

- Stories
- Roof Trusses
- Pop-Out Windows
- Front Porches
- Siding/Trim
- Color Packages

Innovations

UX Optimization

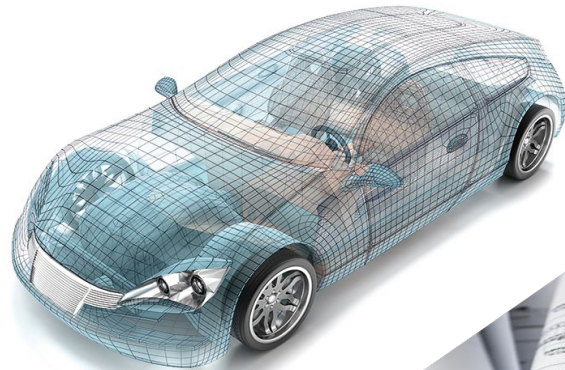
Mass-Customization

DaaS Co

Offsite Construction

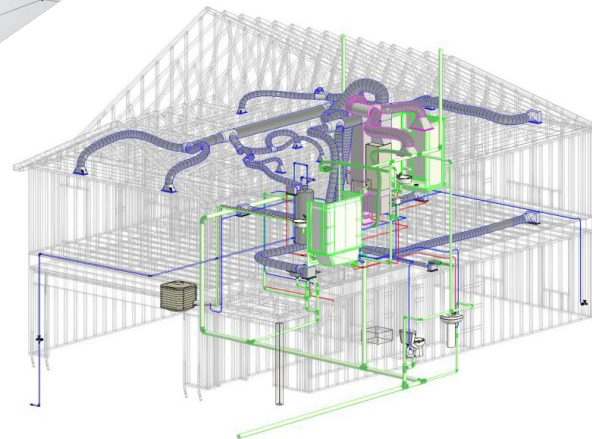


School Street, DigiBilt



Digitization “What”:

Create a virtual digital twin rather than rely on analog drawings



Digitization “Why”:

Faster:

- Reduced Cycle Time
- Automated BOM
- Automated Scheduling

Better:

- Quality / Accuracy
- System Integration
- Machine Learning

Added Value:

- Greater Efficiency
- Waste Reduction
- Less Rework

1. Kits
2. Panels (finished or rough)
 - Framing
 - SIPs
 - ICPs
 - Precast Concrete
3. Modular
4. Hybrids (Panels plus Kitchen/Bath Cores)
5. 3D Printing

Faster:

- Reduced Cycle Time
- Reduced Trades

Better:

- Improved Quality
- Greater Accuracy
- Stronger

Added Value:

- Less Rework
- Eliminate Waste
- Lower Cost at Scale and with Integrated Designs

Offsite Construction: Lagging in the U.S.

