

Step Code Insights for Your Construction Site

Whistler

February 12, 2025



Sign up for our new **Building Updates** email list

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- ✓ The building sector
- ✓ Builders' bulletins
- ✓ Step Code information
- ✓ Future events

Your email

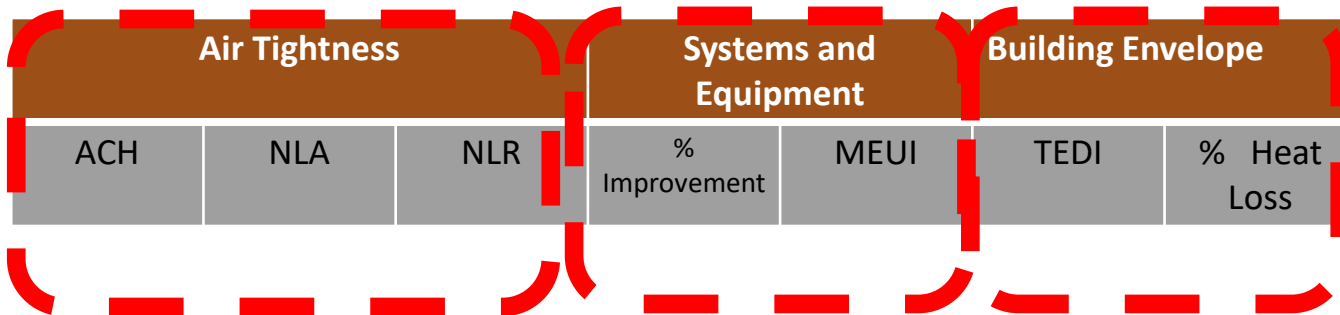
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Step Code 101 Refresher

Three Metric Areas

Don't worry about the numbers - that is for the EA



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Don't worry about the numbers - that is for the EA



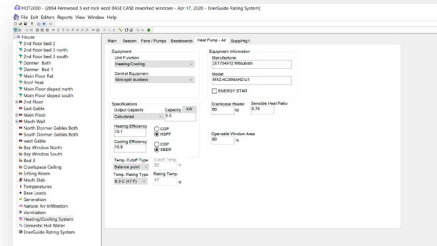
Air Tightness			Systems and Equipment		Building Envelope	
ACH	NLA	NLR	% Improvement	MEUI	TEDI	% Heat Loss

Working with an EA

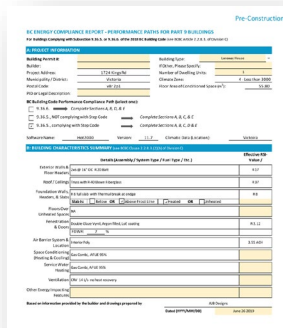
Builder gives plans and specifications to the EA



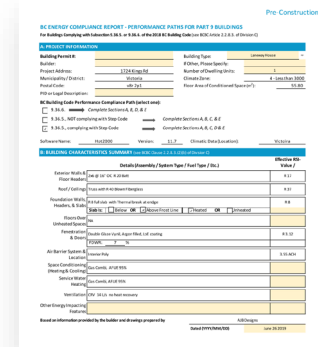
EA completes an Energy Model



Permit Reports go into the City



EA does construction and final testing to ensure it matches the model



Final report goes to the City

The Forms

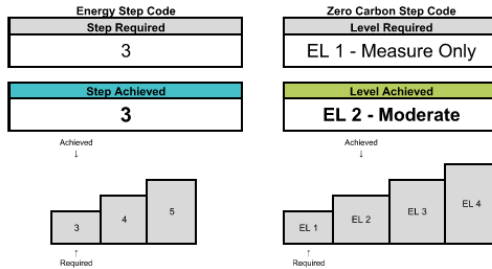


A: PROJECT INFORMATION

Building Permit #:		As Built
Builder:	Scagliati Homes Ltd.	Building Type
Project Address:	2567 Wentwich Rd.	Is Detached w/Secondary Suite (M)
Municipality / District:	Langford	# of Dwelling Units: 2
Postal Code:	V9B 3V4	
PID or Legal Description:		

