

Dundee Hill Townhomes

Affordable housing, passive design.

Evergreen Sustainable Development Standard
Certified 2026 · Element Design/Terrapin Architecture

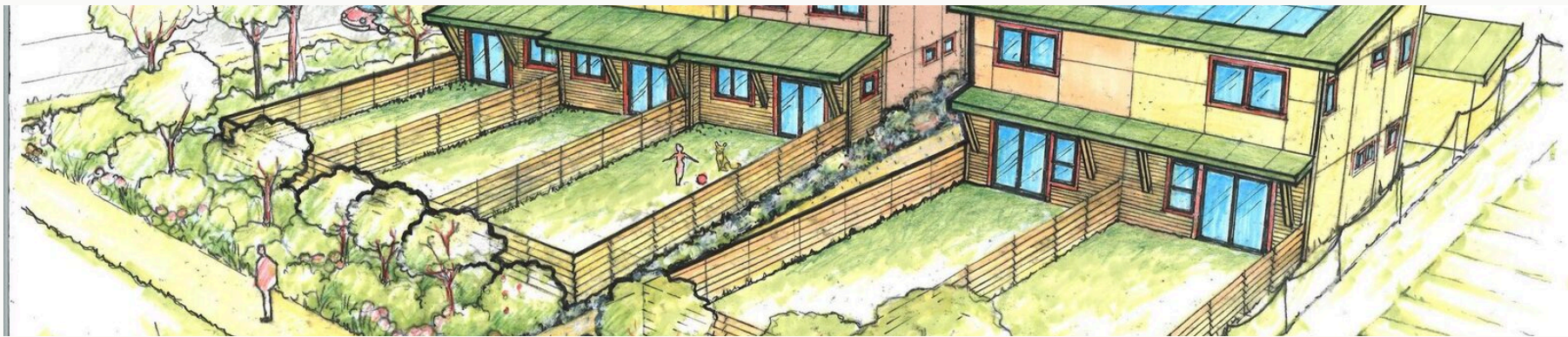
PORT TOWNSEND, WASHINGTON



Project

Five homeownership townhomes for Olympic Housing Trust, a community land trust that keeps the homes permanently affordable. The trust owns the land; the existing community garden, shed and greenhouse stay on the east end of the site.

Buildings	3-unit townhouse + 2-unit duplex
Homes	2 bed / 2 bath and 3 bed / 2 bath
Floor area	5,075 sf gross
Site	0.76 acre, Hastings Ave & Hendricks St
Code cycle	2018 IRC / WSEC



Design goals

- Compact development.** Five homes in two buildings on a small footprint.
- Neighborhood friendly.** Bright colors, shared parking and public access paths.
- Maximize open space.** Buildings clustered to keep the community garden and a common yard.
- Shared walls.** Townhouse and duplex forms that cut exterior surface and heat loss.
- Solar orientation.** Main glazing and roof planes facing south.
- High-performance envelope.** Insulated and sealed well beyond the code minimum.
- All-electric, PV-ready.** No combustion; roofs ready for solar.

Rural affordable housing is usually built to the code minimum. Dundee Hill was permitted under the 2018 energy code, but built to exceed energy standards with progressive energy detailing and passive solar design principles.

Code minimum vs. as built

Component	2018 WSEC minimum	Dundee Hill
Window / door U-value	0.30	0.25
Walls	R-21 cavity	Advanced framing, R-21 + R-10 continuous, rainscreen
Slab perimeter	R-10, 2 ft deep	R-15, 2 ft deep
Under slab	None	R-10 continuous
Ceiling	R-49 flat / R-38 vaulted	R-49 flat / R-38 vaulted
Air leakage (ACH50)	5.0 max	0.89 tested (2.0 design target)

