SMALL SCALE MISSING MIDDLE AND STEP CODE

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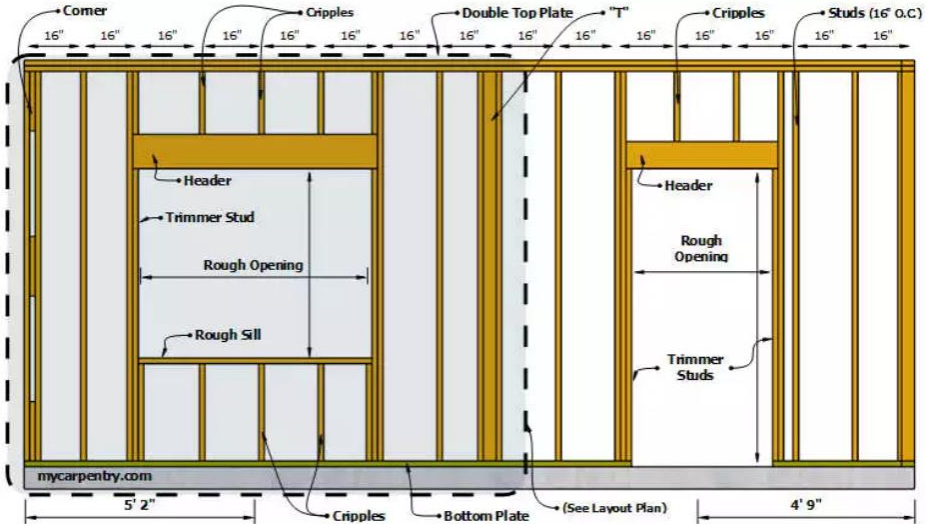
Summer 2025

Performance vs. Prescriptive

Prescriptive:

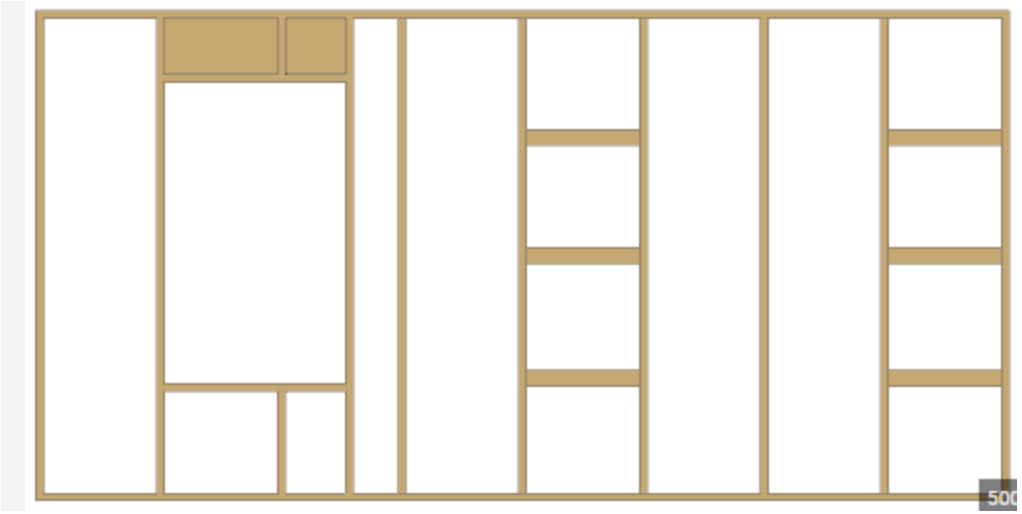
- The wall must have 3 nails per stud
- Studs must be spaced at specific distances



VS.

Performance:

- The wall must be strong and hold the roof up



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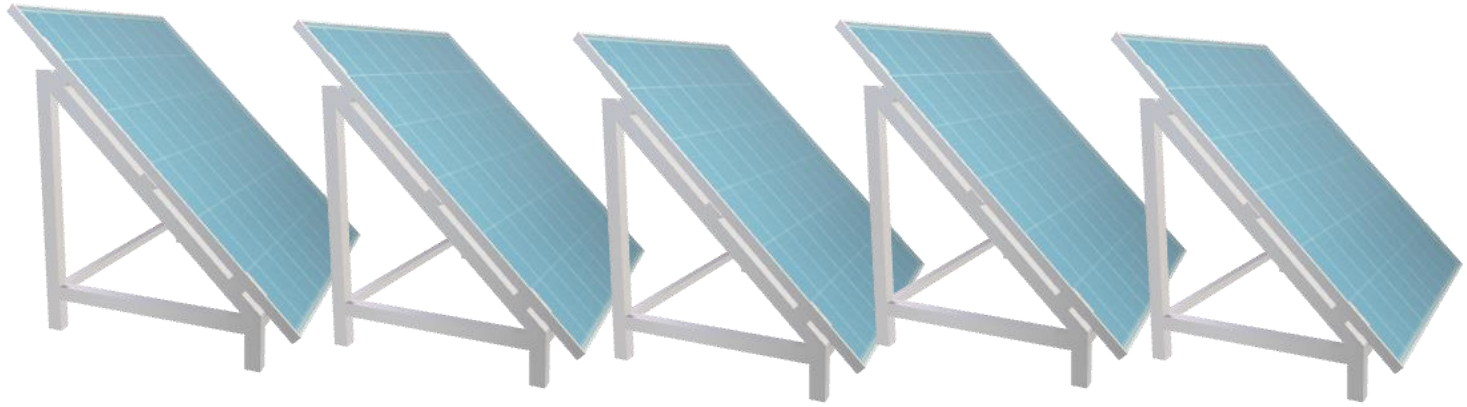
Why not just add a bunch of solar?



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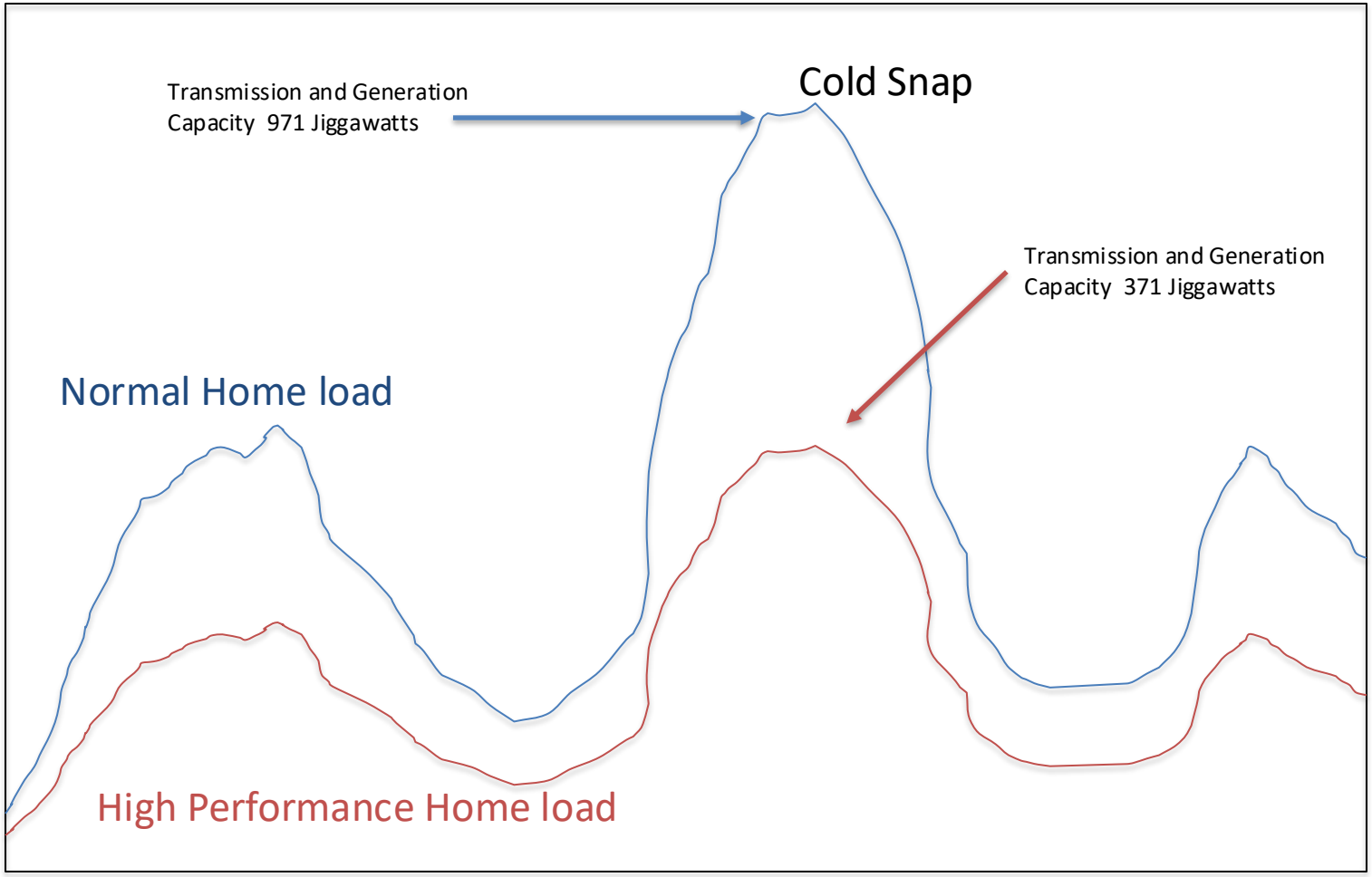
Lower peak loads means cost reduction for the grid



