BUILD BETTER TOGETHER

Occupy Passive Street

Providing Phius Certified Buildings For All of the 99%

OCCUPY PASSIVE STREET

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Red Door Sustainable Housing,
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Today's Agenda

A Juxtaposition

A Plan

- **A Building**

A Digression

- (Some) Measured Data
- Occupant Opinions
- Management Opinions

Another Building

Image: Eric Thayer/Getty Images

Job 1: Do no harm

Job 2: Meet the expectations of your clients

Job 3: Build a better world

Photo: Jeremy Bitterman Photography

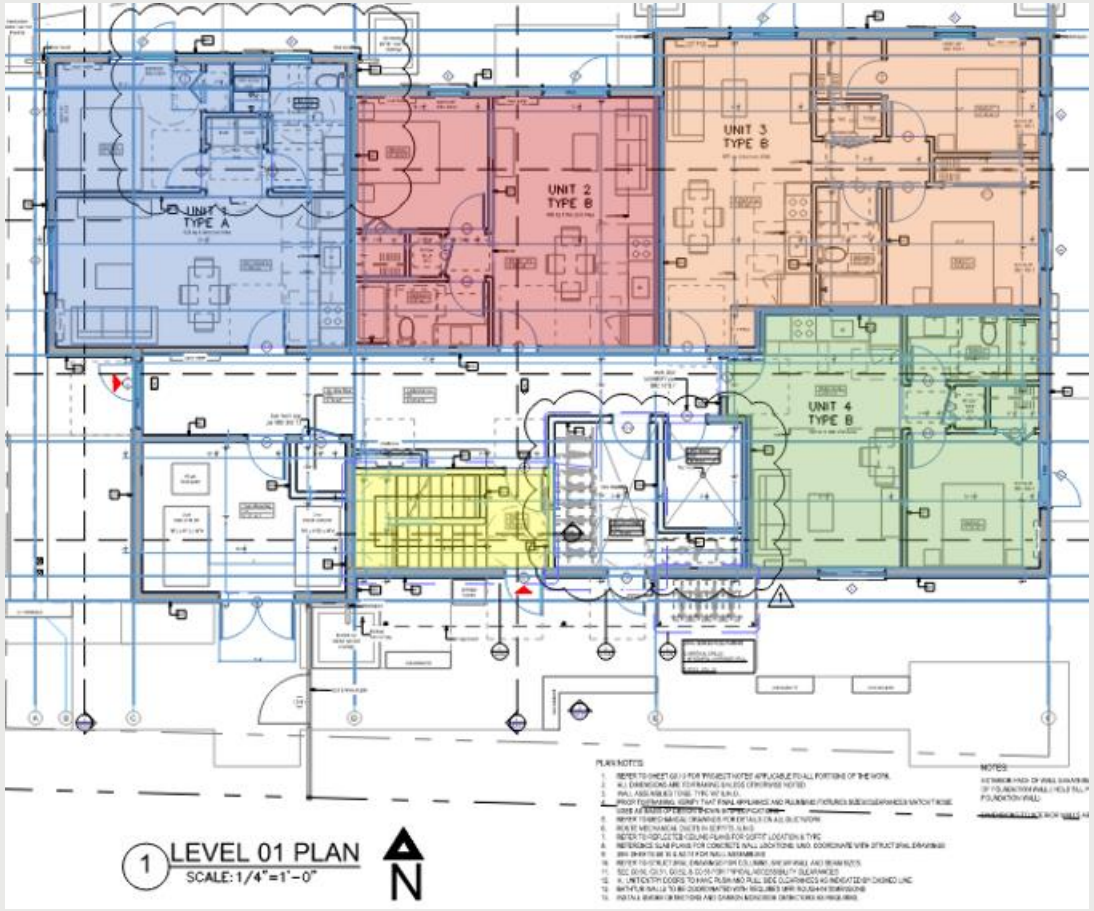
Photo: Dan Whitmore

What are the expectations of your clients?

What are your expectations of your occupants?

A Plan:

- Priority 1
  - Quality Multi-Family Rental Housing
- Priority 2
  - Some level of affordability
    - 50-85% AMI



"Endeavoring to work against the current housing displacement trend in Seattle, with private funding"

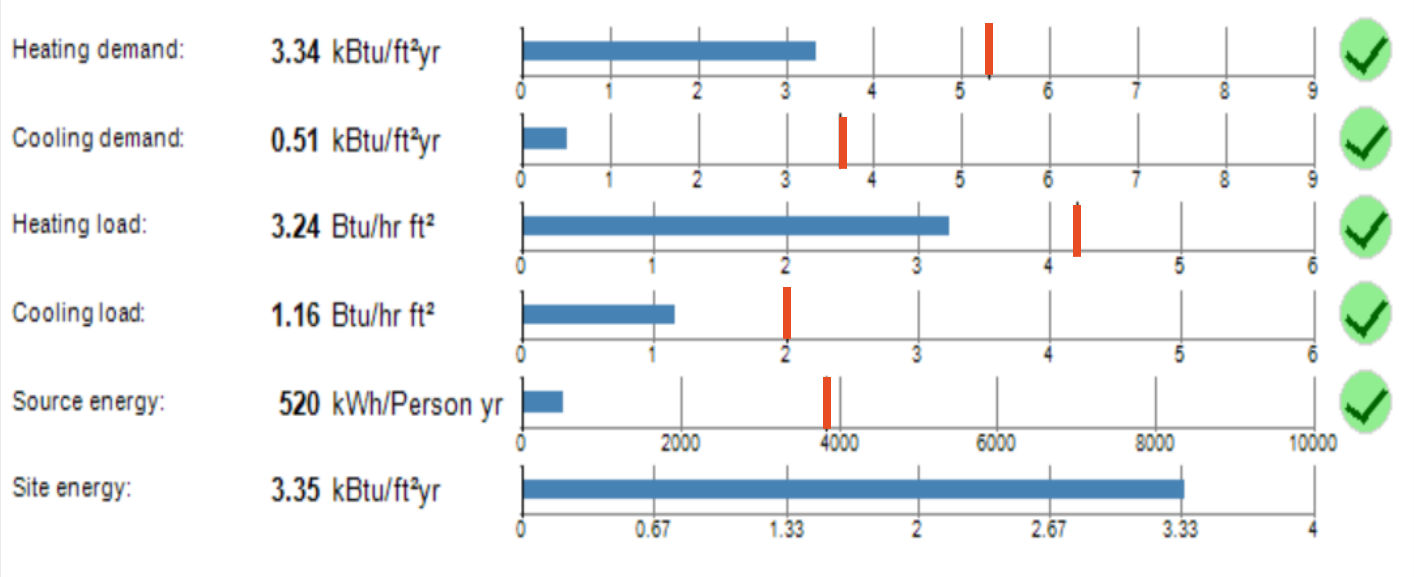
An Extended Plan:

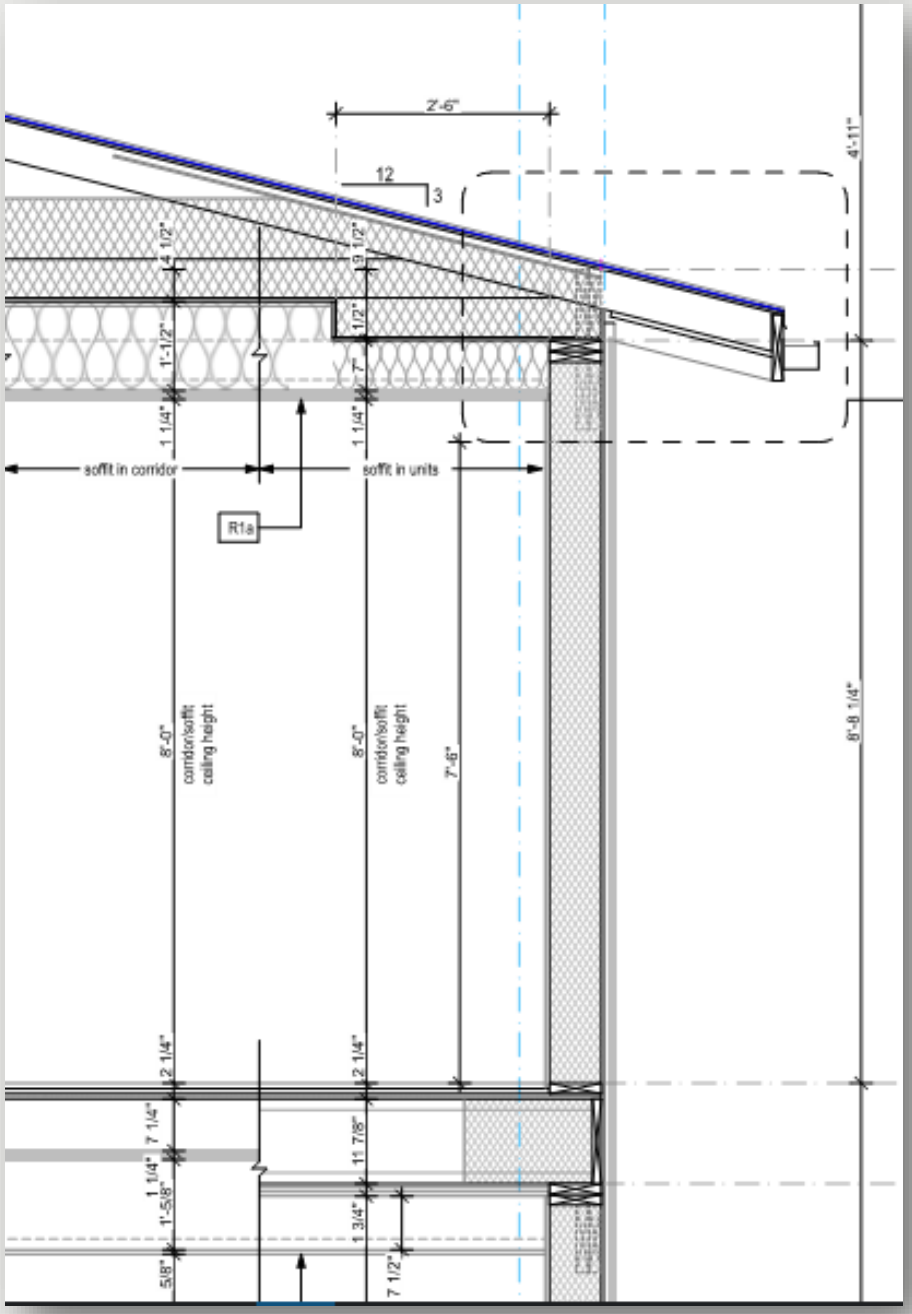
- Priority 3
  - High-quality construction
    - Phius Certified
- Priority 4
  - Modest profit

A Building:

- 12 Units, 21 Bedrooms
- 3 Stories
- Infill in dynamic urban neighborhood
- Cost-effective planning and construction

Planned to perform:

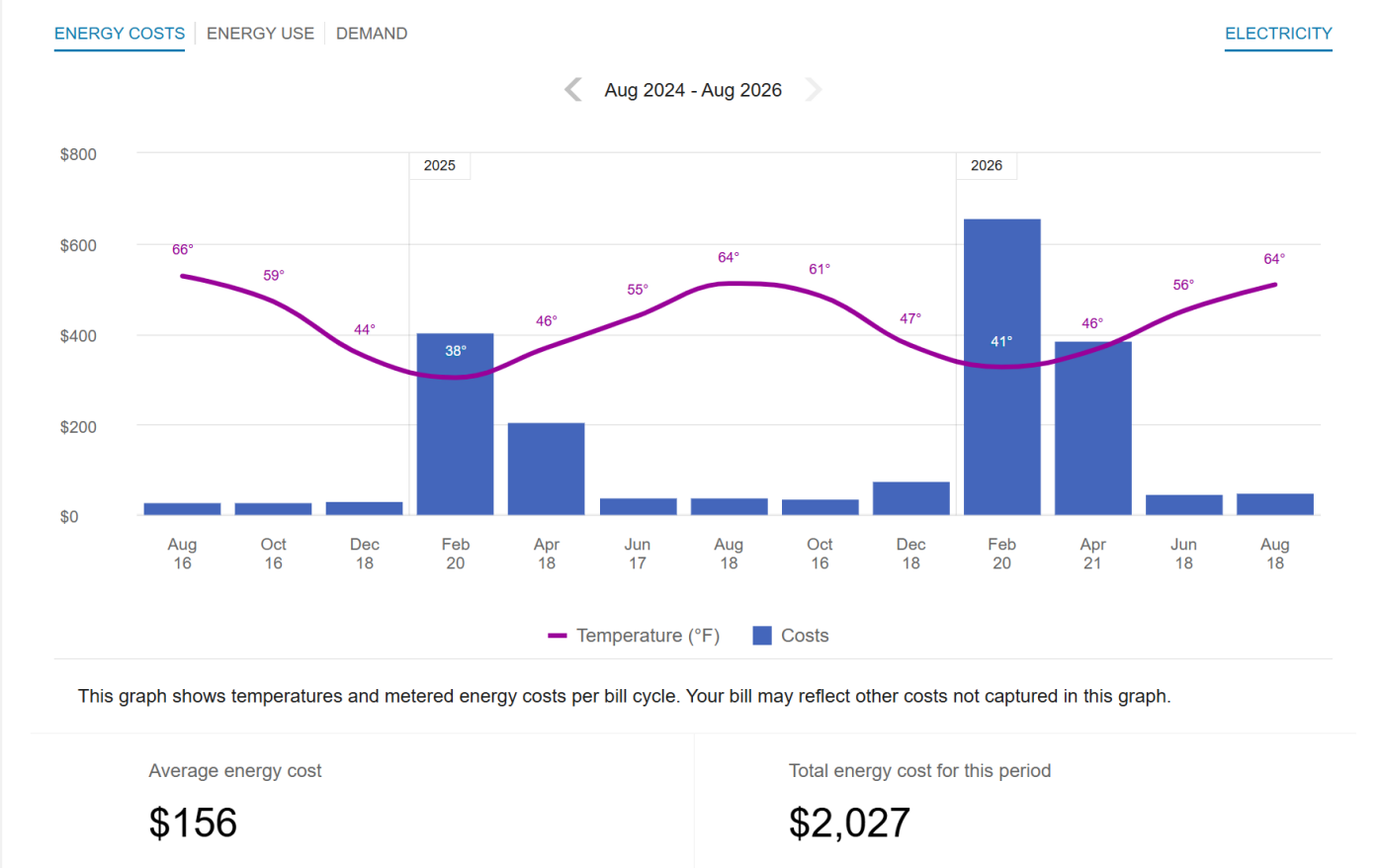




And fully occupied since March 2024:

- Current demographics
  - 34 residents
    - 23 adults
    - 11 children (1 to 17 yrs old)
  - 5 main first languages

How does it perform?



Occupant Survey:

Appendix C: Tenant Survey

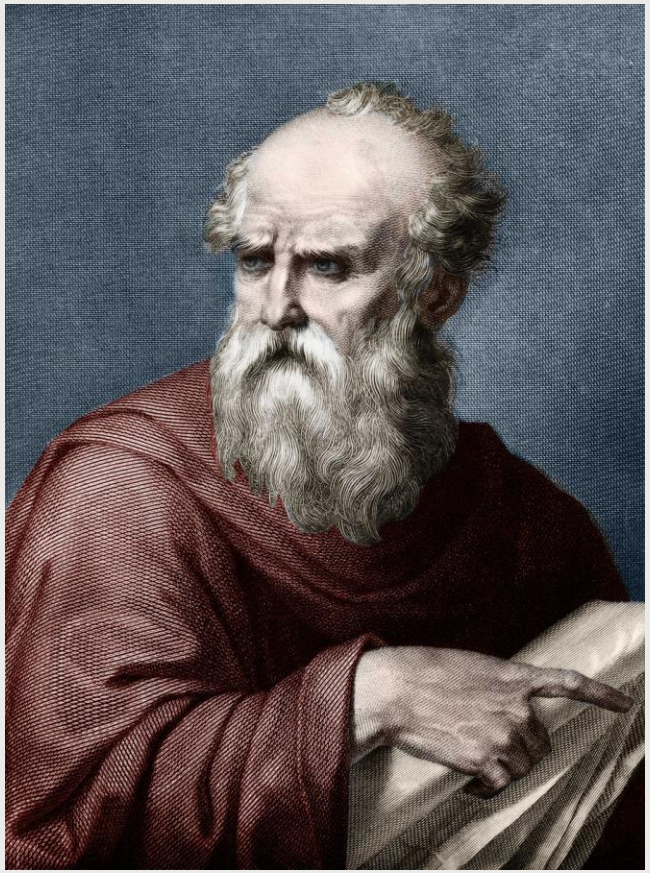
Charts showing responses to Tenant Survey conducted December 2025, eight of twelve tenants responded to survey. Note: not all respondents answered all questions

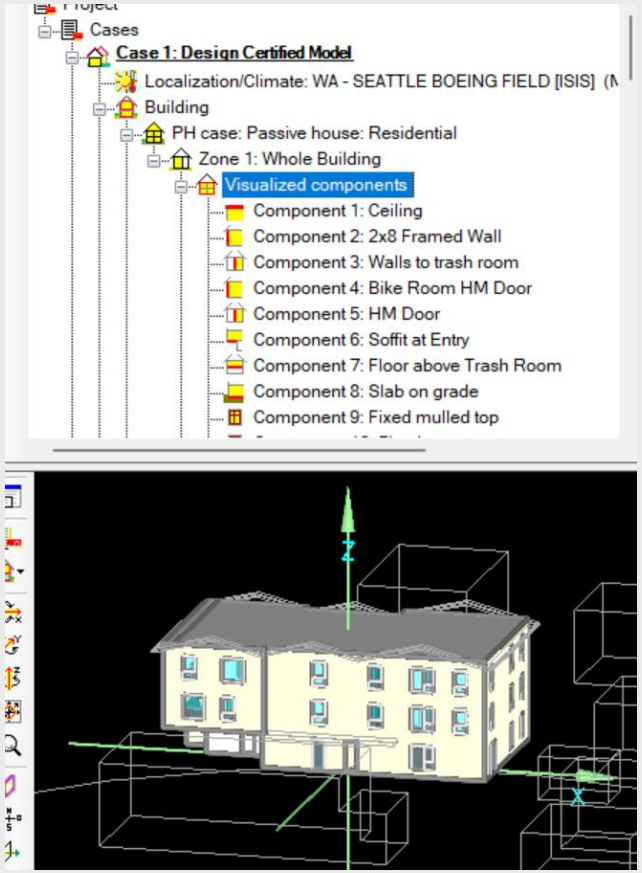
A	General Experience	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	I am satisfied with my overall living experience in this building.			1	3	4
	I value living in a building designed to be energy efficient.				3	5
	Knowing this building uses renewable energy makes me feel more positive about living here.				3	4

A Digression:

The Phius Phamily Pheud!

Volunteers Forward!





Designer ***CPHC©*** ***Builder***

The first word(s) potential tenants say when you tell them this is a passive building:

Points

5 What is “What?”

3 What is “like passive solar?”

1 What is “Cool”

The primary concern for the vast majority of tenants:

Points

5 What is “the rent?”

3 How safe is the building?

1 Is there off-street parking?

Approximately how many tenants inquire *before signing a lease* regarding utility costs?:

Points	
2	*25 to 50%*
1	*50% or greater*
5	*Less than 25%*

What is the most common complaint from surveyed tenants in Phius certified multi-family buildings?

