Argyle Gardens: Exploring the future of modular cohousing for low-income and formerly unhoused individuals

Transition Projects

Our mission is to help people transition from homelessness to housing.

For 51 years, we've provided life-changing and life-saving support to people experiencing homelessness.

Catalyst

- In 2015, Meyer Memorial Trust issued a request for proposals for projects that advanced cost efficiency in affordable housing
- Transition Projects assembled a team and proposed Low Income Single Adult Housing (**LISAH**), *later named Argyle Gardens*, with two primary goals:

1. Reduce the cost of building affordable housing
2. Provide the lowest possible rents for people end their homelessness

A Brain Trust and a Team

HOLST

Transition Projects

from homelessness to housing

Housing Development Center

Our Approach

- Small units to save on operating and construction costs
- Co-housing to build community
- Shared living spaces (bathrooms and kitchens) to save on construction costs
- Highly energy efficient to save on operating costs
- Explore the benefits of modular construction

The Results

- Reduces upfront and operating costs
- Promotes a sense of community among residents
- Provides a replicable model of cost-effective housing to serve low-income individuals across Oregon

Site Overview

- Located in the N. Portland neighborhood of Kenton
- Two blocks to light rail
- Close to a large park and retail
- Small scale buildings invoke a neighborhood feel
- Large courtyard area between buildings
- Covered bike parking
- Covered gathering space

Affordability

Unit Type	Affordability level	Rent to resident	# of Units
SRO – with VASH	30% of AMI	30% of income	6
SRO	30%	$286	13
SRO	40%	$393	17
Studio – with VASH	30%	30% of income	12
Studio	40%	$518	13
Studio	50%	$518	10
1 BR - manager	N/A	$0	1

Argyle Gardens Quick Facts

The first modular project using LIHTC in Oregon

72 Units of Deeply Affordable Housing

- 36 SRO Beds
- 35 Studio Units
- 1 – One Bedroom

Completed in just over 9 months, TCO was received March of 2020

Received Platinum Certification from Earth Advantage

18 – Veterans Affairs Supportive Housing Units

The Team

Project Team

Sponsor/Owner
Transition Projects Inc. (TPI)

Development Consultant
Housing Development Center (HDC)

Architect
Holst Architecture

General Contractor
Walsh Construction Co.

Modular Contractor
MODs PDX

Funders

Meyer Memorial Trust
METRO
Oregon Housing and Community Services
Home Forward
Veteran's Administration
US Bancorp CDC
Umpqua Bank
Wells Fargo

Partners

Bonneville Environmental Foundation
Mpower
Energy Trust of Oregon
Elemental Energy

ARGYLE GARDENS

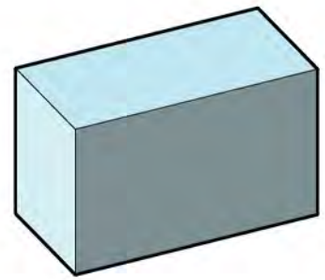
HOLST

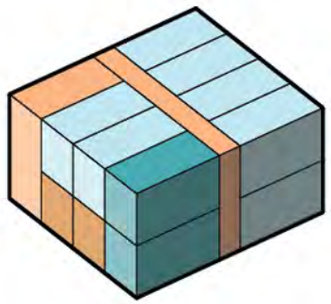

8550
8560


zach putnam

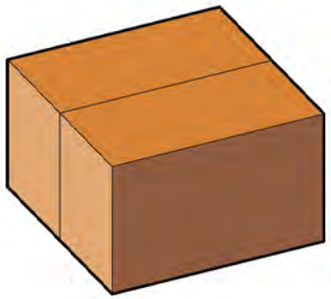
KIT OF PARTS

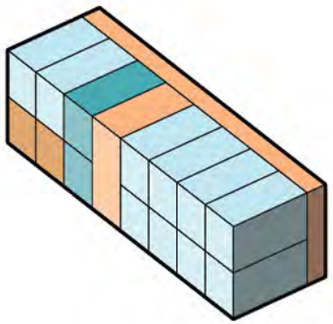
SLEEPING UNIT
8' X 16'



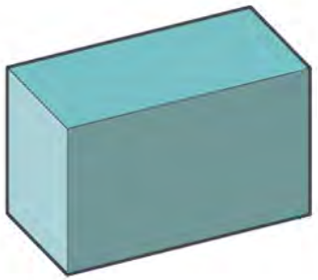


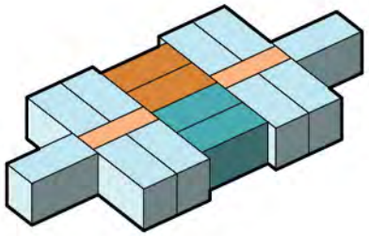
SHARED SPACE/KITCHEN
16' X 16'



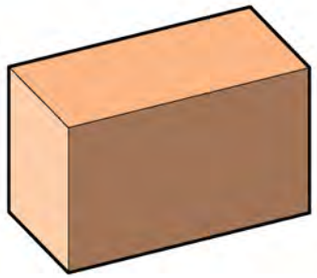


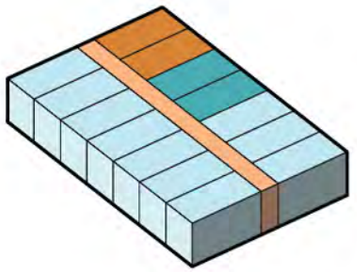
WET UNITS (W/C & SHOWER)
8' X 16'



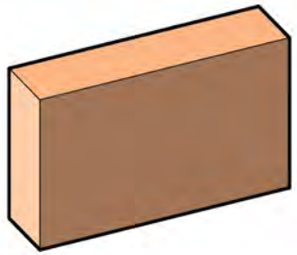


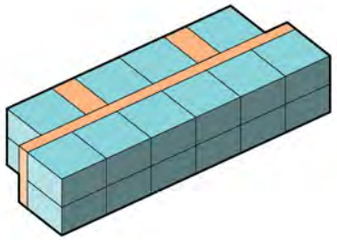
STAIR
8' X 16'