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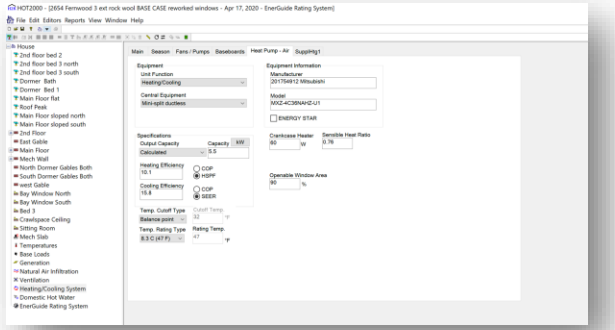
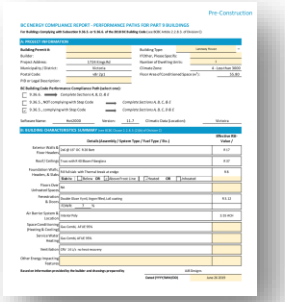
Working with an EA

Builder gives plans and specifications to the EA

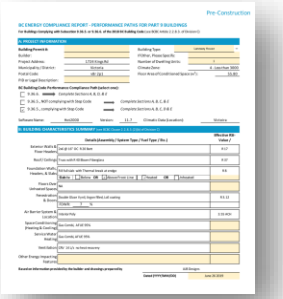
EA completes an Energy Model



Permit Reports go into the City



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



Final report goes to the City

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The Forms

ENERGY STEPCODE — BUILDING BEYOND THE STANDARD

BC STEP CODE COMPLIANCE CHECKLIST - PERFORMANCE PATHS FOR PART 9 BUILDINGS

ZERO CARBON STEPCODE

A: PROJECT INFORMATION

Building Permit #:	
Builder:	Scagliati Homes Ltd.
Project Address:	2567 Wentwich Rd.
Municipality / District:	Langford
Postal Code:	V9B 3V4
PID or Legal Description:	

As Built

Building Type
le Detached w/Secondary Suite (Ml

# of Dwelling Units: 2

B: CODE COMPLIANCE SUMMARY

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

Energy Step Code	Zero Carbon Step Code
Step Required	**Level Required**
3	EL 1 - Measure Only
Step Achieved	**Level Achieved**
3	**EL 2 - Moderate**

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 Molitwenik	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 Oark Crest Dr. Victoria BC V8P 1K7	CODECO placed in Field 8 of H2K	x
Email:	brandon@bernhardtcontracting.com		

N File # 51A2N0000X

D: BUILDING CHARACTERISTICS SUMMARY

	Details (Assembly / System Type / Fuel Type / Etc.)		Average Effective RSI / Performance Values	
Roof / Ceilings	Truss @ 24" OC, R40 Batt Deck Ceiling: 2X10 @ 16" OC, R28 Batt		6.31 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	
			USI	SHGC
Windows and glazed doors	Double Glazed, Argon Filled, Vinyl Frame: Picture Double Glazed, Argon Filled, Vinyl Frame: Slider		1.53 1.59	0.30 0.30
Doors	Steel / Polystyrene Core		RSI	0.98
Air Barrier System & Location	Interior Poly and Caulk system		ACH NLA NLR	1.40 0.76 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	Utiltiy Fan		% EFF L/s	49.00
Other	NG fireplace			
Fossil Fuels	The building IS designed to use fossil fuels or has infrastructure for it			

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Three Metric Areas

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

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“Zero” Carbon Step Code

- Three categories to choose from
  - Total GHG per year
  - GHG per m^2 with max cap
  - Prescriptive

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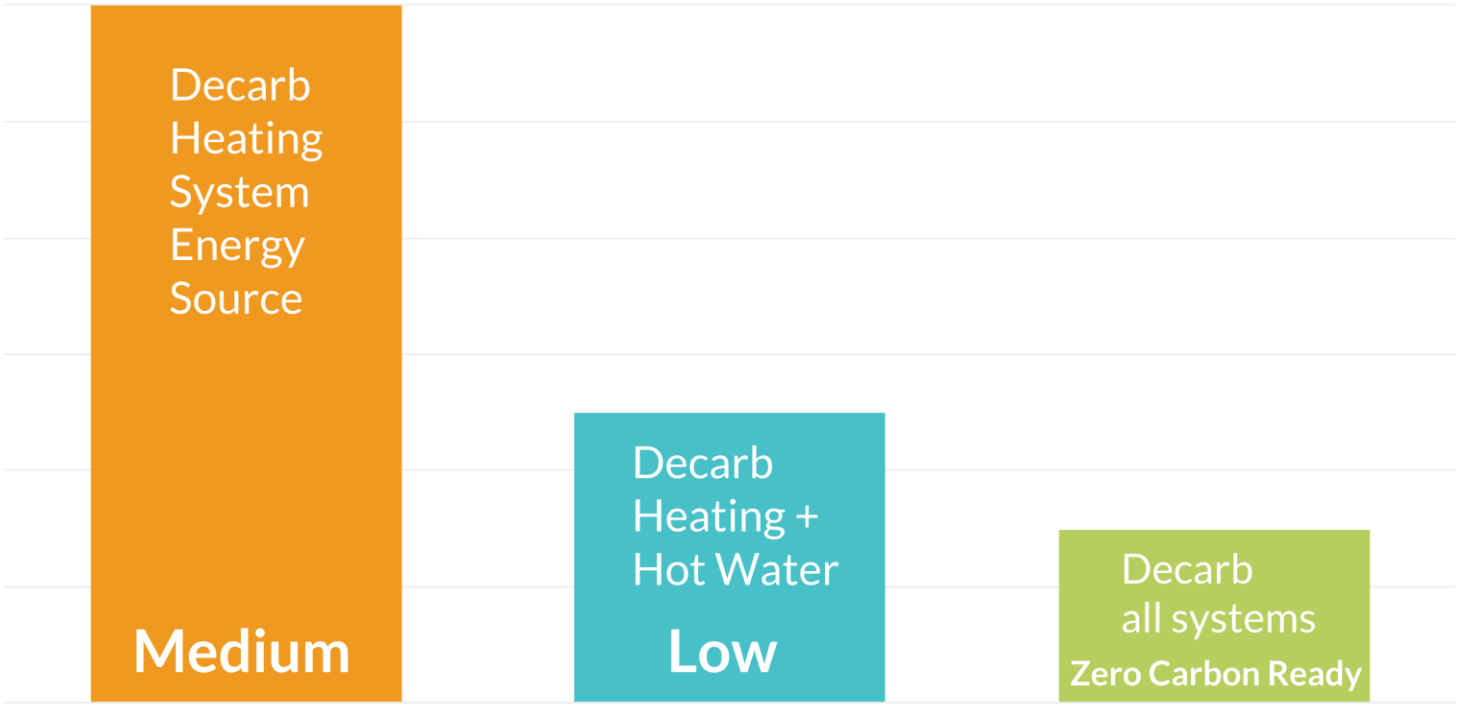
Several Different Metrics

All have about the same trend



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What is Counted and What is Not

- **Principle Heating System** ✓
  - Heat Pump
  - Gas Furnace
  - Combo system
- **Supplementary Heating Equipment** ✓ Sort Of
  - The Gas side of the Hybrid
  - Electric Supplement in Heat Pump
- **Hot Water** ✓
  - Tank
  - Boiler
- **Redundant and Backup Systems** ✗
  - Generator
  - Gas fireplace
  - Wood fireplace
- **Equipment and Appliances:** ✓ Only Prescriptive
  - Cooking
  - Laundry

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What EL Level is this house?