Points	
2	Learning about the HVAC system
0	Architectural style
4	Too hot in Summer
8	Neighbor noise
6	Ventilation Noise
1	Window operation

As a building owner/operator, do you strive to have every project be Phius certified?

Points

0	*0-30% If the team says it's important*
2	*30-60% Yeah, if we can make it work*
4	*60-90% It's the starting point*
8	*90-100% Damn straight!*

What are the major factors in determining yes or no to the above?

Points

- *0 Is the client going to pay for it?*
- *3 It's the economy, stupid*
- *2 Finding skilled trades*
- *4 Maintaining a unique building*
- *5 In the rear-view mirror, it's what I do*

What's your biggest passive building related maintenance issue?

Points

5 *It's the economy stupid*
3 *Ventilation*
1 *Ventless dryers*
2 *Tilt-turn windows*
4 *Skilled personnel*

What is the most expensive monthly utility cost in your building?

Points	
1	Electricity
4	Water
4	Solid waste/garbage

And the Winner is…

The Phius Phamily Pheud!

But now back to your regular programming…

Measuring Red Willow's Success

Points

Priority 1: Quality M-F Rental Housing

P-2: Some level of affordability

P-3: Phius Final Certification

P-4: Modest Profit

Measuring Red Willow's performance

Points

Is it comfortable?

Energy efficient?

Resource efficient?

Relatively easy to maintain?

Red Willow Utility Costs:

	JAN 1 - JUN 30 2026
6400 Utility Expenses	
6401 Garbage & Trash Removal	6,304.98
6402 Water	1,524.98
6403 Sewer	7,247.28
6404 Electric - **House Meter Only**	1,134.07
Total for 6400 Utility Expenses	**$16,211.31**

Without the solar PV, house electric would likely be ~$3,000 for 6 months

SANCOR

3/4"
U.S.GALLONS
Model MJ-420

3/4"
U.S.GALLONS
Model MJ-20

A.O.Smith

Red Willow Occupant Hot Water Usage:

	Hot	Cold	Avg # Occ	Est. Water per Occupant per year		Est. Water per Occupant per day		% hot at 140oF: 75% of aggregate	Phius Protocol
2-Year Averages				Hot	Cold	Hot	Cold	Hot from Source	
All	15139	20477	2.74	5534	7485	15.2	20.5	**11.4**	**6.6**
1 BRM	9493	8322	1.22	7807	6844	21.4	18.8	**16.0**	**6.6**
2 BRM	13909	16835	3.75	3709	4489	10.2	12.3	**7.6**	**6.6**
3 BRM	22015	36275	5.50	4003	6595	11.0	18.1	**8.2**	**6.6**

Tenants are charged for their water use
but not hot water generation

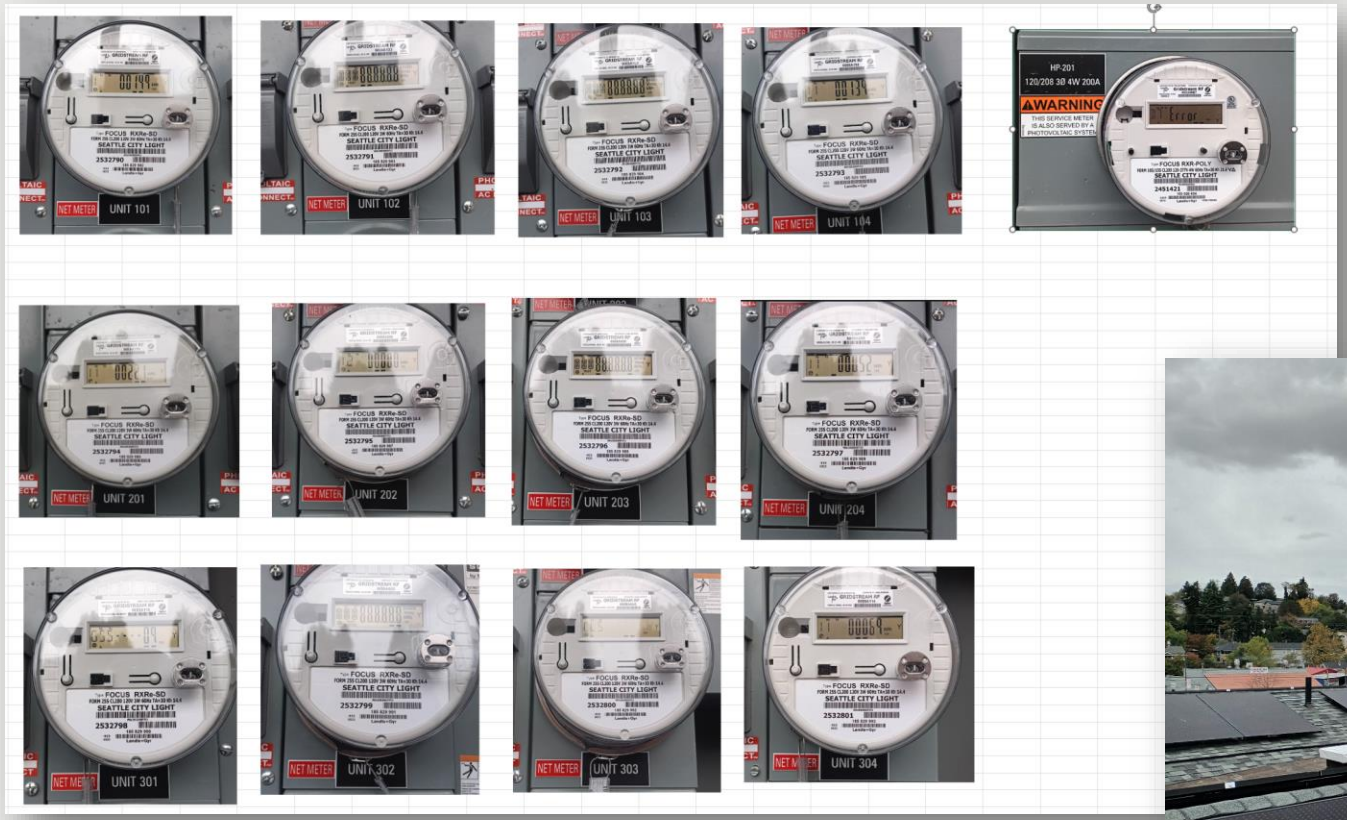
Survey says:

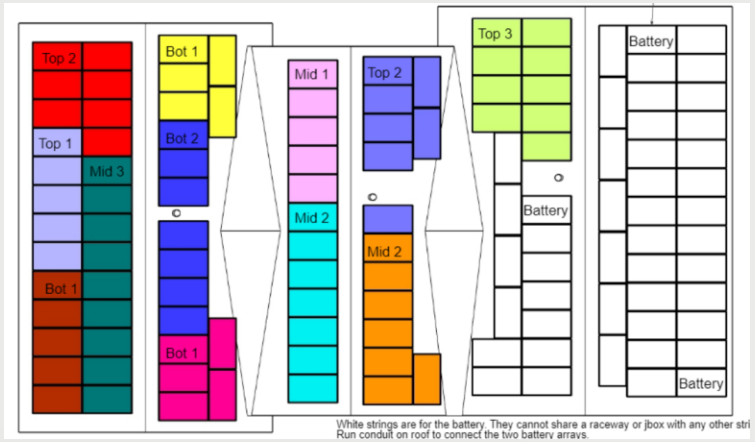
D	Water and Plumbing	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	I am satisfied with the water pressure and plumbing fixtures.		1	1	6	
	I receive hot water within a reasonable amount of time.				3	5
	I am aware that the building uses low-flow water fixtures.		1	2	3	2
	I am satisfied with my water utility costs.	1		1	3	3

Survey says:

E	Electricity Use & Cost	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	My apartment uses less energy than my previous residence(s).			2	2	4
	I am satisfied with my electricity costs.			2	2	4
	I believe the solar panels reduce energy costs in this building.			1	2	5
	I intentionally try to reduce electricity use in my apartment.		2		1	5

Everyone benefits from the sun





Survey says:

		Bedroom Count	Occupancy		# of Solar Panels	Array Capacity	Estimated annual production	Averages per bi-monthly billing			
			Adults	Minors		kW	MWh	Billed Usage kWh	Production Exported kWh	NZ Bal	$$$
Main Panel					46	18.86	16.974	1954.12	-1793.19	1815.00	$ 94.14
Unit	101	1	1	0	5	2.05	1.845	180.29	-126.06	6.04	$ 26.23
Unit	102	1	1	0	5	2.05	1.845	260.36	-147.94	-12.83	$ 33.79
Unit	103	2	2	2	7	2.87	2.583	939.18	0.00	0.00	$133.11
Unit	104	1	1	0	5	2.05	1.845	207.68	-163.33	183.03	$ 19.61
Unit	204	2	1	0	7	2.87	2.583	516.25	-102.76	0.00	$ 75.73
Unit	301	3	2	3	9	3.69	3.321	870.72	-381.38	172.52	$ 75.76
Unit	302	1	1	0	5	2.05	1.845	230.07	-278.59	254.09	$ 27.81
Unit	303	2	1	1	7	2.87	2.583	286.80	-515.02	595.08	$ 18.15

Electricity consumption and estimated production for occupants (Aug ‘24-Aug ‘25)

