

NORTH OKANAGAN HOUSING DESIGN COMPETITION

One Storey Secondary Dwelling Design Submission

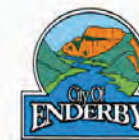
THE ROOTS TO OUR HOUSING CRISIS The Regional Housing Needs Assessment for the North Okanagan has identified that housing availability and affordability is the most significant challenge we are facing in our region.

CALL TO ACTION The goal of the housing design competition is to make it easier and more affordable for the average homeowner to build a secondary dwelling on their property therefore;

- Help alleviate the housing crisis-supply by increasing supply of additional housing units within the region
- Offer homeowners the opportunity to add value to their properties and benefit from additional revenue stream
- Simply and expedite the development process with pre-approved, low cost plans
- Educate Homeowners on costs of construction and return on investment to instill confidence to build
- Mitigate climate change by building energy efficient dwellings and help protect our planet from the pressures of development

Infill housing can help us manage our growth in a more sustainable way, by supporting more compact, complete communities that help to limit sprawl, make it easier for people to get around, reduce our community's carbon footprint, and protect our natural environment from the pressures of development

THE SPROUT





LAND ACKNOWLEDGEMENT

We acknowledge that we live, work play and design on the unceded territory of the Okanagan, Sqilxw, and Sylix People;

We extend our gratitude, honour and respect to our hosts



URBAN CONTEXT

The communities of Armstrong, Enderby, Lumby and Vernon fall within an “urban” context. These are small communities with dense city centers characterized by homes from the 1940-70s, many with large lots backing onto laneways suitable for Secondary Dwellings.

Infill housing in an urban context is a strategy to protect our natural environment from the pressures of development by being efficient with land use and limiting urban sprawl.

Increasing density and making our cities more bike and pedestrian friendly reduces reliance on cars and reduces our carbon footprint.

RURAL CONTEXT

The Township of Spallumcheen and Electoral Areas B, C, D, E, and F fall within a more “rural” context, and many properties fall within the Agricultural Land Reserve. These lands are mainly flat, low-lying elevations with homesteads from the 1920s onwards. These large lots are serviced with septic systems, domestic wells, or public/private water utilities.

Secondary Dwelling designs for these areas are intended to meet the ALC regulations for additional residences on parcels less than 40 hectares, as this will be the most applicable to the majority of property owners.

FROM OUR COMMUNITY ROOTS TO ROOFTOPS

There was a paramount triple bottom line that was a driving force and focus for the design team throughout the design process...people, place and planet.

PEOPLE

THE SPROUT is respectful of the local heritage and culture. The use of horizontal clapboard siding along side a contemporary vertical wood cladding is a nod to the 1920's farmhouses. A skillion inspired shed roof pitch with clerestory windows refers to the mid-century era style home. These homesteads were traditionally build by the local Okanagan people with local materials and were a testament to an era of highly skilled craftsmanship that many wore like a badge of honour. These were homes and places that foster a connection to people, community and work with our planet rather than against it. We have a lot to gain by adapting some of the earlier settlers ways. They worked together as a community to help one another build, grow food, raise children. They sourced and harvested what was local, in season, renewable and available.

PLACE

As a result of the pandemic, the definition of home has evolved out of necessity. As a result, home now encompasses so many more functions and meanings for people than ever before. We need our homes to be our safe sanctuary, our place of business, our connection to family, our way to keep our family close and safe. With rising costs and limited spaces in care facilities we need our homes to be equipped with accessibility to care for elderly family members. With a recovering economy we need our homes to provide secondary means of income to help with rising expenses in hard times. With exposure to shipping and supply chain shortages we are learning the importance of local food production and our responsibility to incorporate these principles into our home lifestyles. With whispers of a labour shortage on the horizon and wars in countries like Sweden we need our homes to be a refuge to house immigrant farm workers and their families. It was therefore paramount to the design team to develop a design that could be flexible enough to foster any of the above homeowner needs all under one rooftop. The materials palate is inspired by local Okanagan landscapes—from peaks, to shores to agricultural rolling fields. Materials have an natural colour palette with organic textures and patterns that are familiar to Okanagan locality and culture.