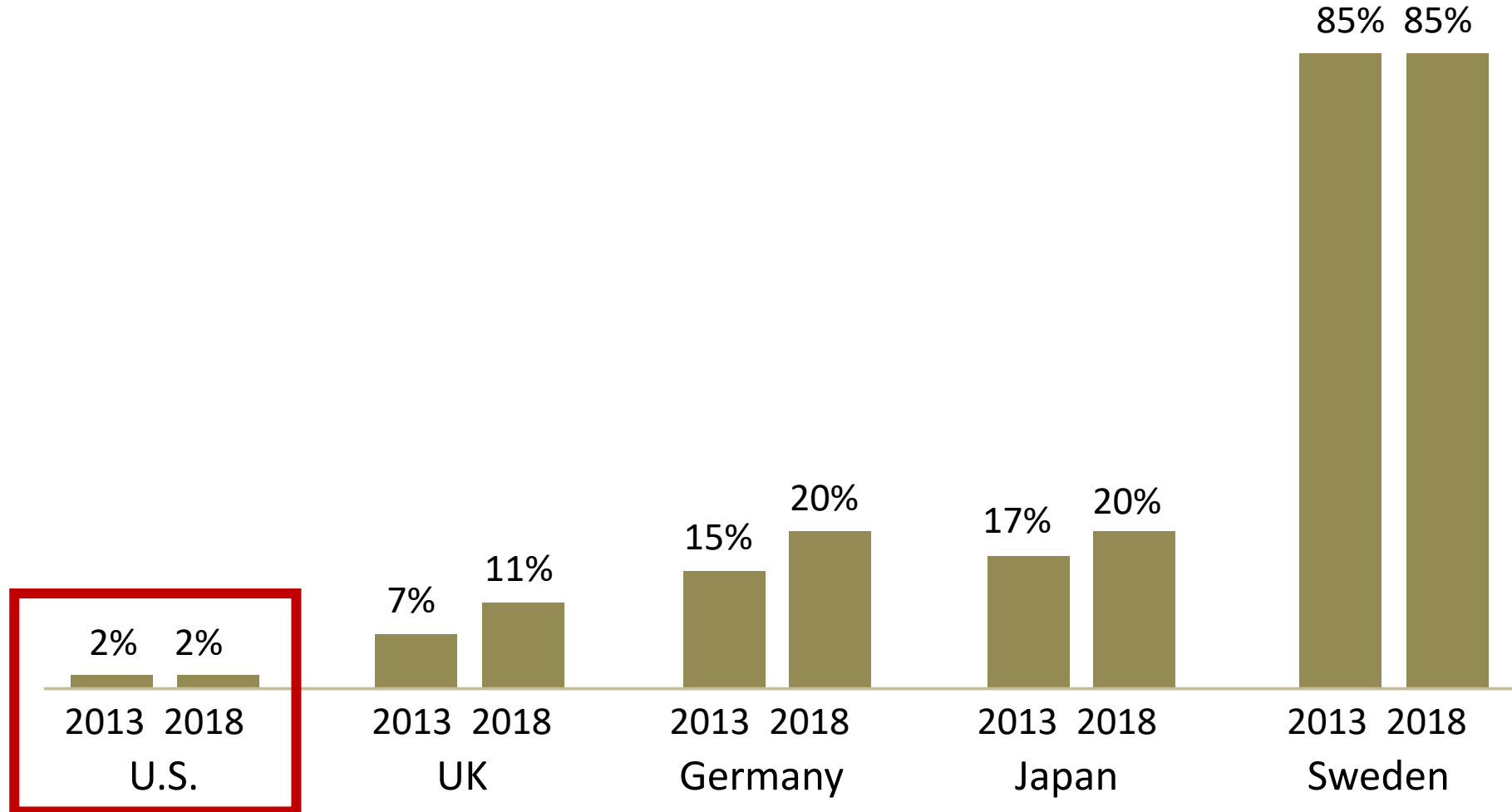
Innovations

UX Optimization

Mass-Customization

DaaSCo

Offsite Construction



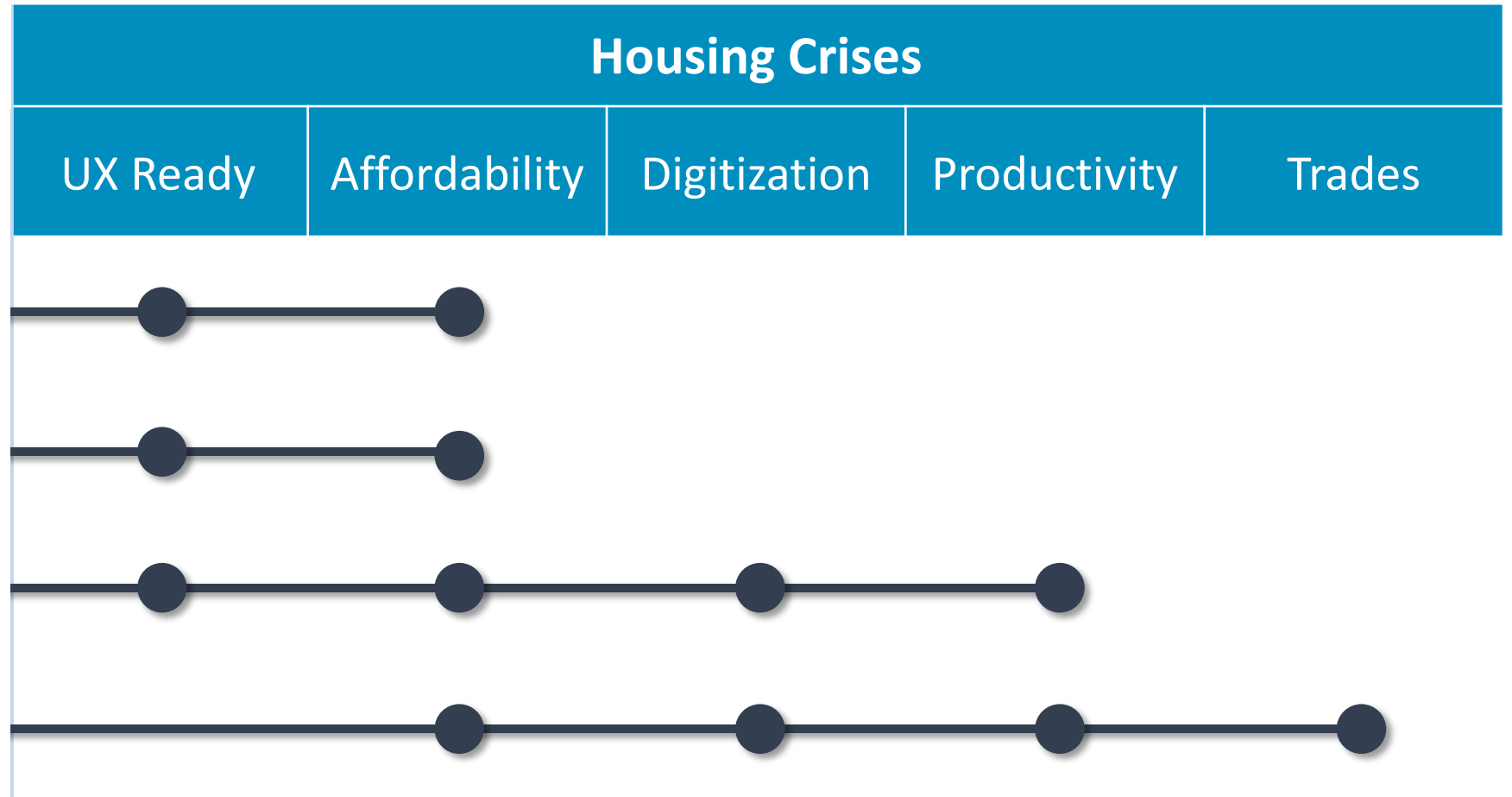
Source: 'The Offsite Revolution in Construction,' Romain de Laubier, Boston Consulting Group, May 6, 2019

Problem:
5 Crises
Driving Pain

Solution:
4 Innovations
Relieving Pain

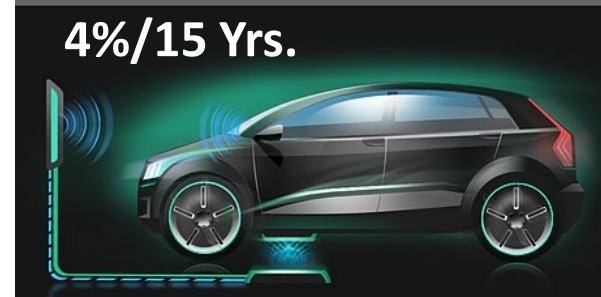
Disruption:
Better Homes
for Lower Cost

Future of Housing with Certainty: Connect the Dots



Future of Housing with Certainty: A Lot Like Cars

Faster, Better, Added
Value
Innovations



Future Cars: **EV's**



Future Homes: **ZEH's**





Discussion:

Agreement, additions, deletions, modifications to this housing future forecast, and, what impact will this future have on raters?

