Welcome to todays CHBA Net Zero Webinar!

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Housekeeping

- **This webinar is being recorded.** CHBA Members can access the Net Zero webinar archive at **www.chba.ca/NZwebinars**. (Recording + slide deck.)

- You will be in **"listen-only"** mode for the duration of the webinar.

- After the presentation we will have time for questions. **Please use the question section of the dashboard** throughout the webinar and they will be relayed to the presenter(s).

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- High Performance Building Envelope Solutions

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Our Next Webinar

May 20 from 10:30-11:30 PT / 1:30-2:30 ET

How do the CHBA Net Zero Homes measure up to NBC Tier 5?

Presented by Brett Cass, Program Coordinator, Net Zero Energy Housing, CHBA

Canada is on the path to advancing its energy codes in residential construction. The 2020 National Building Code (NBC) will support higher degrees of energy performance in homes through a tiered energy code with the most stringent tier intending to approximate 'Net Zero Energy Ready'.

With a dataset of over 500 Net Zero and Net Zero Ready labelled homes across the country, the CHBA has performed a detailed analysis comparing these homes to the proposed Tier 5 metrics of the NBC. Join us for this webinar to learn how the CHBA Net Zero and Net Zero Ready Homes measure up.

Brett has a B.A. in Environmental Science with a Minor in Business from Robert Morris University (Pittsburgh, PA). After graduation he began his career in the renewable energy industry as a renewable energy system designer. Brett continues to develop his education in green building practices and energy management; he has his accreditation as a LEED Green Associate from the Canada Green Building Council (CaGBC) and is also certified as an Energy Manager in Training (EMIT), soon to be a Certified Energy Manager (CEM), through the Association of Energy Engineers.

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Register at chba.ca/NZwebinars

Today's Webinar

CHBA Net Zero Home Labelling Program: 2020 Year in Review

Presented by Brett Cass, Program Coordinator, Net Zero Energy Housing, CHBA

2020 was the CHBA Net Zero Home Labelling Program's most impressive year yet, and this webinar gives an in-depth sneak peek into some of the most interesting findings from the 2020 Net Zero Home Labelling Program Summary Report, which is being released in May. Join Brett Cass, Program Coordinator, as he shares fun facts on the 520+ homes labelled in the program last year, including details on the technologies and building assemblies used, performance levels achieved, and particularly interesting details out of the analyzed data. Webinar participants will also take a detailed look at 4 unique Net Zero projects labelled this past year.

Join the webinar to:

- Learn about the impressive uptake of the Net Zero Home Labelling Program – both in the various housing forms and qualified participants
- Understand how these homes are built and the performance levels they achieve
- Get a sneak peek at the findings of the 2020 Net Zero Home Labelling Program Summary Report
- Explore the construction details of four recently built Net Zero Projects

Brett has a B.A. in Environmental Science with a Minor in Business from Robert Morris University (Pittsburgh, PA). After graduation he began his career in the renewable energy industry as a renewable energy system designer. Brett continues to develop his education in green building practices and energy management; he has his accreditation as a LEED Green Associate from the Canada Green Building Council (CaGBC) and is also certified as an Energy Manager in Training (EMIT), soon to be a Certified Energy Manager (CEM), through the Association of Energy Engineers.

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Net Zero Home Lablleing Program: 2020 in Review

CANADIAN HOME BUILDERS' ASSOCIATION

Agenda

1. **By the Numbers**

2. **Mechanicals**

3. **Envelope Performance:**
   - Insulation and Heat loss
   - Airtightness
   - Envelope Improvement over Reference House

4. **Energy Performance:**
   - Annual Energy Consumption
   - Energy Use Intensity
   - Energy Consumption Improvement over Reference House

5. **Project Highlights:**
   - Net Zero Renovation – Butterwick Construction
   - Net Zero Ready plus Solar – STW Cutting Edge Carpentry
   - Net Zero Off-Grid – Riko Passive Homes
   - Net Zero Ready MURB – Big Block Construction

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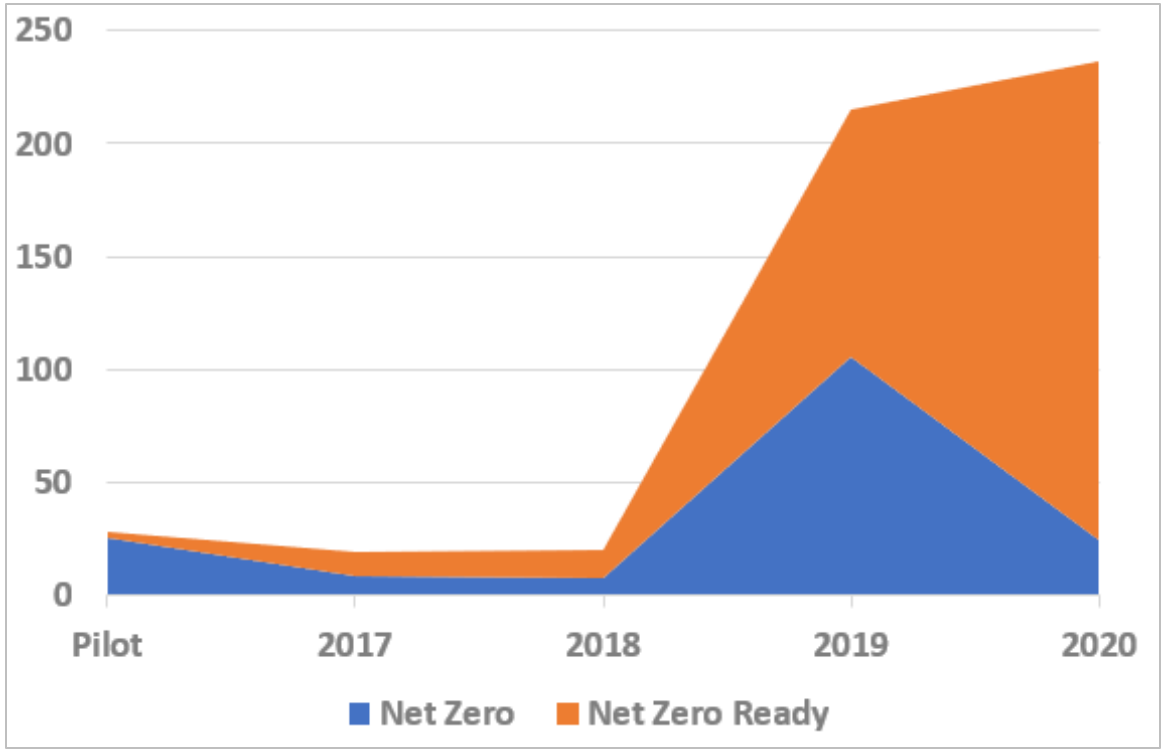
By The Numbers