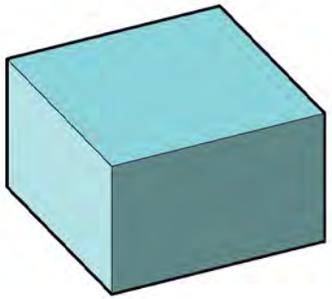


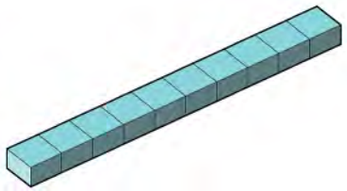
CORRIDOR
5' X VARIES





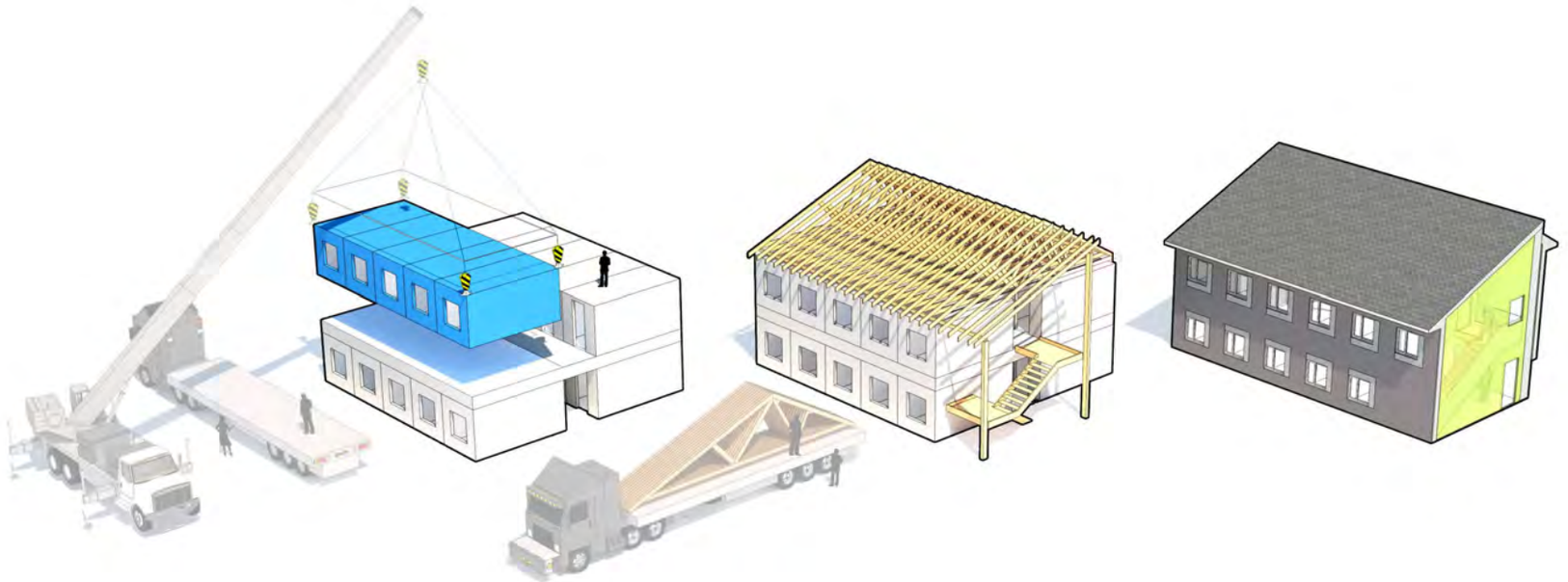
DWELLING UNIT / STUDIO
16' X 16'



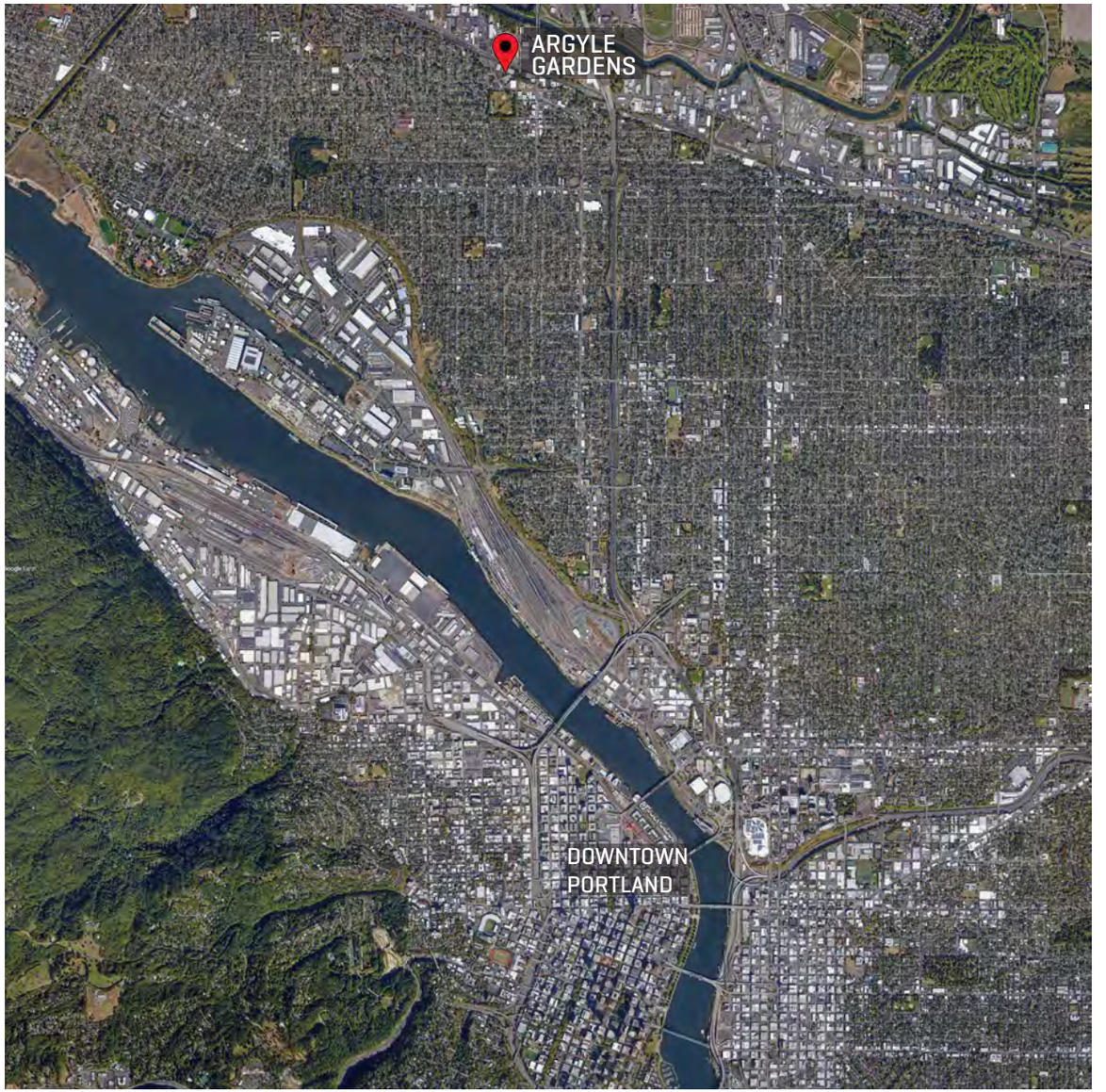


THE BIG IDEA


Six People
+
One Kitchen
+
Two Bathrooms
=
Dwelling Unit
+
Additional Dwelling Unit
=
Duplex