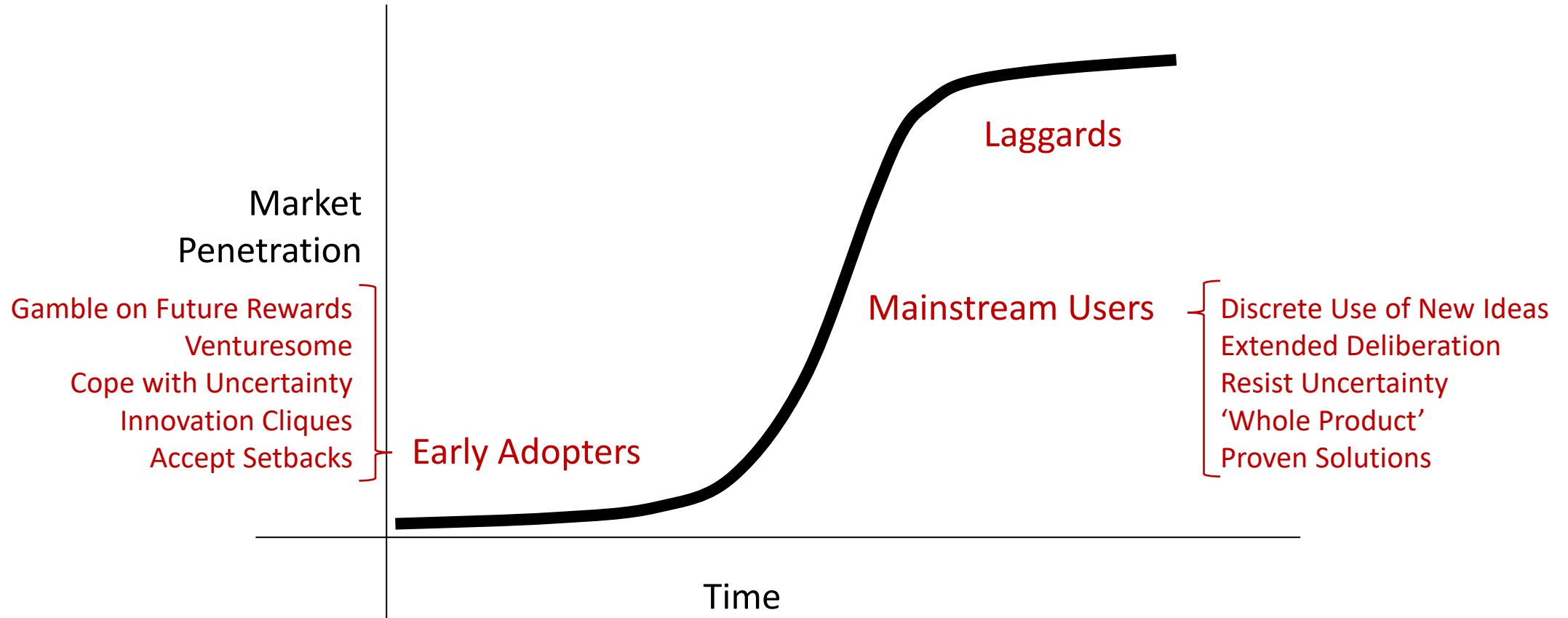


A Word About Innovation

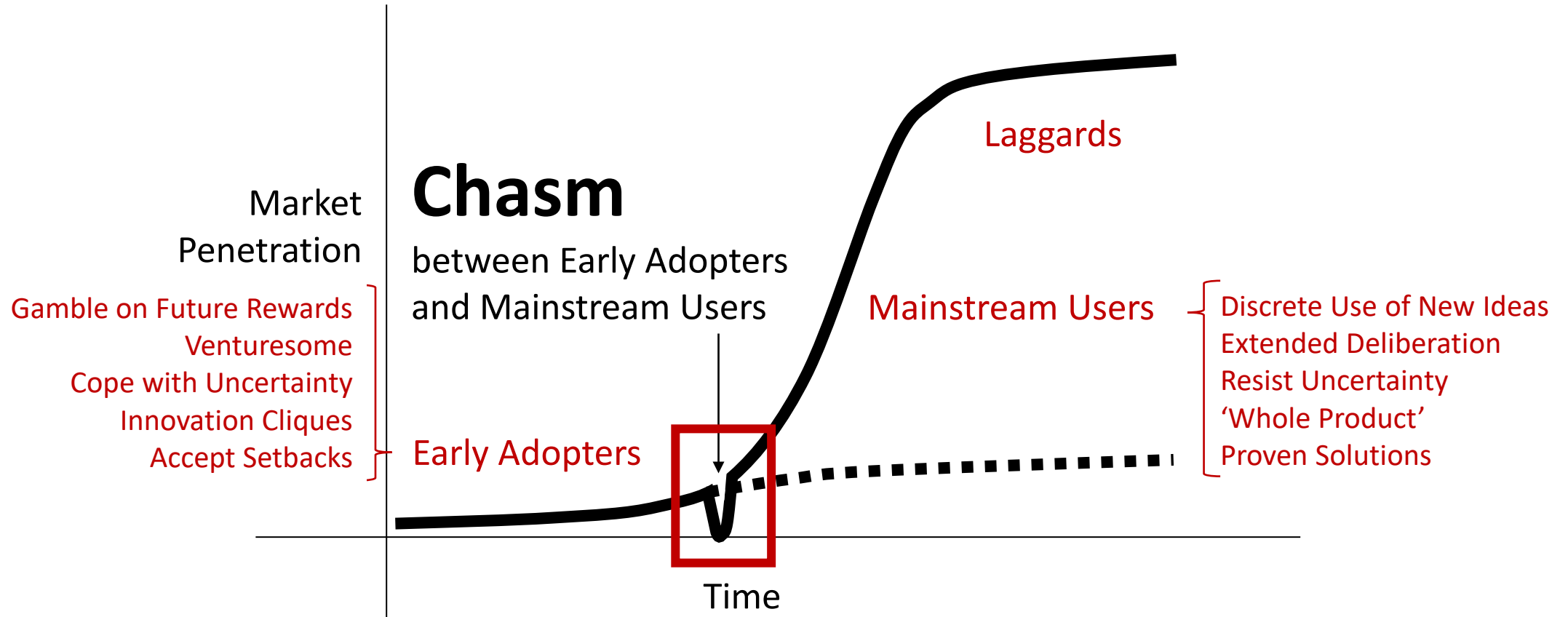
Power of Innovation: Fast, Cheaper, Added Value

Year / Median Income	Median Price / Ratio Typical Car (Chevy Impala)	Ratio Median Price to Median Income Typical Home
1960 / \$5,600	<p>~\$2,600 / ~.46</p>  <p>~1X</p>	<p>~\$12,000 / ~2.1</p>  <p>~3X</p>

Innovation Market Diffusion Curve: Myth



Source: Inside the Tornado by Geoffrey Moore



Source: Inside the Tornado by Geoffrey Moore



Innovation Opportunity with High-Performance Home Certification

- **Live Better:** Low Energy Bills, Comfort, Health, Durability
- **Lower True Cost:** Energy Savings plus Added Value
- **Ensured Quality:** Verification, Assemblies, Components

Builders can leverage substantial additional benefits from high-performance home certification before, during and after sale





HPH Optimization Opportunities: Before Sale

- Compliance Path
- Messaging
- HPH Trade Network

- Sales Process Translating Added Value
- Full-Value Appraisals
- Energy Efficiency Financing
- Access Available Incentives

- Homeowner Portal
- Testimonials
- Empirical Evidence of Savings
- Case Studies Showcasing Added Value



Before Kitchen Upgrade



After Kitchen Upgrade



ENERGY STAR Certified Home



Non-ENERGY STAR Certified Home

Market Dysfunction: Lack of HPH Value Persistence



“When I bought a house in 2016, the agent who listed it didn’t know that it was a passive house. Neither did the seller ...

That’s why the price was reduced twice before I snapped it up for \$55,000 less than the original list price.”

Pearl Study:

- 1,316 NGBS certified homes from 2009-2021 reviewed
- Searched home's history to see if they had been resold.
- 226 homes (17%) resold
- 74% had no mention of the HPH features
- 26% had HPH features substantially ignored

\$3 Million

lost / ignored equity due to HPH's not properly marketed.



Home value Owner tools [Home details](#) Neighborhood details

Overview

BETTER THAN NEW CONSTRUCTION! Built by award winning Urban NW. This beautiful home has a grand craftsman entry, open floor plan featuring quartz counters, built-ins, high ceilings, and high end finishes throughout. Main floor bdrm & full bathroom, 4 additional HUGE bedrooms upstairs and bonus room! Master bdrm features tile shower, huge tub, and separate vanities. 3 Car garage! Over-sized covered patio with custom stone fireplace.