Net Zero and Zero Ready Homes



518 Homes Total

By The Numbers

Qualified Net Zero Participants

QUALIFIED nz BUILDER

58

QUALIFIED nz ENERGY ADVISOR

31

QUALIFIED nz SERVICE ORGANIZATION

12

	Pilot	2017	2018	2019	2020
Training Participants	261	190	82	71	338

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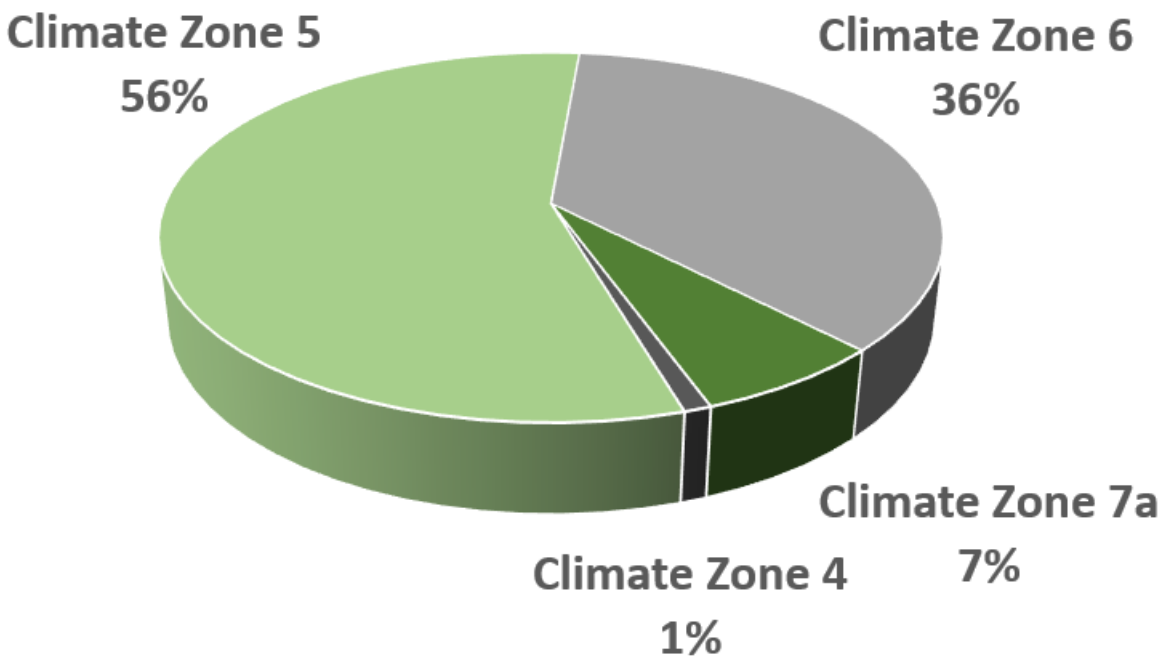
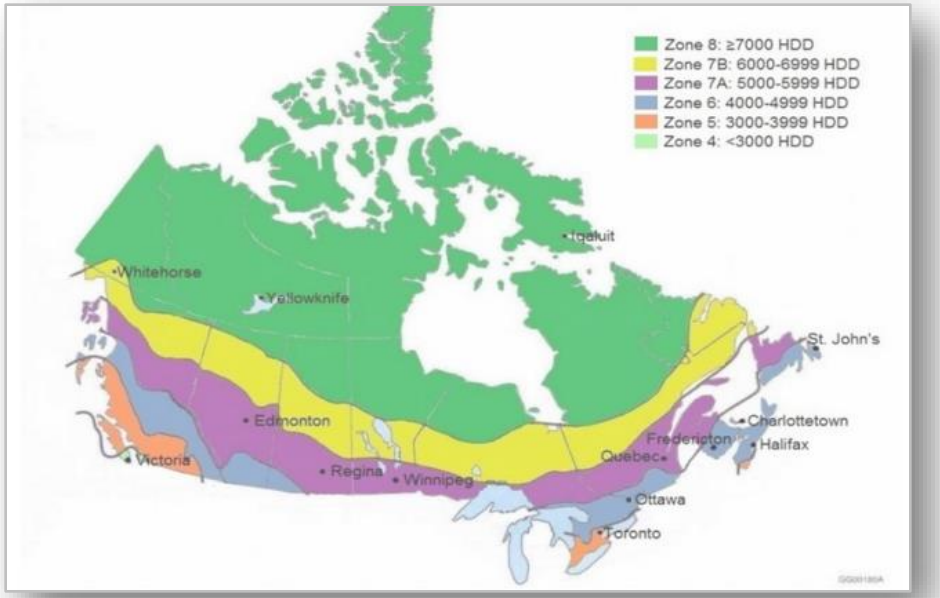
By The Numbers

Homes by Climate Zone





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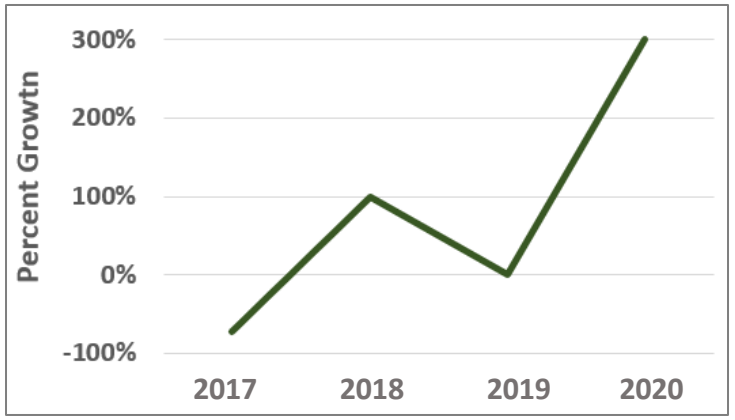
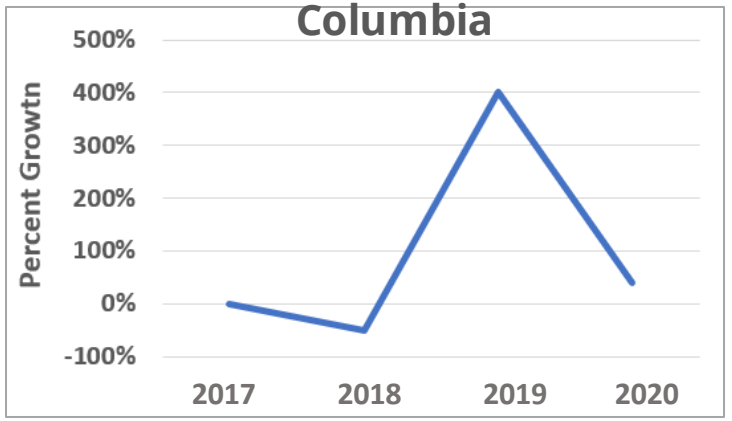
Provincial Growth

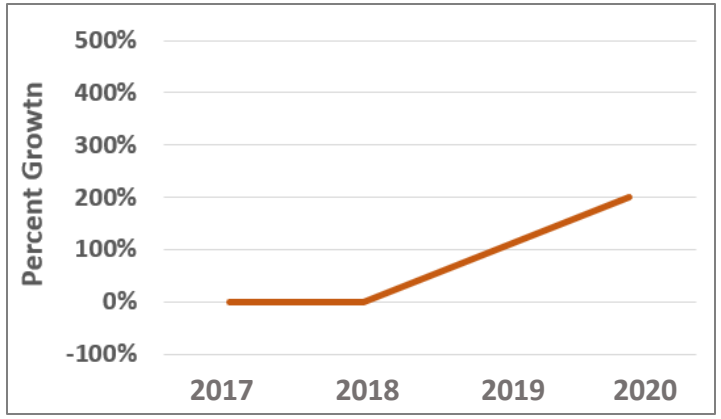
Alberta



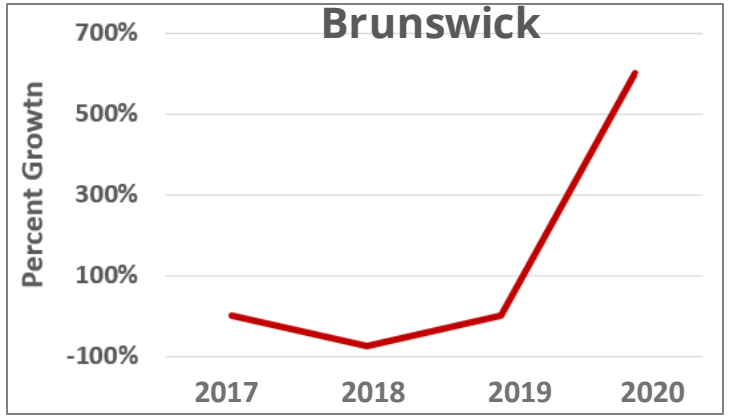
British Columbia



Nova Scotia



New Brunswick



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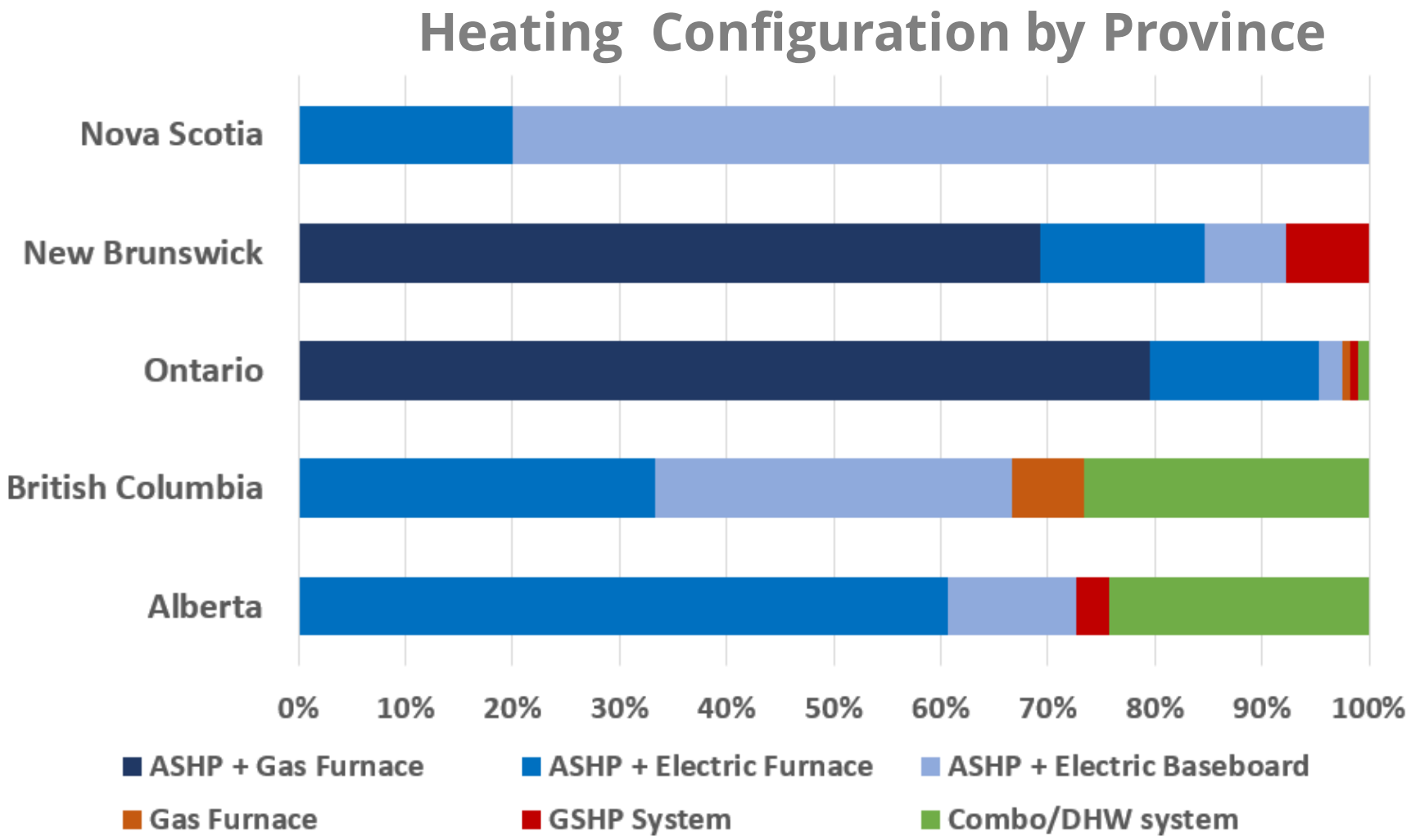
Mechanicals: Space Heating