PLANET

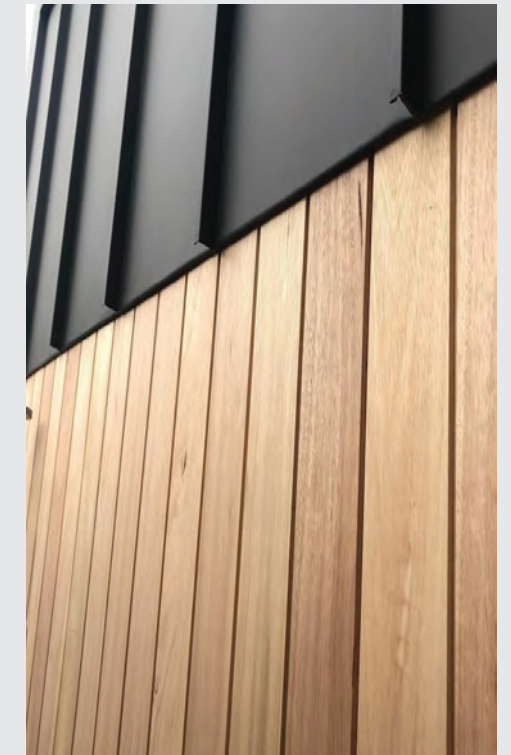
From roots to rooftops is an ethos that embraces a guiding light principle...when we design and build out of respect for the planet, with people at the heart of our buildings it is then and only then that we will be strongly rooted and will flourish. Building design and construction strategies recognize the importance of low embodied carbon and sustainable materials that are sourced locally. Materials have been selected with an emphasis on fire resistance, sustainability, durability, potential for disassembly, economic value and local availability.



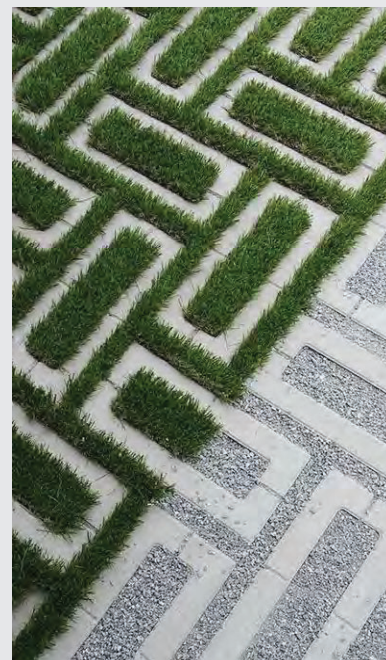
LOCAL SPECIES, SOLID WOOD EXTERIOR DOORS



HIGH CEILINGS WITH INDIRECT NATURAL LIGHTING FROM CLEARSTORIES-FRAMED NATURAL VISTAS & LANDSCAPE



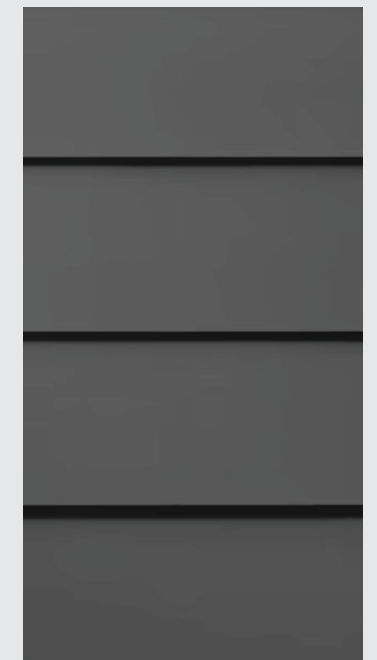
LOCALLY SOURCED BUILDING MATERIALS



NATURAL INDIGENEOUS PLANTINGS



LOW EMBODIED CARBON MATERIALS LIKE WOOD & FIBER CEMENT BOARD PROVIDE SHADE, PROTECTION AND PRIVACY

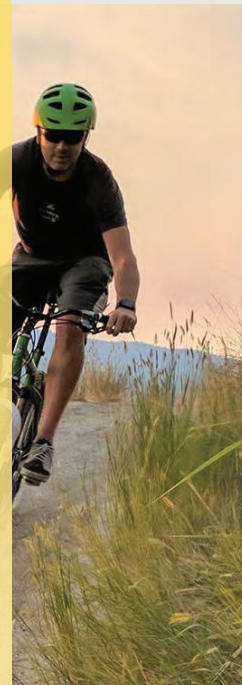


ARCHITECTURAL DESIGN NARRATIVE

DESIGNED TO FIT YOU & YOUR OKNG LIFESTYLE

THE HIGHLIGHTS REEL...