LOCATION

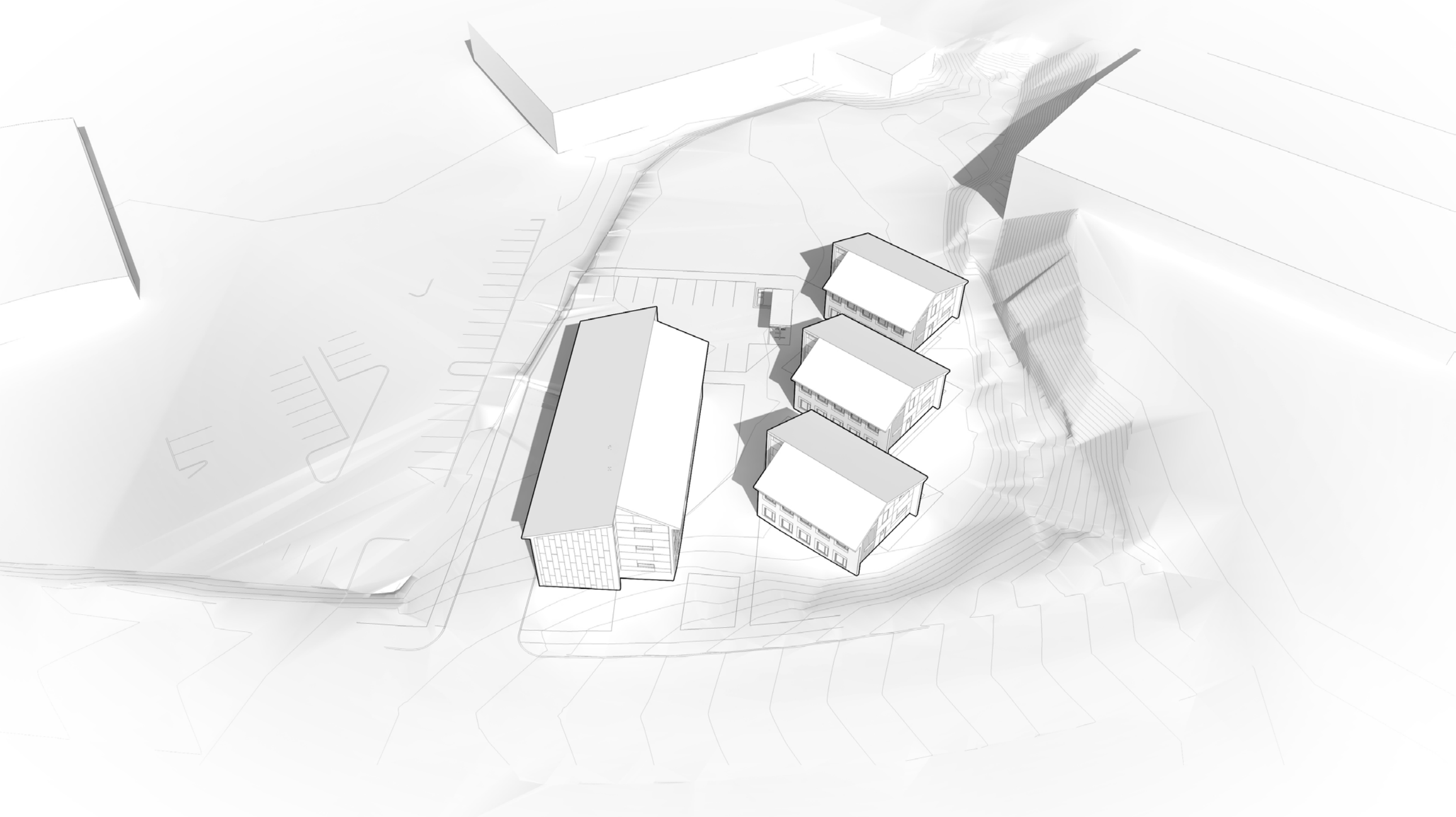


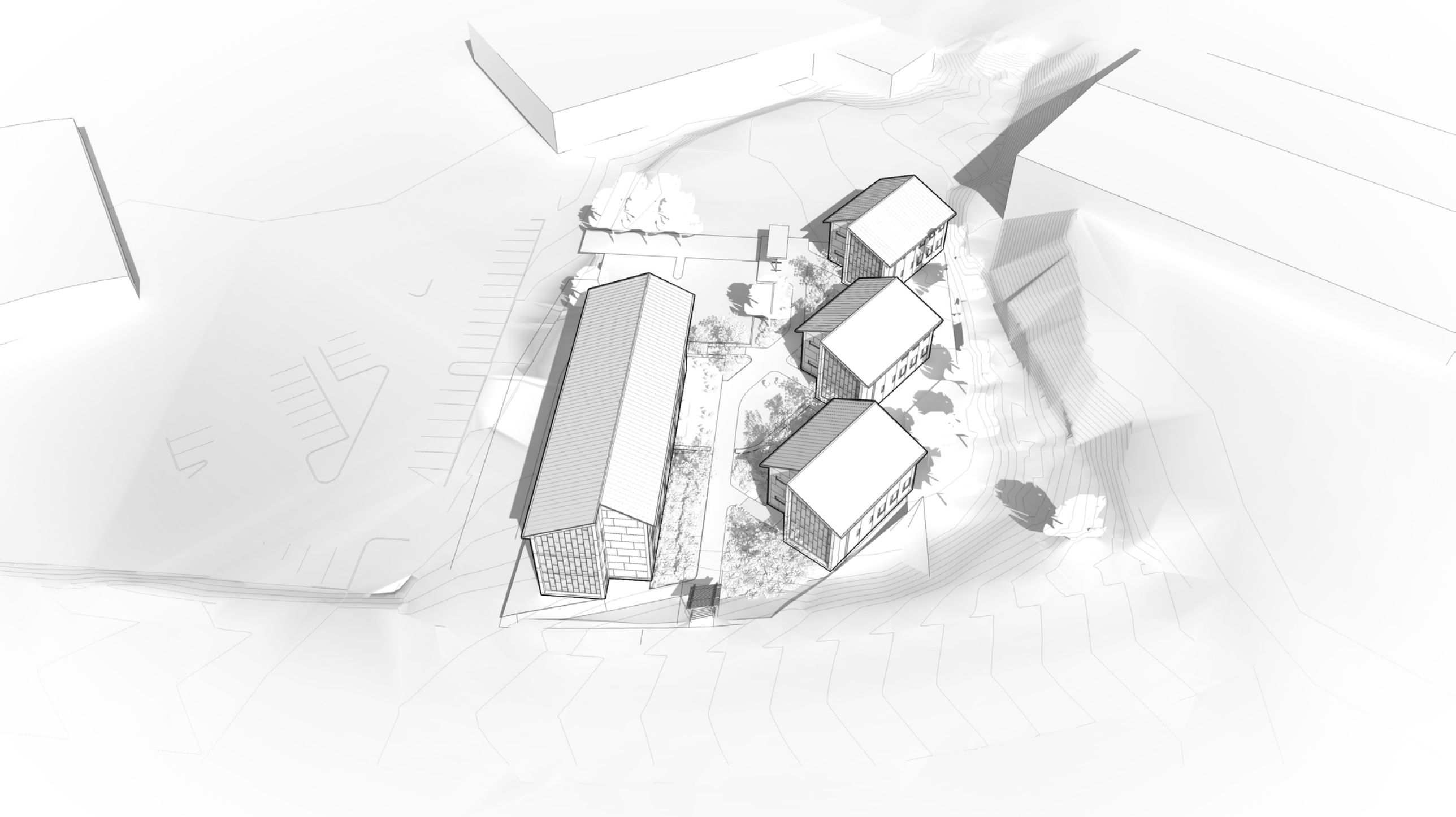
NEIGHBORHOOD

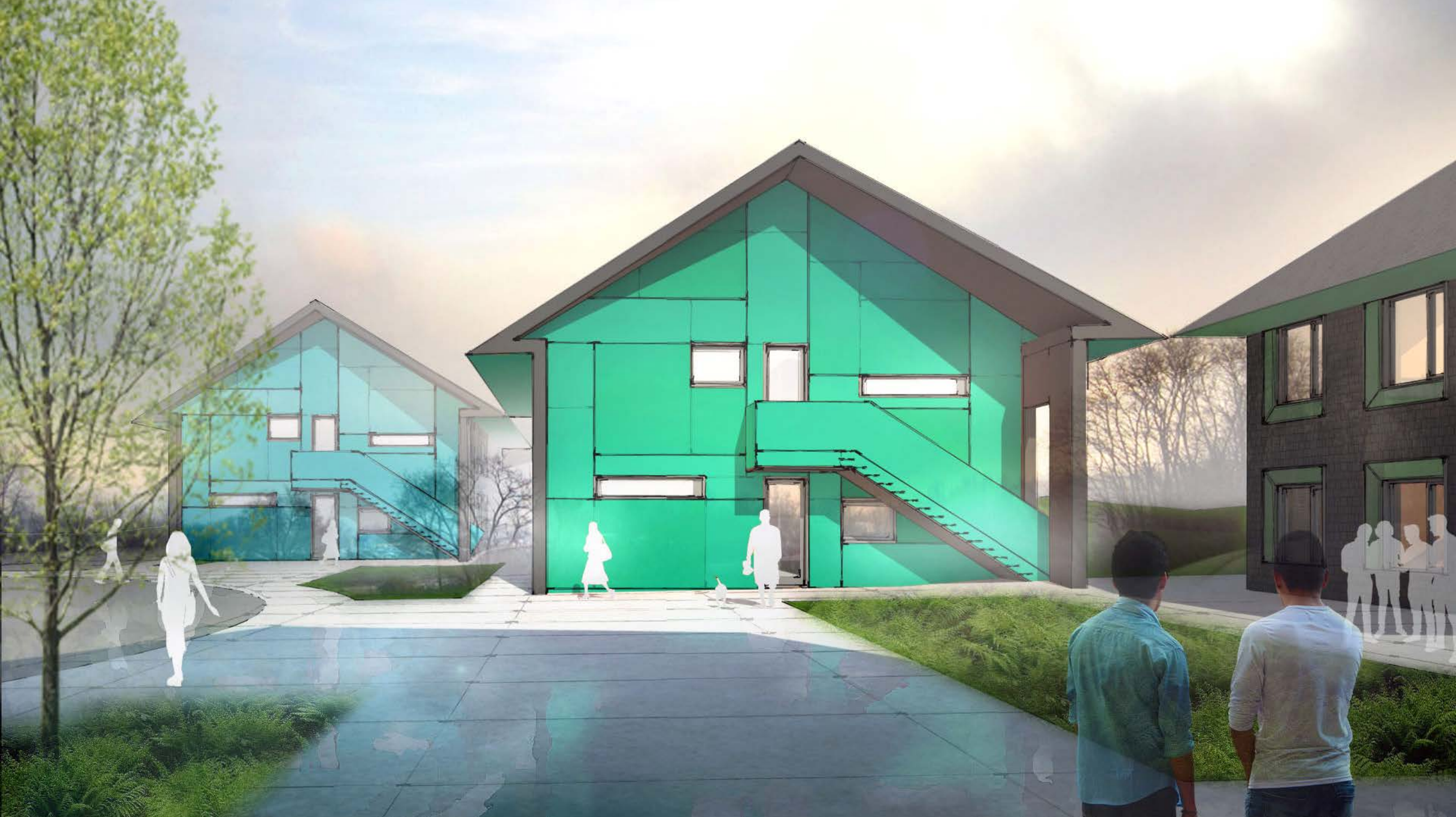
SITE

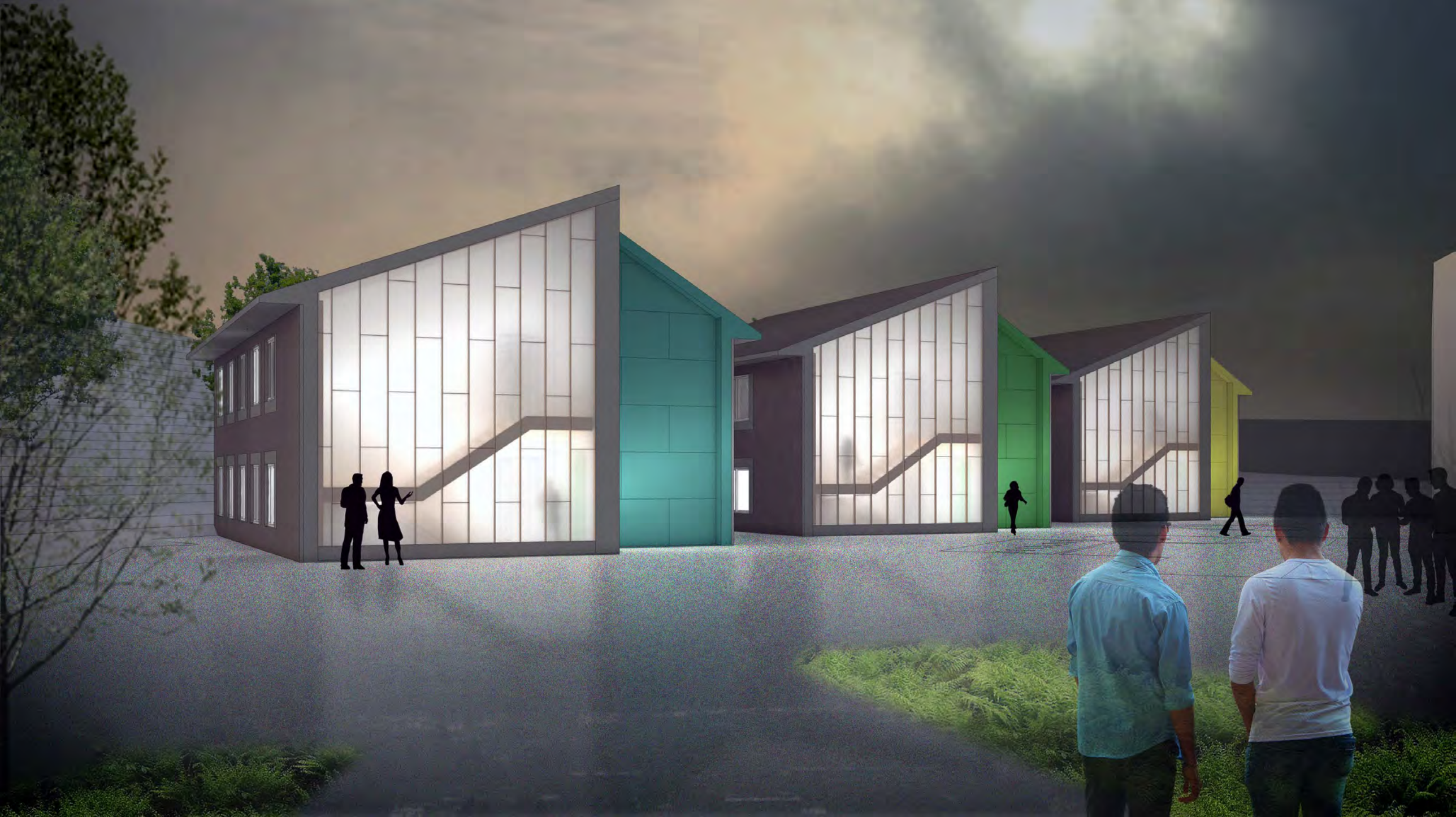
SITE


STUDIO BUILDING
35 STUDIOS
1 ONE BEDROOM
COMMUNITY ROOM
MAIL
LAUNDRY
OFFICES
UP
UP
SRO
12 SLEEPING ROOMS
2 KITCHENS
6 BATHROOMS
SRO
12 SLEEPING ROOMS
2 KITCHENS
6 BATHROOMS
SRO
12 SLEEPING ROOMS
2 KITCHENS
6 BATHROOMS









1 POLYCARBONATE OVER STUD

2 HARDIE REVEAL PANEL SYSTEM

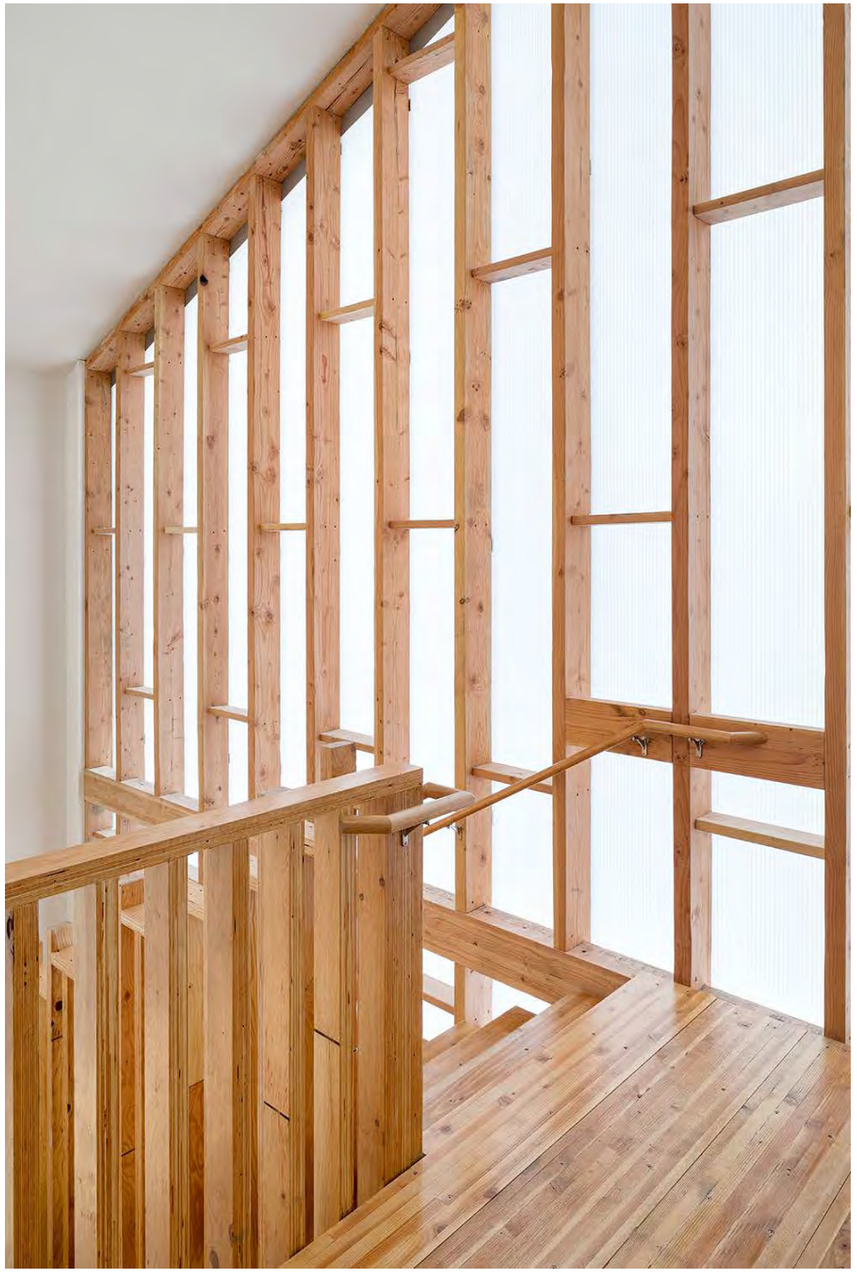
3 HARDIE PLANK LAP SIDING


Oregon
ogle, Inc.
reet View - Sep 2017
N Argyle St
Google


8550


ARGYLE GARDENS
8569
8570


8570



"It started in 2013. Me and my dogs lived in a van that we had. And then that broke down, and we just lived on the streets since then. I had to find something because I knew something had to break.

When I first walked into the room, I had to hold back the tears, because I was so excited about it. When I walk into it feels like home. This environment helps me move up in the world.

It's just a really nice community that I've seen. It gives you a better feeling about yourself. That's what people need."

"Argyle Gardens is like heaven to me, because it gives me a chance to become somebody again."

Delia, Argyle Gardens resident

"When I got out of the service, man, I was by myself. And I was on the street for thirty years. Hard times. Bad times. And you start wearing down to the point that you don't trust nobody. You don't want nothin'. You just give up.

When Doreen's Place brought me here, I thought I was dreamin'. I woke up one morning and thought, "Man, how'd I get here?"