Example

- **Principle 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
  - Gas Tiki Torches
  - Gas Heated Sauna

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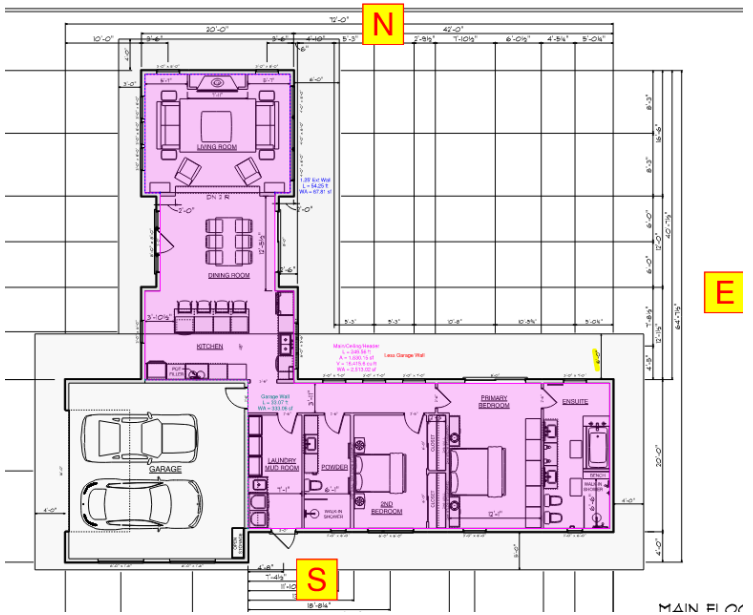
Design for Step Codes

- Simple Shapes
  - Less Surface area



- How many windows do you really need and where do you need them?

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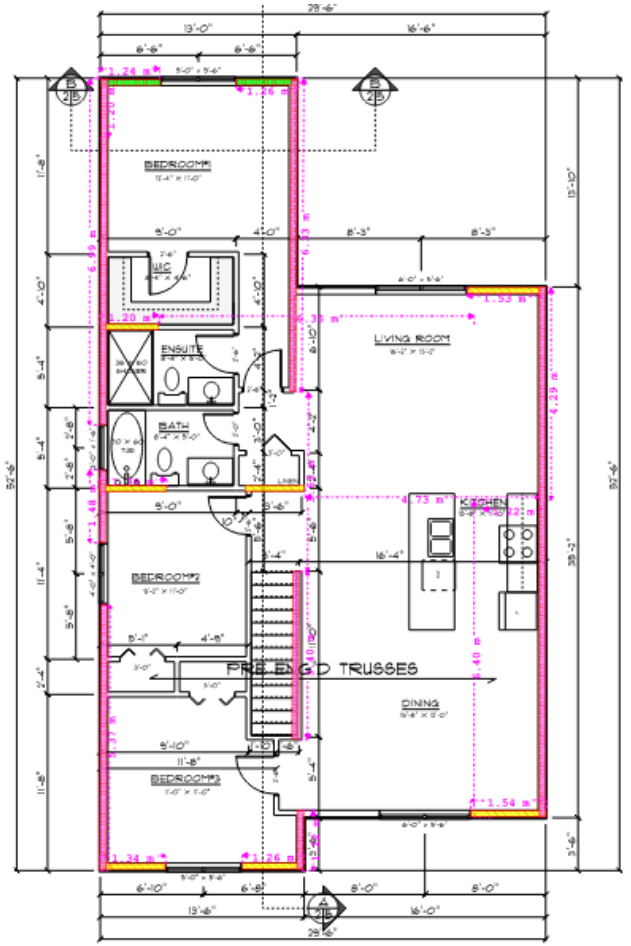
Simple Saves Money

- Step 4 with very cheap construction no upgrades
- Step 5 with just better air leakage and R22 in the walls
- Designed to not need a structural engineer

FRONT ELEVATION
1/4" TO 1'-0" SCALE



UPPER FLOOR PLAN

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Easy Design Solution

- Use integrated design
  - Invite your trades and designer in for a pre-project meeting.
  - Get their opinions, not just their prices
  - Does not need to be formal or fancy

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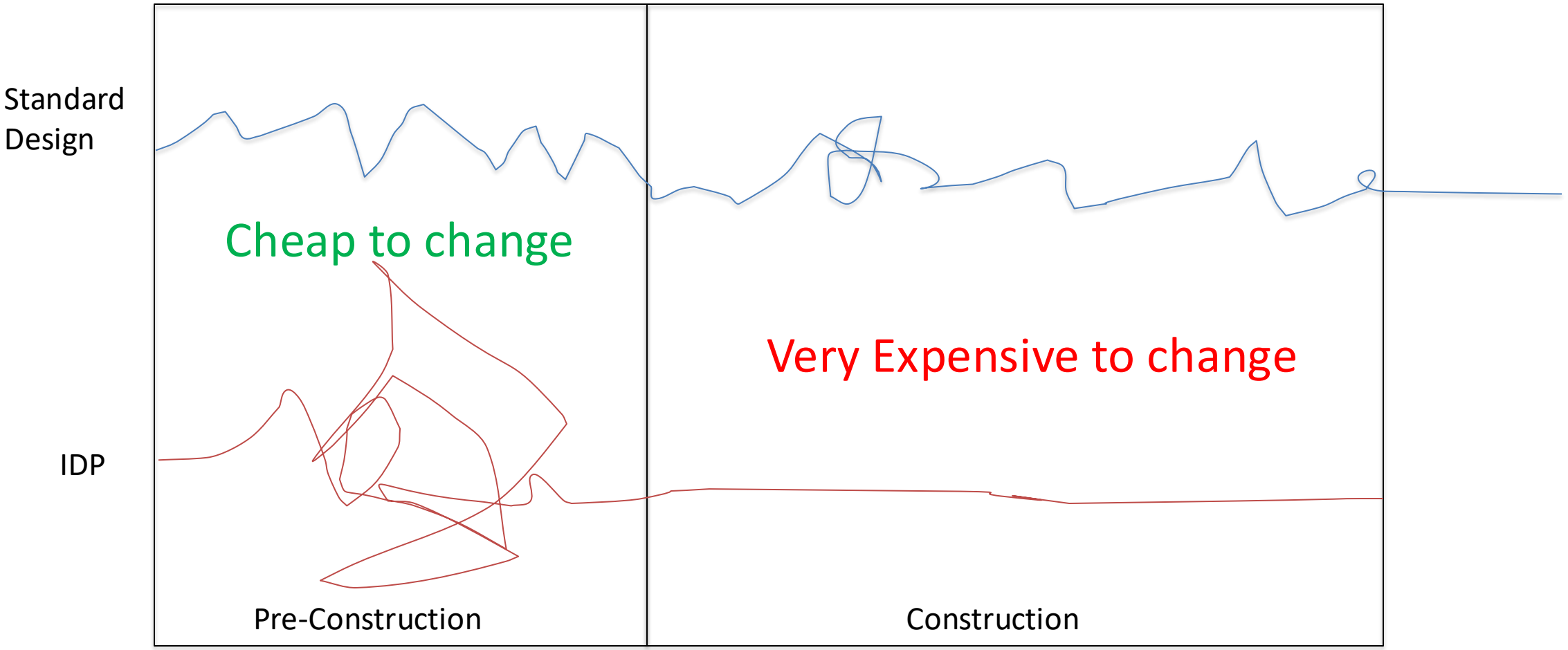
Design Is Messy – Keep Construction Clean



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How does this work with?
Step Code