- Want to spend less time working and more time playing? Consider this secondary dwelling as a great opportunity for rental property for supplemental income
- Flex space so you can work from home, tend to your hobbies, workout, meditate or run a home based business
- Accessible Design to help with caring for aging family
- Have a working farm and need housing for workers, or agritourism accommodation—2 bed 2 bath accommodation?
- Sustainable home design features to advocate and teach people how to live off grid, live a sustainable footprint lifestyle
- Lockable, easy access lifestyle gear storage, repair & maintenance space for bikes, boards, skis whatever gets your motor running



TARGET MARKET

THE SPROUT

Single Storey Model

Are you looking to expand your living space to accommodate an aging parent, an at-home living young adult, or short-term guests? Are you looking to carve out a flex space or work-from-home setting separate from your personal living space? Or perhaps you would benefit from an additional income stream and would like to enter the rental income market with minimal investment?

If you are concerned about housing affordability and supply, appreciate quality construction and are aware of the growing need for energy efficient home design, you may be interested in taking advantage of recent changes to your municipal zoning and bylaws.

The North Okanagan communities are making the construction of Secondary Dwellings more feasible for the average homeowner who may have limited land development experience.

Whether you own urban or rural property and you answer the call to construct laneway, backyard infill, carriage homes, or accessory dwellings, you can help alleviate the housing supply and affordability crisis while adding value to your property and receiving a return on your investment.

Consider 'sprouting' an affordable, ecologically mindful, accessibility friendly, 1-storey flexible secondary dwelling on your property with this eye-catching design.





THE SPROUT is a spacious 1-storey, fully detached, self contained, ground level accessory dwelling designed with the aging-in-place demographic in mind.

The spacious layout allows for accessible living in a multigenerational property / with a close proximity living scenario to allow for independence and privacy from extended family members.

The simple 1 bedroom + den, 2 bath layout could be equally appealing to young professionals. Alternatively, **THE SPROUT-MINI** 1 bedroom, 1 bath boasts a 20% reduction in size and therefore provides an option to the home owner with a smaller lot, or more restrictive budget.

The 12 ft high sloped ceiling creates a feeling of expansiveness in the 860 sq ft of interior living space. Natural light from the operable clerestory windows, allow for natural air flow and venting especially important for high ceilings.

Passive Home inspired energy efficient considerations were top of mind in determining the overall square shape of the structure, 10.5" wall assemblies, heat pump and HRV specifications for heating and cooling systems, size and location of windows as well as roof style and overhang.

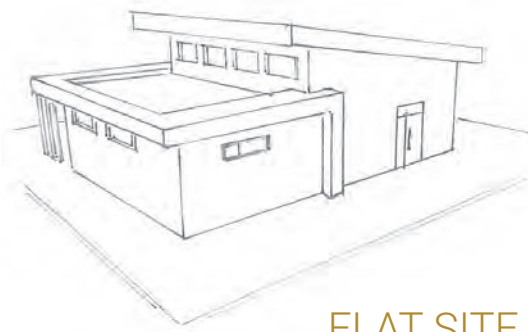
For optimum energy efficiency, and lowest operational costs, this home is best positioned on a lot where it can be situated with the back patio side or the clerestory window / bedroom side of the home facing south—as is shown in this rendering.

Additional features available for The Sprout, based on lot size, site conditions, and budget, include patio pavers, landscaping pergola, raised vegetable garden beds and solar panels.