B: CODE COMPLIANCE SUMMARY

BC Building Code Performance Compliance Path:
9.36.6. BC Energy Step Code ERS



Based on info provided by the builder & drawings prepared by: Java Designs
Site Visit Date: Aug 28 2024

C: COMPLETED BY

Full Name (Print):	Brandon Molltwerik	Date (YYYY-MM-DD):	2025-05-23
Company Name:	Bernhardt Contracting Ltd.	Service Organisation:	CHBA BC
Phone:	250-857-2432	Energy Advisor ID #	51H2
Address:	1535 Oak Crest Dr. Victoria BC V8P 1K7	CODECO placed in Field 8 of H2K	x
Email:	brandon@bernhardtcontracting.com		

N File #

D: BUILDING CHARACTERISTICS SUMMARY

	Details (Assembly / System Type / Fuel Type / Etc.)	Average Effective RSI	
Roof / Ceilings	Truss @ 24" OC, R40 Batt	6.31	
	Deck Ceiling: 2X10 @ 16" OC, R28 Batt	4.22	
Above Grade Walls	2x6 @ 16" OC, R20 Batt Insulation, rainscreen	3.20	
Rim Joists / Floor Headers and Lintels	R20 Batt, Rainscreen	4.49	
Floors Over Unheated Space	2x12 @ 16" OC, R28 Batt	5.26	
Walls Below Grade	8" Concrete, 2x4 @ 24" OC, R12 Batt	1.81	
Slabs	4" Concrete, R12 Rigid Foam insulation, perimeter	2.11	
Windows and glazed doors	Double Glazed, Argon Filled, Vinyl Frame: Picture	UST	SHGC
	Double Glazed, Argon Filled, Vinyl Frame: Slider	1.53	0.30
Doors	Polystyrene Core	1.59	0.30
		RSI	0.96
Air Barrier System & Location	Interior Poly and Caulk system	ACH	1.40
		NLA	0.76
		NLR	0.56
Space Heating/ Cooling	Principal Air Source Heat Pump - Heating	COP	3.90
	Air Source Heat Pump - Cooling	COP	2.75
	Supplementary Baseboard	COP	1.00
Domestic Hot Water	Natural Gas Instant	AFUE	0.95
Ventilation	Utility Fan	% EFF	L/s
			49.00
Other	NG fireplace		
Fossil Fuels	The building IS designed to use fossil fuels or has infrastructure for it		

