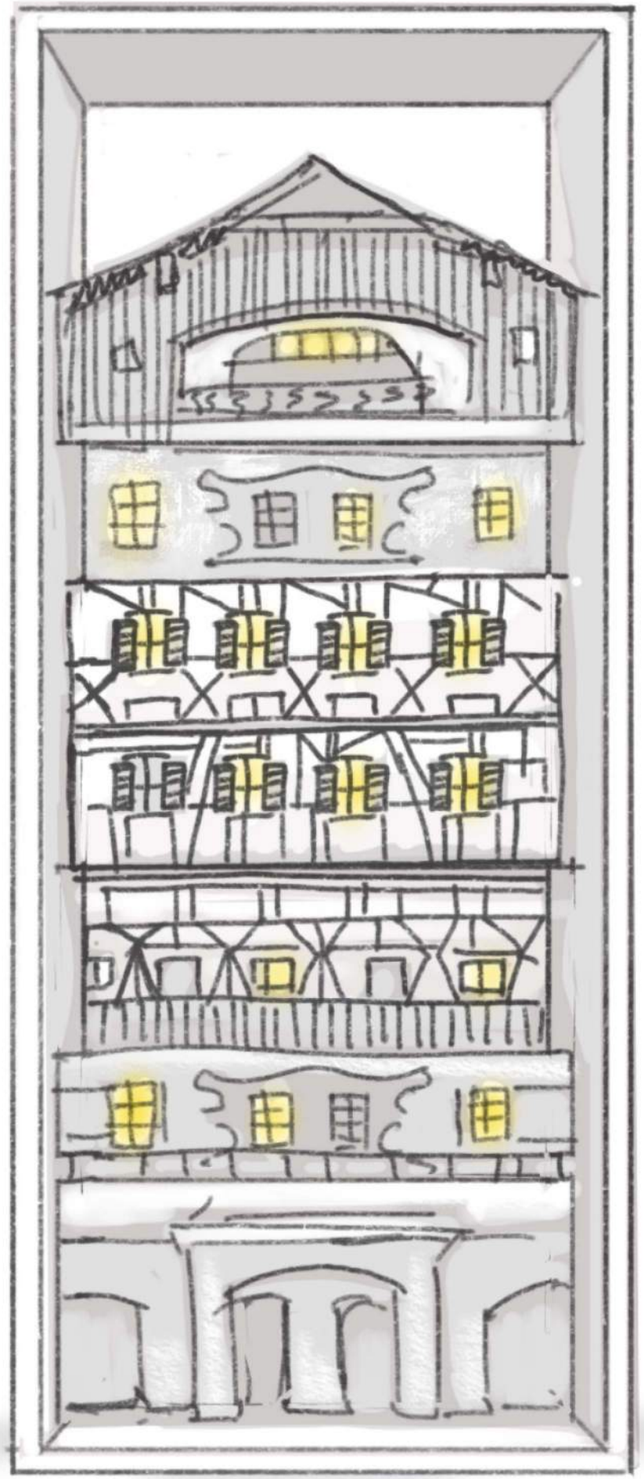

ARCHITECTURAL
PORTFOLIO

FRANKIE WINTERS

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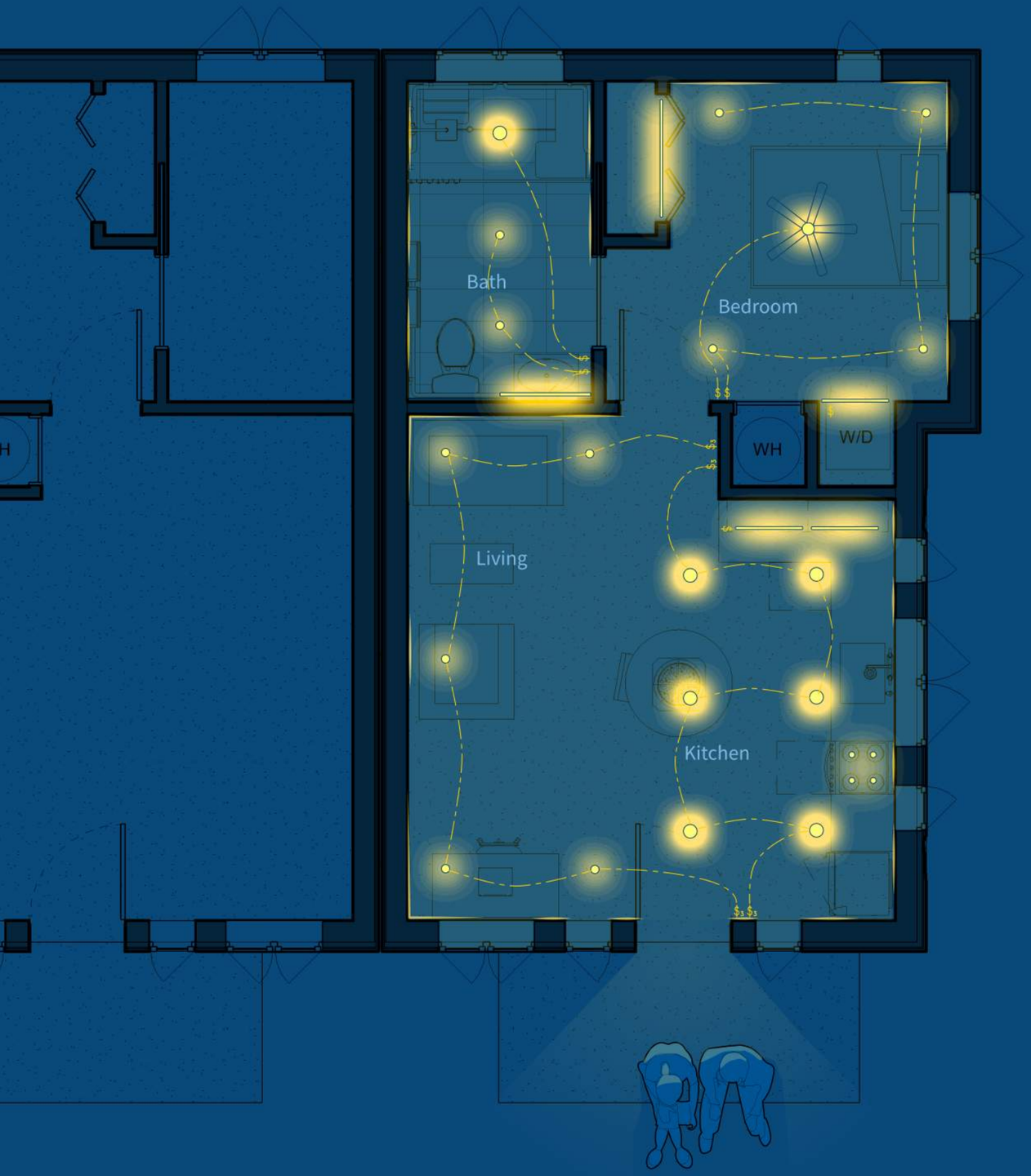
Oberammergau Lightbox. Inspired by the architecture of the Bavarian village. Designed and fabricated in 2020. 58in x 24in.