"This place is amazing. I have my own bed. I got a shower, I got a bathtub, I got a mirror, and I can cook my own meals here. It's beautiful, man."

George, Argyle Gardens resident

If you get housing, where you can sleep at night and get perfect rest, you can change the way you live. You want to walk around and find you a job. Now I've got a roof over my head, my rent's paid on time, I do what I'm supposed to be doing, and then I'm living.


WALSH
CONSTRUCTION CO.

WALSH
CONSTRUCTION CO.

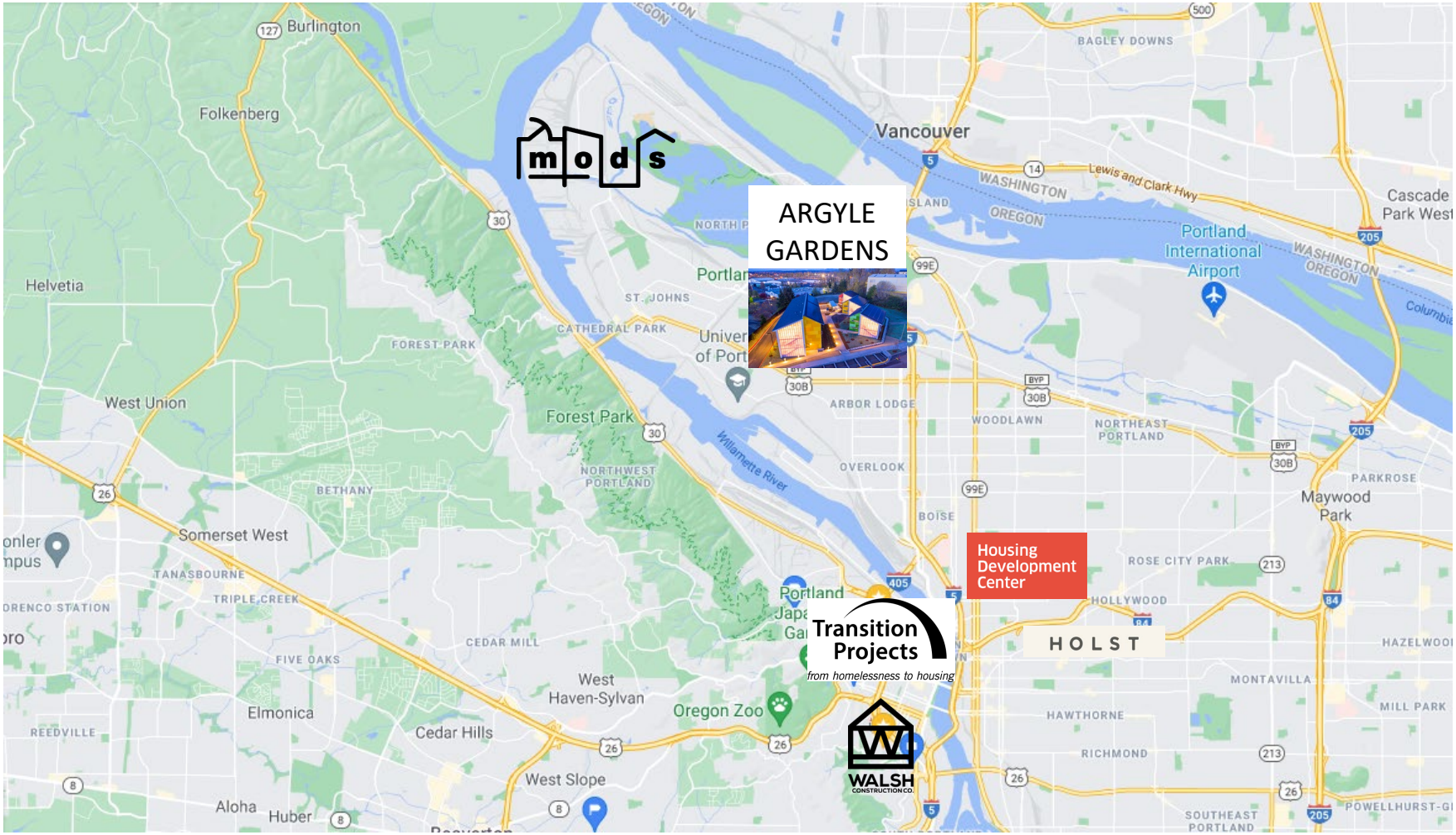
60+
YEARS IN BUSINESS

432
EMPLOYEES

4
OFFICES IN THE
PACIFIC NORTHWEST

WALSH CONSTRUCTION CO.

Team Member Office Locations



walshconstruction.com

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ETO Measures Achieved

- Low-flow fixtures:
  - showerhead, 1.5 gpm
  - bath aerator, .5 gpm
  - kitchen aerator, 1.5 gpm
- High performance bath fan
- Condensing tankless water heater
- 25% LPD (lighting power density) reduction
- Energy star appliances
- Blown insulation and raised heel truss

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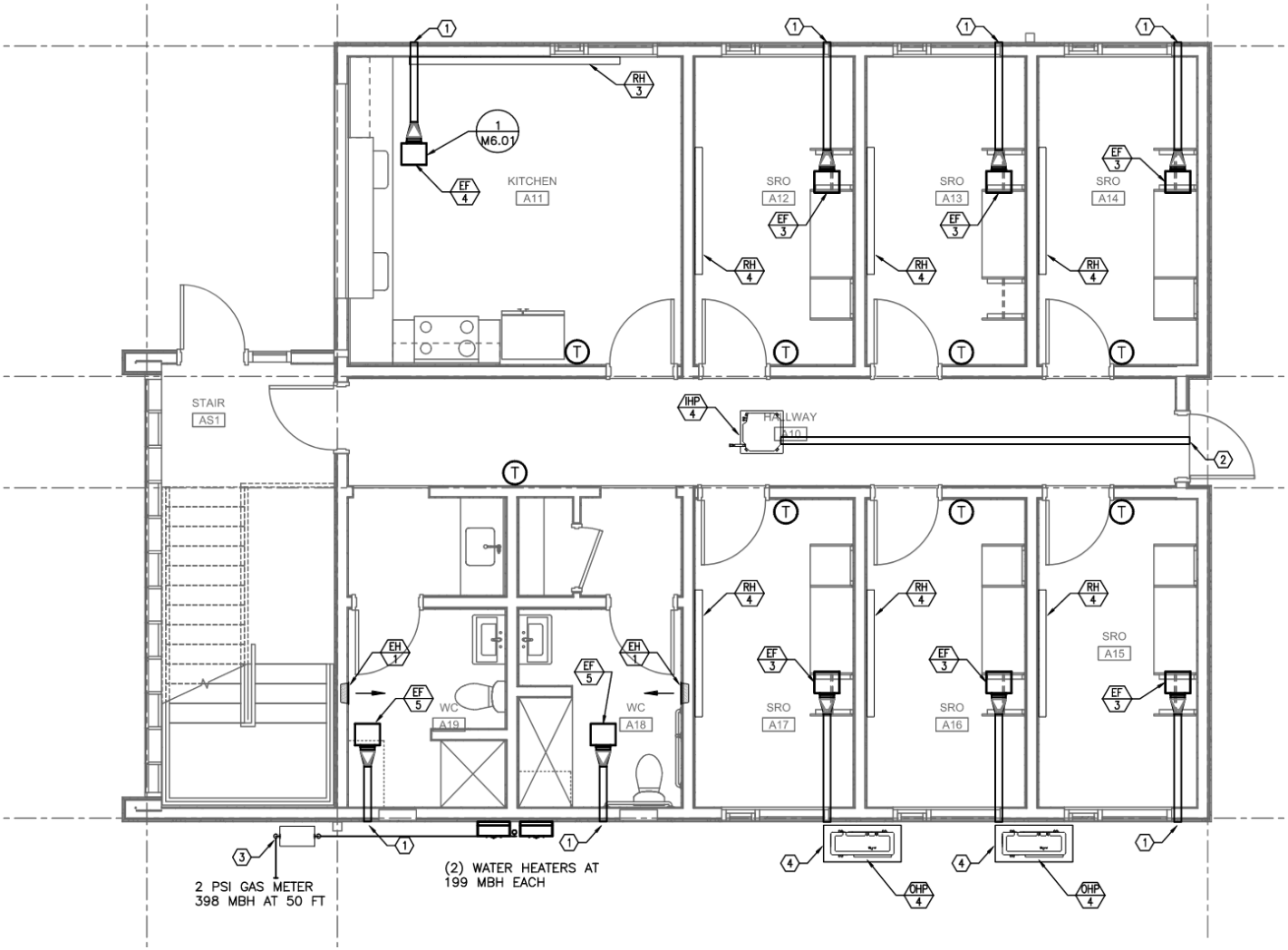