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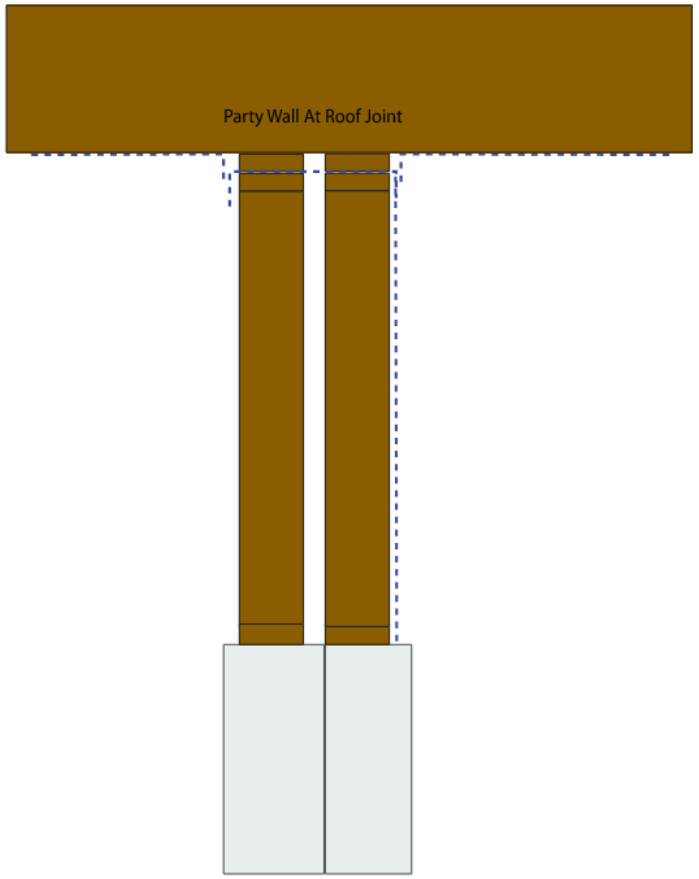
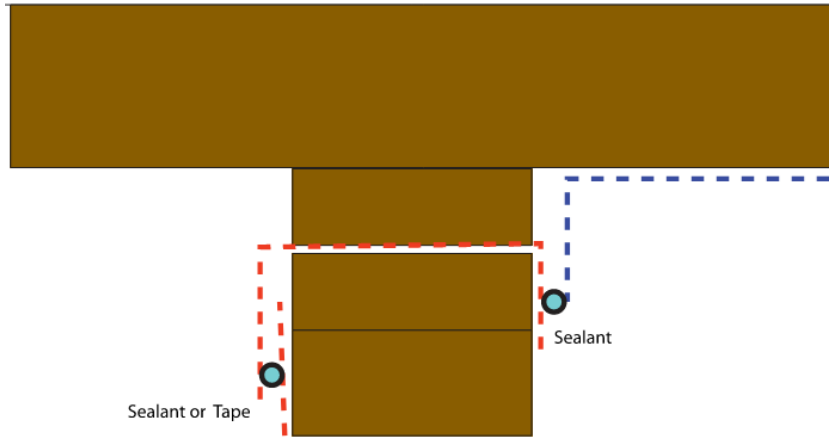
Simple Solutions

Party walls



Top plates

Pre-strip through top plates. Seal inside and out
All seams in pre-strip are also taped or sealed.



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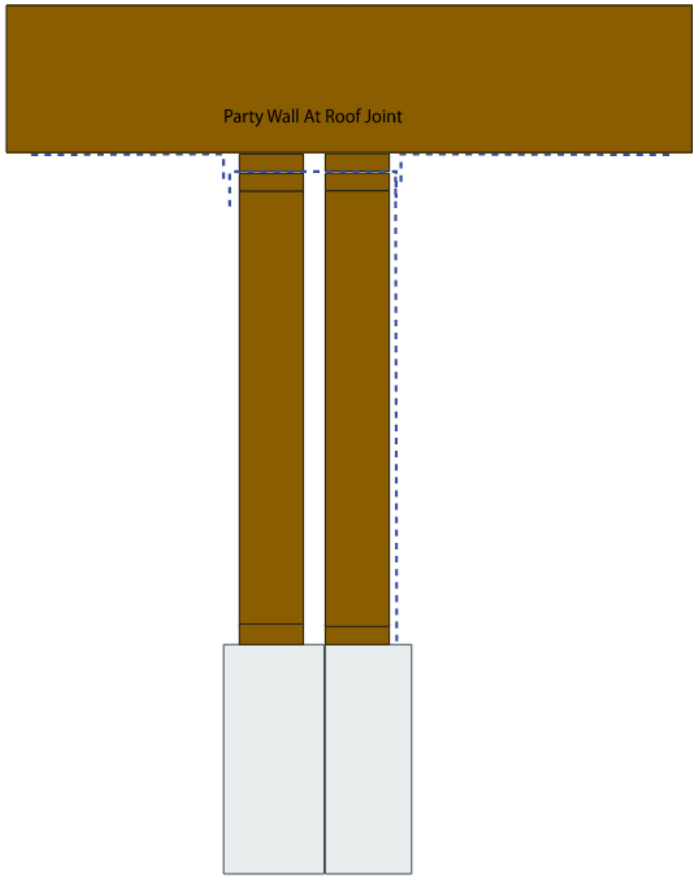
Problem Areas

Party walls



Garages

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When we say continuous, this is not what we mean

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Foam Fails

The Problem

The Solution

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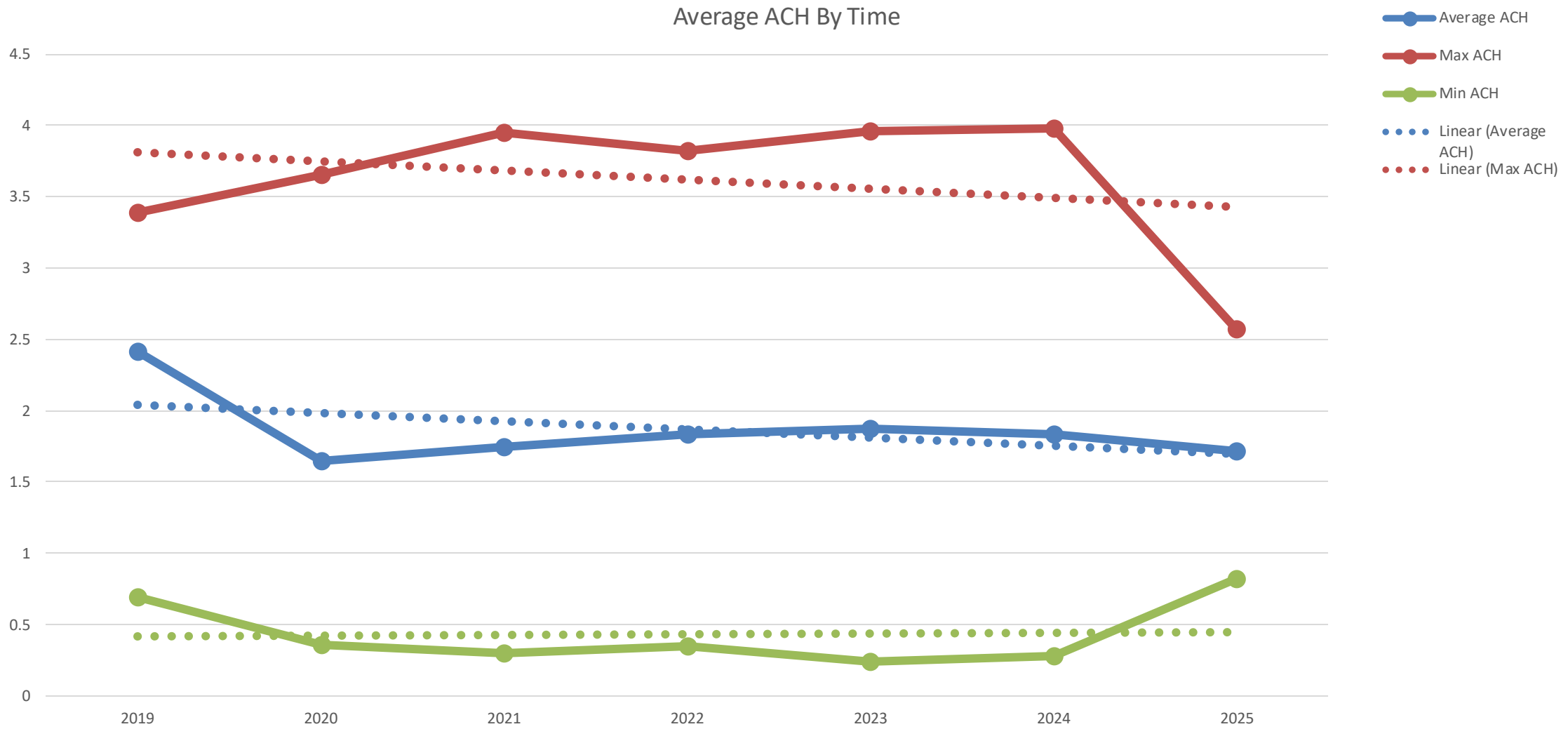
Part 9 Where are we