CONTENTS

COTTAGE CLUSTER

Designed to explore the advantages of the cottage cluster provisions of the Portland's Residential Infill Project, the Kenton Cluster places 12 **super-insulated tiny homes** on a 100'x200' lot that would typically only fit four single-family residences.

.

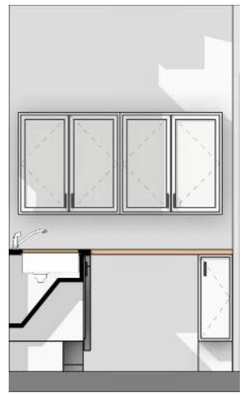
ADA DUPLEX | ≈390 SF ea.

TINY HOME | ≈300 SF

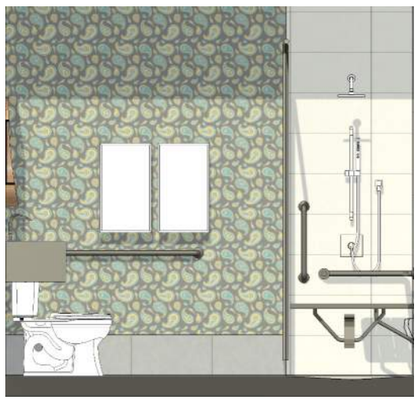
2 BEDROOM COTTAGE | ≈570 SF

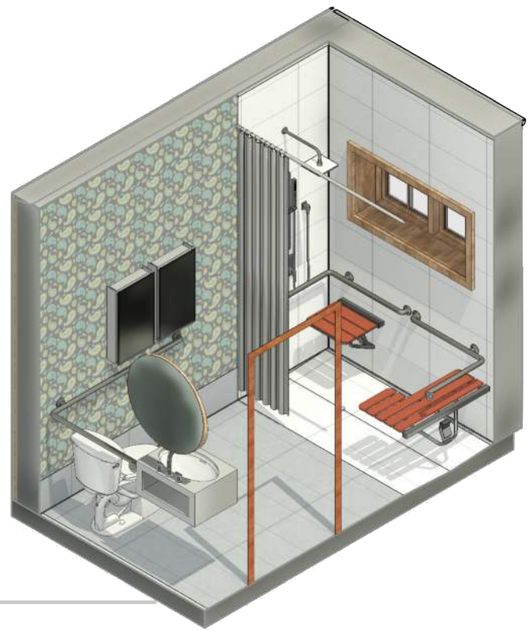
ACCESSIBLE DESIGN FEATURES

The Residential Infill Project's Cottage Cluster provisions require that 1/3 of the units in a cottage cluster be ADA-accessible. This project includes four units with wheelchair-accessible kitchens and baths, wide doorways and clearances.

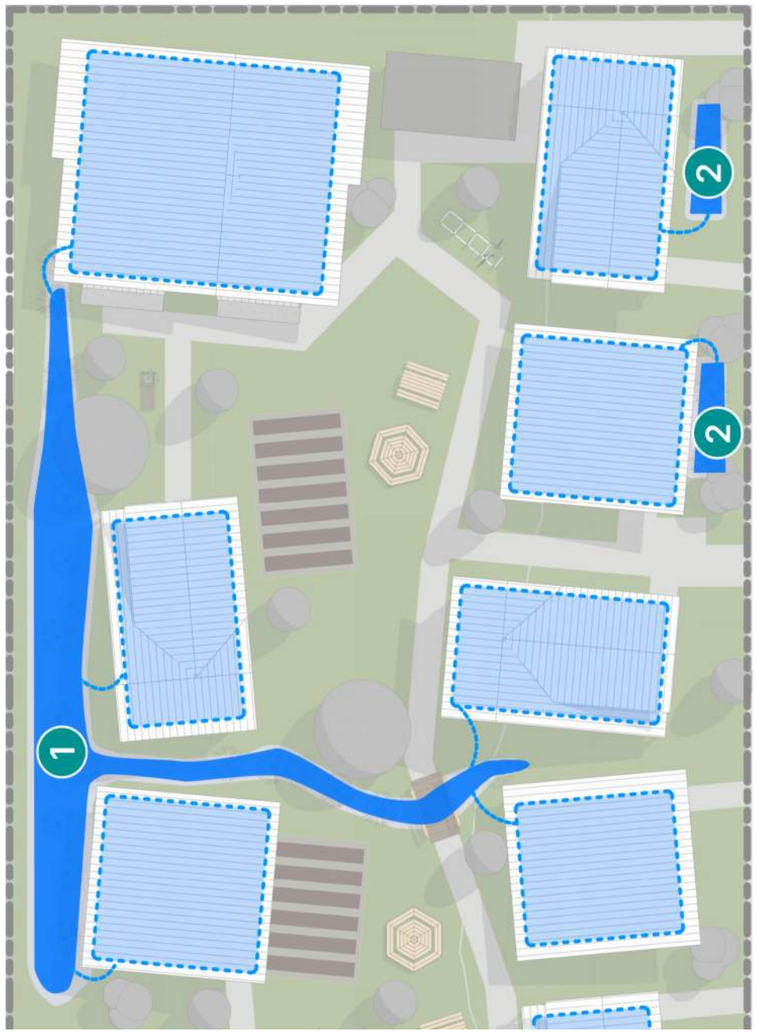


An accessible kitchen, with roll-under sink and roll-under prep areas, as well as casework with large toe-kick clearance to facilitate use by an occupant in a wheelchair.





An accessible bathroom including a roll-in shower equipped with fold-down seats, grab bars, and adequate turning radius for wheelchair users.



STORMWATER STRATEGY

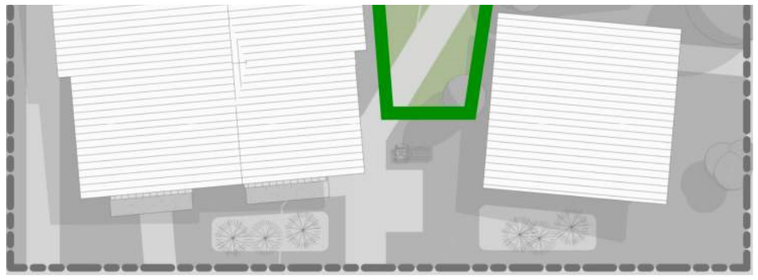
Along the street, infiltration swales double as privacy buffers for each cottage.