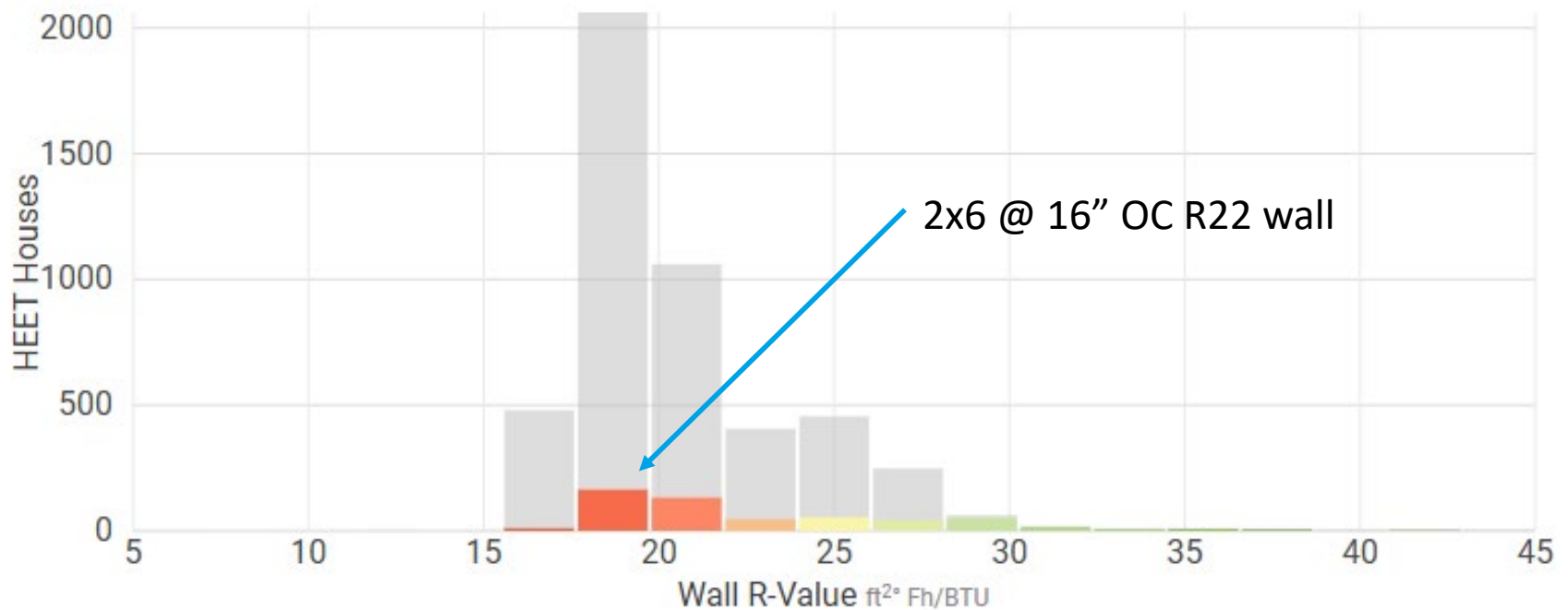


Energy Step Code and Envelope



Wall R Values

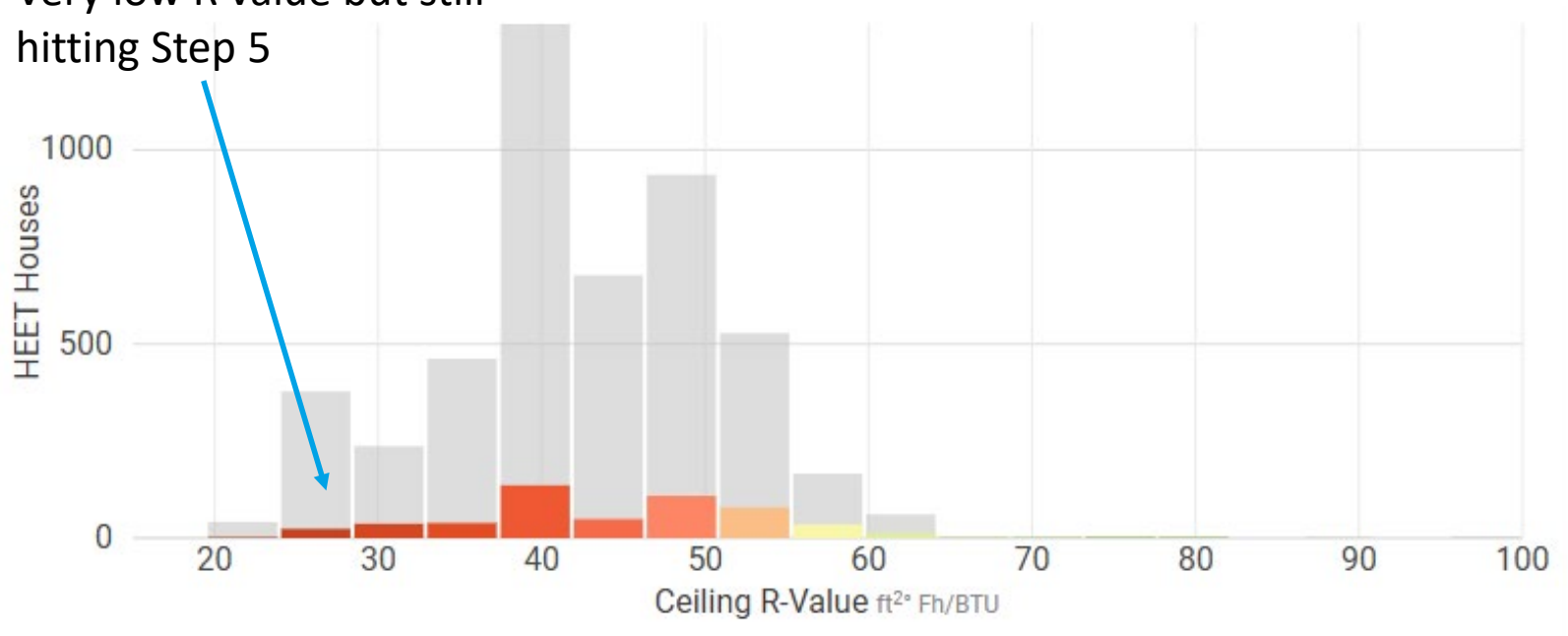
Provincial Data set filtered for Step 4 and 5