Facts and features

[Edit](#)

Type: Single Family Residence

Year built: 2015

Heating: Heat Pump, ENERGY STAR Qualified Equipment

Cooling: Heat Pump

Parking: 3 Attached Garage spaces

HOA: \$76 quarterly

Lot: 7,405 sqft

Interior details

Bedrooms and bathrooms

Bedrooms: 5
Bathrooms: 3
Full bathrooms: 3
Main level bathrooms: 1

Heating

Heating features: Heat Pump, ENERGY STAR Qualified Equipment

Cooling

Cooling features: Heat Pump

Built 2015, Sold 2019 NGBS Gold, HERS 48 Substantially Ignored:

- No mention of any green features or associated benefits
- Only a small mention of one component, an ENERGY STAR Certified Heat Pump
- Larger HPH value ignored



HERs-2 Home Rejected by 4 Appraisers at Impending Settlement Deadline

Full appraisal needed to meet
20% equity threshold to avoid
PMI

Loan Officer Quote:

“I personally believe all the ‘red flags’ about the project being green...might have scared the appraisers off”

Market Dysfunction: ZERH Ignored in Appraisal



This Home's
HERS® Index Score

48

3023 Clinton Ct, Williamsburg, VA, 23188

 Rating Company:
TopBuild Home Services, Inc.

 Rating Date:
February 27, 2023

 Energy Star Certified
Version USv3.1

 **Rated Home Label**
[Download](#)

Heating/Cooling	FWA/Central	FWA/Central		FWA/Central		FWA/Central	
Energy Efficient Items	Typical System	Typical System		Typical System		Typical System	
Finished area above grade contains:	5	Rooms	3	Bedrooms	2.0	Bath(s)	1,774
Square Feet of Gross Living Area Above Grade							
Additional features (special energy efficient items, etc.) Average quality construction with typical finish and amenities. Wood flooring throughout. Granite counter tops in kitchen and master bath. No additional contributory features noted.							

“You need to remove the solar panels on your home. They will lower your home’s value.”

“The property situated at ... would not benefit from having “green work” done on the home.”

“Many homeowners do not buy the solar panels, they lease them. This means ... no value can be given to this feature.”

“Other green factors ... such as spray foam insulation, LED lighting, low emittance windows, on-demand heating systems, and geothermal heating systems ... would not increase the value of the home.”

“The houses that really attracted me were houses that had a very nice kitchen.”

“As a first-time homebuyer, I would not have paid more for a home that was marketed as ‘energy efficient’ because I didn’t understand the value of those things.”

“The most important thing to me is a home that has been well-maintained. Low energy bills are nice, but I am in a position where I don’t need to worry about my bills.”

Midwest Real Estate Agent Focus Group:

“If the home is well-priced with gray walls and white kitchen cabinets with an open floor plan, most buyers don’t care. Lipstick on a pig.”

“Overall, the green movement is a scam in the eyes of buyers in real estate. 95% of buyers don't care, but 100% of buyers want high speed internet. I have never had a buyer ask about energy efficiency...”

“The problem is that I have been told by appraisers that high efficiency mechanicals add little to no value to a home. They tell me they can add value for a \$2500 granite counter & backsplash but no value on appraisal for \$10,000 high efficiency HVAC & water heater. This makes zero sense that mechanicals are not given appraisal value.”



Discussion:

Do raters agree with hypothesis about substantial benefits of HPH certification being left on the table?



Discussion:

Will HERS raters benefit if
builders optimize their HPH certification benefits?



Discussion:

What services would help builders optimize their investment in HPH certification?



HPH Certification Innovation: Pearl CaaS

Plus Investment Grade Documentation

Green and Energy Efficient Addendum



<p>Additional resources to aid in the valuation of green properties and the completion of this form can be found at http://www.appraisalinstitute.org/education/green_energy_addendum.aspx</p> <p>The appraiser hereby certifies that the information provided within this addendum:</p> <ul style="list-style-type: none"> has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended users identified in the appraisal report and only for the intended use stated in the report. is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended users in the report. is the result of the appraiser's routine inspection of and inquiry about the subject property's green and energy efficient features. Except for any assumption, data provided herein is assumed to be accurate and if found to be in error could also affect the appraiser's opinion or conclusions. is not made as a representation or as a warranty as to the accuracy, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments. <p>Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort (LEED). High Performance building and green building are often used interchangeably.</p> <p>Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) air, (2) water, (3) energy, (4) materials, (5) indoor environmental quality, and (6) maintenance and operation. The energy and water elements are the most measurable elements of green or high performance housing. Appraisers need savings amounts to develop an income approach to support energy efficient contributory value.</p> <p>THIRD-PARTY VERIFICATIONS (See types defined in glossary).</p> <p>The following verified items are considered within the appraisal analysis of the subject property:</p>	<p>Client File #: _____ Appraisal File #: _____</p> <p>Residential Green and Energy Efficient Addendum</p> <p>Client: Alan Machado</p> <p>Subject Property: 12 Pigeon Rd City: Dennis State: Massachusetts Zip: 01928-1210</p>
	<p>Green Certification</p> <p>Certifications above that the home meets or exceeds:</p> <ul style="list-style-type: none"> Environmental Protection Agency (EPA) <input type="checkbox"/> Indoor AirPlus <input type="checkbox"/> WaterSense <input type="checkbox"/> ENERGY STAR Energy Department (DOE) <input type="checkbox"/> Zero Energy Ready Home (ZERH) Home Innovation Research Labs (HIRL) <input type="checkbox"/> Home Remodel <input type="checkbox"/> Home Innovation Research Labs (HIRL) New Homes Living Building Challenge (LBC) <input type="checkbox"/> Living Building Certified <input type="checkbox"/> Net+ Certification Pasadena Standard <input type="checkbox"/> First Low Energy <input type="checkbox"/> DwellXO <input type="checkbox"/> Passive House Pasadena Institute US <input type="checkbox"/> PIRIstar 2013 USGBC LEED <input type="checkbox"/> Certified <input type="checkbox"/> Silver <input type="checkbox"/> Gold <input type="checkbox"/> Platinum <p>Other: Pearl Certification</p> <p>Date Verified: 01/12/2023 Certificate of Efficiency Improvements version: _____ Organization URL: _____</p> <p>ABOVE VALID ONLY IF CHECKED: <input type="checkbox"/> Verification received on site <input checked="" type="checkbox"/> Verification attached to this report</p>
<p>Energy Label</p> <p>Labels disclose the state of the home's energy assets.</p> <p>DOE's Home Energy Score (1 to 10): <input type="checkbox"/> Official Score <input type="checkbox"/> Uncertified Score</p> <p>Other Energy Score: Pearl Score Range 0 to 1,000: 1162</p> <p>Date Verified: 01/12/2023</p> <p>Score or Rating Version: _____ Organization URL: _____ <input type="checkbox"/> See report on: www.homeenergy.gov <input checked="" type="checkbox"/> www.pearlcertification.com</p>	<p>Estimated annual Energy Savings score below 10 average (color is color based on 1 to 10 diagnosis)</p> <p>Estimated annual Energy Savings score above the average but is not average +4</p> <p>Estimated energy Describe energy Department of</p>