COMMUNITY AREA

Gardening beds, outdoor eating and gathering areas, bike and package storage.

SITE PLAN

Included ADA Homes, Four Tiny Homes, and Four Two-Story, Two Bedroom Cottages

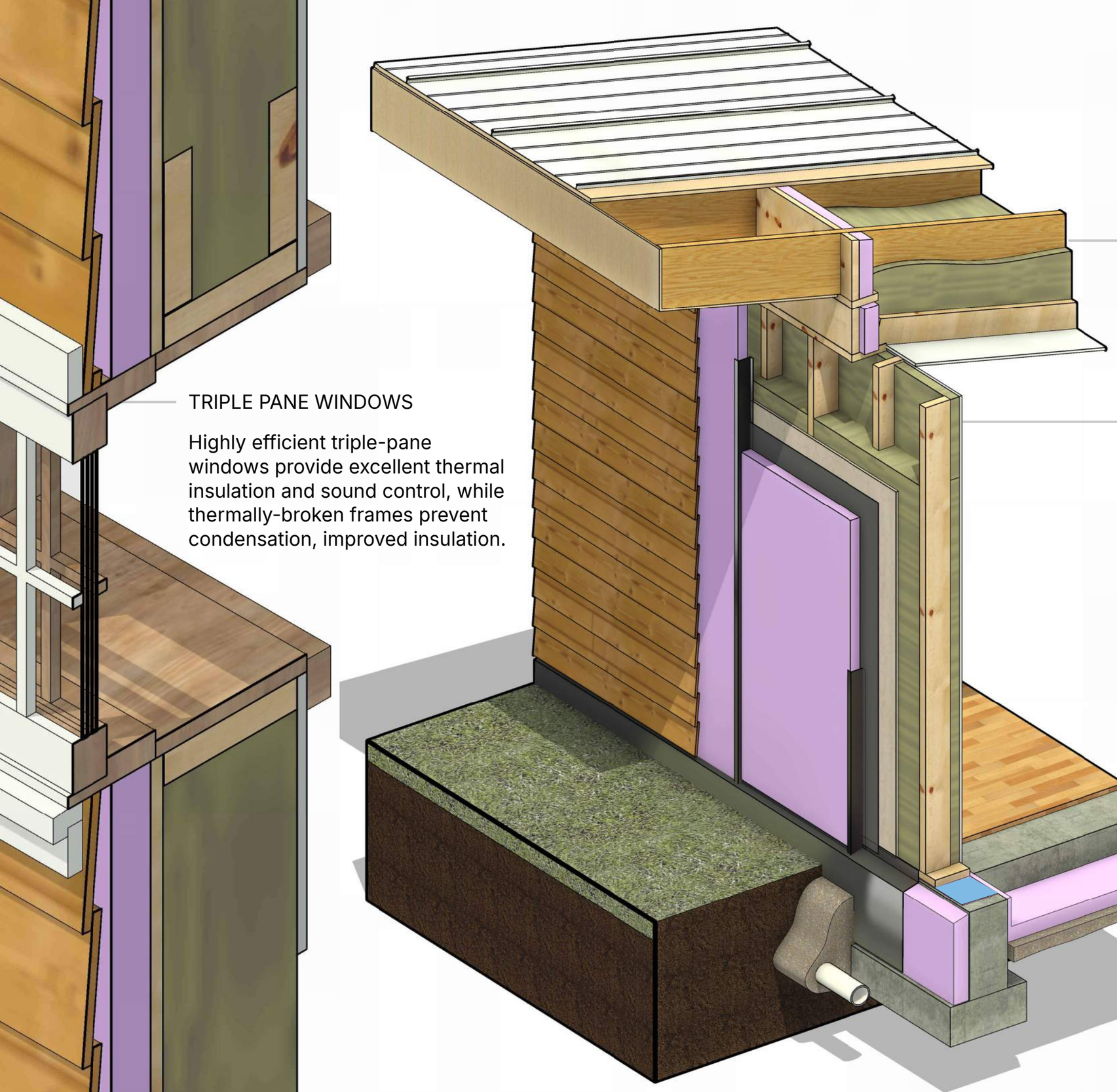


COTTAGE ENVELOPES

Super-insulated walls, thoughtfully designed roof, floor, and foundation assemblies, and triple-pane windows create extreme energy-efficient building envelope for the cottages.

TRIPLE PANE WINDOWS

Highly efficient triple-pane windows provide excellent thermal insulation and sound control, while thermally-broken frames prevent condensation, improved insulation.



EAVE AND ROOF DETAILS

A raised-plate wall design reduced thermal bridging at the roof-wall intersection.

TYPICAL EXTERIOR WALL SECTION

INTERIOR

- 1/2" Gypsum Wallboard
- Staggered Stud Structural Assembly w/ continuous Mineral Wool Insulation
- 1/2" CDX Plywood Sheathing
- Water-Resistant Barrier
- Continuous 2" Rigid Foam Insulation w/ Z-Girts
- Drainage Plane
- Cedar Siding

EXTERIOR

FLOOR AND FOUNDATION DETAILS

An insulated stem wall along with below-slab rigid insulation thermally isolate the floor and foundation from the grade.

PERFORMANCE AUDIT

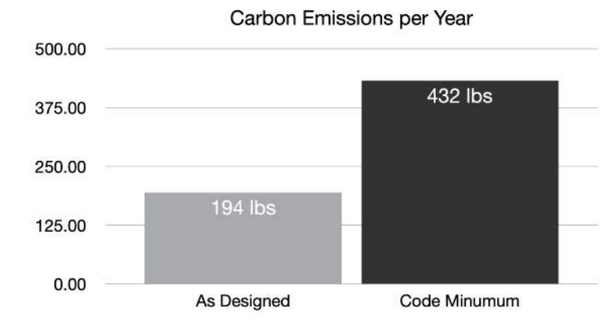
To complete the project, I compared the thermal performance of the envelope to a version with only code-minimum version.

Based on heating cost and greenhouse emissions, the design **performs roughly twice as well as the baseline**. However, due to the small size of the cottages, it would likely be many **years before the initial investment in the envelope would be recouped**.

Opportunities for improvement to the design include revising the eaves for additional window shading and meticulous air sealing with passive-house style windows and doors.