Ceiling R Value

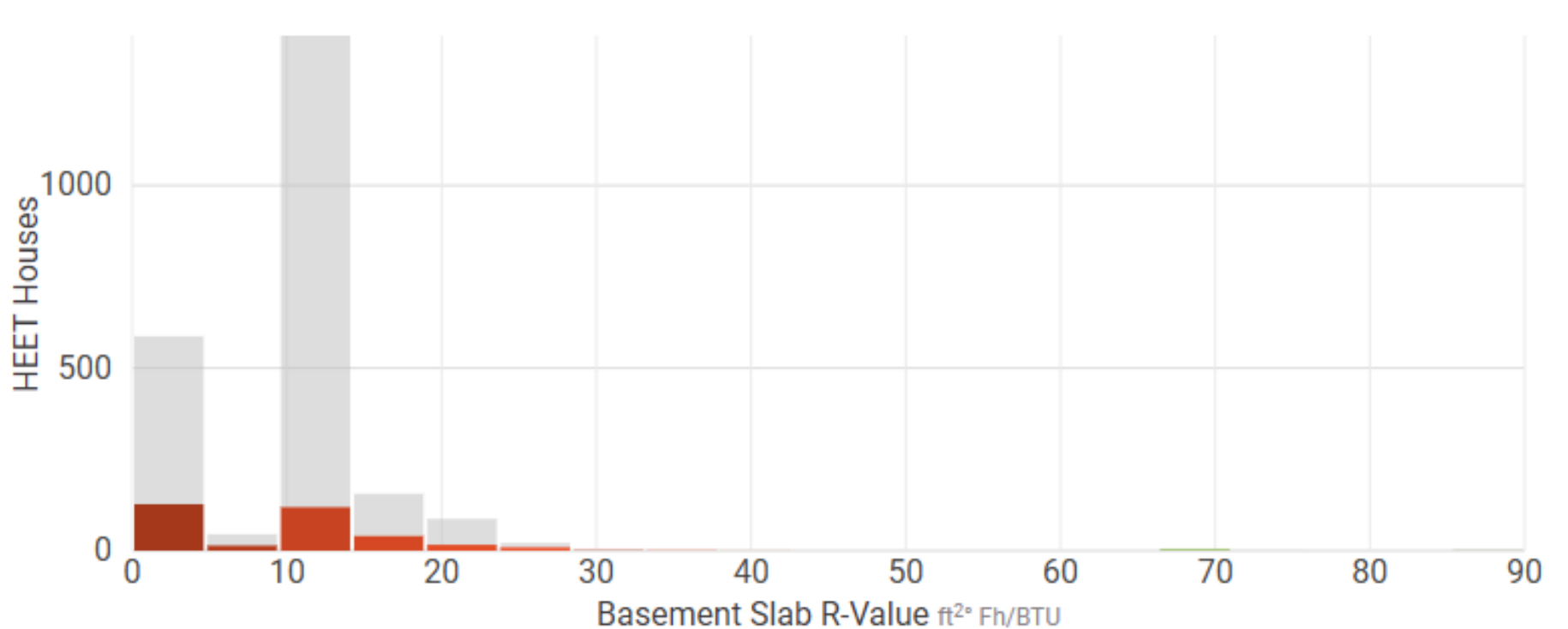
Provincial Data set filtered for Step 4 and 5