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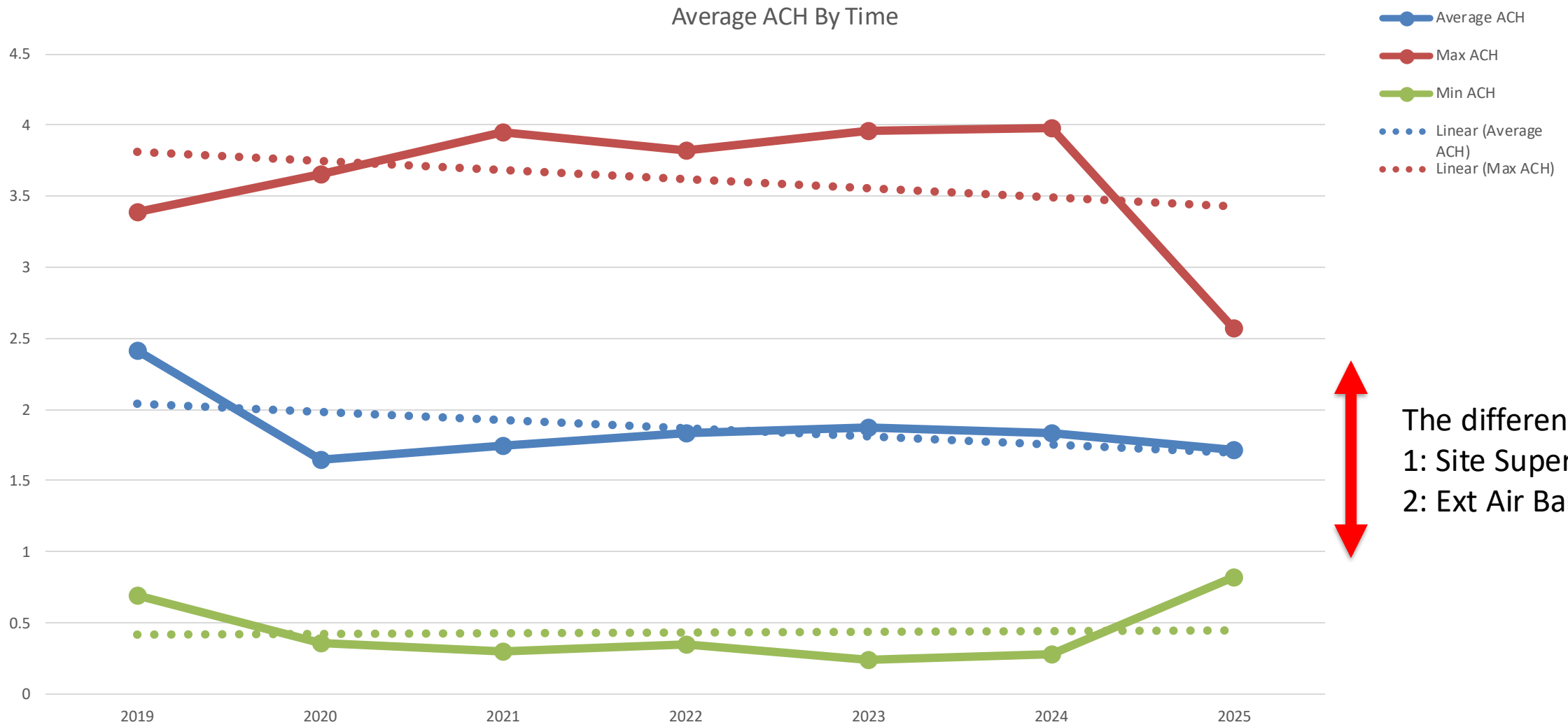
Part 9 Where are we



The difference:
1: Site Supervision
2: Ext Air Barriers

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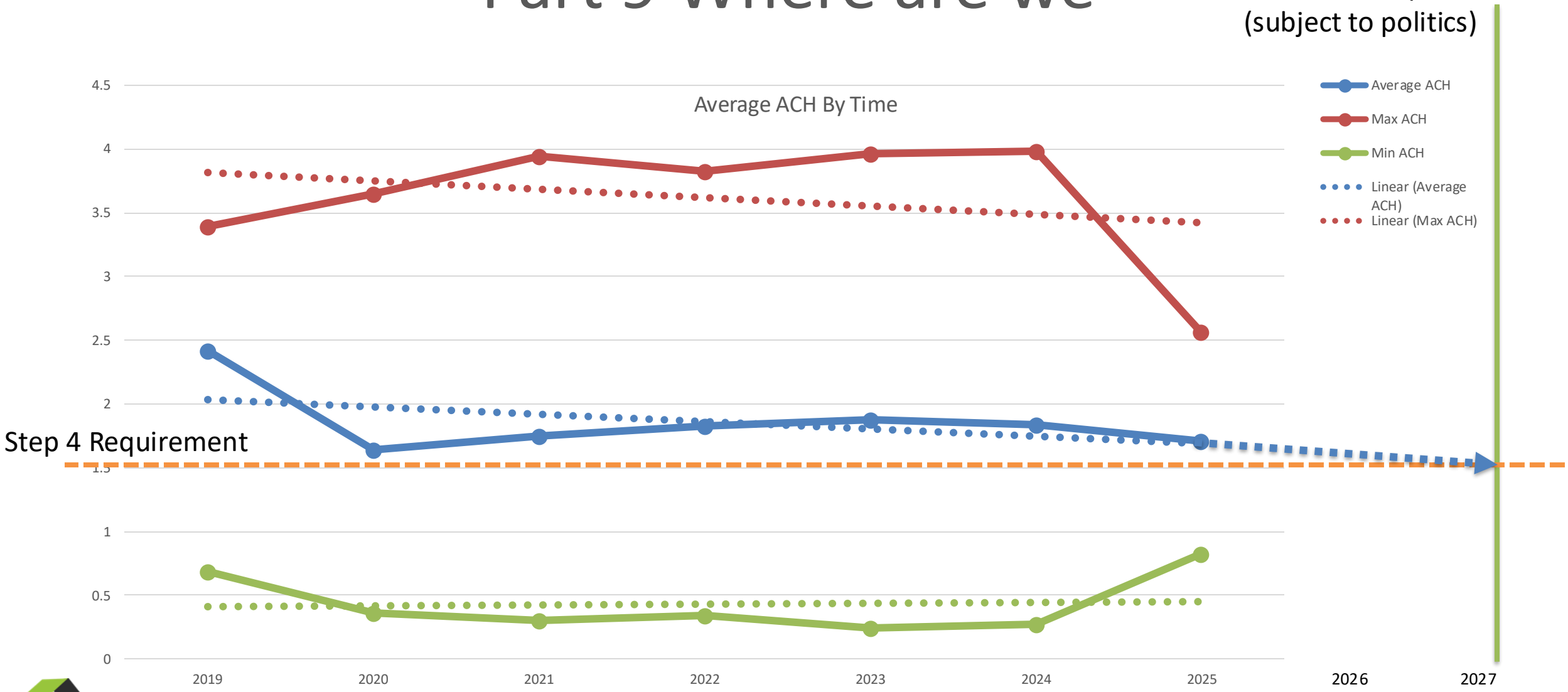
Part 9 Where are we

Provincial Step 4 Timeline
(subject to politics)



Step 4 Requirement

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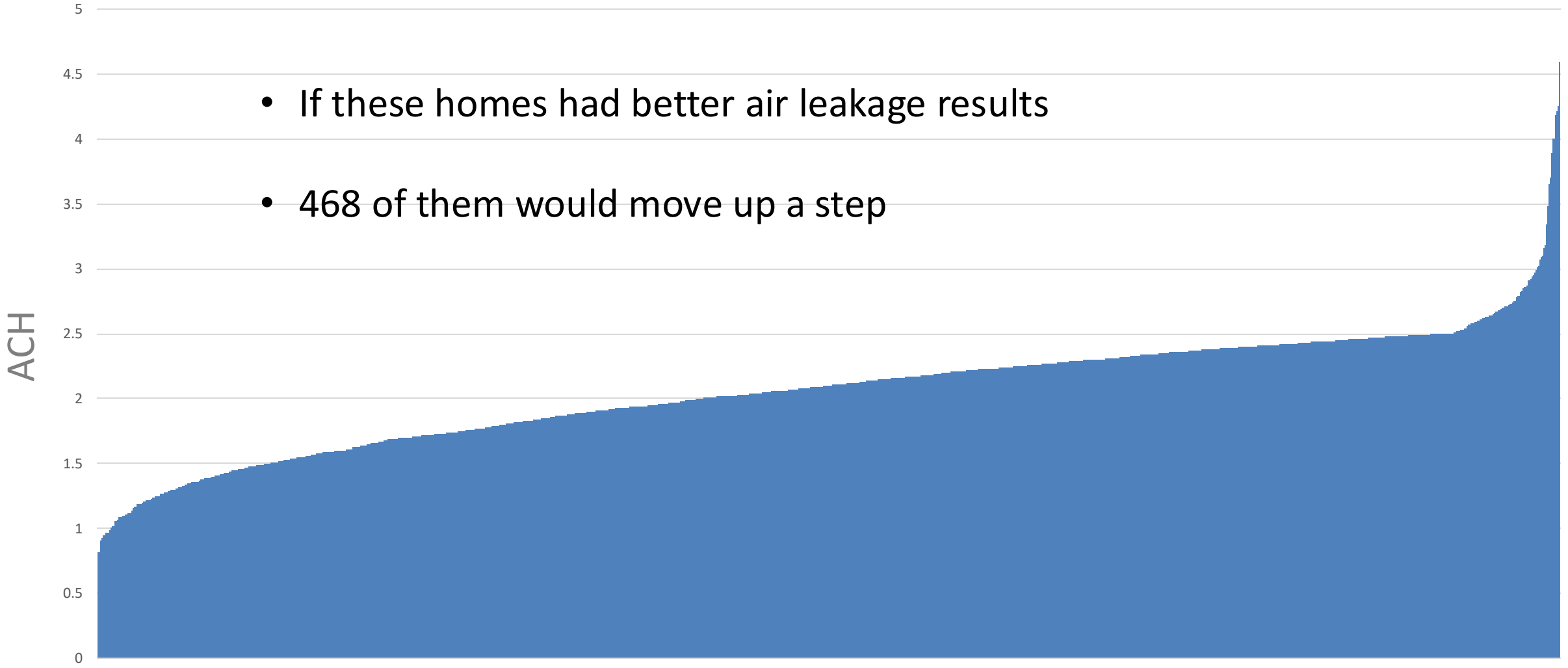
Fraser Valley: 1449 Homes met step 3