Southern Glazing Solar Gain

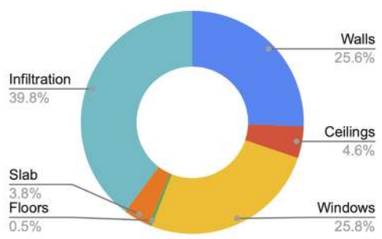
Month	Winter BTUs	Summer BTUs
January	4,700	
February	6,500	
March	8,900	
April		7,600
May		6,900
June		5,800
July		7,700
August		8,900
September		7,600
October	8,200	
November	4,700	
December	3,700	
Total per sqft	36,700	44,500
x 53 sqft Glazing	1.9 M	2.4 M



"KENTON KERCHIEF" PERFORMANCE

Heat Losses	Per Design		
	UA*	BTUs/Hour	BTUs/Year
Walls	34.2	2053.6	3.7M
Ceilings	6.2	370.4	0.7M
Windows	34.5	2068.5	3.7M
Floors	0.7	39.6	0.1M
Slab (Perimeter)	5.1	305.6	0.6M
Infiltration	53.2	3193.0	5.8M
	Subtotals	**8030.7**	**14.5 M**
Heat Gains			
Internal Gain*		-905.6	-7.9 M
Other (Solar) Gain	(enter all the digits: 1600000)		1.6 M
	Offset Totals	**7125.1**	**-6.3 M**

Contribution To Overall Losses



Design "MPG" *Lower is better!*

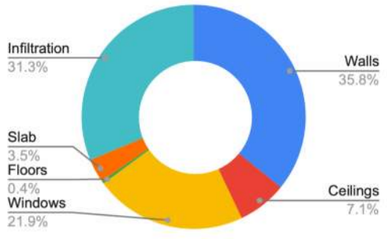
BTUs/hr/ SF **12.2**

Fuel	Per Unit (Kwh, Gallon, Therms)			Per Design (Yearly)		
	Price	Heating Value*	CO2 (lbs/BTU)	HVAC Efficiency	CO2 (lbs)	Cost to Heat
PGE	$0.21	3412	0.0000468	350	194	$255.44

CODE MINIMUM PERFORMANCE

Heat Losses	Per Design		
	UA*	BTUs/Hour	BTUs/Year
Walls	60.9	3655.0	6.6M
Ceilings	12.1	726.0	1.3M
Windows	37.3	2236.2	4.0M
Floors	0.7	39.6	0.1M
Slab (Perimeter)	5.9	352.6	0.6M
Infiltration	53.2	3193.0	5.8M
	Subtotals	**10202.5**	**18.5 M**
Heat Gains			
Internal Gain*		-905.6	-7.9 M
Other (Solar) Gain	(enter all the digits: 1600000)		1.6 M
	Offset Totals	**9296.9**	**-6.3 M**

Contribution To Overall Losses



Design "MPG" *Lower is better!*

BTUs/hr/ SF **15.5**

Fuel	Per Unit (Kwh, Gallon, Therms)			Per Design (Yearly)		
	Price	Heating Value*	CO2 (lbs/BTU)	HVAC Efficiency	CO2 (lbs)	Cost to Heat
PGE	$0.21	3412	0.0000468	200	432	$567.91

DUPLEX AT MARICARA PARK

Each unit is adapted with a specialized focus.

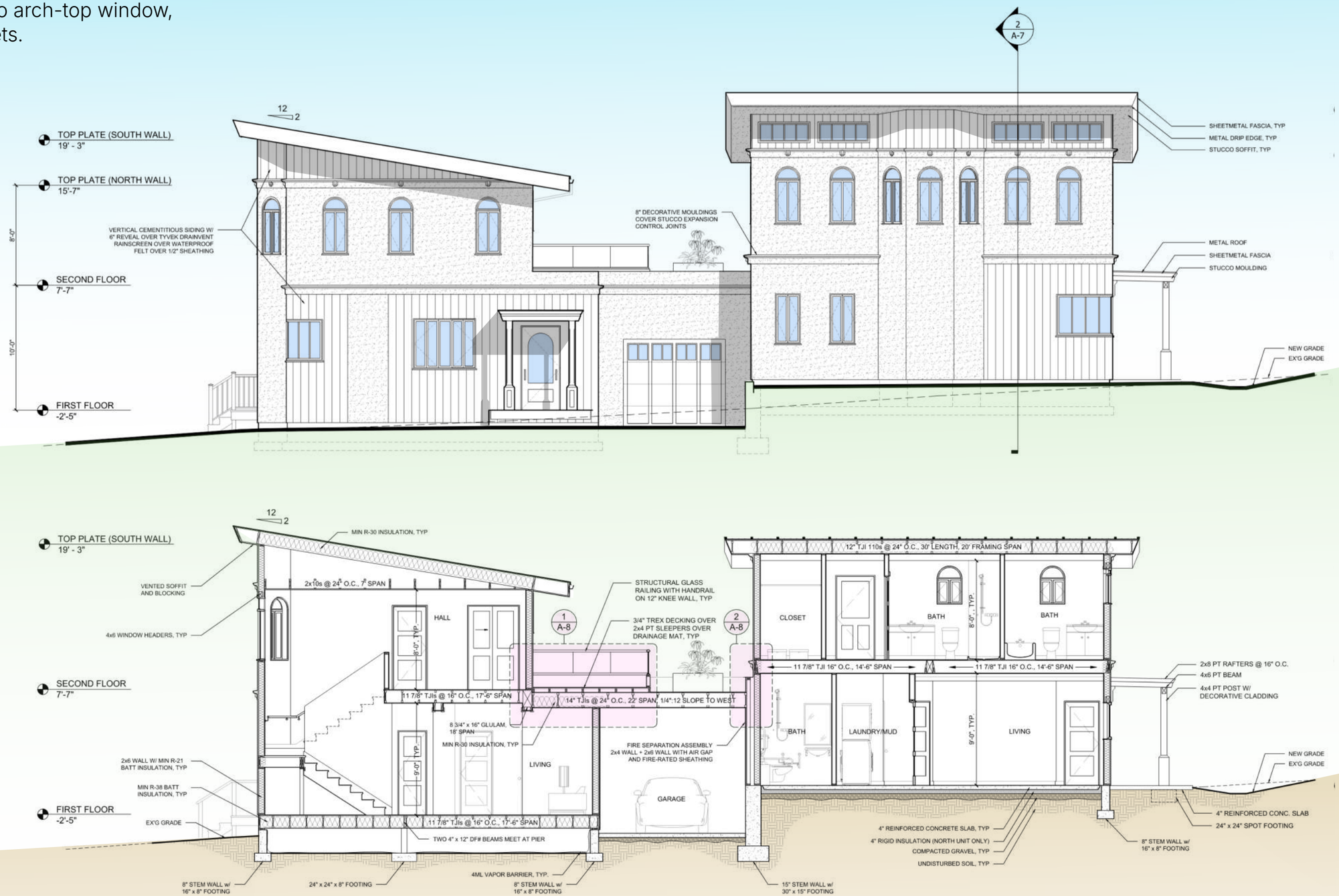
The North unit features a **wheelchair-accessible first floor** and and two bedroom suites on the second floor.