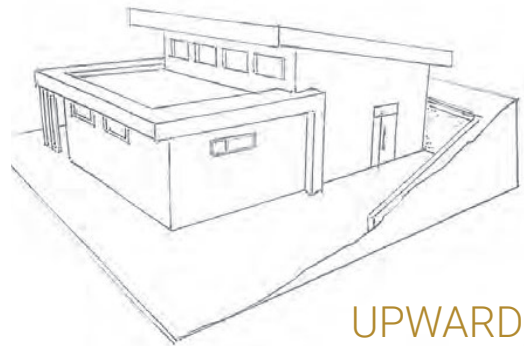




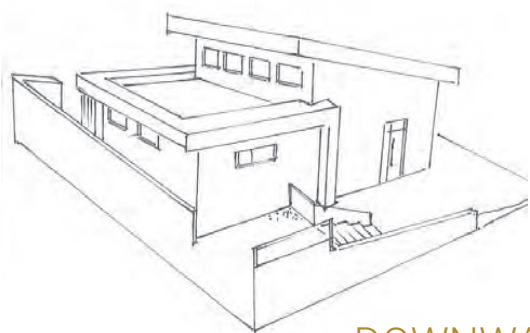
THE SPROUT-GREEN SPACE



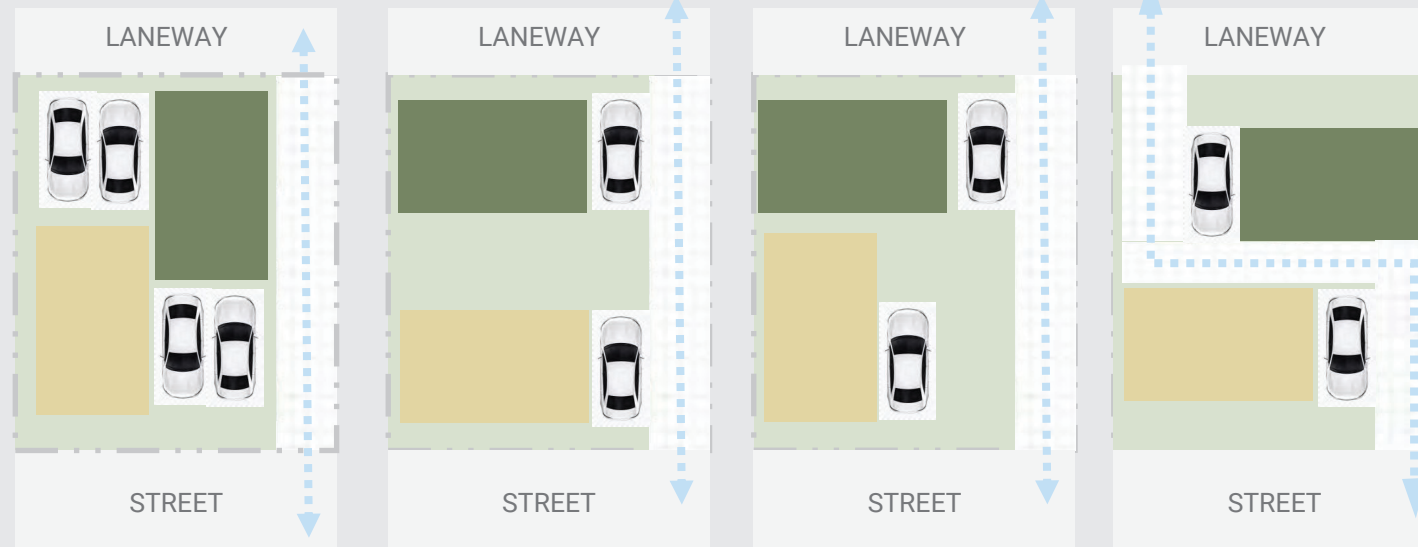
FLAT SITE



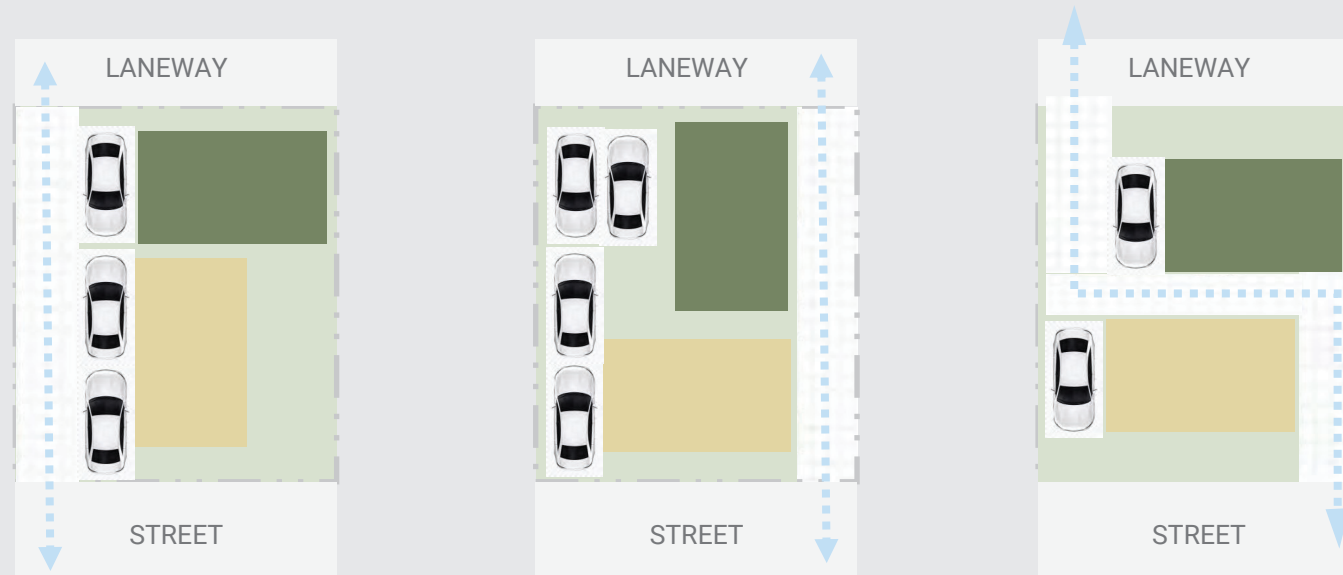
UPWARD SLOPE



DOWNWARD SLOPE



LEFT SITE ORIENTATION >> MIRROR FOR >> RIGHT SITE ORIENTATION



CENTRE SITE ORIENTATION

SITE FLEXIBILITY STRATEGIES

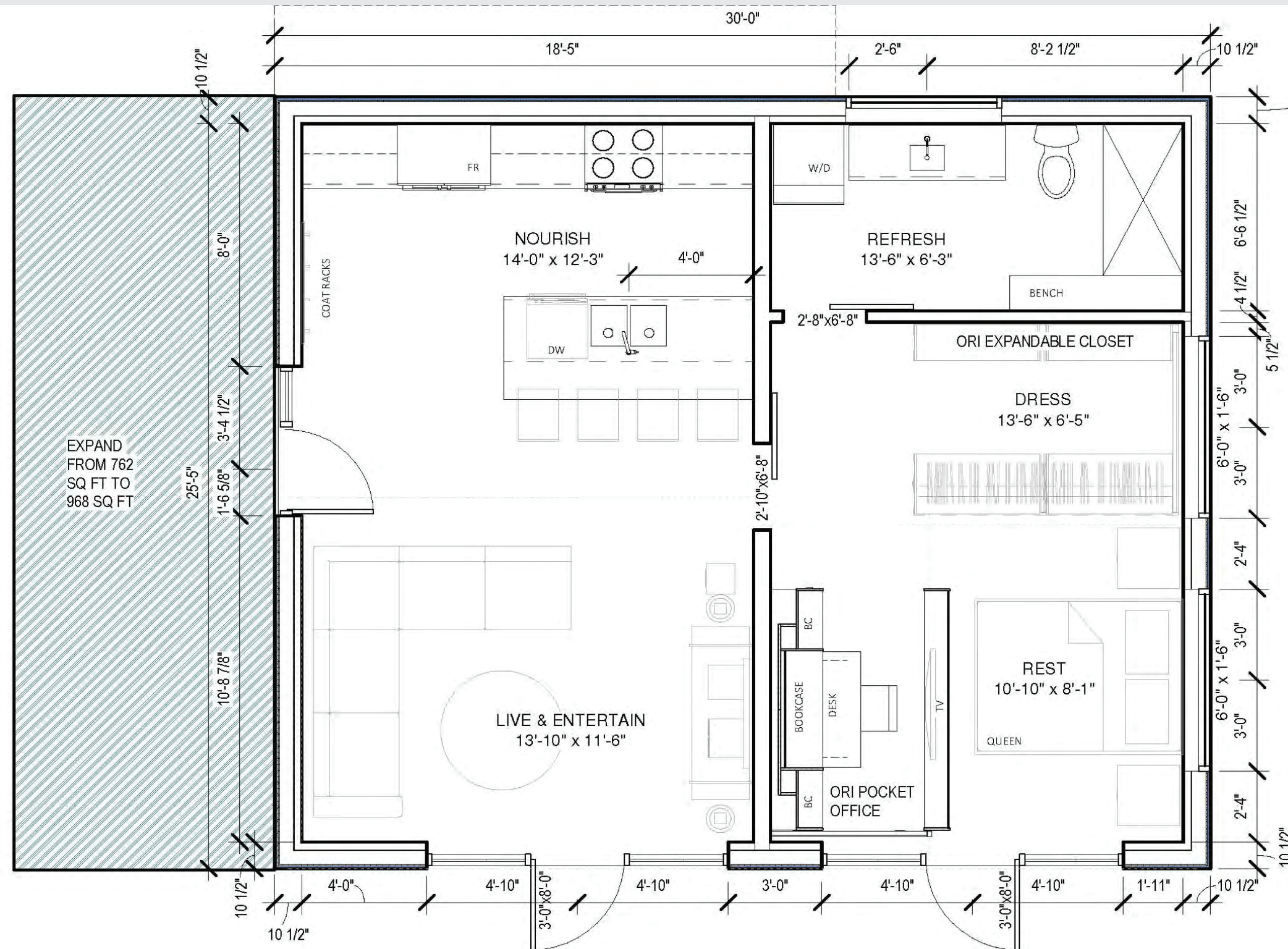
- Proper orientation of a home allows the homeowner to take advantage of a powerful source of lower utility costs: passive solar energy. When possible;
 - a) Face the long, front side of the home within 20 degrees either side of true south. This positions south-facing windows to act as solar collectors that bring heat into the house in winter.
 - b) Position the home to take advantage of existing natural landscape features where possible. Deciduous trees can offer heat-reducing shading from high-angle summer sun, yet allow solar heat exposure when they lose their leaves in winter. Small hills and evergreen trees to the north can buffer cold winter winds.
 - c) Position solar panels on southern faced rooftops to maximize exposure for solar collection