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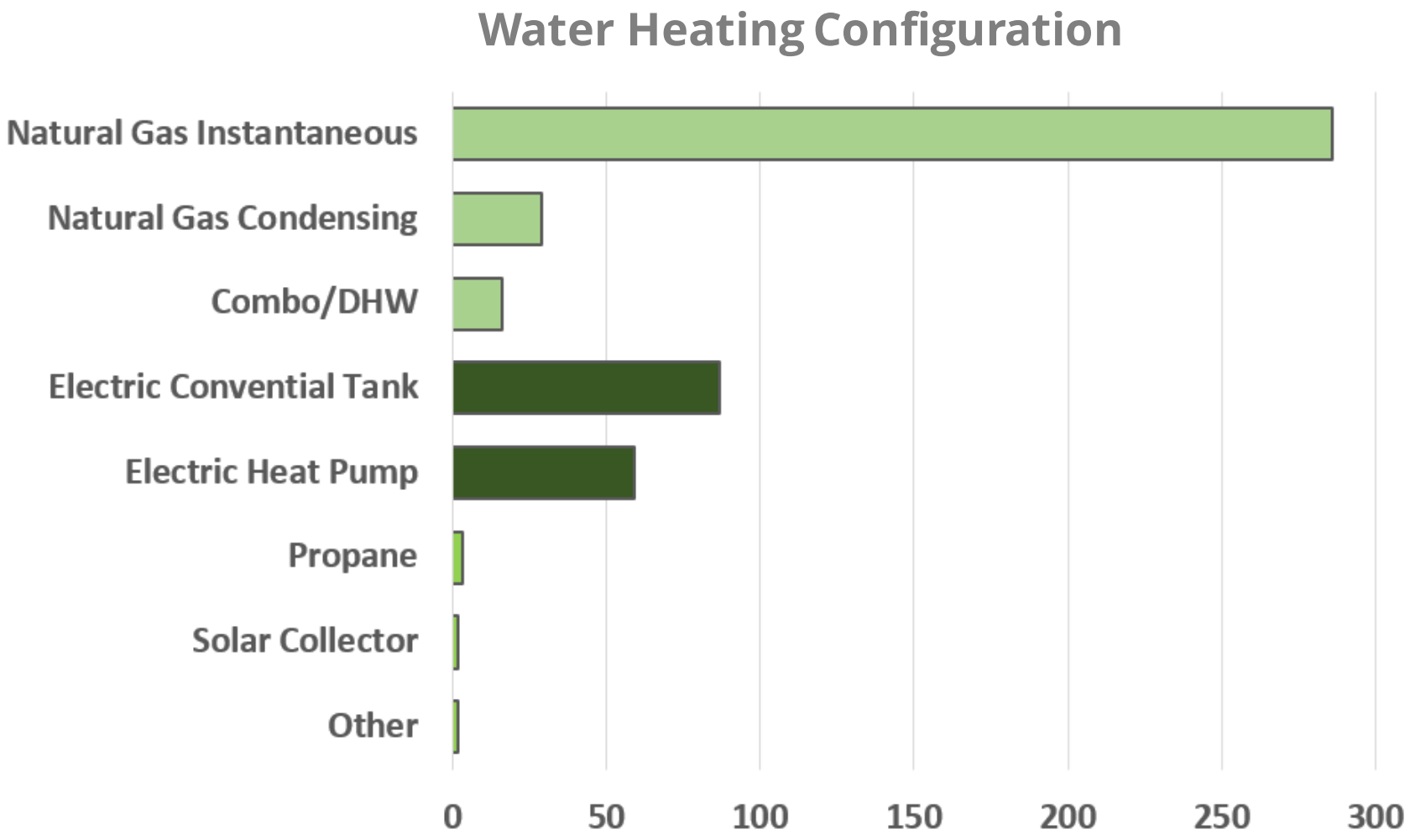
Mechanicals: Water Heating



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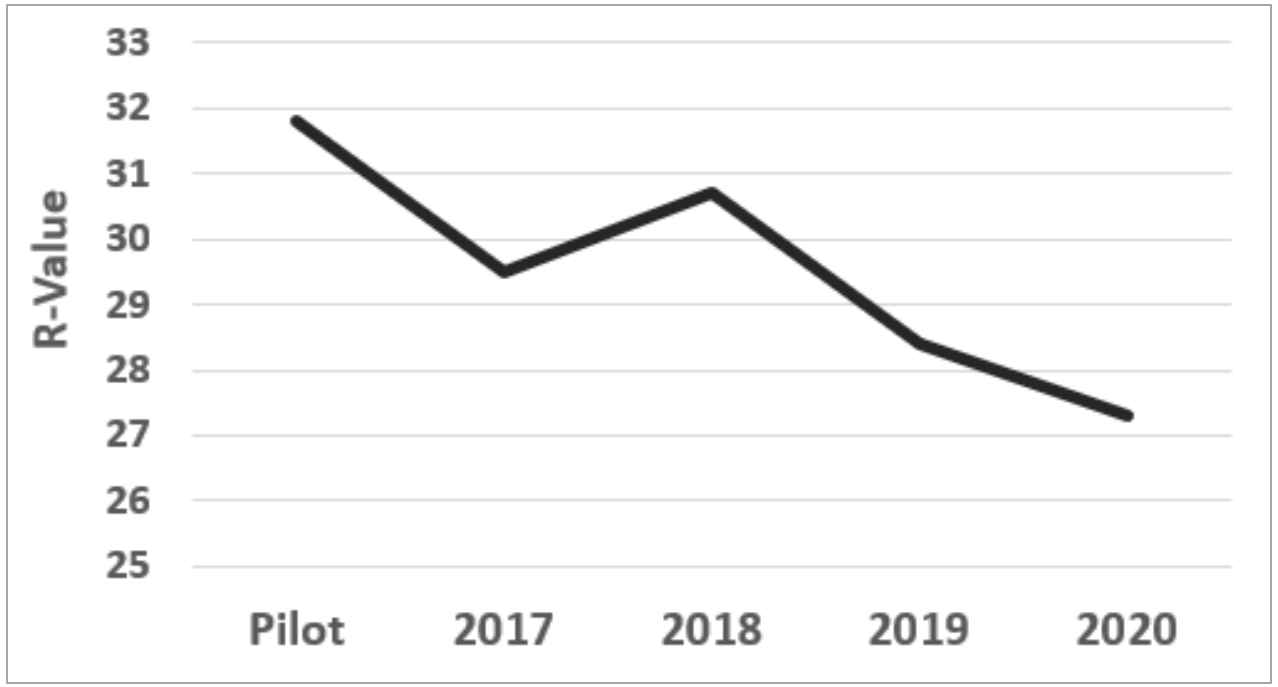
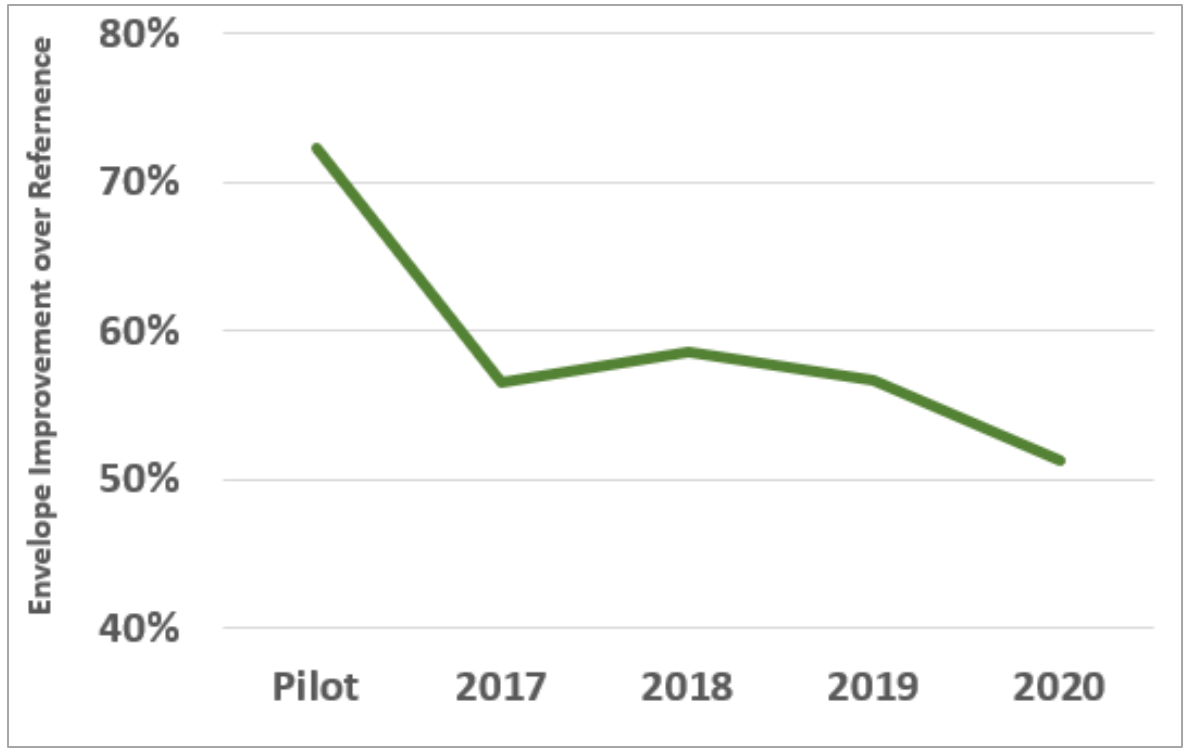
Envelope Performance