Likely vaulted ceilings
Very low R value but still
hitting Step 5



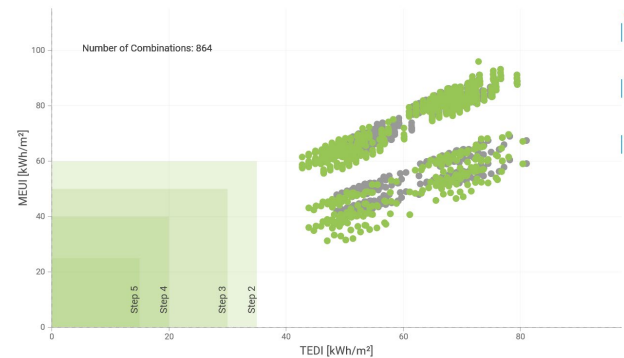
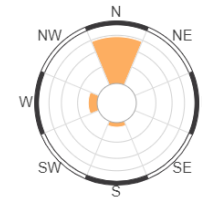
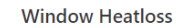
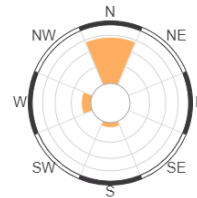
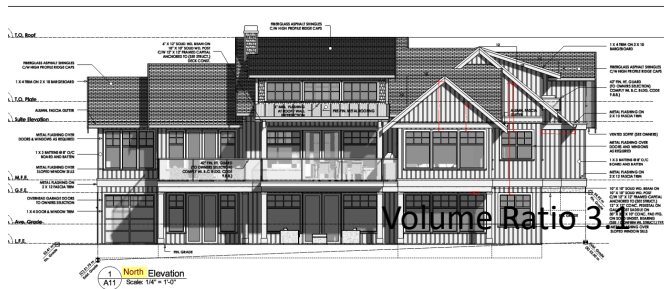
Slab R Value

Provincial Data set filtered for Step 4 and 5

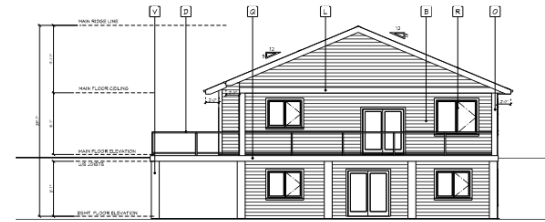
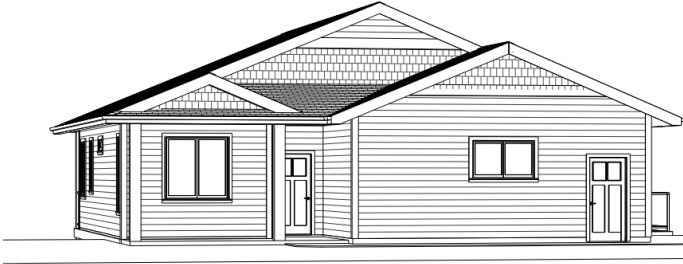