1 M2.04 SRO BUILDING – LEVEL 1 MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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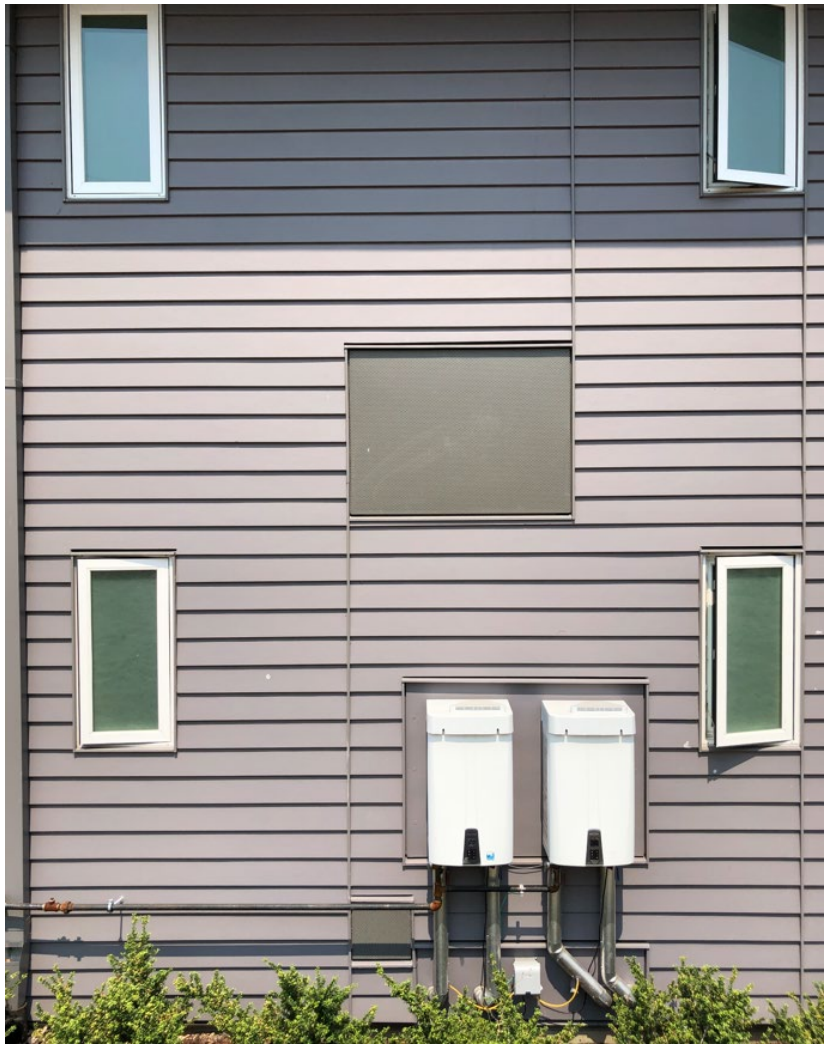


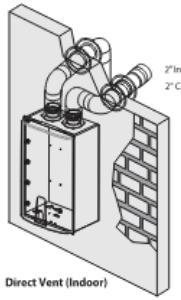
KD NAVIEN
Premium Condensing
Tankless Gas Water Heater

NPE Series Tankless Water Heaters
Specification Sheet

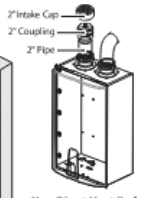
- Certified design according to **ANSI Z21.10.3 - CSA 4.3-2015** standards for both indoor or outdoor installations (with optional Outdoor Vent Kit)
- Compatible with **1/2" gas pipe up to a length of 24 ft*** (*see Installation Manual for additional information)
- Compatible with **2" PVC vent up to 60 ft**** and **150 ft**** **using 3" PVC vent** (**with no elbows)
- Gas Input Ranges
  NPE-150 - 120,000 to 18,000 BTUh
  NPE-180 - 150,000 to 15,000 BTUh
  NPE-210 - 180,000 to 19,900 BTUh
  NPE-240 - 199,900 to 19,900 BTUh
- Hot Water Flow Rate Capacity (*based on 35°F temperature rise)
  NPE-150 - 6.8 GPM
  NPE-180 - 8.4 GPM
  NPE-210 - 10.1 GPM
  NPE-240 - 11.2 GPM
- **Dual Primary and Secondary Stainless Steel Heat Exchangers** for optimum efficiency and durability
- **Built-in Control Panel** - allows adjustment of temperature settings and displays the operating status and error codes
- **ComfortFlow™ Technology** - "A" models come included with built-in 0.5 gallon **Buffer Tank** and **Recirculation Pump** to provide maximum comfort
- **INTELLIGENT Preheating** - recognizes hot water usage patterns to intelligently provide hot water when needed **(optional for "S" models)**
- **Temperature Options** - available temperature settings for *Residential* applications range from 98°F up to 140°F with high temperature *Commercial* mode capable of up to 182°F
- **Ready-Link Cascade Compatible** for up to 16 units for increased hot water production
- **Common Vent Compatible** - allows for cascade systems to use a single exhaust and/or intake pipe for up to 8 units with the use of the Common Vent Backflow Damper Collar Kit (#30014367A)
- Compatible with **Navilink Wi-Fi** Control (#PBCM-AS-001)
- **Freeze Protection** - maintains normal operation during freezing ambient temperatures down to -5°F (standard on all models)
- **Uniform Energy Factor Ratings** for NG and LP units
  NPE-180A/210A/240A - 0.96 UEF (0.97 EF for Canada)
  NPE-150S - 0.96 UEF (0.97 EF for Canada)
  NPE-180S/210S/240S - 0.97 UEF (0.99 EF for Canada)