- If these homes had better air leakage results
- 468 of them would move up a step



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Mechanical Systems

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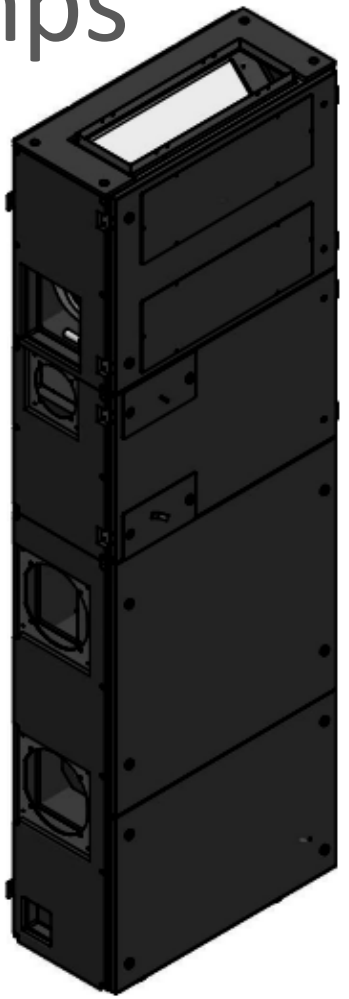
Efficient Small-Scale HRV & Heat Pumps

- Compact sizes fit small space
  - Both capacity and physical size
- Takes care of ventilation, heating and cooling
- No outside units



Innova Vertical stack HRV / HP

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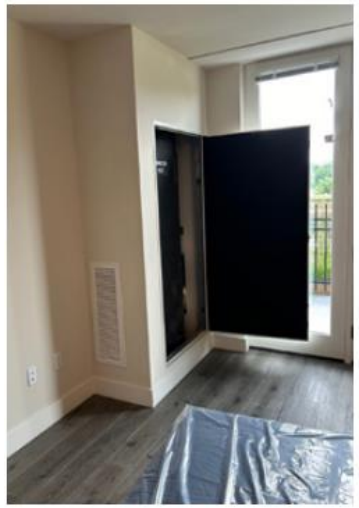
Efficient Small-Scale HRV & Heat Pumps

- More options coming to the market

Innova 2.0 Heat Pump

Innova Vertical stack HRV / HP



Minotair HP/HRV

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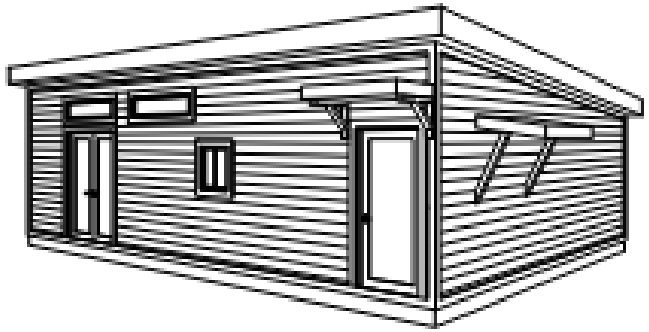
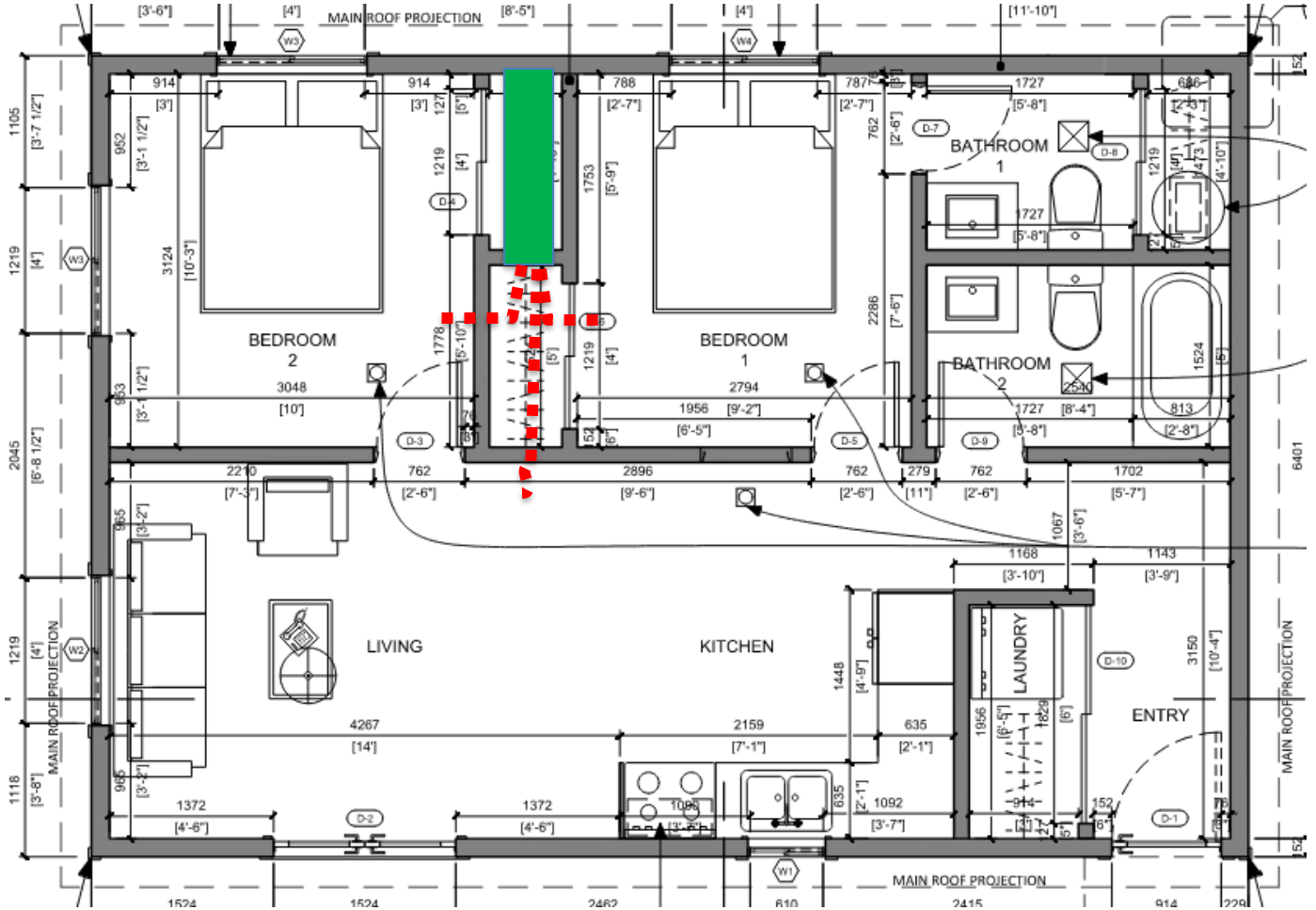
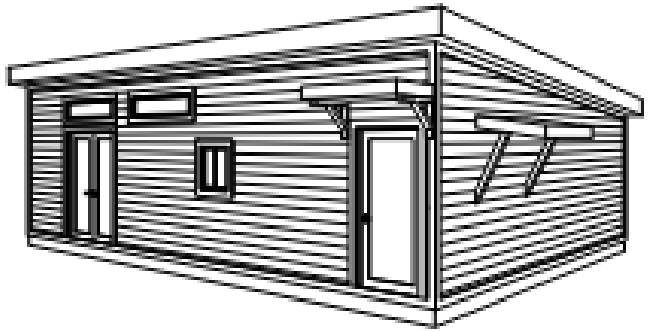
Small Scale Mechanical Design