How to Fail TEDI

1. Bad Shape
2. Bad Window Position

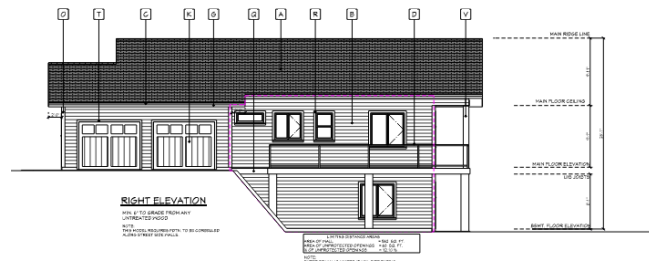
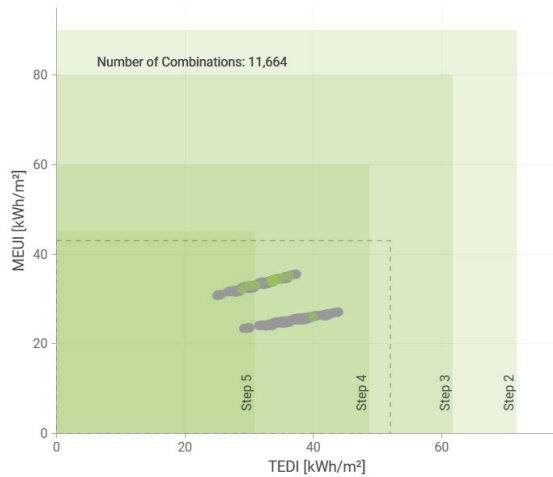


Hurko Residence



REAR ELEVATION

1:50
DATE: 10/10/2018
DRAWN BY: J. BERNHARDT
CHECKED BY: J. BERNHARDT



RIGHT ELEVATION

1:50
DATE: 10/10/2018
DRAWN BY: J. BERNHARDT
CHECKED BY: J. BERNHARDT

How hard should it be?



If your house looks like this:

- Relatively normal assemblies should easily pass Step 3 and likely well on the way to Step 4 and 5



If your house looks like this:

- High R value assemblies will be required

If you find the opposite of either of these things, it's time to ask questions and perhaps get a second opinion