EFFICIENCY FEATURES (Water, Energy, and Environmental. See types defined in glossary).	
The following items are considered within the appraisal analysis of the subject property:	
<p>Insulation</p> <p><input type="checkbox"/> Fiberglass-Blown-in <input type="checkbox"/> Foam Insulation <input type="checkbox"/> Cellulose <input type="checkbox"/> Fiberglass flat insulation</p> <p>R-Value Wall: R-23 Ceiling: R-46 Other: R-23 Conditioned basement</p>	
<p>Building Envelope</p> <p>Envelope Tightness: 1.5 Unit: <input type="checkbox"/> CFM25 <input type="checkbox"/> CFM50 <input type="checkbox"/> ACH50 <input type="checkbox"/> ACH natural</p> <p>Institutions: Insert the rating as a number that could be 0.5 to 1ACH50 or higher, the lower the number, the more air tight the envelope. Building Codes for area show maximum Envelope Tightness allowed based on the climate zone. Not all areas have adopted a building code. http://icc-es.org/</p>	
<p>Windows</p> <p><input checked="" type="checkbox"/> ENERGY STAR <input type="checkbox"/> Low E <input type="checkbox"/> High Impact <input type="checkbox"/> Storm <input type="checkbox"/> Double Pane <input type="checkbox"/> Triple Pane <input type="checkbox"/> Tinted <input type="checkbox"/> Solar Shades</p>	
<p>Day Lighting</p> <p><input type="checkbox"/> # of Skylights: _____ <input type="checkbox"/> # of Solar Tubes: _____ <input type="checkbox"/> Other (Describe): _____ % of lighting LEDs: 100</p>	
<p>ENERGY STAR Appliances</p> <p>ENERGY STAR: <input checked="" type="checkbox"/> Dishwasher <input type="checkbox"/> Refrigerator <input type="checkbox"/> Washer/Dryer <input type="checkbox"/> Other Both Washer and Dryer are ENERGY STAR</p> <p>Energy Source: <input type="checkbox"/> Propane <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas <input type="checkbox"/> Other (Describe): _____</p> <p>Note: ENERGY STAR appliances do not result in an ENERGY STAR Home.</p>	
<p>Water Heater</p> <p><input checked="" type="checkbox"/> ENERGY STAR <input type="checkbox"/> Tankless <input type="checkbox"/> Solar (see page) <input type="checkbox"/> Heat Pump <input type="checkbox"/> Coil</p>	
<p>HVAC & Related Equipment</p> <p>Describe in comments area.</p> <p><input type="checkbox"/> High Efficiency HVAC SEER <input type="checkbox"/> Heat Pump Efficiency Rating: COP: _____ HSPF: 10.5 SEER: 19.5 EER: _____</p> <p>Thermostat/Controllers? Programmable Thermostat? Auxiliary Heat Source? Radiant Floor Heat? Geothermal? Electric Vehicle Ready? (car charger)</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<p>Indoor Environmental Quality</p> <p><input checked="" type="checkbox"/> Energy (ERV) or Heat Recovery Ventilator (HRV) <input type="checkbox"/> Other Measured Whole-House Ventilation Device (See glossary) <input type="checkbox"/> Humidity Monitoring Device installed</p> <p><input type="checkbox"/> Non-Toxic Pest Control <input type="checkbox"/> Radon Systems <input type="checkbox"/> Active <input type="checkbox"/> Passive</p>	
<p>Water Efficiency</p> <p><input type="checkbox"/> Reclaimed Water System (Describe): _____ <input type="checkbox"/> Rain Barrels Used in Irrigation <input type="checkbox"/> Graywater reuse system <input type="checkbox"/> Water Saving Fixtures <input type="checkbox"/> Cistern size: gallons <input type="checkbox"/> Location of cistern:</p>	
<p>Utility Costs</p> <p>Annual Utility Cost: \$/year, based on: (5/11 year) includes (check all that apply) <input type="checkbox"/> Electric <input type="checkbox"/> Heating <input type="checkbox"/> Water <input type="checkbox"/> Other: _____ # of Occupants: _____</p>	
<p>Comments</p> <p>The following property has a number of high-performing features as detailed in the Pearl Certification report. According to a 2017 study by Remodeling magazine, air sealing and attic insulation has the highest value-to-cost ratio of any home improvement and was the only improvement to have a ratio higher than 1.0 (i.e., the added</p>	

Published guidance from Fannie Mae:

"Special energy-saving items must be recognized in the appraisal process and noted on the appraisal report form. For example, when completing the appraisal report (Form 1004), special energy-efficient items are to be addressed in the Improvements section in the Additional features field."

<p>HVAC & Related Equipment</p> <p>Describe in comments area.</p> <p><input type="checkbox"/> High Efficiency HVAC SEER Efficiency Rating % AFUE* % *Annual Fuel-Utilization Efficiency</p>	<p><input checked="" type="checkbox"/> Heat Pump Efficiency Rating: COP: HSPF: 9.5 SEER: 19.0 EER:</p>	<p>Thermostat/Controllers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Programmable Thermostat? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Auxiliary Heat Source? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Radiant Floor Heat? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Geothermal? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Electric Vehicle Ready? (car charger) <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Appraisal Addendum helps ensure that the home investments turn into added equity

Online Presence

Follow Us register to save homes | contact us

our communities quick move-in homes floor plans design center **why eagle** homeowners ask eagle

Pearl Certified Homes: It's what value *feels* like

home | why eagle | high-performing homes

Pearl Certification

Pearl Certification is a national firm that provides third-party certification of **high-performing homes**: homes with "performance assets" that make them **healthy, safe, comfortable, energy and water efficient**.

Pearl's certification system enables home buyers to see and understand the value of a home's high-performing assets when the home is sold. Research from across the U.S. shows that third-party home certifications like Pearl's add an average of 4% to the sale price of high-performing homes, compared to similar homes lacking these assets.

Design Center Materials

Pearl Certified Homes: It's what value *feels* like

About Pearl Certification

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The Science Behind Pearl Certification

Pearl's certification system is based on building science. It was developed in consultation with national experts on energy efficiency and home performance, and with technical assistance from the **National Renewable Energy Laboratory (NREL)**.

Pearl's certification system takes into account how well an asset like insulation or a cooling system was installed. It also takes into account tools that allow a homeowner to view, understand, and improve their home's performance.