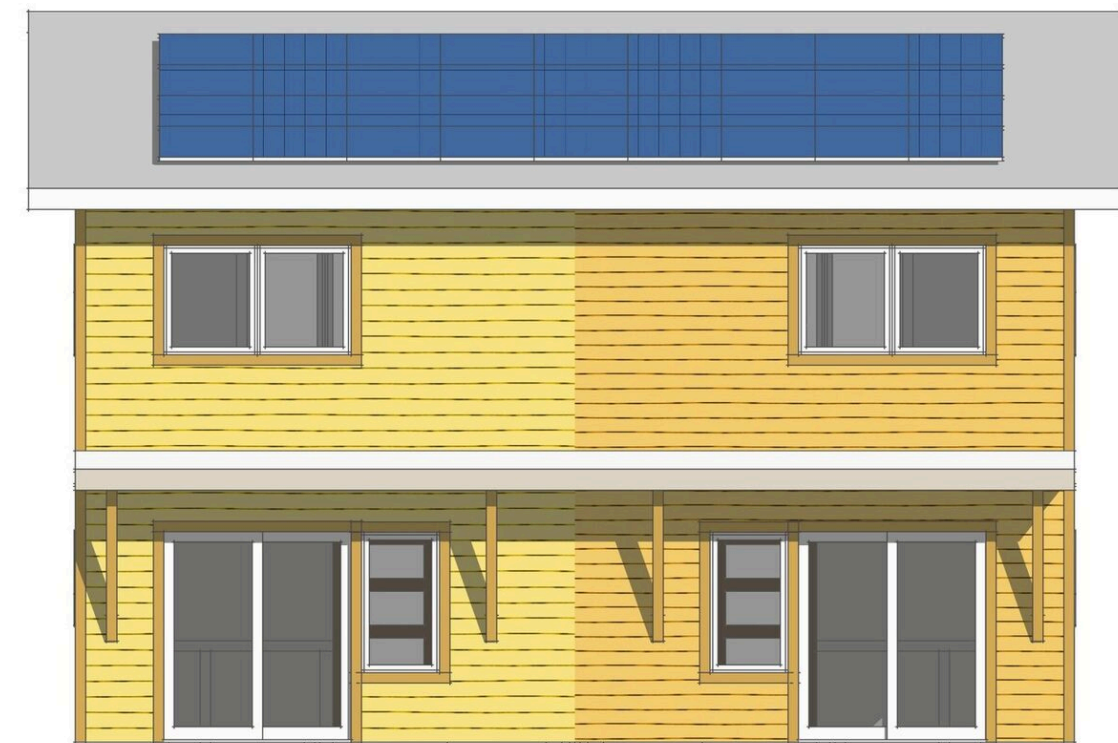
Source: permit set energy compliance table; blower door test 8/13/26.

Solar orientation and shading

Both buildings face their main glazing south. Overhangs and the porch awnings were sized from month-by-month sun studies: summer sun is cut off at the glass, low winter sun reaches deep into the living spaces. Windows were selected for high solar heat gain.



July — south glazing fully shaded



November — full sun on south glazing

High solar gain glazing

0.51

Solar heat gain coefficient

0.25

U-factor
code max 0.30

0.63

Visible transmittance

Free heat from the sun

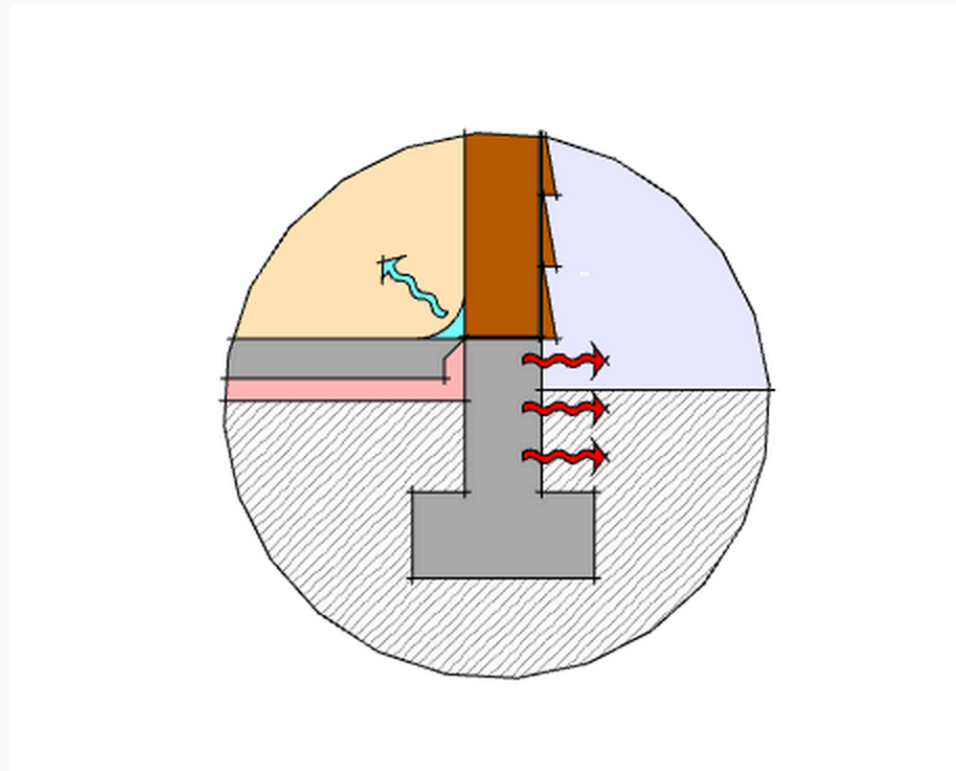
Standard low-e windows are tuned to keep the sun's heat out, typically passing a quarter to a third of it. The south glass at Dundee Hill passes about half. In winter, low sun comes in under the eaves and warms the polished concrete floors, which hold the heat into the evening. In summer the overhangs block the high sun before it reaches the glass.