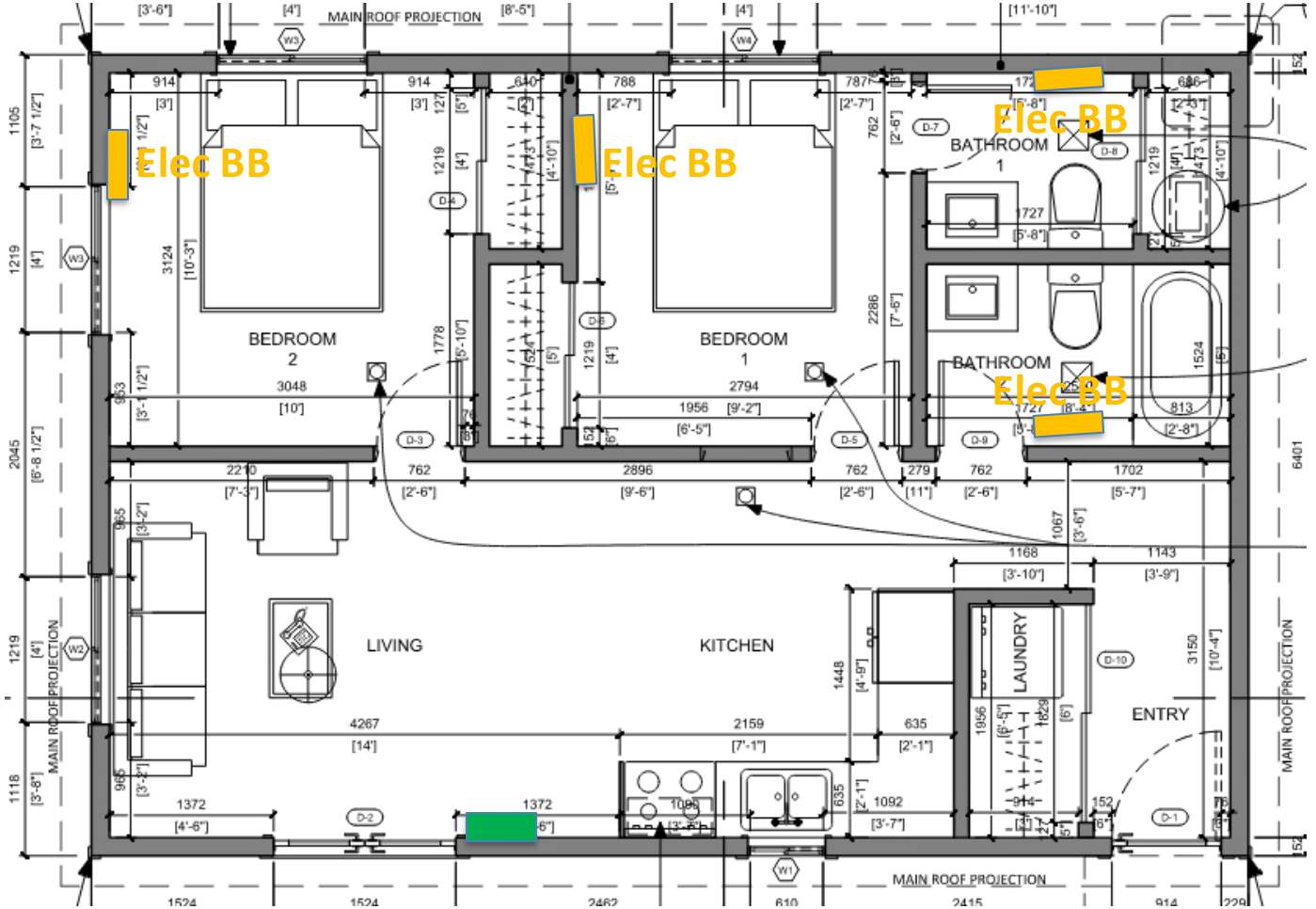
- HRV/ HRP unit
  - Located in top of closet
  - Easy short ducting



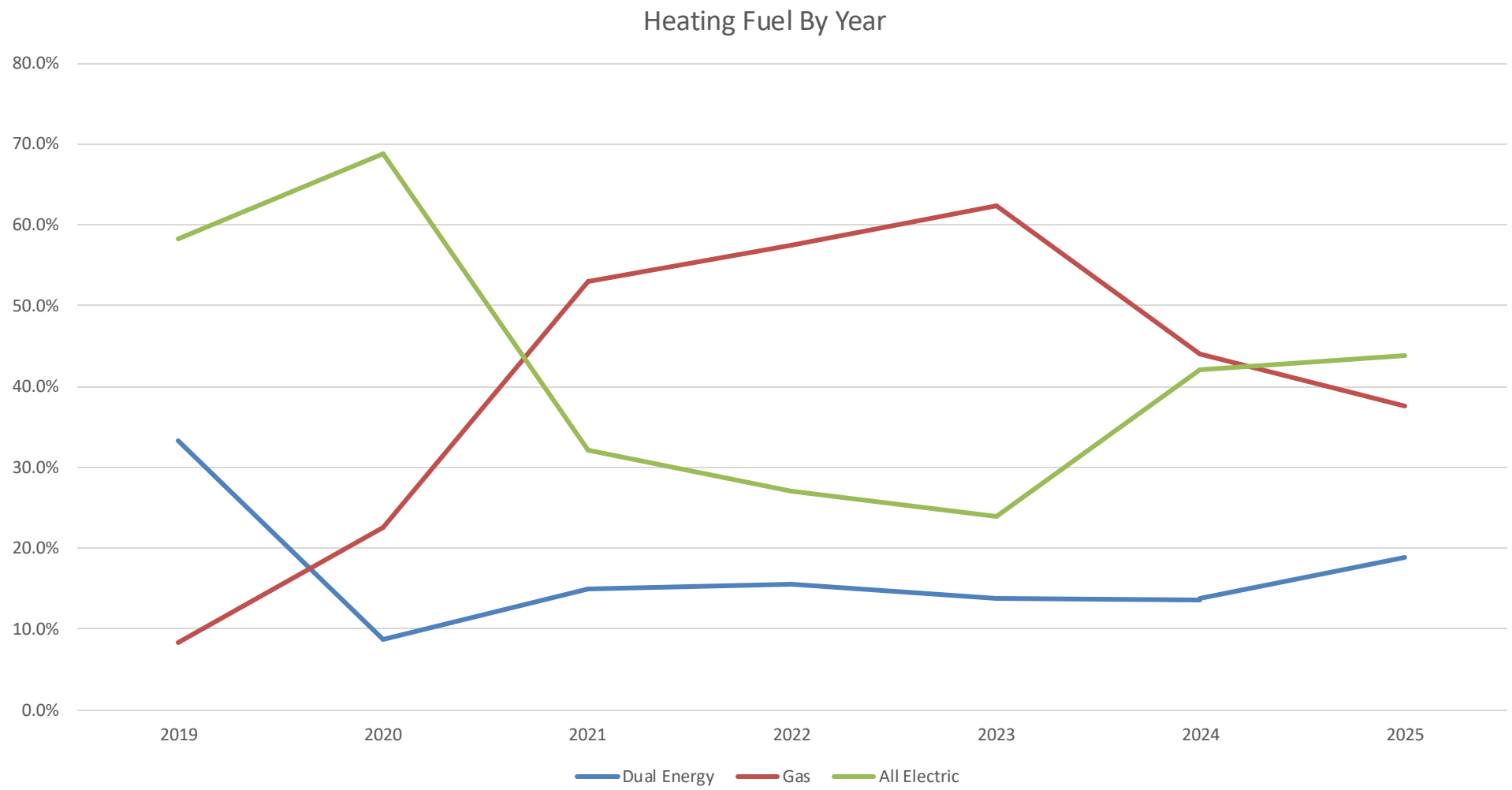
Small Scale Mechanical Design



- Small HP unit
  - Located in living room
    - Satisfies cooling requirement
    - Provides large portion of the heat
  - Separate ventilation is still required