LEGEND

- Assumed Site Dimensions: 60'x80'
- Assumed Site Area: 4,843sqft
- 1m wide pedestrian access from the primary street
- THE SPROUT
- SECONDARY DWELLING
- PRIMARY RESIDENCE

SITE FLEXIBILITY





OPTIONAL REDUCED FOOTPRINT—ONE BEDROOM SOLUTION

BUILDING FLEXIBILITY STRATEGIES

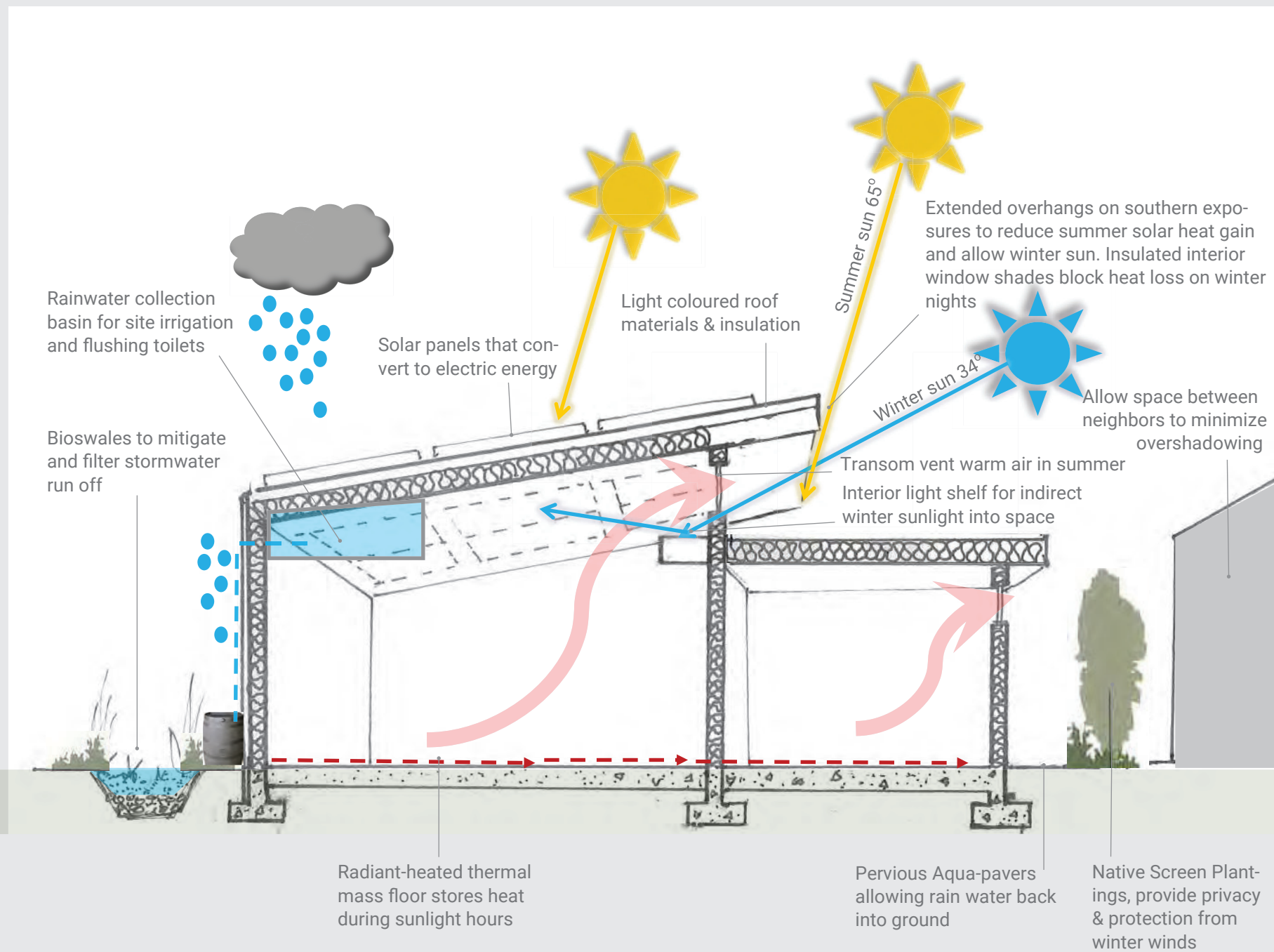
- THE SPROUT has been intentionally designed so that the foot print can be easily reduced from a two bedroom/2bath solution to a 1 bedroom/1bath solution
- If you are challenged by site constraints, affordability factors or simply need less space this is a great option to reduce your investment costs, utilize a smaller footprint and allow for more green space and increase your potential for siting your home on any lot size