		Averages per bi-monthly billing			
Array Capacity	Estimated annual production	Billed Usage	Production Exported	NZ Bal	$$$
kW	MWh	kWh	kWh		
18.86	16.974	1954.12	-1793.19	1815.00	$ 94.14
2.05	1.845	180.29	-126.06	6.04	$ 26.23
2.05	1.845	260.36	-147.94	-12.83	$ 33.79
2.87	2.583	939.18	0.00	0.00	$133.11
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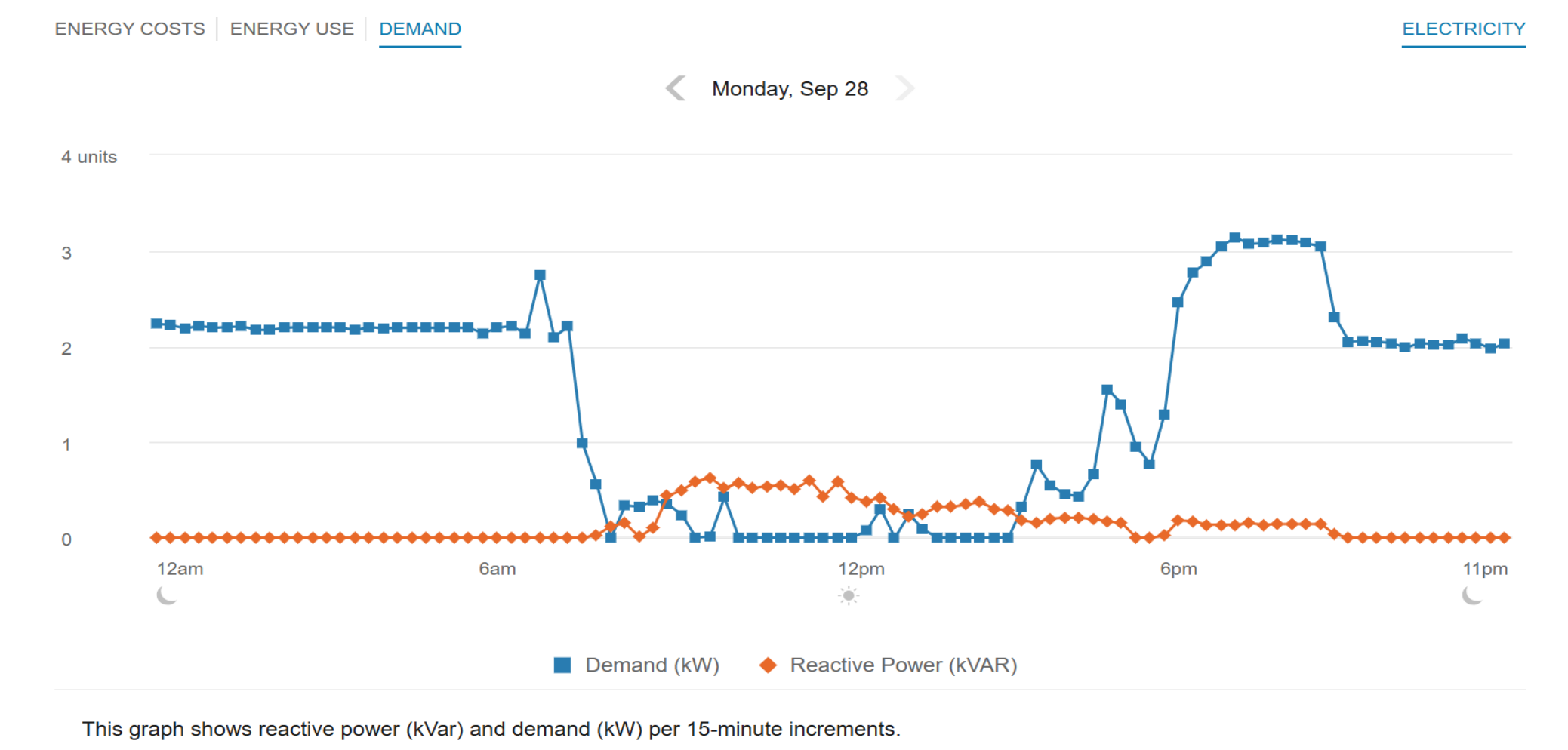
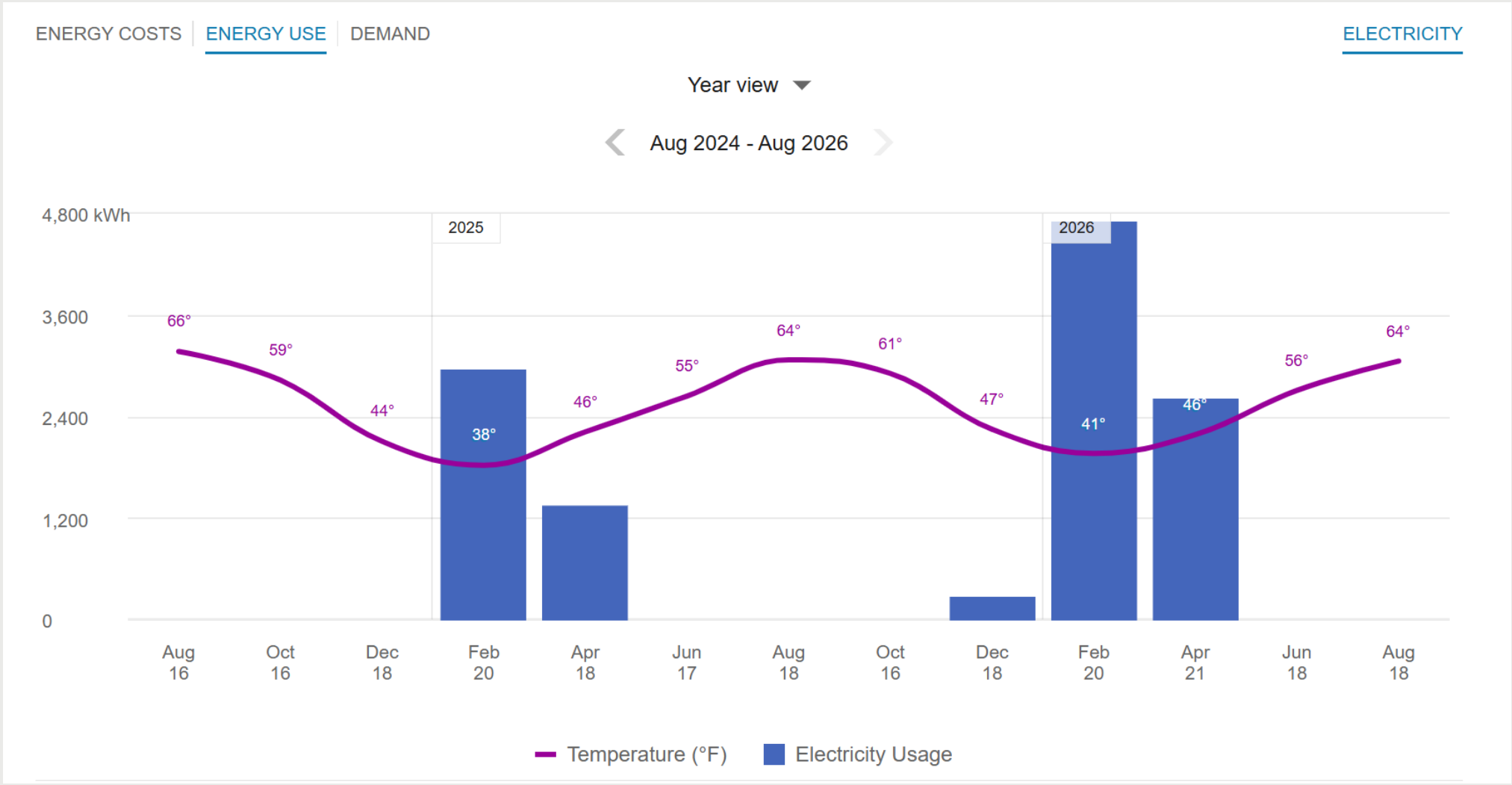
2.05	1.845	230.07	-278.59	254.09	$ 27.81
2.87	2.583	286.80	-515.02	595.08	$ 18.15

Red Willow House Electrical Usage:



Red Willow House Electrical Usage:



As for airing out our dirty laundry:

B	Comfort	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	My apartment feels comfortable throughout the year.			1	3	4
	I use my heating and cooling systems less frequently than in my previous residence(s).		1	2	3	2
	Having air conditioning in my apartment is a priority for me.				2	5
	My apartment is quieter than my previous residence(s).	1		2	3	2

As for air:

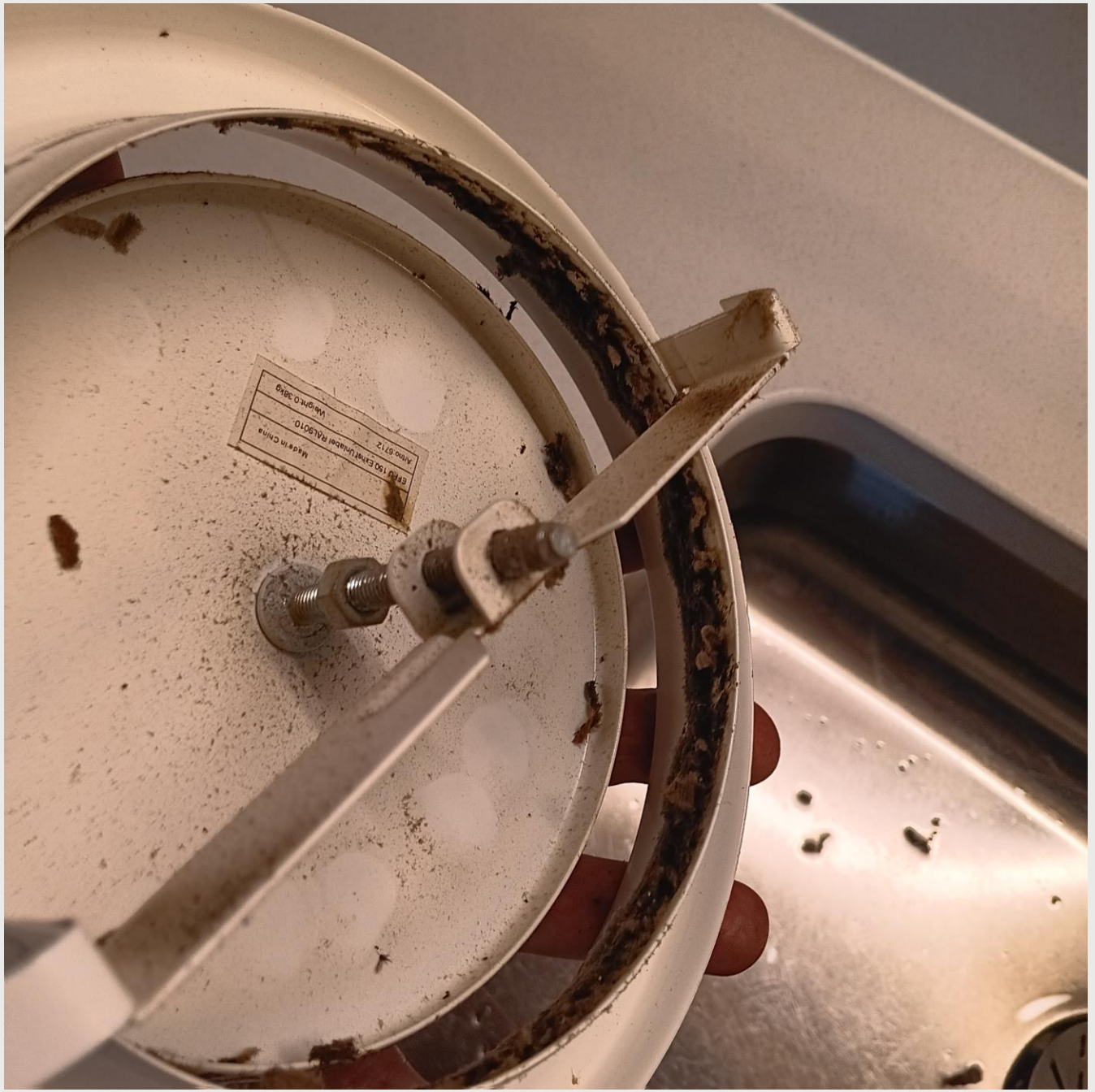
C	Air Quality	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	I am satisfied with the indoor air quality in my home.			1	4	3
	The air in my apartment feels fresh and does not feel stuffy.			2	3	3
	I am aware of the building's fresh air ventilation system.			1	4	3
	I am satisfied with noise generated by the fresh air ventilation system in my home.			4	2	2

The world outside can be nasty

Ventilation filters for outside air after 4 months

But so can your occupants

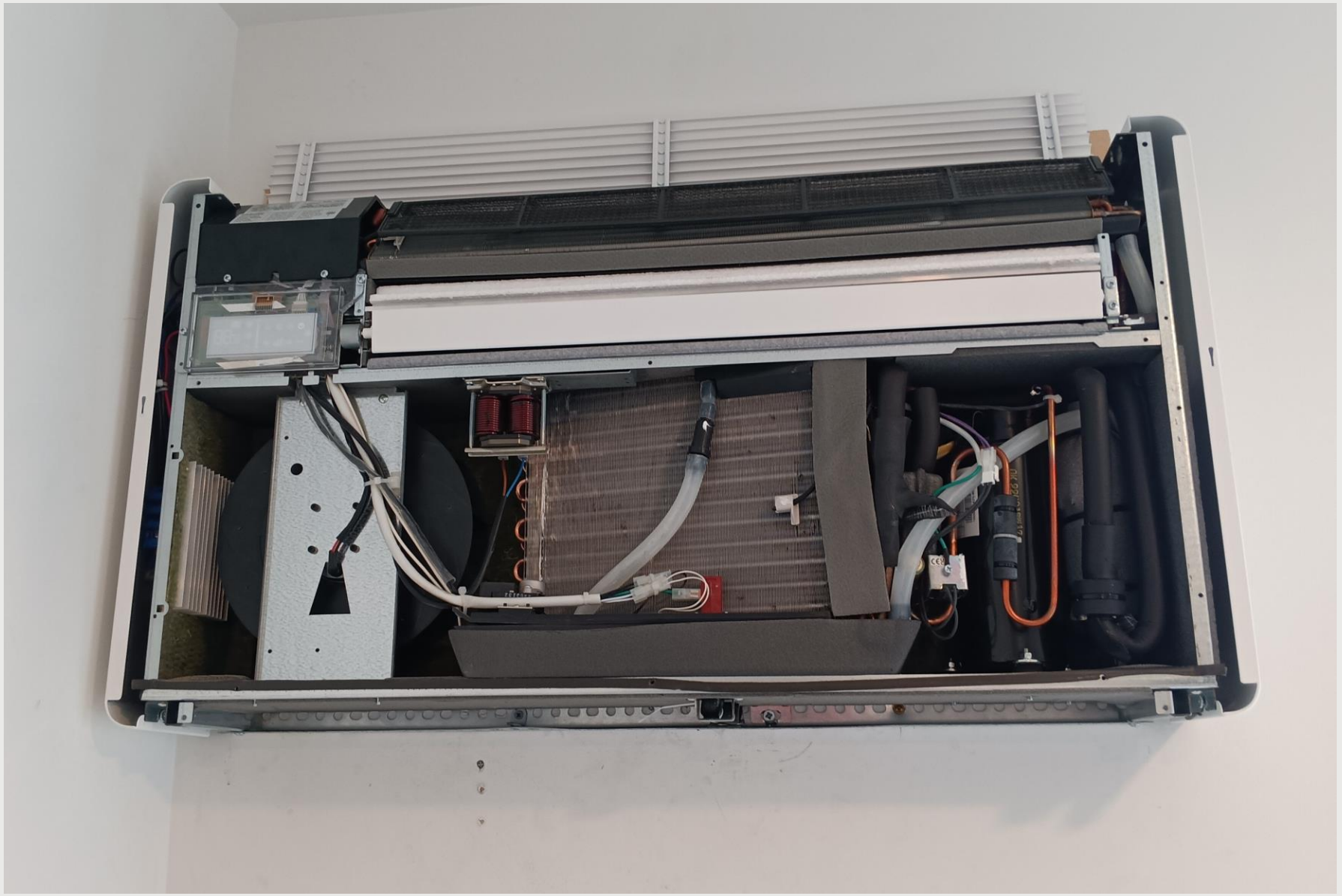
Ventilation filters for *<u>INSIDE</u>* air after 4 months


Made in China
EPDU 150 Einhell Ursabel RALGO10
Artno. 07172
Ukwghr.0.3dxg

Elusive magic box

Elusive magic box

Elusive magic box



Elusive magic box

Elusive magic box

So What's Next?