The windows still insulate better than code requires, so the heat gained by day isn't lost at night.

 National Fenestration Rating Council® CERTIFIED	CPD# MIL-A-293-06193-00001 SO# 6388953.001 2610 TRINSIC SERIES V300 VINYL SG	
	0.75 Argon 0.068(2), 0.149(4) SU-D NO GRIDS	
	ENERGY PERFORMANCE RATINGS ÉVALUATION DES PROPRIÉTÉS ÉNERGÉTIQUES	
	U-Factor Facteur-U 0.25 (U.S./I-P)	1.42 (Metric/SI)
Solar Heat gain Coefficient Coefficient de gain de chaleur solaire 0.51		
ADDITIONAL PERFORMANCE RATINGS ÉVALUATION SUPPLÉMENTAIRE DES PROPRIÉTÉS		
Visible Transmittance Transmission Visible 0.63	Air Leakage Infiltration d'Air ≤0.3 (U.S./I-P)	
≤1.5 (Metric/SI)		
Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org		
Le fabricant convient que ces cotes respectent les procédures applicables du NFRC et ses		

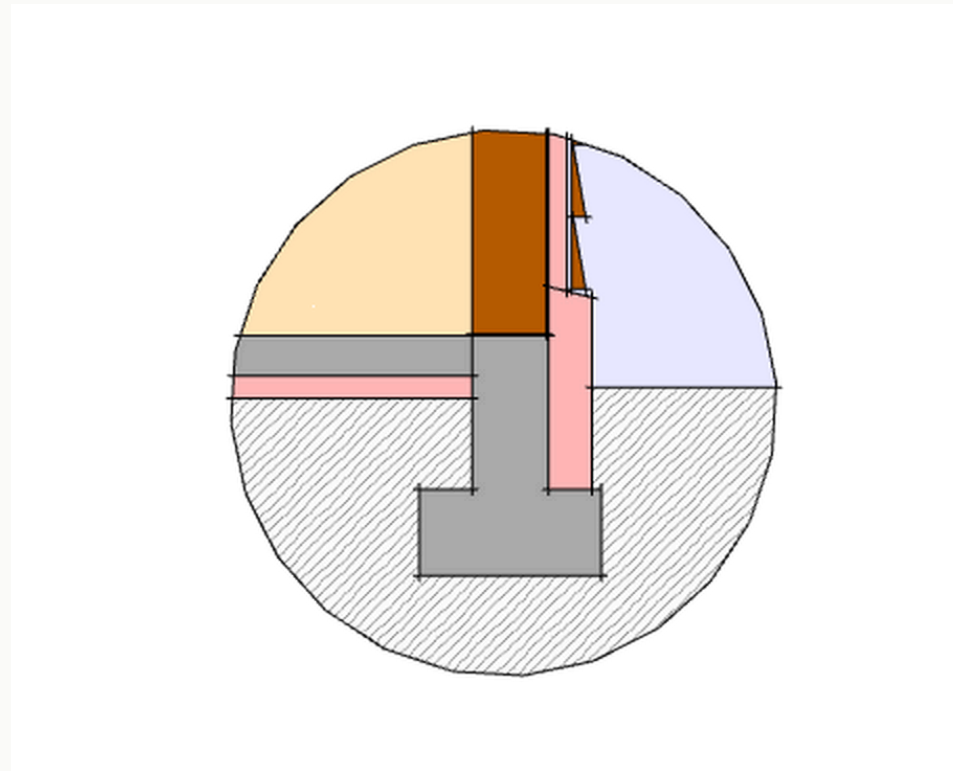
Foundation

Standard detail



- Cold, wet sheathing
- Cold inside corner at the slab edge
- Stem wall acts as an energy drain

Advanced detail — Dundee Hill



- Warm, dry sheathing
- Continuous R-10 insulation and drainage airspace
- R-15 perimeter foundation insulation

The wall's continuous foam runs down over the stem wall and ties into the perimeter insulation, so there is no break in the thermal envelope where wall meets slab.