Heating Systems



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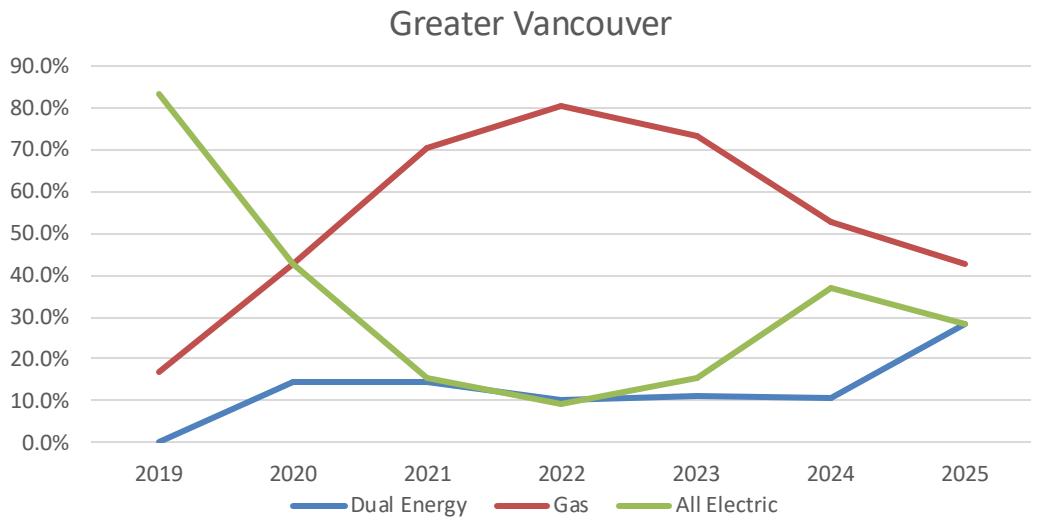
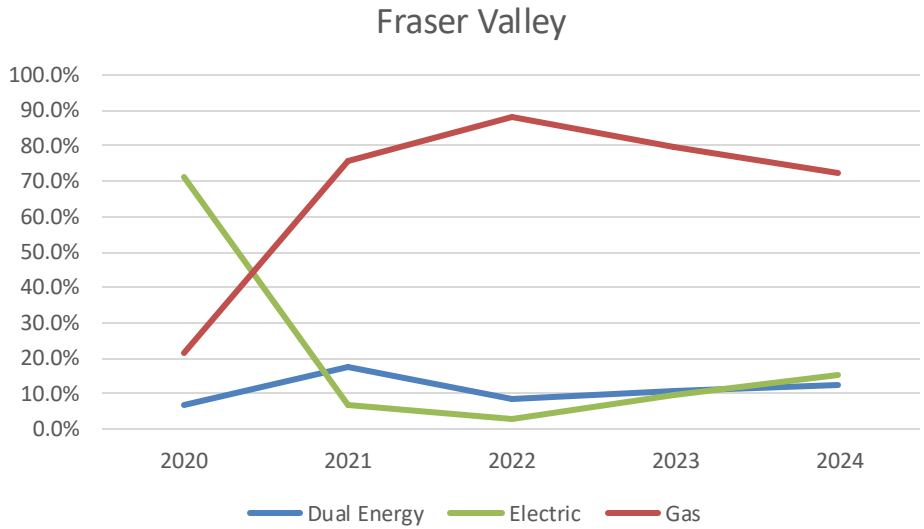
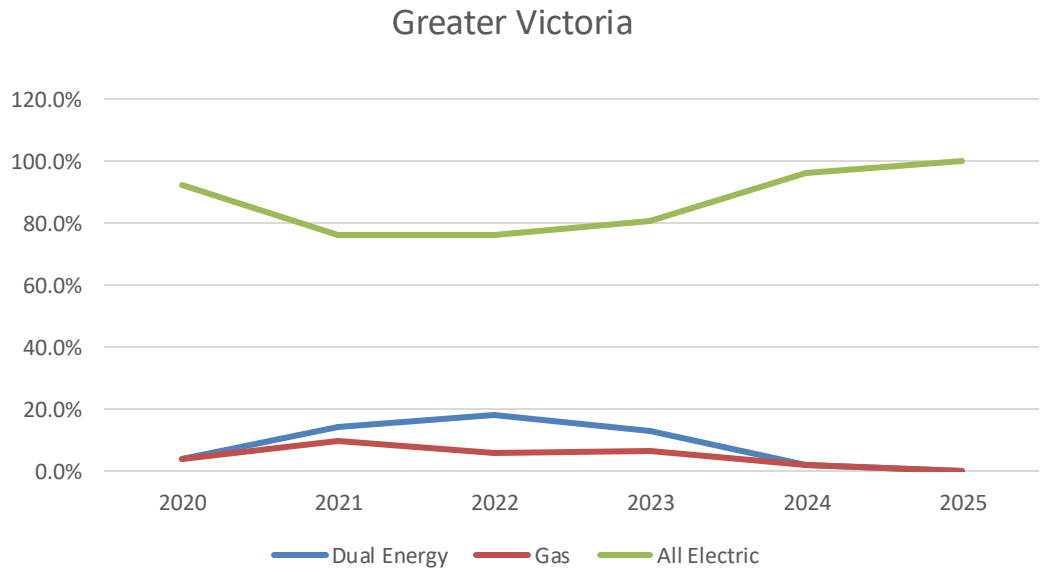
Heating Systems





Fun Fact:

In Smithers, 1 out of 30 homes built in the last 5 years uses gas as its primary fuel



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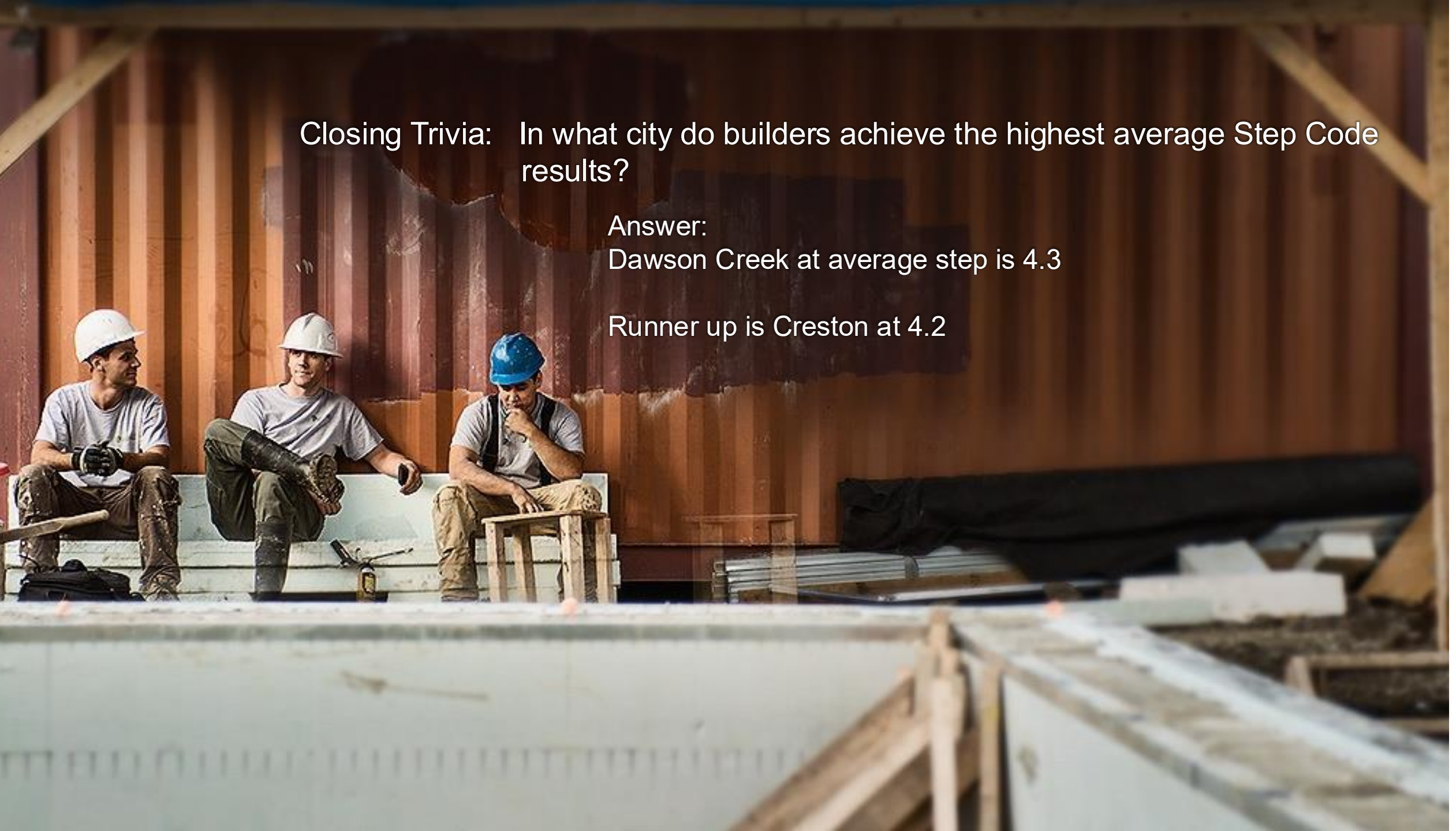

Closing Trivia: In what city do builders achieve the highest average Step Code results?

Answer:
Dawson Creek at average step is 4.3

Runner up is Creston at 4.2