Built-In Control Panel with Diagnostics

Sleek Design - Compatible with 2" PVC Vent and 1/2" Gas Pipe



Indoor and Outdoor Venting Options



ENERGY STAR NSF AHRI CERTIFIED

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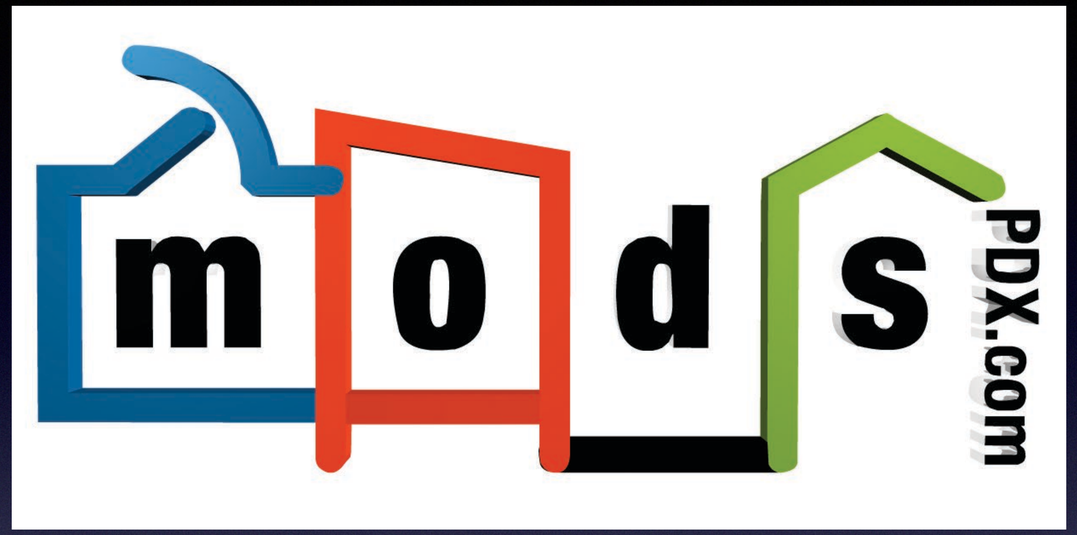

- MODS was established in 2008 by Nathan D. Young and focuses on the science behind our buildings
- We use the principles of Physics, specifically Thermodynamics, to guide us towards building Net Zero
- We look at building systems as a whole to evaluate MEP, windows, doors, and insulation to maximize energy efficiency of our projects
- I believe collaboration is key to the modular process, all parties must willing to work towards a similar end goal and share their respective knowledge during the design/build process

The Key to Modular is in the Design

Modular is a paradigm shift for architects and designers, the key is to never know it was modular when the project is complete. The Argyle Gardens embodies all the key elements of a successfully designed project. Holst did a great job of meeting the clients needs well creating reproducible buildings that in the end fit the site and location perfectly.

Multi-Family Modular works best with Standardization

- Argyle Gardens is designed around efficiency by standardizing the buildings and unit types
- The SRO units are (3) separate buildings that are all identical on the inside out, but look and feel a little different through paint and simple design choices.
- The apartment build is made up of studio and one bedroom units that are all very similar in size and layout to allow for reproducible building processes to be utilized during the modular build.

What Makes a Successful Modular Project?

- Collaboration and teamwork are essential to make a modular project work.
- Forward thinking, you must be able to think outside the box, we'll building with boxes.
- Everybody involved, from the architect to the site contractor and all the subcontractors have to be on the same page and work together to facilitate the projects success.
- Click, print, build! Everything needs to be figured out ahead of time to allow for the speed and efficiency of the factory to work. Modular is not as conducive to change orders as site built project because the standard linear progression of onsite construction is turned into a circular process.
- Use the innate benefits of building indoors to enhance the energy efficiency of the final building. Modular building takes the outdoor environment out of play, eliminating rain days and the saturation of the wood during that is unavoidable in onsite construction.

Thank you to all who made this project possible!

ELEMENTAL ENERGY

Katie Martin LEED AP
Construction Manager, Elemental Energy

Solar Design and Installation for Argyle Gardens

82.65kW DC/61.28kW AC Solar PV System

Solar PV | the basics

ELEMENTAL ENERGY

- Major components
  - Modules
  - Inverters
  - Disconnects
- DC vs. AC
- Power: Watts, kW
  - Instantaneous & system sizing
- Energy: kWh or kilowatt-hours
  - Power over time & offset metrics

Argyle Gardens Solar PV
Major Components

Roof attachments & Racking

(215) Modules: Hyundai 290 watt solar modules

(215) Enphase M215 Microinverters

AC Combiner Panel(s), AC Disconnects - RSD & Utility Required

Point of Interconnection at Main Distribution Panel

Argyle Gardens Solar PV
Performance

ELEMENTAL ENERGY

OFFSETTING 30%
TOTAL PRODUCTION 1ST YEAR 95,388kWh

Aryle Gardens Energy Usage and Production							
Date Range		Portland General Electric			Solar	Consumption Calculations	
Start	End	Utility Purchased	Solar Sold	Net	Solar Produced	On-site solar consumption	Total energy consumption
06/30/20	07/30/20	8,400	6,800	1,600	13,191	6,391	14,791
07/30/20	08/27/20	8,400	5,800	2,600	13,557	7,757	16,157
08/27/20	09/29/20	11,000	4,000	7,000	7,822	3,822	14,822
09/29/20	10/28/20	13,800	2,400	11,400	6,823	4,423	18,223
10/28/20	11/30/20	25,000	600	24,400	3,285	2,685	27,685
11/30/20	12/30/20	27,000	200	26,800	3,048	2,848	29,848
12/30/20	02/01/21	29,600	200	29,400	2,907	2,707	32,307
	TOTAL	123,200	20,000	103,200	50,633	30,633	153,833

t rooftop considerations

ELEMENTAL ENERGY

: planning for electrical

ELEMENTAL ENERGY

: installation efficiency

ELEMENTAL ENERGY

: waterproofing

ELEMENTAL ENERGY

ELEMENTAL ENERGY

ELEMENTAL ENERGY

ELEMENTAL ENERGY