Walls and openings



Continuous exterior insulation over taped sheathing and housewrap, with a vented rainscreen behind fiber-cement cladding.



Hybrid advanced framing — fewer studs, more insulation, fewer thermal bridges.



Full-size mock-up of envelope penetrations, reviewed before weatherization.

Air-tightness

0.89

ACH50, tested

5.0

ACH50, 2018 code maximum

Air Leakage Calculator (Blower Door Test)		
Conditioned Floor Area:	1093	
Ceiling Height (Ft):	8	8744
Standard	Tested CFM ₅₀	Calculated Test Result (ACH ₅₀)
≤ 5.0 ACH ₅₀ (CFM ₅₀ X 60 ÷ Conditioned Volume)	131840 = 7,890 / 8,744	0.89
Testing Technician's Signature: <i>[Signature]</i>		Certified Technician #: 2791
		Date of Testing: 8/15/24

Less than one-fifth of the leakage the code allows, and under half the project's own 2.0 target. Taped sheathing seams, an air-tight drywall ceiling, sealed penetrations and foam sill gaskets did the work.

Systems

Heating and cooling

Ductless mini-split heat pump, HSPF 10 minimum. Small electric backup in bedrooms and baths. Refrigerant lines leak- and charge-tested.

All-electric

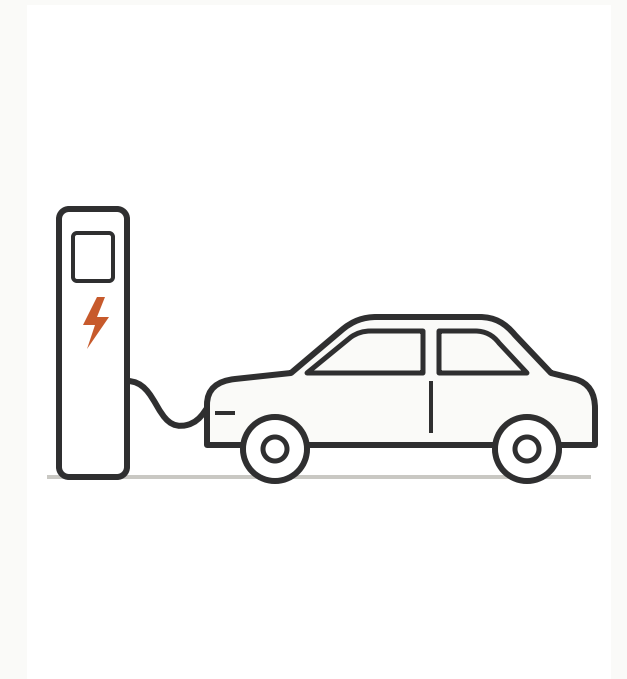
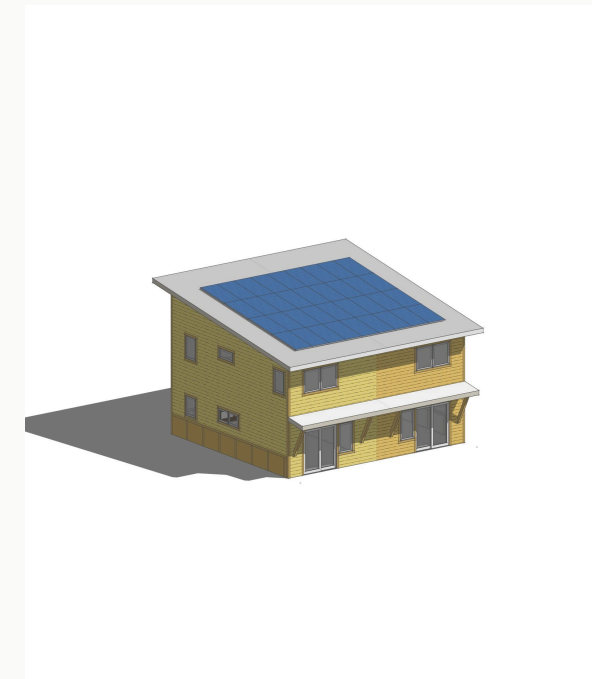
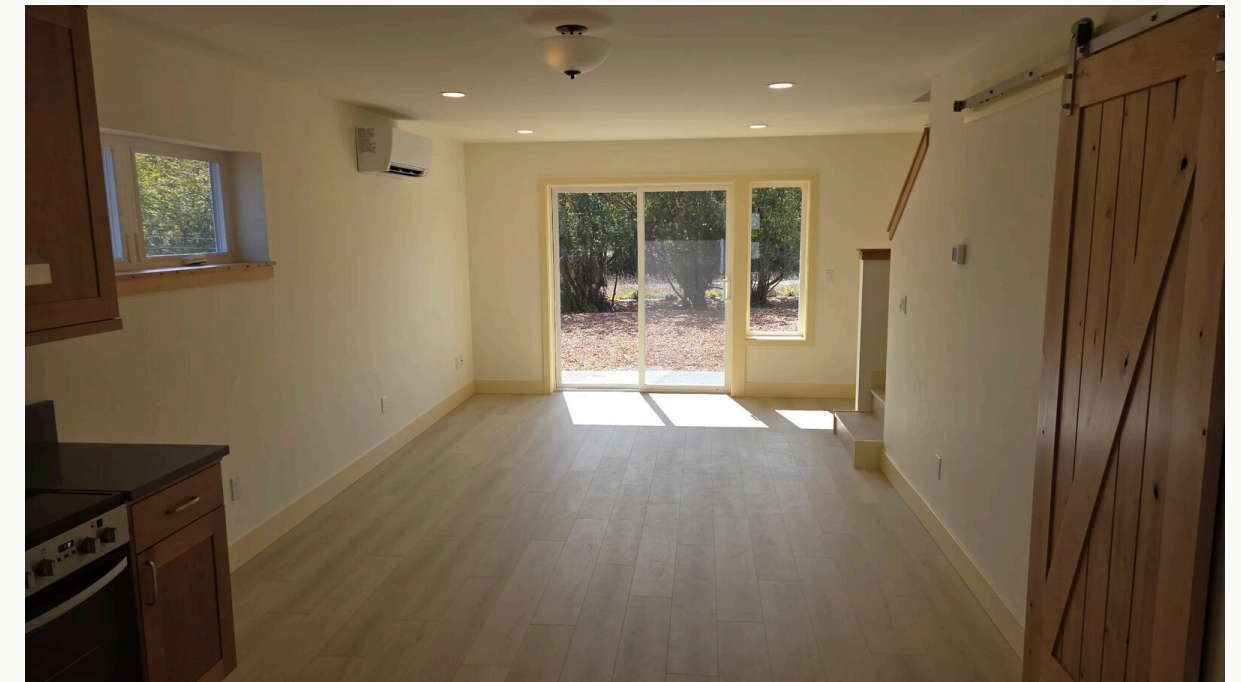
No combustion in the homes. Electric water heaters, induction ranges, ENERGY STAR appliances, LED lighting throughout.

Ventilation