Average Above-Grade Wall R-Value by Year



Envelope Improvement Over Reference House by Year



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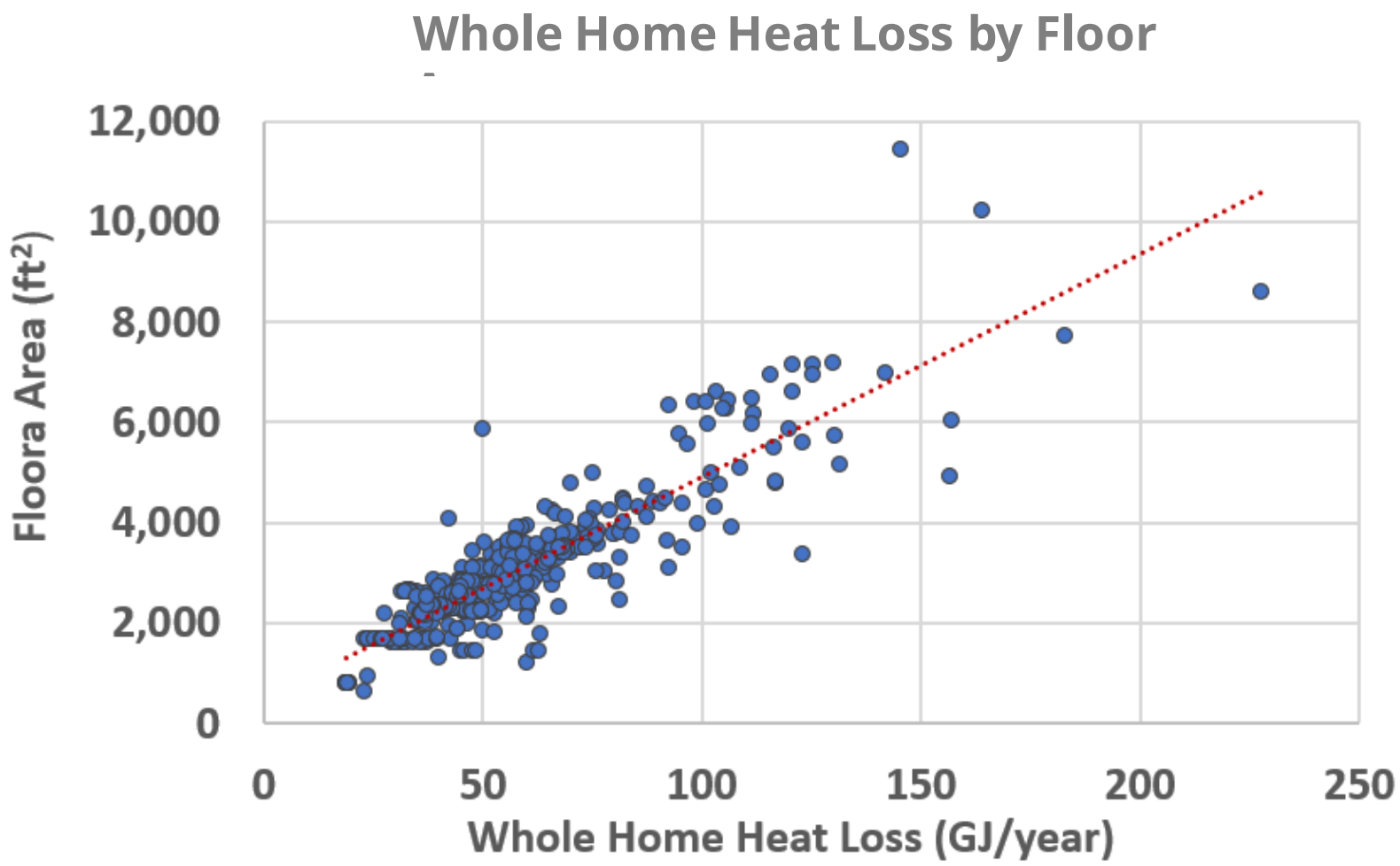
Envelope Performance



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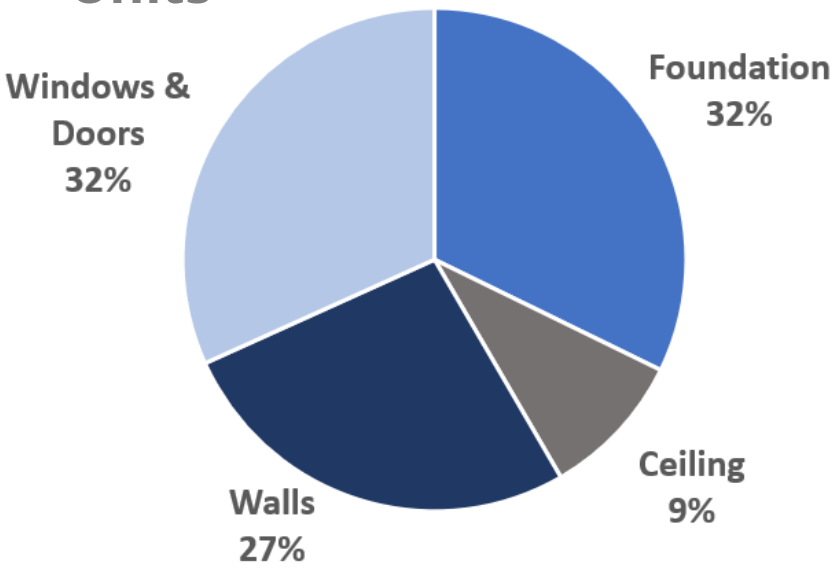
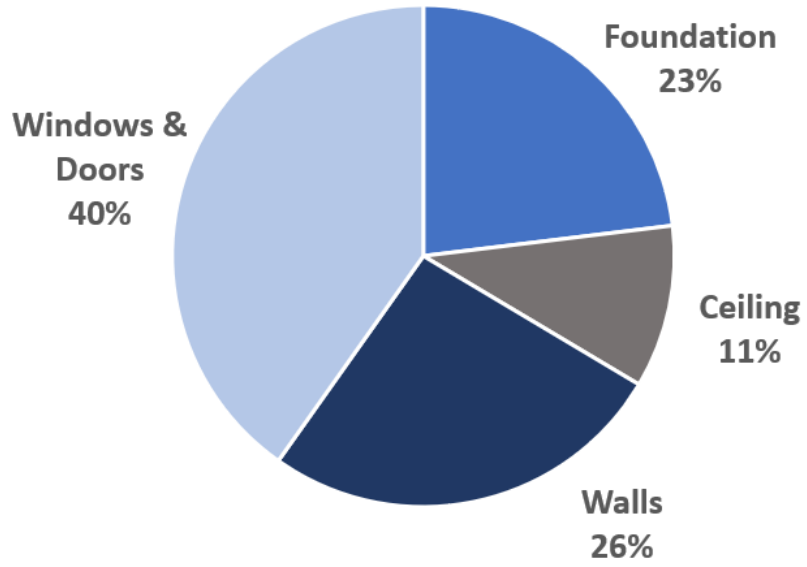
Envelope Performance