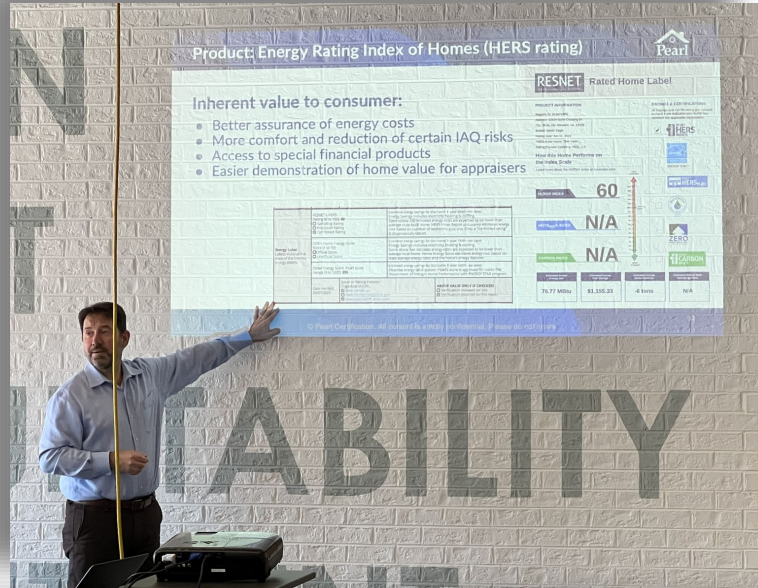
Certification Process

1. Homeowner requests a Pearl Certification. 2. Pearl Certification sends a certified energy auditor to the home. 3. The auditor performs a detailed energy audit. 4. The auditor identifies areas for improvement. 5. The auditor provides a report to the homeowner. 6. The homeowner implements the recommended improvements. 7. Pearl Certification re-audits the home. 8. Pearl Certification issues the Pearl Certification. 9. The homeowner receives the Pearl Certification. 10. The homeowner can use the Pearl Certification to market the home.

Pearl's Partners

Pearl works in partnership with the U.S. Department of Energy and many of the nation's leading real estate, appraisal, contracting, and building science organizations.

Sales Training



HpHUB for Documentation

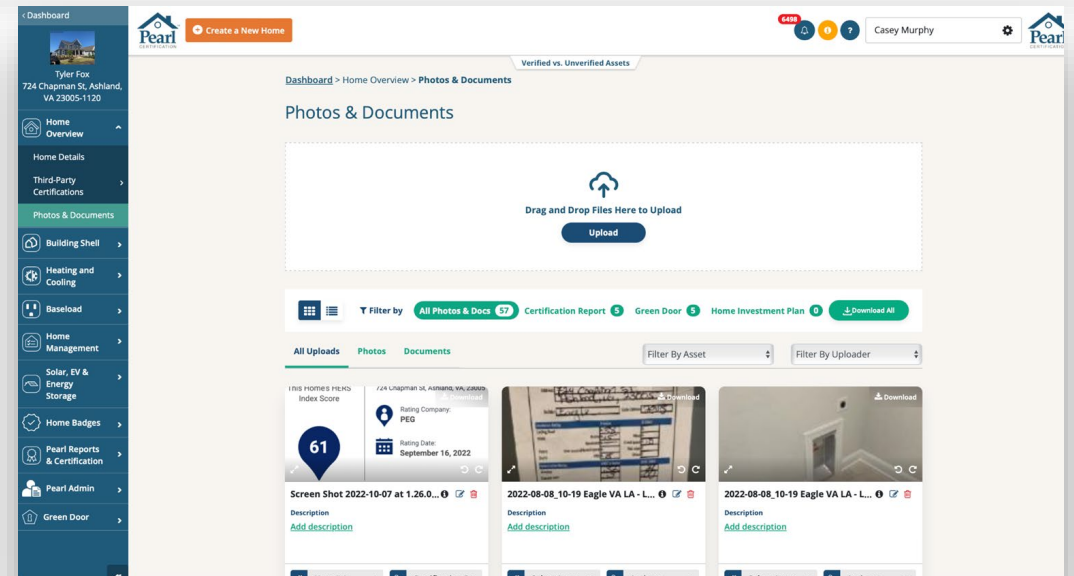
List of Homes

Show 10 entries Search: Download CSV file

Home ID	Customer	Address	Created By	Firm	Created On	Level	Status	Aged	Action
92522	Tyler Fox	724 Chapman St, Ashland, VA 23005-1120	Virender Singh	Eagle Homes of VA, LLC	03/31/2022	Gold	Pearl Certified	N/A	Details
72517	Joshua Goldschmidt	12301 Beech Hall Cir, Manakin Sabot, VA 23103-2629	Virender Singh	Eagle Homes of VA, LLC	11/24/2021	Gold	Pearl Certified	N/A	Details
77859	Leslie Wells	12332 Kilbourne Hill Dr, Ashland, VA 23005-9701	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Pearl Certified	N/A	Details
77857	Spec Spec	718 Chapman St, Ashland, VA 23005-1120	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Home Created	599	Details
77854	Patrick Riley	361-A Souldren Walk, Henrico, VA 23233	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Home Created	599	Details
77850	Jeannie Kim	367 Souldren Walk, Henrico, VA 23233-7862	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Canceled	599	Details
77848	Upendra Sriakulapu	369-A Souldren Walk, Henrico, VA 23233	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Pearl Certified	N/A	Details
77837	Gavin Steward	3108 Kuhn St, Richmond, VA 23223	Virender Singh	Eagle Homes of VA, LLC	12/30/2021	Gold	Pearl Certified	N/A	Details
69455	Scott Campbell	12117 Mifflin Pl, Ashland, VA 23005-9702	Virender Singh	Eagle Homes of VA, LLC	10/24/2021	Gold	Pearl Certified	N/A	Details
69453	Julie Edwards	101 Lauradell Rd, Ashland, VA 23005-8228	Virender Singh	Eagle Homes of VA, LLC	10/24/2021	Gold	Pearl Certified	N/A	Details

Showing 31 to 40 of 239 entries (filtered from 212,602 total entries)

Previous 1 2 3 4 5 ... 24 Next

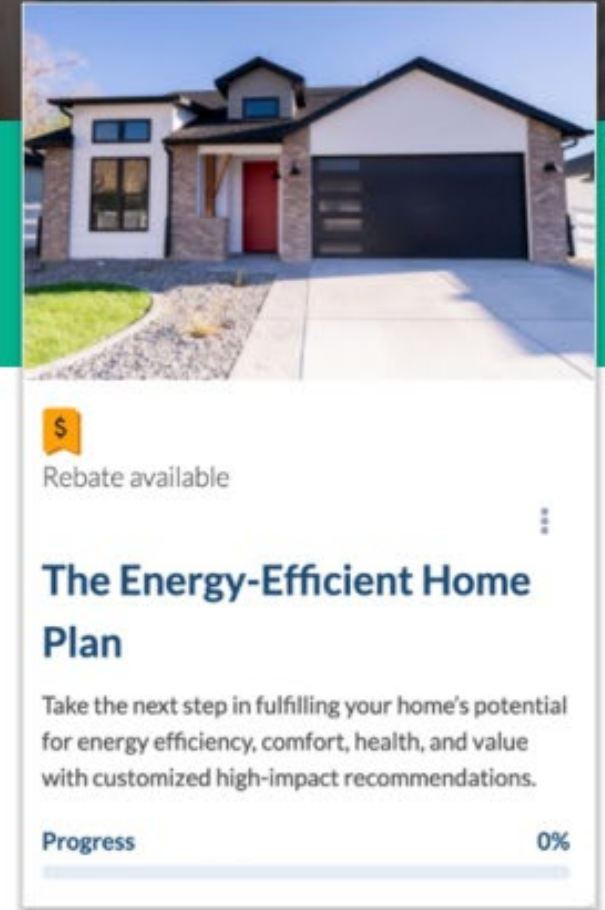





GREEN DOOR


Pearl's consumer app to manage, maintain and improve the home's performance:

- ✓ Mobile and desktop single code base
- ✓ Integrations with **Ecorebates**, **Climate Check**, and **Radiant Labs** (energy modeling)
- ✓ Option to co-brand for your homeowners



Lifetime Customer Support - Homeownership

 Maintenance Tracker


 Find Professionals

Planning to Sell your home?