The South unit **accommodates a live/work lifestyle** with an office featuring a separate entry on the first floor and private living quarters on the second floor.

STYLE AND DESIGN FEATURES

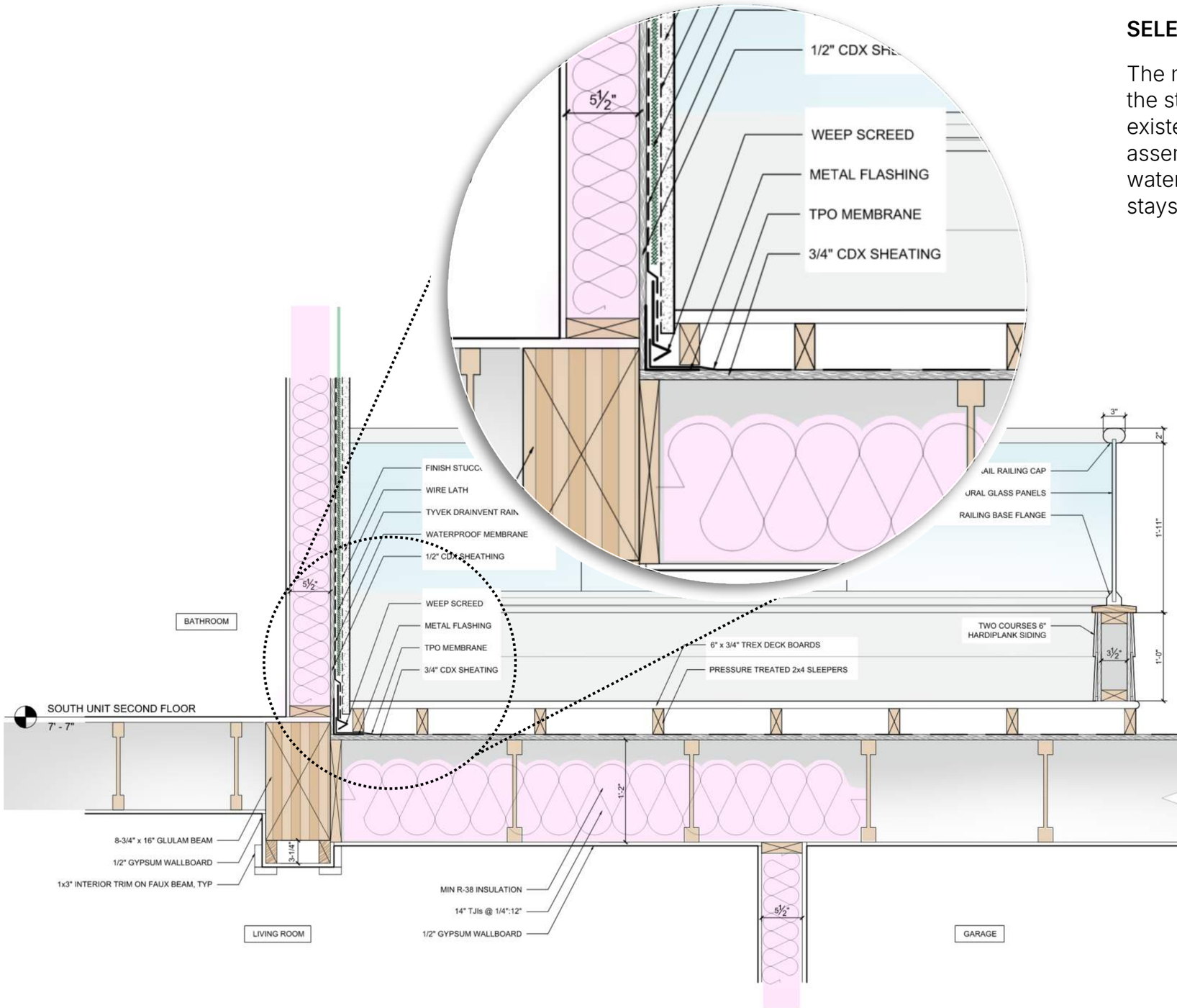
Both units have a combination stucco and vertical cementitious cladding. Standing-seam metal shed roof with a low slope provides a shade for clerestory glazing and lends modern compliment to arch-top window, stuco molding and Itilaite brackets.

The South unit has a framed floor over a crawlspace while the North unit has slab-on-grade floor to facilitate wheelchair access.



SELECTED DETAILS

The magnification to the left shows the termination of the stucco finish where a flat roof and rooftop deck existed over conditioned space. A carefully ordered assembly of rainscreen, weep screed, flashing and waterproof membrane ensures the living room below stays dry.

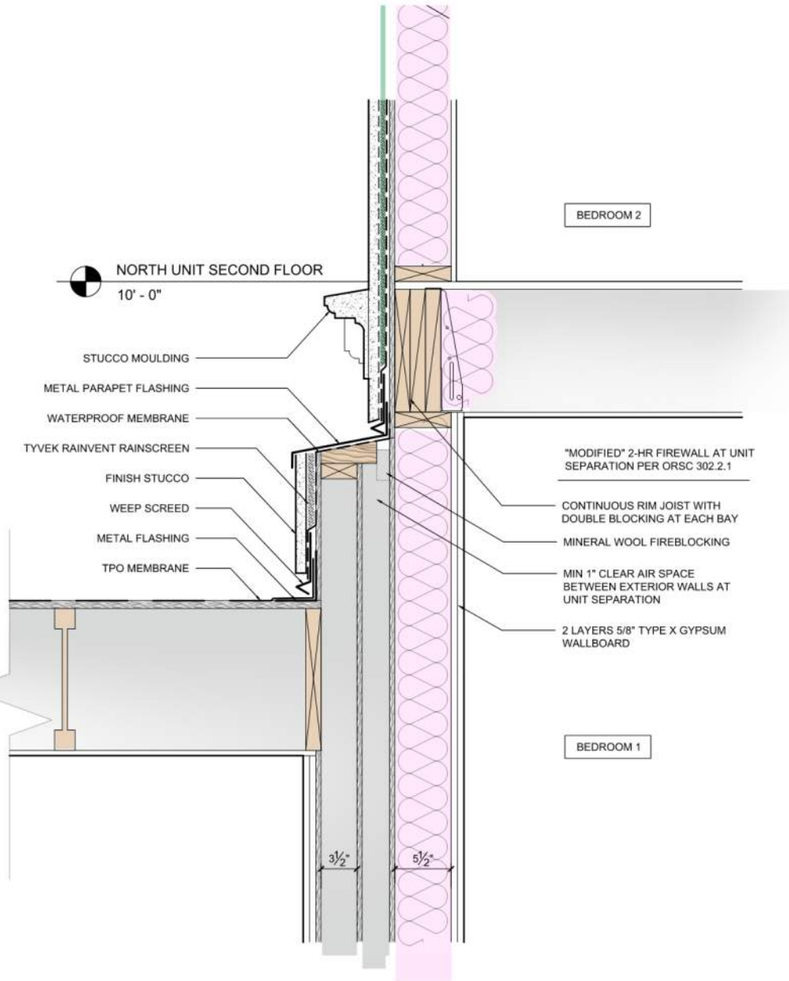


1 DETAIL AT SOUTH UNIT GARAGE ROOF

SCALE: 1 1/2" = 1'-0"