Whole Home Heat Loss in Attached Homes

End Units



Middle Units



40 GJ/yr	Whole Home Heat Loss	31 GJ/yr
41 GJ/yr	Annual Energy Consumption	39 GJ/yr
1.3 ACH@50	Airtightness	1.7 ACH@50

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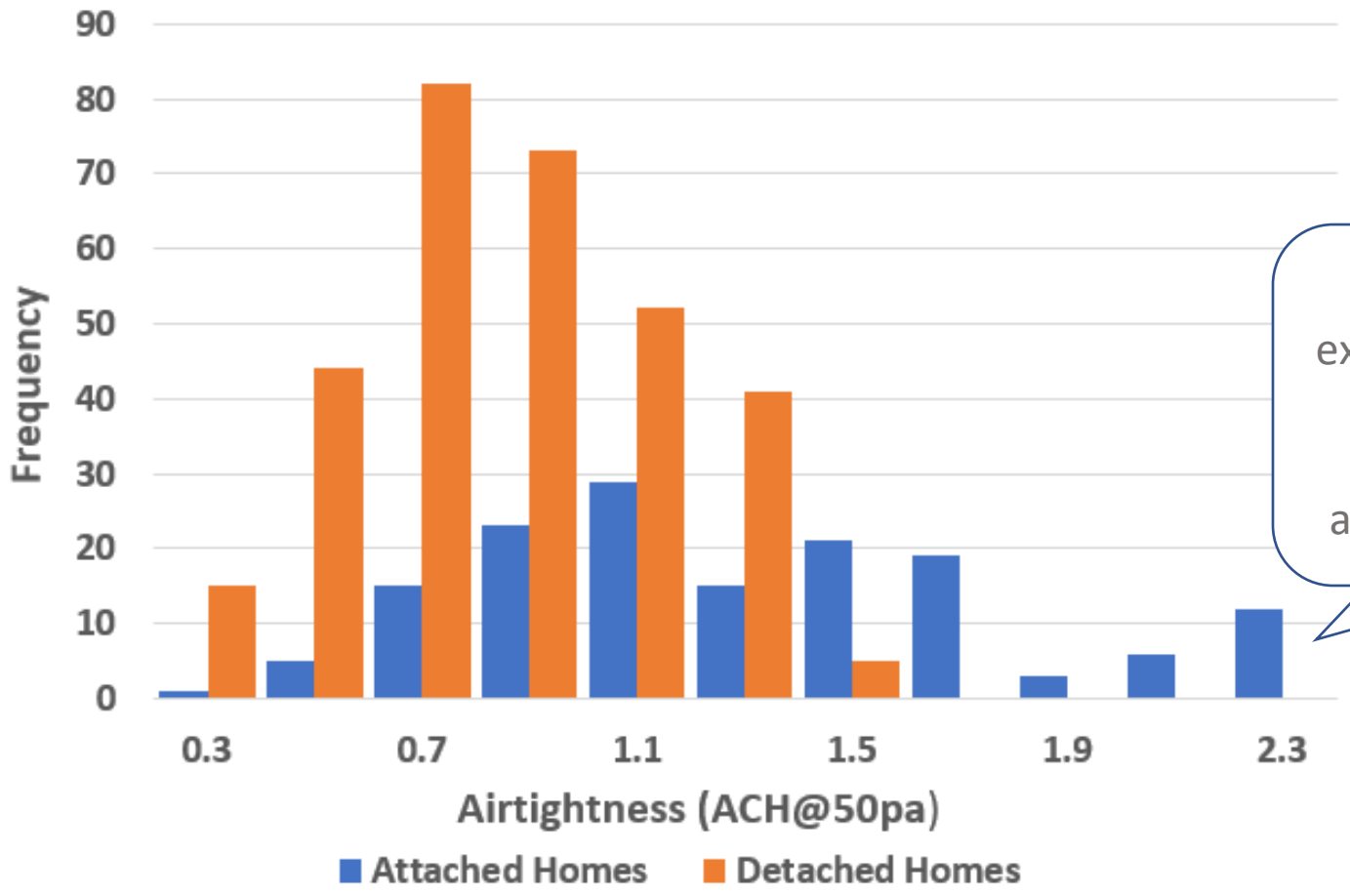
Envelope Performance

Airtightness Distribution of Attached and Detached Hc



Attached homes that exceeded 2.0 ACH@50pa met either the NLA or NLR target for airtightness compliance

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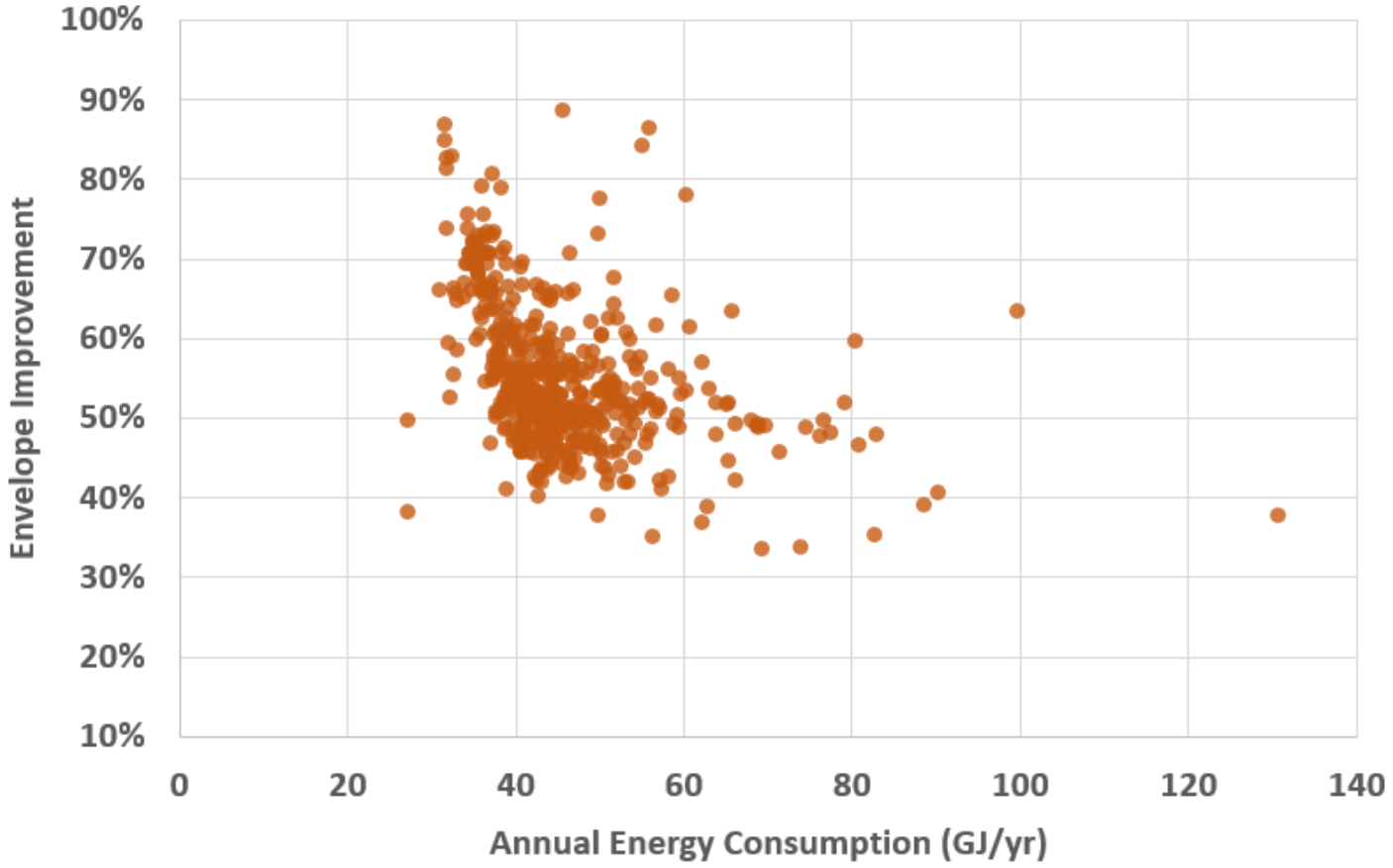
Envelope Performance