Sell with Pearl for up to 5% more for your certified home

[Contact Me](#)


Not Interested



Need support?

[Get Help](#)

My Pearl Score



1131

Asset Silver Gold Platinum

PLATINUM

SOLAR

[View Your Plans](#)

My Pearl Score

Your home's current Pearl Score and corresponding Certification Level will always be shown here. Click the "Learn more" link below to learn about Pearl's scoring system. As you make improvements to your home, be sure to log them in the Green Door app so we can recalculate your score and update your Pearl Certification Report when you reach a higher level.

[Learn more about Pearl's scoring system](#)

My Home Investment Plan


[View Your Plans](#)

Start here to create a roadmap that helps you prioritize improvements to maximize your return on investment, enhance your family's well-being, grow your energy efficiency – and achieve a certified home. A Pearl Home Investment Plan will give you guidance on your home and options for upgrading specific assets to increase your comfort, lower energy bills and improve indoor air quality.

[My Home](#)

[Homeowner Resources and Help Center](#)

From the Newsletter



[How to Start Getting Your Home Ready for Aging in Place](#)

Model Home Materials

High-Performing Homes
Pearl Certified Homes. It's what value feels like.

Our story

About Pearl Certification:
Pearl Certification is a national firm that provides third-party certification of high-performing homes with "performance assets" that make them healthy, safe, comfortable, energy and water efficient.

Special Performance Features:

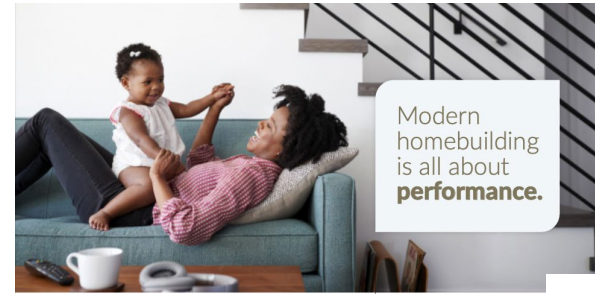
- Building Shell:** Superior construction, weather-resistant exterior, and energy-efficient windows and doors.
- Heating and Cooling:** High-efficiency equipment and ductwork, plus smart thermostats and zoning.
- Water Management:** Proper drainage, waterproofing, and moisture-resistant materials.
- Indoor Air Quality:** Low-VOC materials, proper ventilation, and radon mitigation.

Pearl's Partners:
Pearl works in partnership with the U.S. Department of Energy and many of the nation's leading real estate, appraisal, contracting, and building service organizations.

Look for the logo throughout the model home to see the features that make every Eagle Home a high-performing home!



Sales Brochures



Better Process - The confidence of knowing your home has been inspected and tested to meet national energy standards by a trained, certified and independent HERS rater to provide you with a "full report card." This means transparency and ease in seeing all the home's high-performing assets that make it healthy, safe, comfortable, and efficient.

Better Living - superior building shell, heating and cooling equipment, and appliances translate to better durability, better comfort, and reduced utility and maintenance costs. Track home performance and any improvements for the life of the home to not only maintain, but increase home value.

Better Investment - access to real estate resources that document and communicate the superior building practices of Southern Development Homes. Studies indicate sales price premiums averaging 5% for Pearl Certified homes.

About Pearl
Pearl Certification is a national firm that provides third-party certification of high-performing homes: homes with "performer assets" that make them healthy, safe, comfortable, energy and efficient. Pearl's certification system enables home buyers to see an understand the value of a home high-performing assets when their home is sold.

Every home is independently tested and third-party certified. At Southern Development Homes, we provide these benefits to all of our home buyers.

Learn more at Southern-Development.com/Ecosmart

Front

Back

The Southern Development Homes Difference.

If you are looking at other homes, make sure you ask the following questions:

Do Other Homes Offer This Value?	SOUTHERN DEVELOPMENT HOMES	OTHER BUILDERS
Do you hire an independent professional to inspect and test your homes prior to sheetrock and prior to settlement, above-and-beyond mandatory code inspections?	✓	
Will you provide a 3rd party validated estimate of your home's energy efficiency so your customers can budget for my energy costs?	✓	
Will you provide a 3rd party issued report documenting the home's energy, comfort, and indoor air quality systems so your customers can understand and maintain them?	✓	
Will you provide an online tool to help your customers update their home over time?	✓	
When it comes time to refinance or sell, do you provide direct assistance to your customers to ensure the home's value can be properly documented and understood by agents, homebuyers, and appraisers?	✓	

Pearl Testimonial

"A lot of people have energy efficiency and green building programs, but we believe in the third-party certification of every single one of our homes. Pearl has the foresight to complete the loop of individual home certification and providing documentation of the value that we add to our customers' homes. We are proud to work with Pearl to help homeowners maximize their high-performing home's value over the lifetime of their homeownership."

- Josh Goldschmidt,
President, Regional Builder on East Coast

Preferred Lender Training

45L Encouragement & Guidance

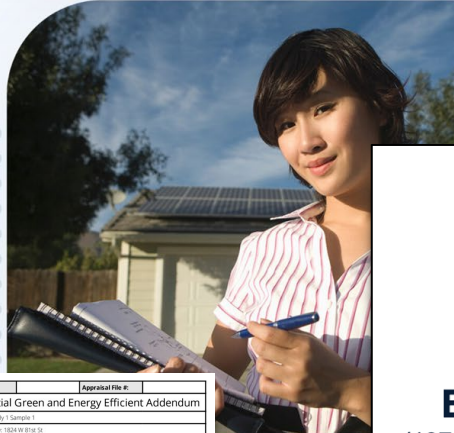


For Real Estate Professionals | About Pearl | Certify a Home | Success Stories | Join the Network | I am a Real Estate Pro

REAL ESTATE PROS

Simply. Certified. Reducing complexity for homes with solar and energy-efficient features.

Appraisers face increased compliance risks when evaluating solar and energy-efficient features. But thanks for Pearl Certification, appraisers can more accurately and efficiently assess these special property types.