Images: Scott Yribar & Thomas Rushton
VY Architects

Worth repeating:

- The Team (mostly)
  - Development trio
  - VY Architects
  - Staengl Engineering (Mech + Plumbing)
  - CPHC/Proj. Manager
    - Now GC
  - Bee Engineers (Verifier)
- Detailing, systems + suppliers

Worth pursuing:

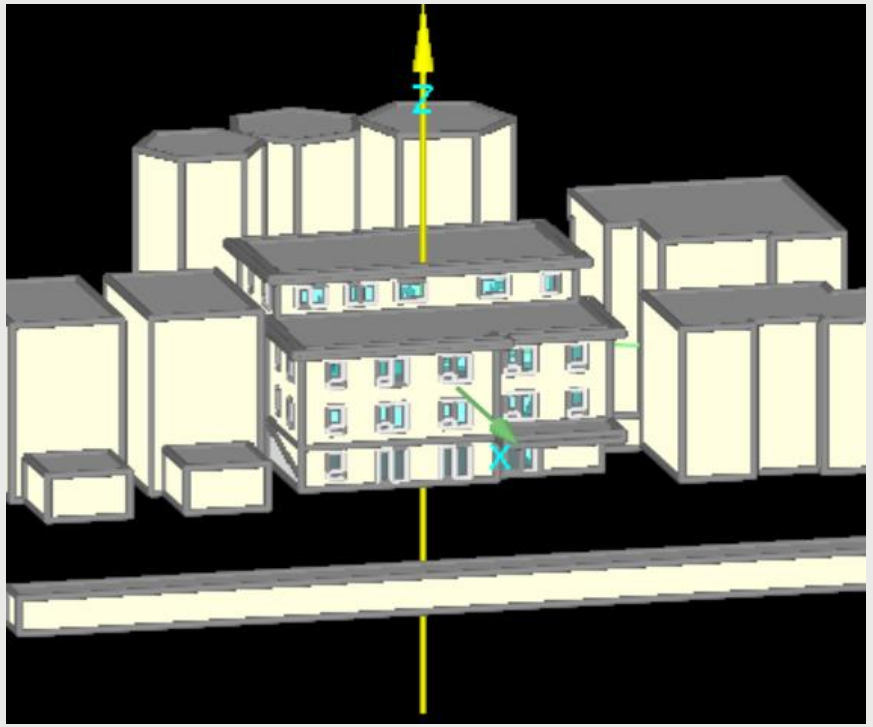
- New funding sources
  - “Class B” investors
  - Cool state funds
  - Friendly banks!

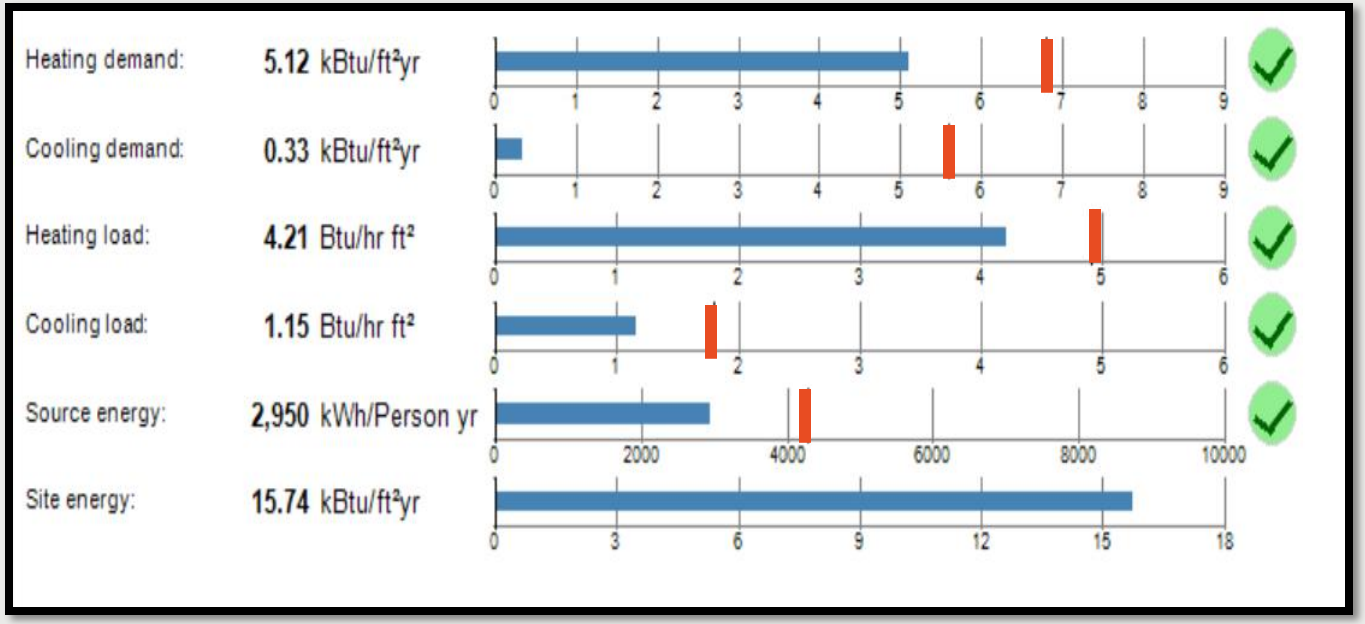
Worth honing:

- Phius certification
  - Assemblies
    - 2x6 walls!!!!!!
      - More floor area
    - <R-12 sub-slab

      *Early Design

      Cert. review*





Worth improving:

- Ventilation
  - Noise
    - Sticking with semi-central for maintenance reasons
    - Equipment (+~$3000)
    - Air flow (+~$4000)
    - People (+~$2000)
  - Flow control w/ accessible in-line dampers

Worth improving:

- Magic boxes
  - Make ‘em easy to replace
    - Prices falling
    - Many new sources
    - Plug-in not hard-wired
    - What about those holes?
      - PTAC sleeve anyone?

Go Forth and *Occupy*!

Thank You

Dan Whitmore

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Red Door Sustainable Housing

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