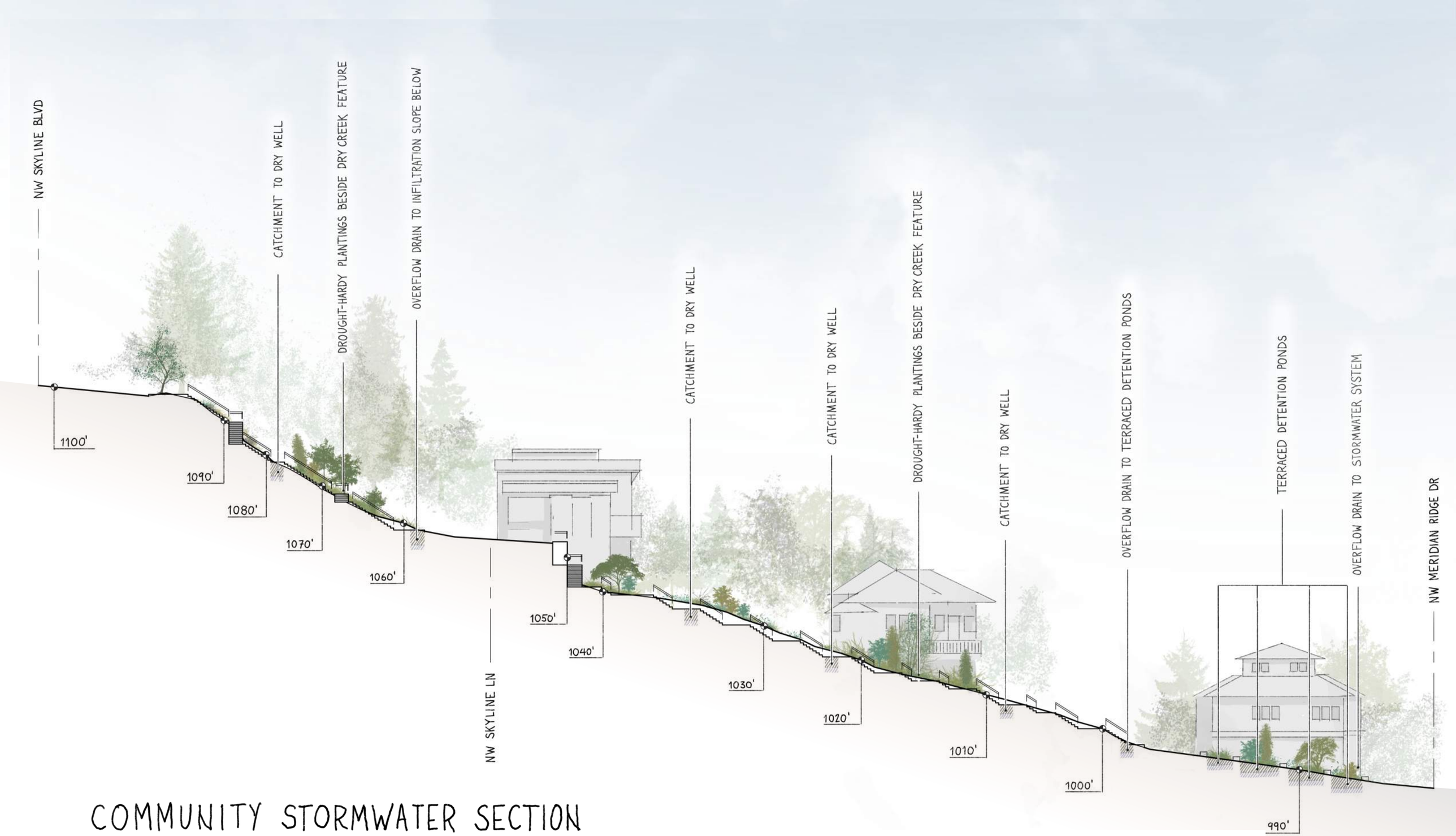
0" 6" 1'-0" 2'-0"