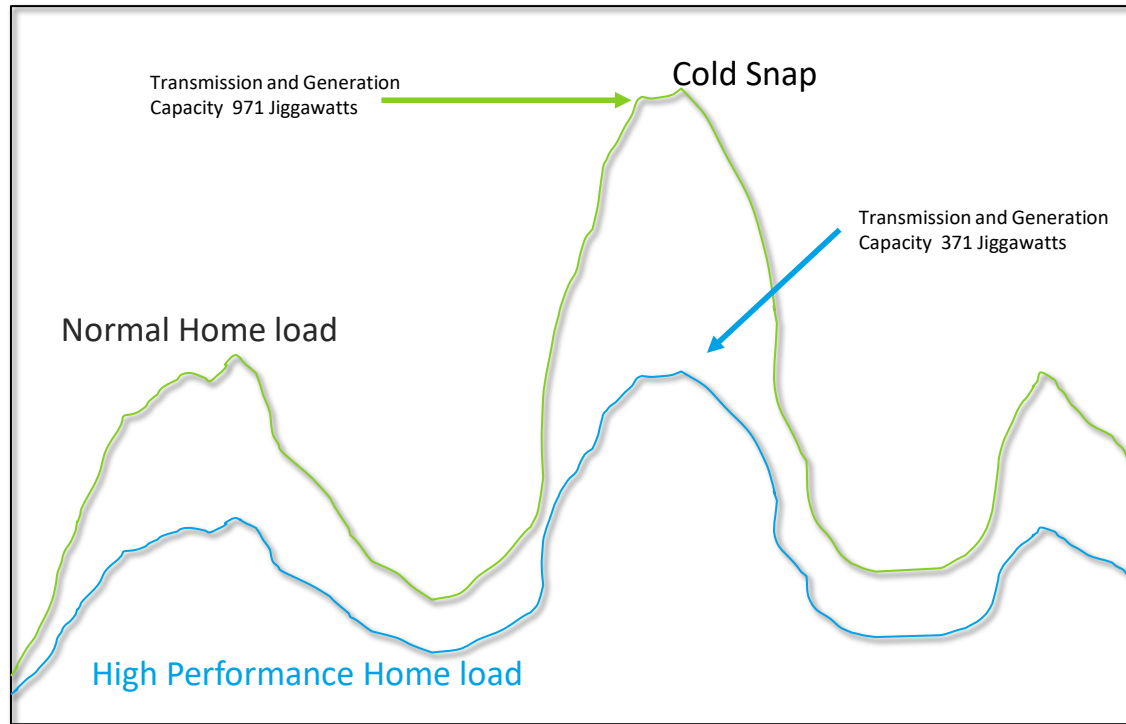


Energy Step Code deals with energy loads
but not emissions



We also need
Greenhouse Gas Limits

Lower peak loads means cost reduction for the grid



“Zero” Carbon Step Code

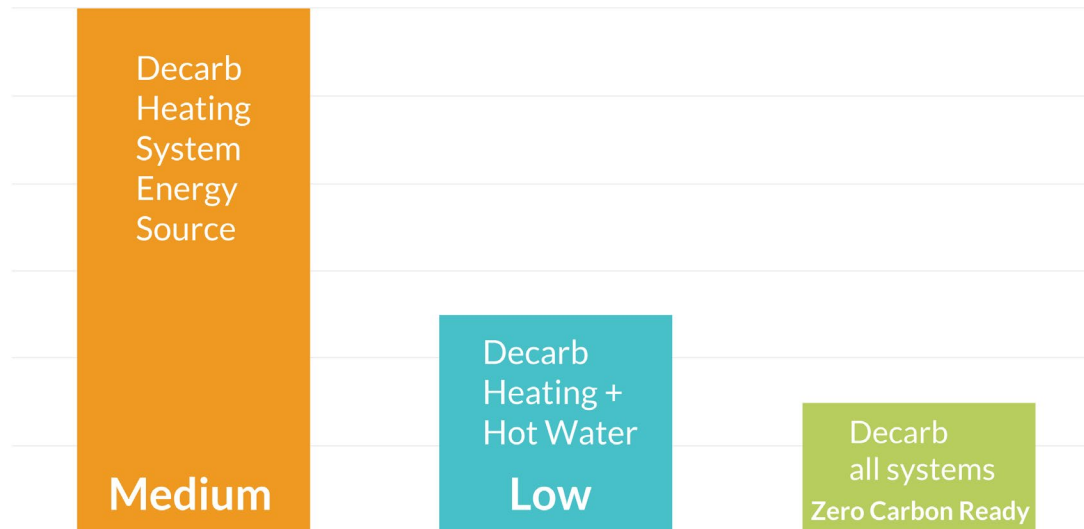
- Three categories to choose from

- Total GHG per year
- GHG per m² with max cap
- Prescriptive



Several Different Metrics

All have about the same trend



What is Counted and What is Not

- **Principal Heating System**

- Heat Pump
- Gas Furnace
- Combo system



- **Supplementary Heating Equipment**

- The Gas side of the Hybrid
- Electric Supplement in Heat Pump



Sort Of

- **Hot Water**

- Tank
- Boiler



- **Redundant and Backup Systems**

- Generator
- Gas fireplace
- Wood fireplace



- **Equipment and Appliances:**

- Cooking
- Laundry



Only Prescriptive



What EL Level is this house?

Example

- **Principal Heating System**
 - Heat Pump
- **Supplementary Heating Equipment**
 - Gas Furnace
- **Hot Water**
 - Electric Tank
- **Redundant and Backup Systems**
 - Deisel Generator
 - Gas fireplace in every room including the walk-in closet
- **Equipment and Appliances:**
 - Gas Cooking
 - Gas Laundry
- **Other**
 - Gas heated Driveway
 - Gas BBQ
 - Gas heated pool
 - Gas Patio Heater
 - Gas heated Garage
 - Outdoor fire pit



The Future

Reaching higher steps

The types of changes needed:

Simple

Small

Low cost

Homes like this can stay in the Sci-fi world



Practical Insights from Local Builders

Panelists



Lydia Hunter
Dürfeld Constructors



Derek Venter
*Derek Venter
Architectural Design*



Chris Addario
Ario Construction



Claiming BC Housing CPD

- Select my Session is not listed
- Enter the session details
- Select 1 point(1hr) – relevant enactments



Thank you!

Please take the final few
minutes to complete the
Exit Survey Questions