Envelope Improvement by Annual Energy Consumption of Homes



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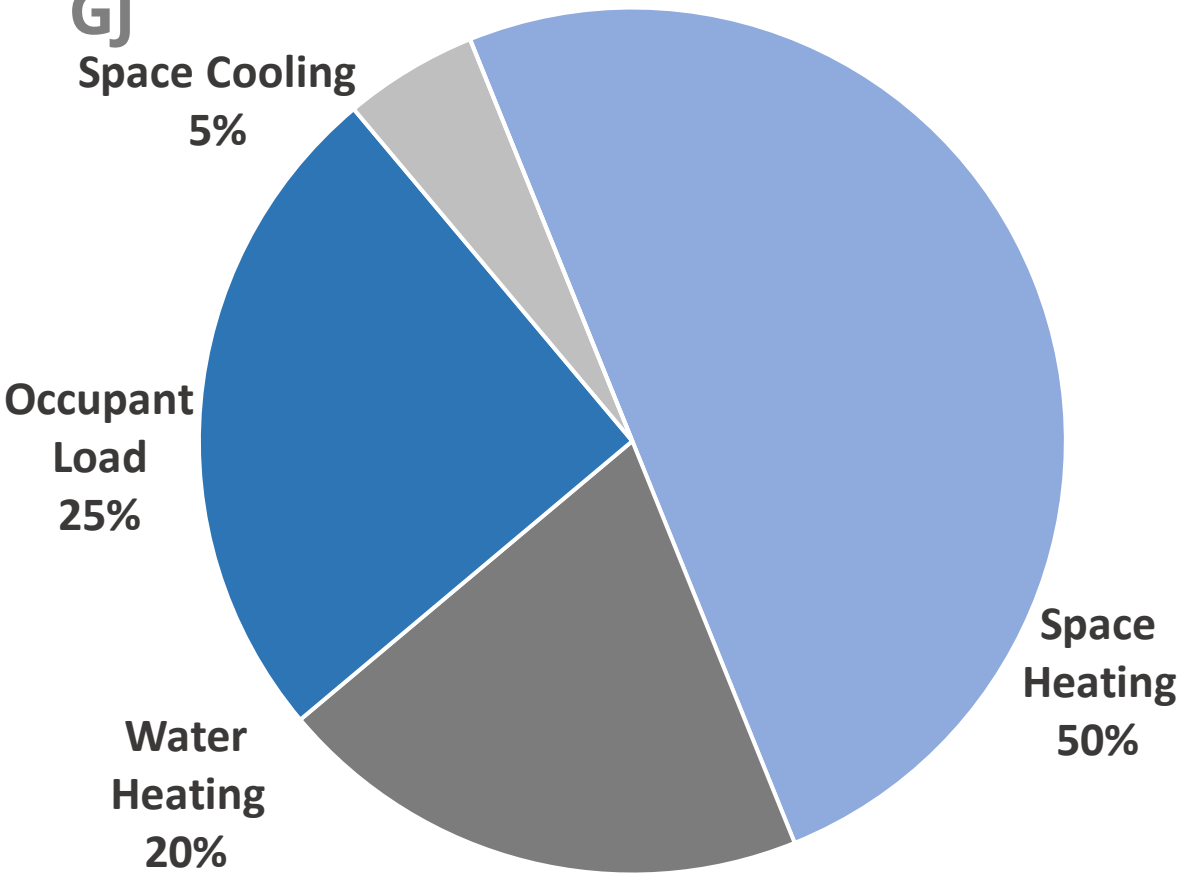
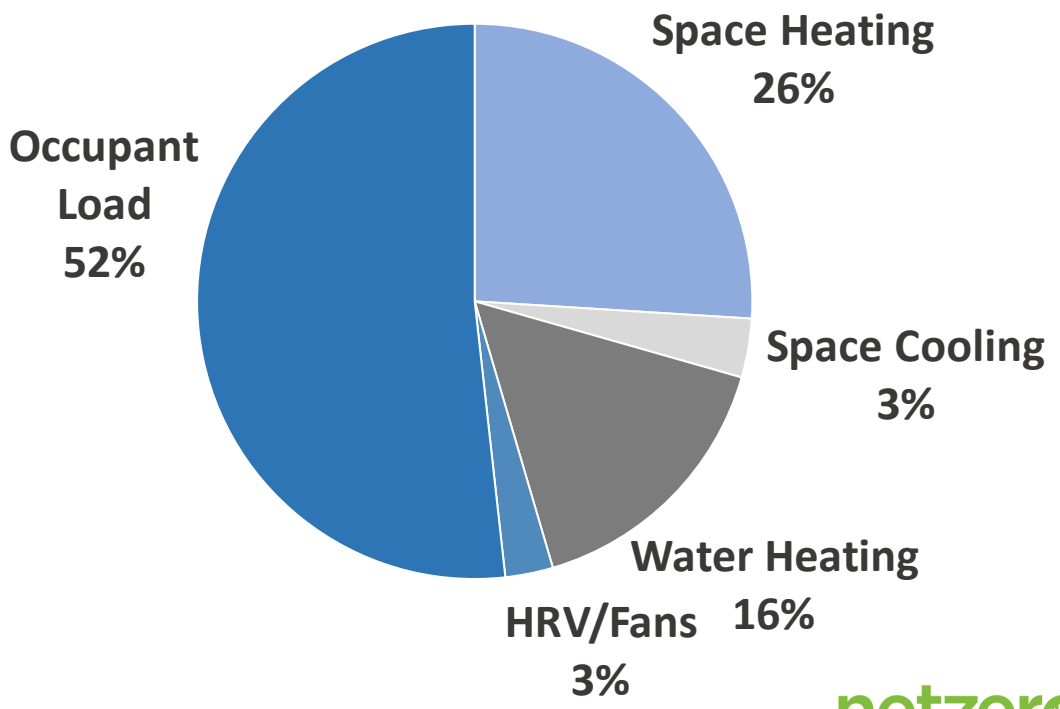
Energy Performance

Average NBC 9.36 Home = 105 GJ



Average Net Zero Ready Home = 43GJ



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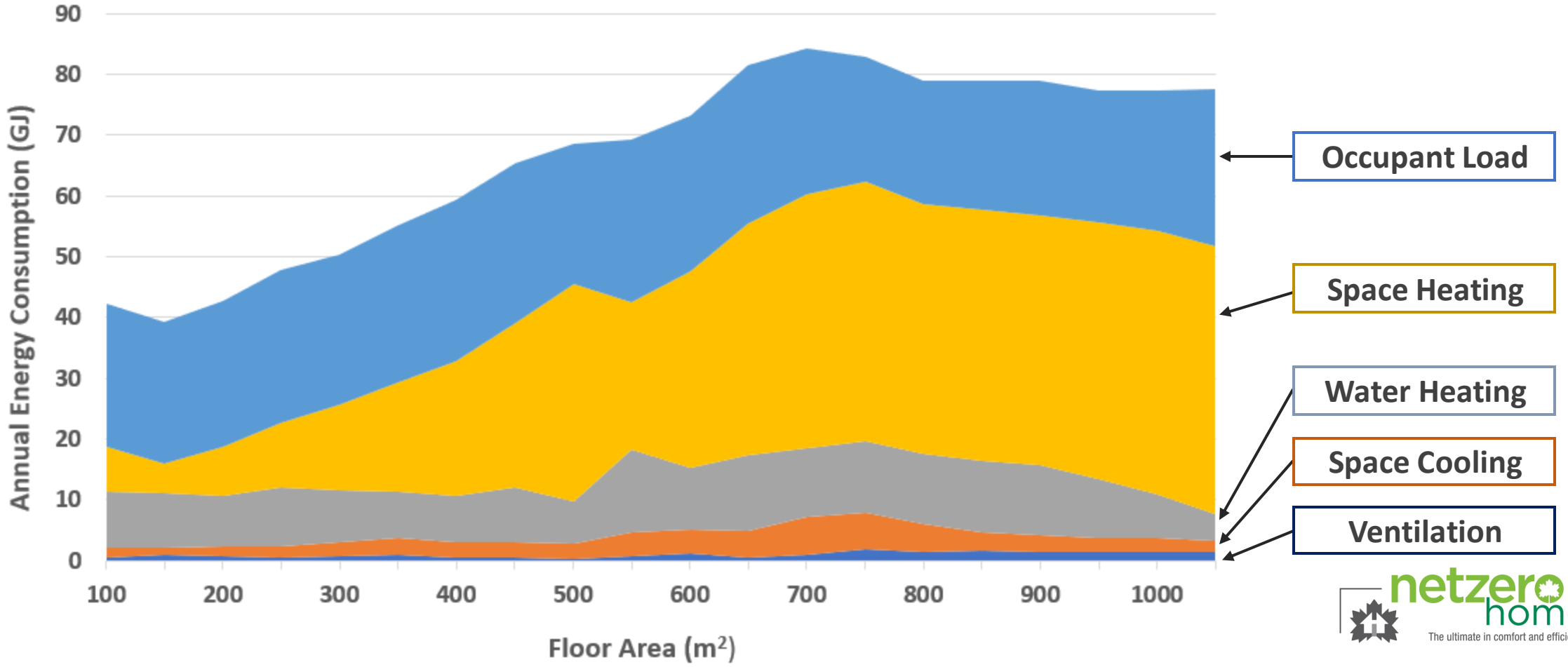
Energy Performance