GRAPHIC SCALE



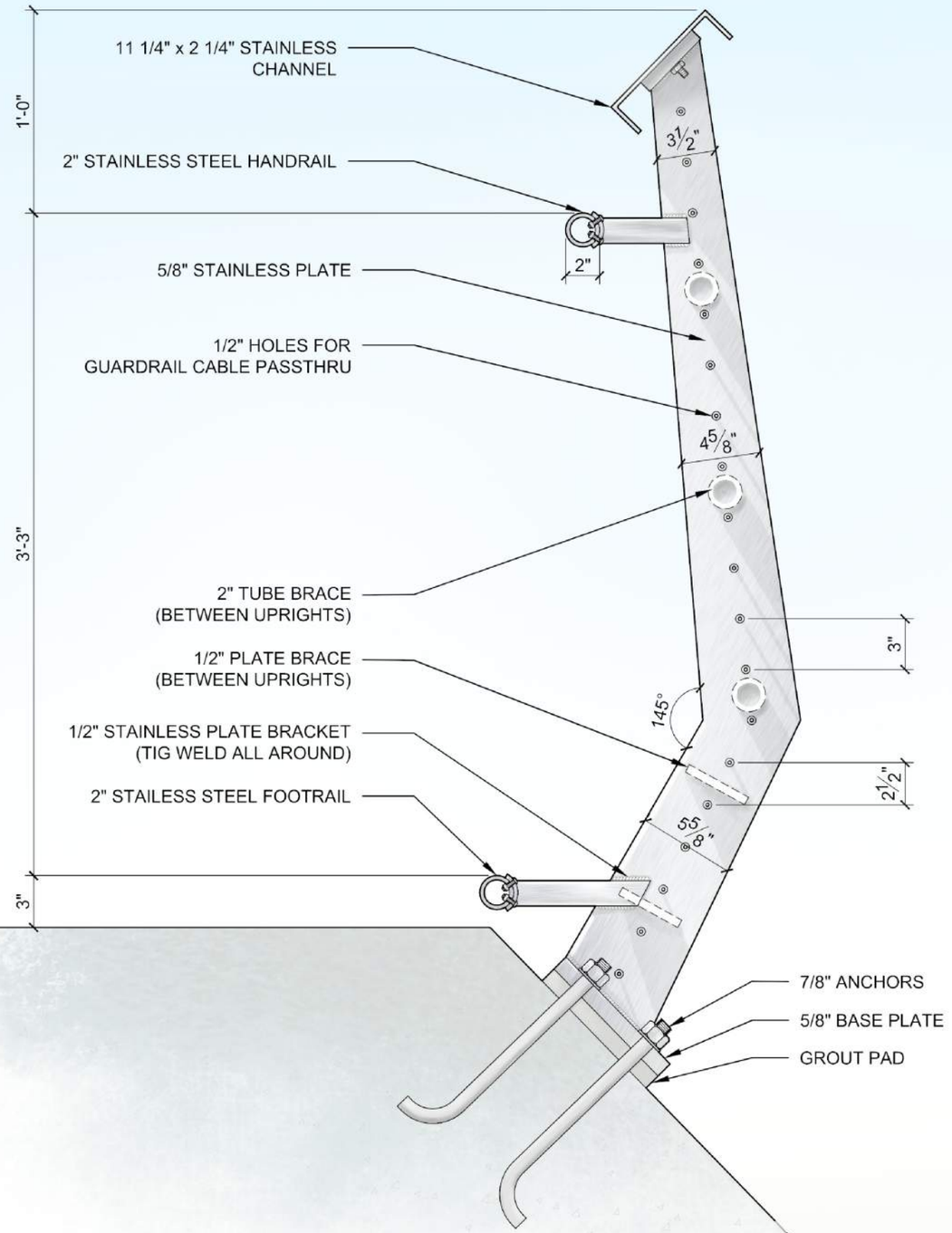
2 DETAIL AT FIRE SEPARATION WALL

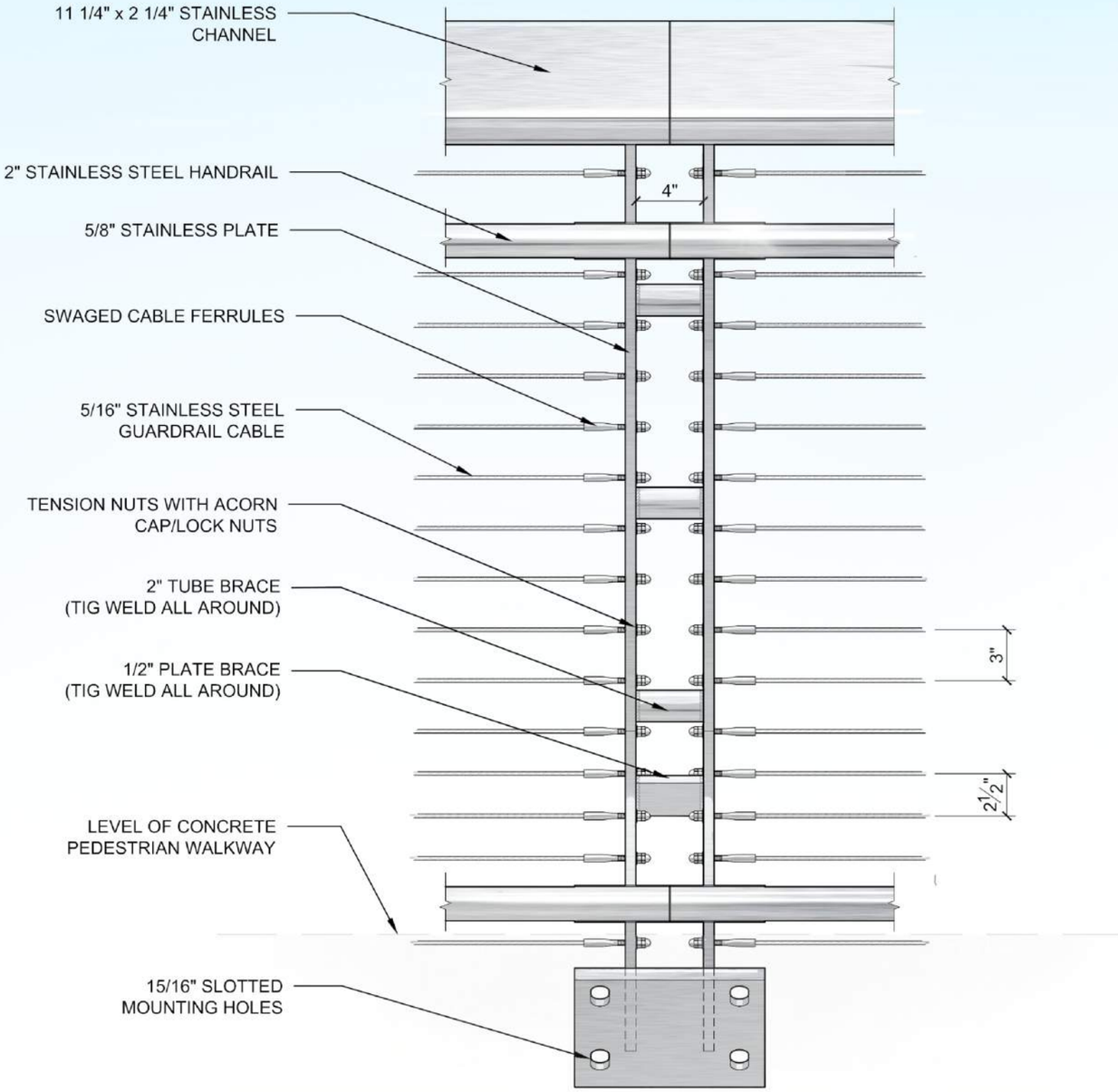
SCALE: 1 1/2" = 1'-0"



COMMUNITY STORMWATER SECTION

A study drawing of the stormwater management features
in the Meridian Ridge Development in Southwest Portland.