Client File #	Appraisal File #																																				
Residential Green and Energy Efficient Addendum																																					
Client: 100-200077 - Former Subject Property: 1234 W 10th St City: Los Angeles State: California Zip: 90001-3037																																					
Additional resources to aid in the valuation of green properties and the completion of this form can be found at: http://www.pearlcertification.com/green-energy-addendum-guide																																					
The appraiser hereby certifies that the information provided within this addendum: - is derived from the appraisal or other sources of information for the client and intended solely for the client's use in the appraisal report and only for the intended use stated in the report. - is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser in the client or intended use(s) in the report. - is the result of the appraiser's personal inspection of and inquiries about the subject property's green and energy efficient features. - is based on the appraiser's personal observation and inspection of the subject property's green and energy efficient features. - is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.																																					
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Green Certification Date Issued: 07/09/2023 Certificate of Efficiency Improvements Version: 2.0 Organization: U.S. Green Building Council (USGBC) Other: www.usgbc.org/certification.com																																					
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Completed by: W. Casey Murphy Title: Vice President of Quality Systems Date: 07/09/2023																																					

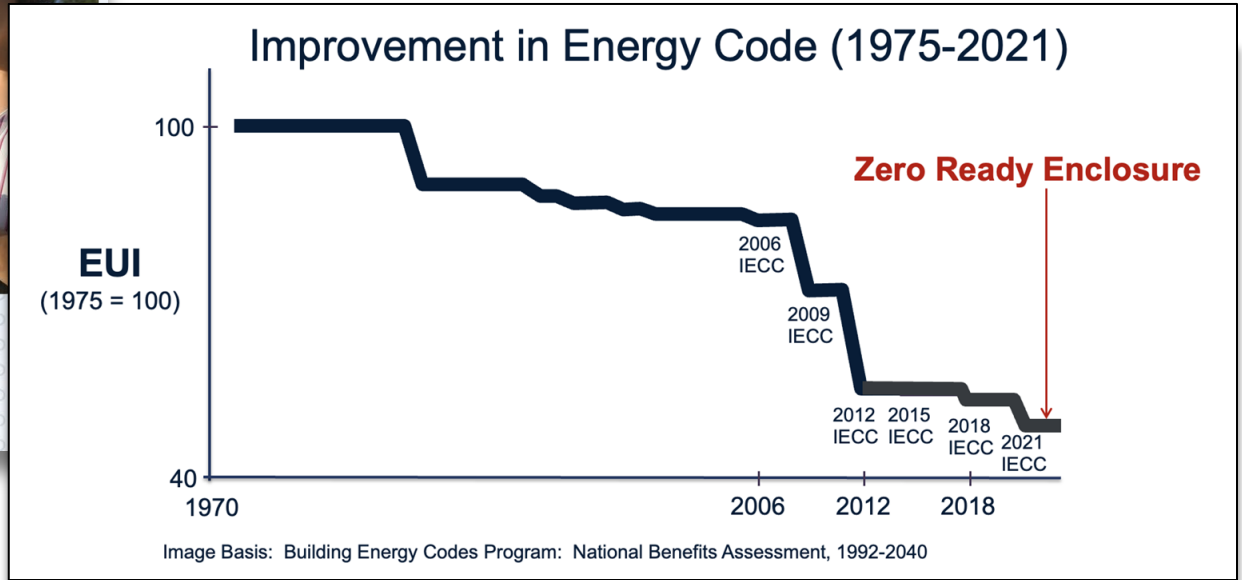


Image Basis: Building Energy Codes Program: National Benefits Assessment, 1992-2040

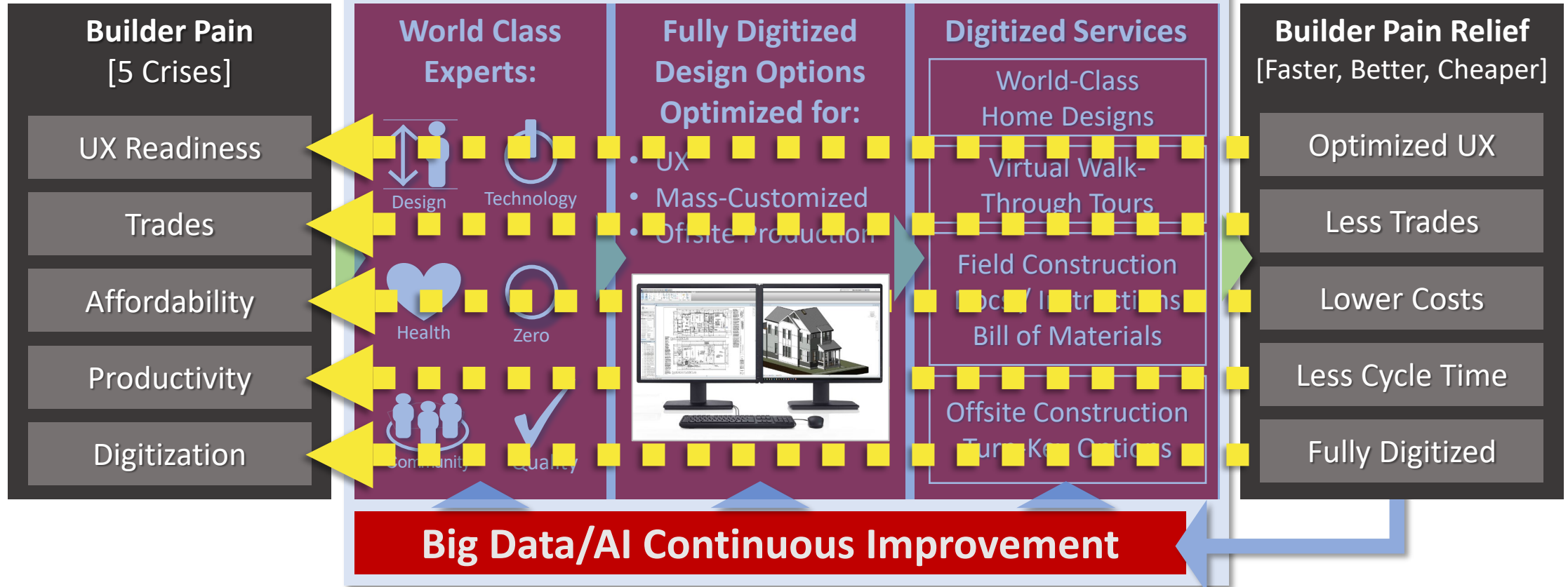


Discussion:

How could HERS raters effectively integrate with CaaS services?

Crossing the 'Chasm'

Innovation Aggregator Business Model: Large Builder / DaaSCo / Offsite Company



Pearl Network Qualifications

Quality Governance

- Mission, Vision, and Values alignment
- Commitment to the triple bottom line

Dedication to Workforce

- Committed to employees – training and business systems support

Dedication to Customers

- Committed

Technical Excellence

- High-performing home and home features



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