Annual Energy Consumption Percentage by Floor



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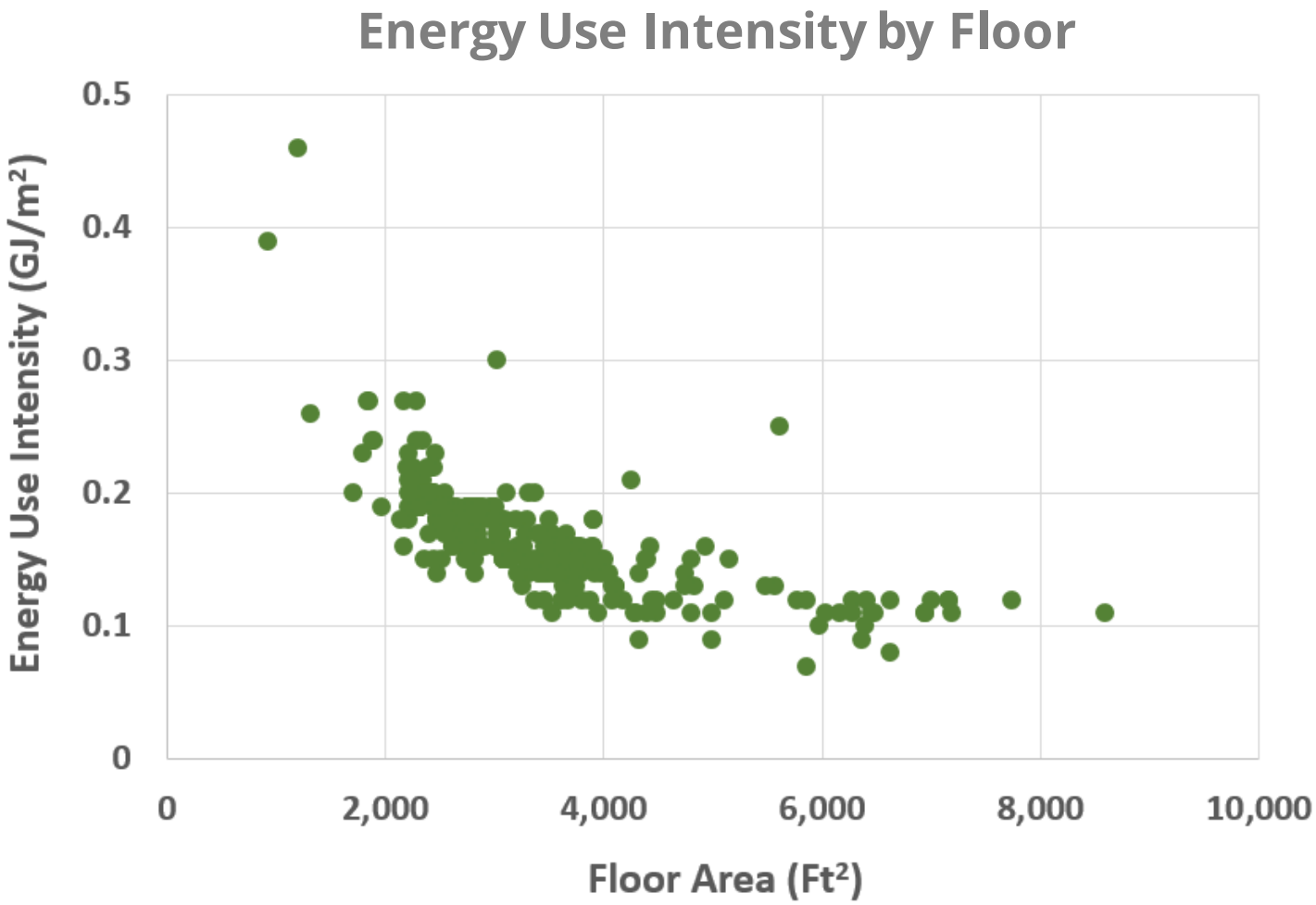
Energy Performance



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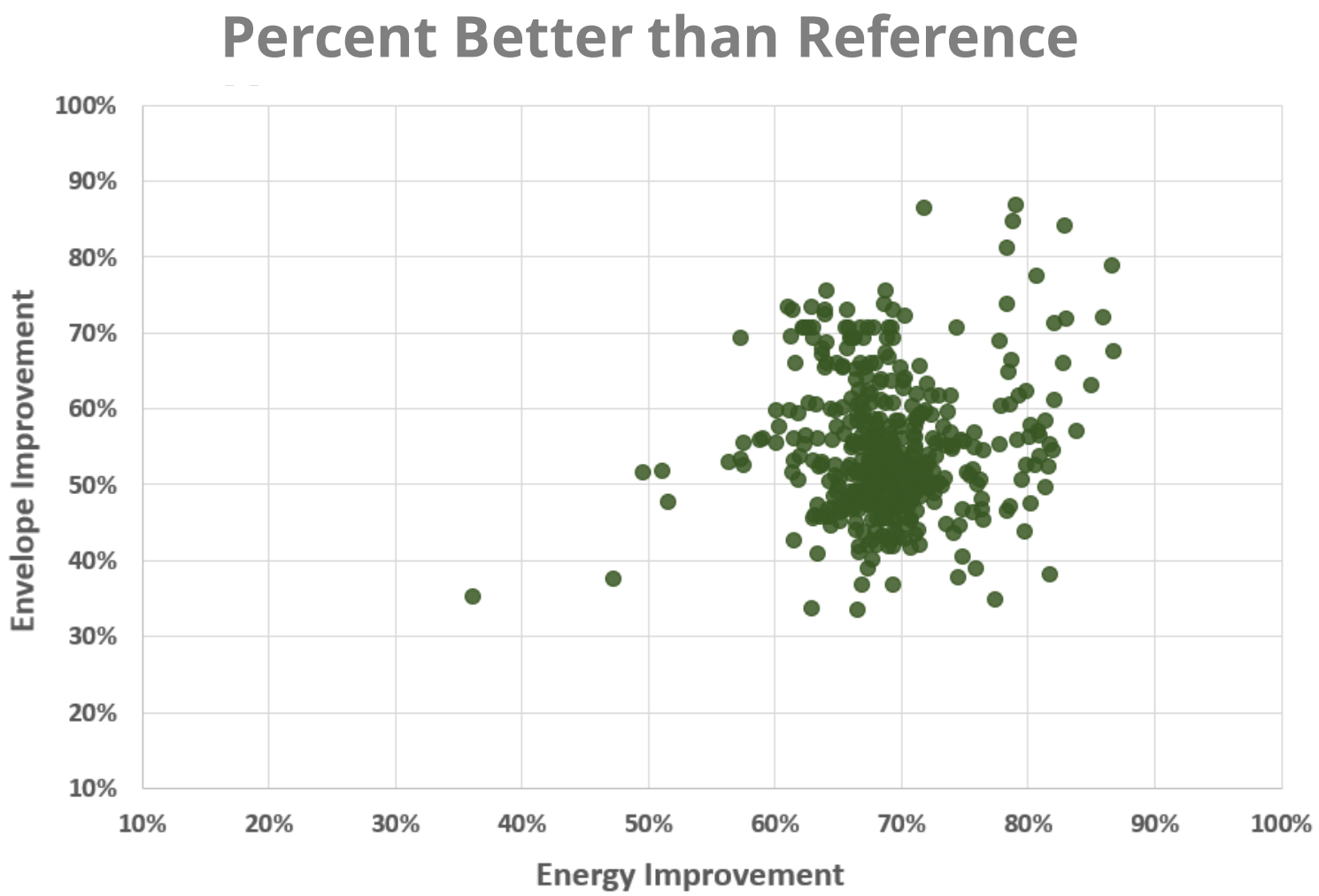
Net Zero Home Performance



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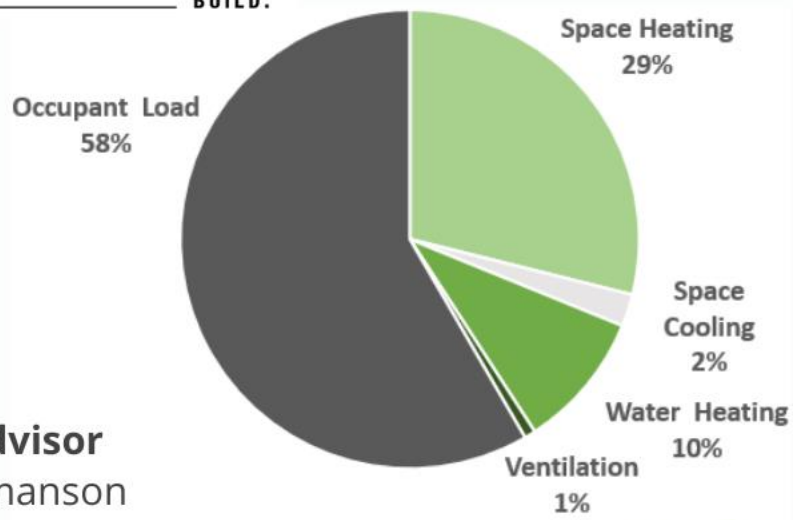
Butterwick DESIGN. PLAN. BUILD.