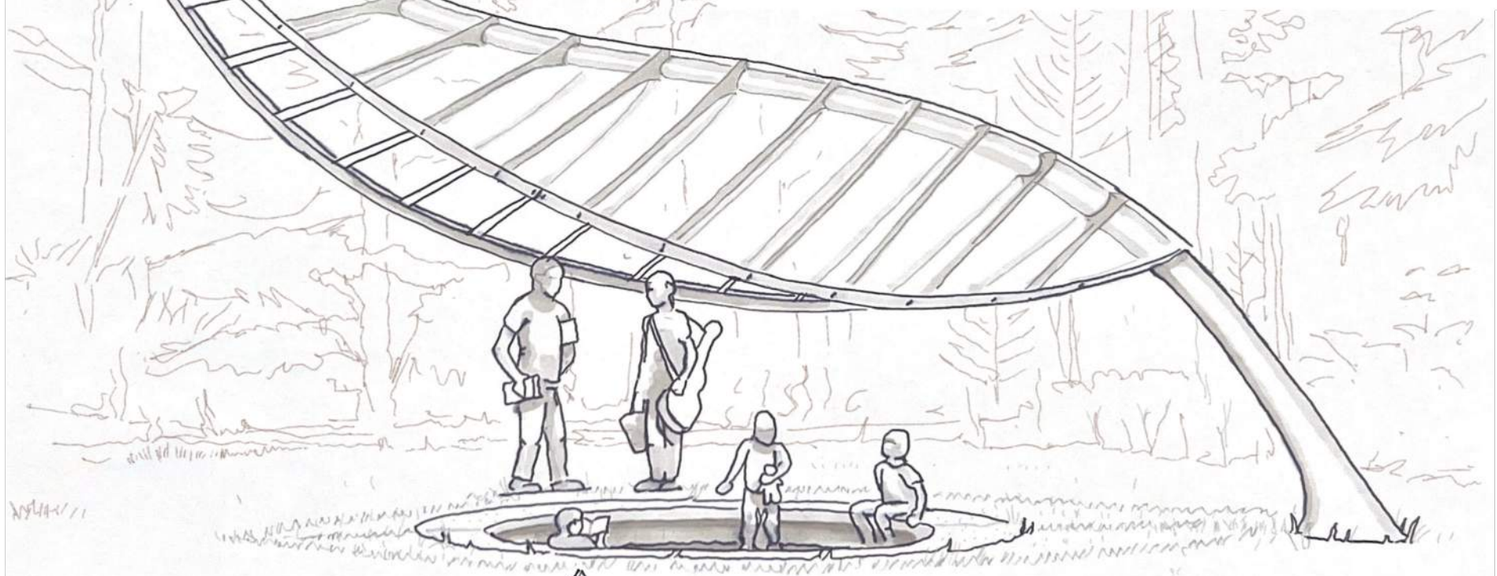


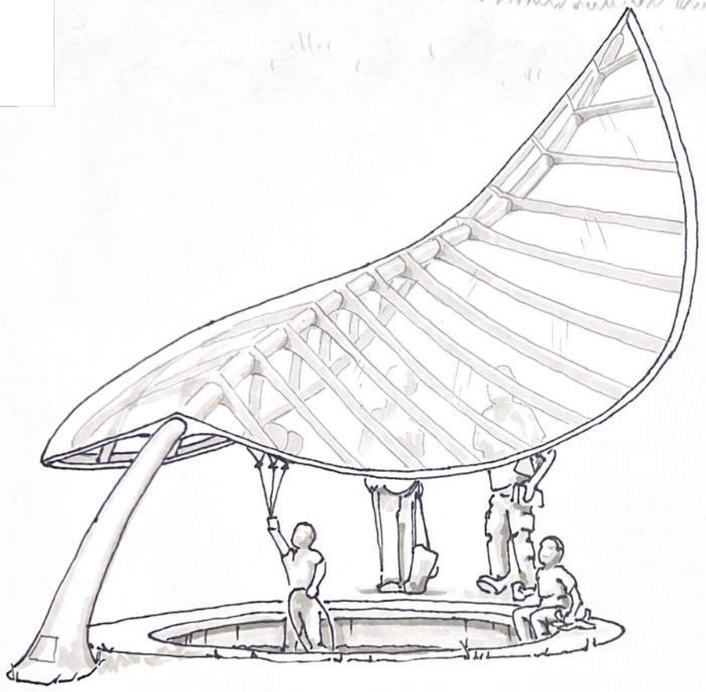
TILLIKUM BRIDGE HANDRAIL DETAIL

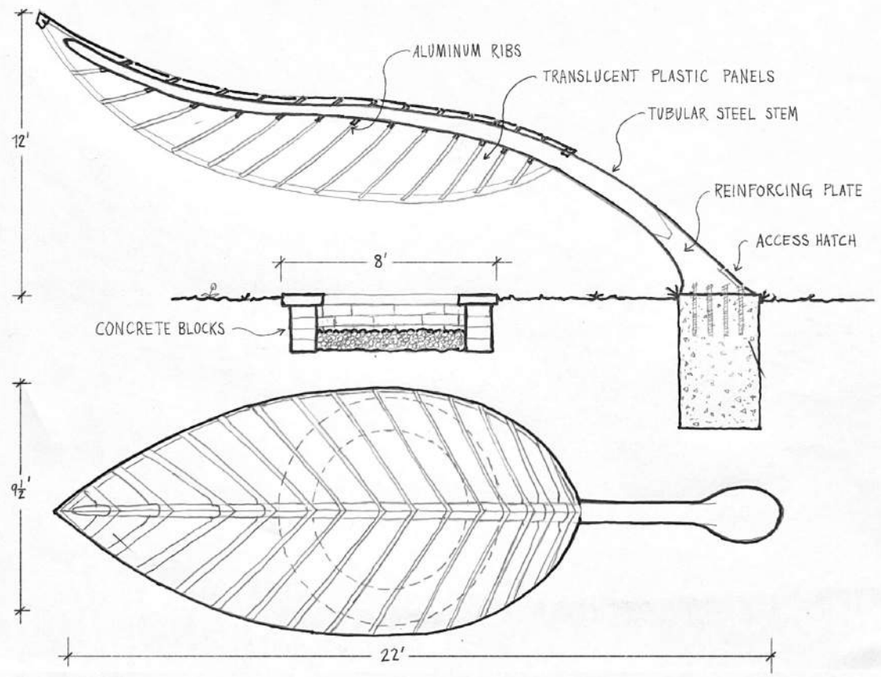
Derived from in-person measurements and sketches, these drawings show the double-plate junction between lengths of cable handrails.

OXBOW PARK READING LEAF

A design project to create a small public “pavilion” or shelter structure for community use. A site in Oxbow Park was selected and a translucent leaf designed over a sunken reading circle.







Thanks for your time. FW

CONTACT INFORMATION
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503-956-4585
frankie@winters.design

Church of the Mother of God Lightbox. Inspired by the Church of Our Lady before Týn in the Czech Republic. Designed and fabricated in 2020. 58in x 24in.