Whole-house exhaust; quiet bath and laundry fans; ducted range hoods. Flows verified.

Solar and EV

PV-ready: roofs oriented for solar, with conduit run and space reserved for inverters and meters. EV charging on site.



Materials, water and site

Materials

CDPH-compliant paints, adhesives, flooring and insulation. No-added-formaldehyde casework. Zincalume roof, SRI 64. Reclaimed local wood from Pacific NW Timbers and Rainshadow Woodworking.



Waste

74%

of construction waste recycled

16,500 lb recycled, 5,795 lb to landfill.
1.14 lb/sf against the 1.5 lb/sf ES&S limit.

Job-site waste went to DTG Recycle in Tacoma, where it was sorted for recycling instead of going straight to landfill.

Water and site

1.1 gpf toilets and 1.5 gpm showers, flow-tested. Every home metered. Roof water dispersed on site. 90% native or adaptive, drought-tolerant plantings. Dark-sky lighting.



Certification

59

ESDS points achieved

50

optional points required

Every mandatory criterion met and every point sought achieved, verified on site through construction by Falkin Associates as third-party verifier for the Washington State Department of Commerce. Final conformance letter issued September 2026.



Dundee Hill Townhomes

Developer	Olympic Housing Trust
Design	Jesse Thomas — Terrapin Architecture and Element Design
Builder	Anderson Homes
Funding	WA Housing Trust Fund
Verifier	Falkin Associates
Completed	2026

elementdesign.studio