Energy Advisor
Tyler Hermanson

Service Organization
4 Elements Integrated Design

Net Zero Renovation

BUILDING ENCLOSURE

Windows:
All-Weather Windows, triple glazed

Walls:
R-14 Roxul,
R-36 reclaimed foam exterior

Ceiling:
R-50 spray foam, R77 blown-in

Foundation:
R-36 & R-8 reclaimed foam exterior,
R12 fiberglass interior

Airtightness:
0.74 ACH@50

Envelope:
72% better than
NRCan reference house

MECHANICALS

Fuel Source:
all-electric

Heating & Cooling:
Fujitsu ASHP & electric furnace

Water Heating:
Electric heat pump

Ventilation:
VanEE G2400H ECM

Renewable Energy:
12.24kW PV array

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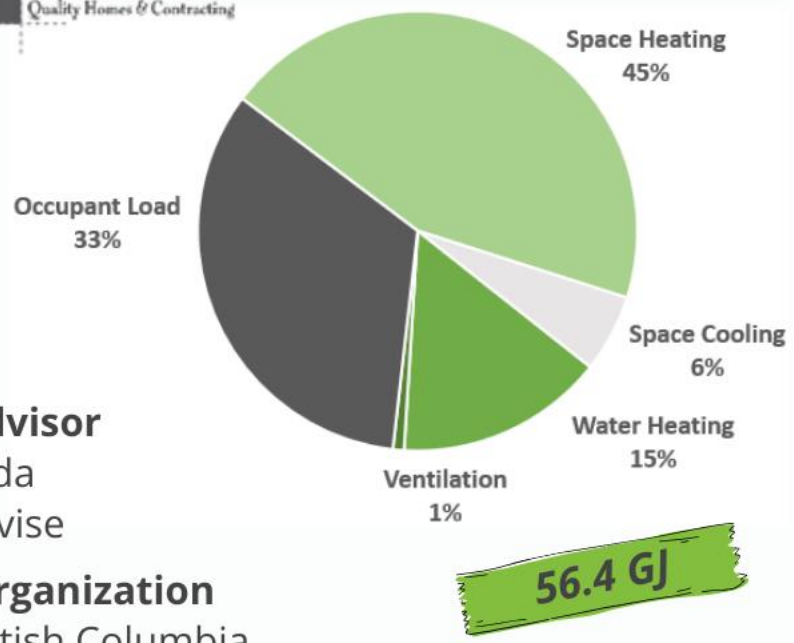
Butterwick

DESIGN.
PLAN.
BUILD.

stw
Quality Homes & Contracting



Energy Advisor
Nate Sereda
Energy Advise

Service Organization
CHBA - British Columbia

Net Zero Ready + Solar

BUILDING ENCLOSURE

Windows:
MS Line triple glazed, u 0.12

Walls:
R-38, 2x6 batt, R-7 rigid

Ceiling:
R-46 expanded polystyrene

Foundation:
R-30 Nudura foundation + batt

Airtightness:
0.73 ACH@50

Envelope:
87% better than
NRCan reference house

MECHANICALS

Fuel Source:
all-electric

Heating & Cooling:
Lennox ASHP & electric furnace

Water Heating:
Rheem electric heat pump

Ventilation:
Lifebreath 205Max

Renewable Energy:
10kW LG PV array

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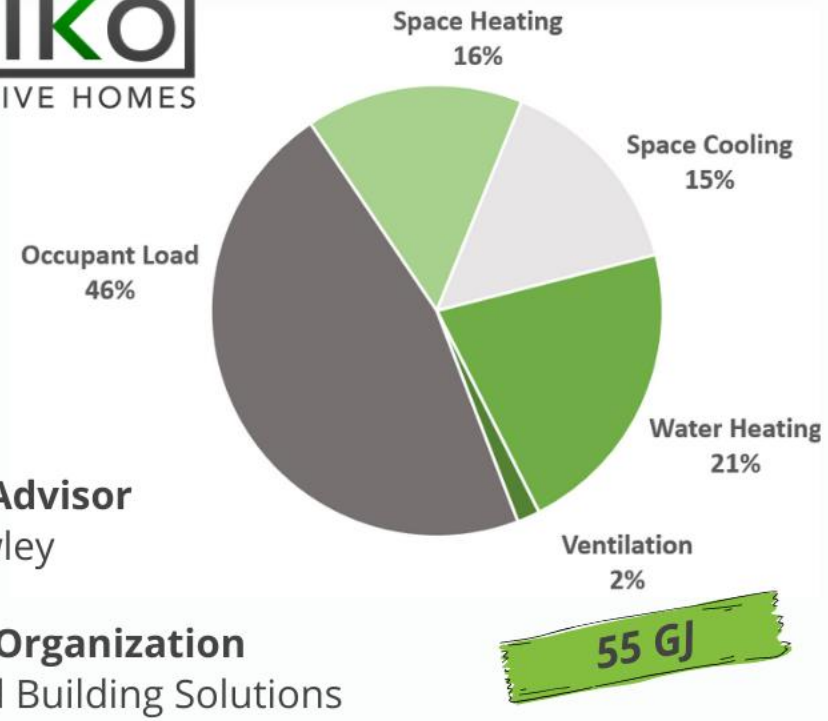
stw
Quality Homes & Contracting

Riko
PASSIVE HOMES



Energy Advisor
Joe Crowley

Service Organization
Homesol Building Solutions

Off-Grid Net Zero

BUILDING ENCLOSURE

Windows:
Vetta Windows, Sokolka Elite 92

Walls:
R-53 EPS, ICF with foam inserts, additional 2" foam

Ceiling:
R-125 polyiso

Foundation:
R-40 10" EPS

Airtightness:
1.1 ACH@50

Energy Consumption:
84% better than
NRCan reference house

MECHANICALS

Fuel Source:
Dual fuel (propane & electricity)

Heating & Cooling:
Waterfurnace geothermal heat pump

Water Heating:
Desuperheater & Propane on-demand

Ventilation:
Fantech HERO 200H

Renewable Energy:
22kW PV array, Hanwha Q cell

Energy Storage:
100kWh LiFePO4 Grengine battery

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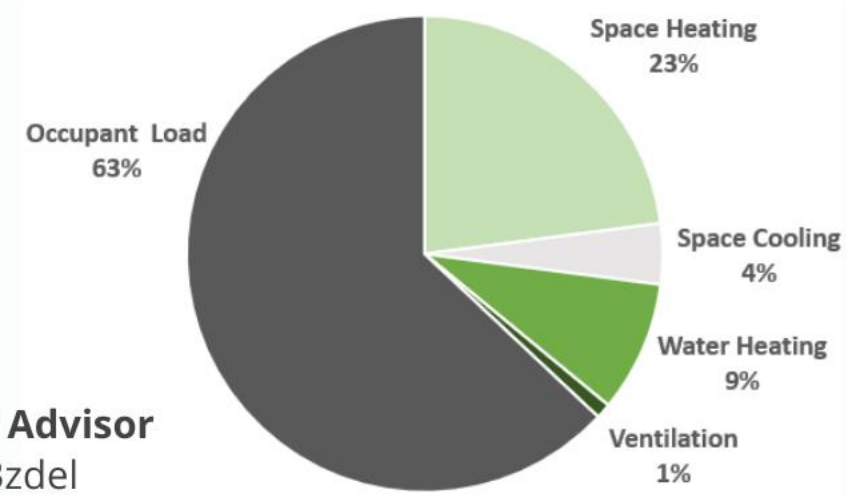
Riko

PASSIVE HOMES

Net Zero Ready MURB

12 Units

bigBLOCK construction



292 GJ

Energy Advisor
Darcy Bzdel

Service Organization
Sun Ridge Residential Inc.

BUILDING ENCLOSURE

Windows:
Berdick Windows, triple glazed

Walls:
R-36 2x10 wall,
staggered 2x6 & 2x4 studs

Ceiling:
R-80 blown-in

Foundation:
ICF crawlspace,
Lower units: R-28 2x8 wall

Airtightness:
0.47 ACH@50

Energy Consumption:
73% better than
NRCan reference house

MECHANICALS

Fuel Source:
dual fuel

Heating & Cooling:
Dettson Chinook furnace
Upper units: also include ASHP

Water Heating:
Rheem heat pump

Ventilation:
Upper units: Lifebreath HRV
Lower units: VanEE ERV

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bigBLOCK
construction

2020 Program Summary Report - coming soon!

www.chba.ca/NZHLPSummaryReports

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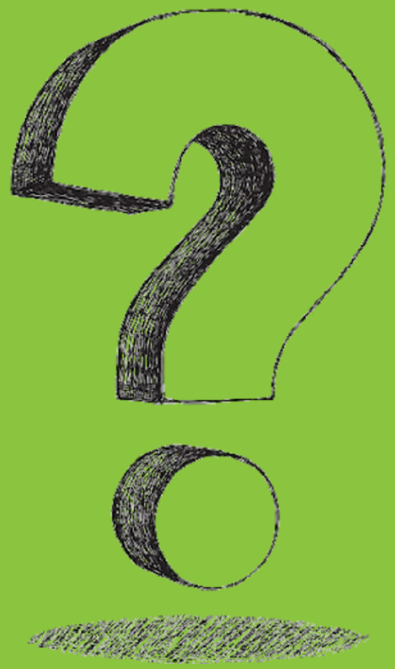
Questions



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