OPTIONAL REDUCED FOOTPRINT—ONE BED/ONE BATH SOLUTION

- Total reduced buildable footprint area: **762sqft**

BUILDING FLEXIBILITY

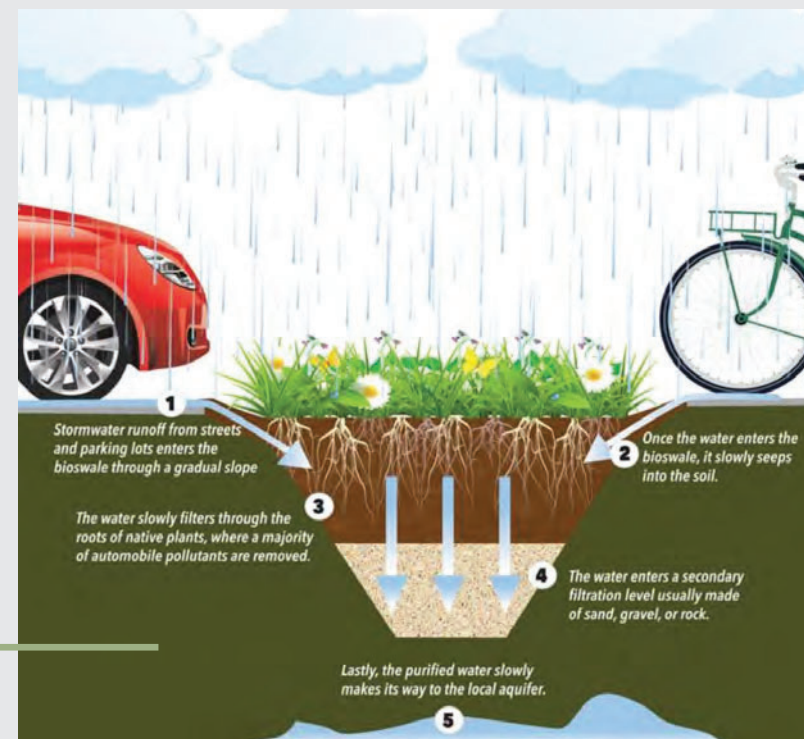




SITE ENVIRONMENTAL STRATEGIES

- Selecting building sites with low ambient radiation, clean soil, and clear from geopathic stress lines.
- Aqua-pavers, so limiting use of non impervious paving, allowing rain water back into the ground
- Street-side bioswales mitigate stormwater runoff from the streets and can set the initial stage to support future green infrastructure from the municipalities
- Rainwater collection can be used to irrigate a small vegetable garden should the site be suitable
- Direct access to Garden Space supports sustainable food production so minimizing stress on community and use of Indigenous natural plantings
- Landscaping pergolas or deciduous screen planting along perimeter of home helps shield home from winter winds and summer sun
- Positioning of the home on your lot is critical to ensuring energy efficiency. Whenever possible,;
 - a) position maximum glazing walls to north walls
 - b) Allow for adequate spacing between you and your neighbors to minimize overshadowing
 - c) Ensure adequate natural cross breeze ventilation across the home to ensure hot air can be vented and assisted by cross breeze or powered exhaust vent. Northern windows can be opened to allow cooler air to be drawn into the space on summer nights
 - d) Position solar panels on northern faced roof-tops to maximize exposure for solar collection

SITE ENVIRONMENTAL STRATEGIES



PRIVACY & STREET APPEAL

THE SPROUT design takes into consideration the likelihood of the Secondary Dwelling being constructed in close proximity to an existing home and the privacy that would be appreciated by the adjacent neighbours.

- Street appeal is provided by clean and simple lines that do not distract and warm organic materials that are inspired by the natural elements of the Okanagan.
- The scale of the structure, whether it be the Sprout or the Mini-Sprout, will relate to, and compliment the existing homes.
- Landscaping with taller vegetation, and planter boxes to grow vegetables, will provide curb appeal, privacy and absorb sound. Generous front and rear building setbacks allows opportunity for adding green space with use of Indigenous natural plantings.
- Aqua-pavers, so limiting use of non impervious paving, allowing rain water back into the ground and provide a green aesthetic.
- Street-side bioswales mitigate additional storm-water runoff and support green infrastructure by reducing impact on municipal storm sewer systems.
- Windows are strategically placed to optimize light entering the interior, providing optimal views as well as maintaining privacy. Minimal openings on property side lots so decreased views and sounds from neighbors
- Inclusivity & Liveability: Contribute to inclusive, complete neighbourhoods and ensure housing serves the needs of current and future residents.
- 12' high sloped ceiling, quality-interior finishes selected for longevity and ease of maintenance, along with high STC rated exterior and interior walls create a beautiful and quiet home.
- Building better with materials and specifications to enhance the resiliency and sustainability of neighbourhoods in the face of climate change.

GOOD HOME GOOD NEIGHBOR



Global **waste** is projected to rise **70%** by 2050.



Global **extraction** is projected to **double** by 2060.



80% of global **wastewater** is untreated or not reused before returning to the ecosystem.

HOW
to minimize waste and shift current consumption trends

CIRCULAR ECONOMY

LINEAR ECONOMY



DESIGN FOR DISASSEMBLY

- Design for Disassembly (DfD) is a strategy to design and build considering materials as part of a circular economy. DfD considers what happens to products installed in a building, the repair and replacement of these during the life of a building, including ongoing maintenance and renovations, as well as during the decommissioning of the building. DfD is an important response to reducing resource use and re-use

“DfD is a critical component of the Circular Economy where waste from one process is food for another process”

- When home owners are considering renovation or decommissioning a home we encourage them to explore the following avenues for repurposing building components & materials to ensure continued life or downcycling into other materials for future re-use/purposing;
 - a) **Unbuilders**—deconstructs and salvages most of the building’s components yielding less than 5% waste on average and diverts 50 tonnes of waste and salvages 10 tonnes of lumber
 - b) **Habitat for Humanity Okanagan Restore**
 - c) **Habitat for Humanity Okanagan Kitchen Program**
 - d) **North Okanagan Valley Gleaners ReStore**
 - e) **Venture Training—E waste Recycling Depot**

GREEN PROCUREMENT

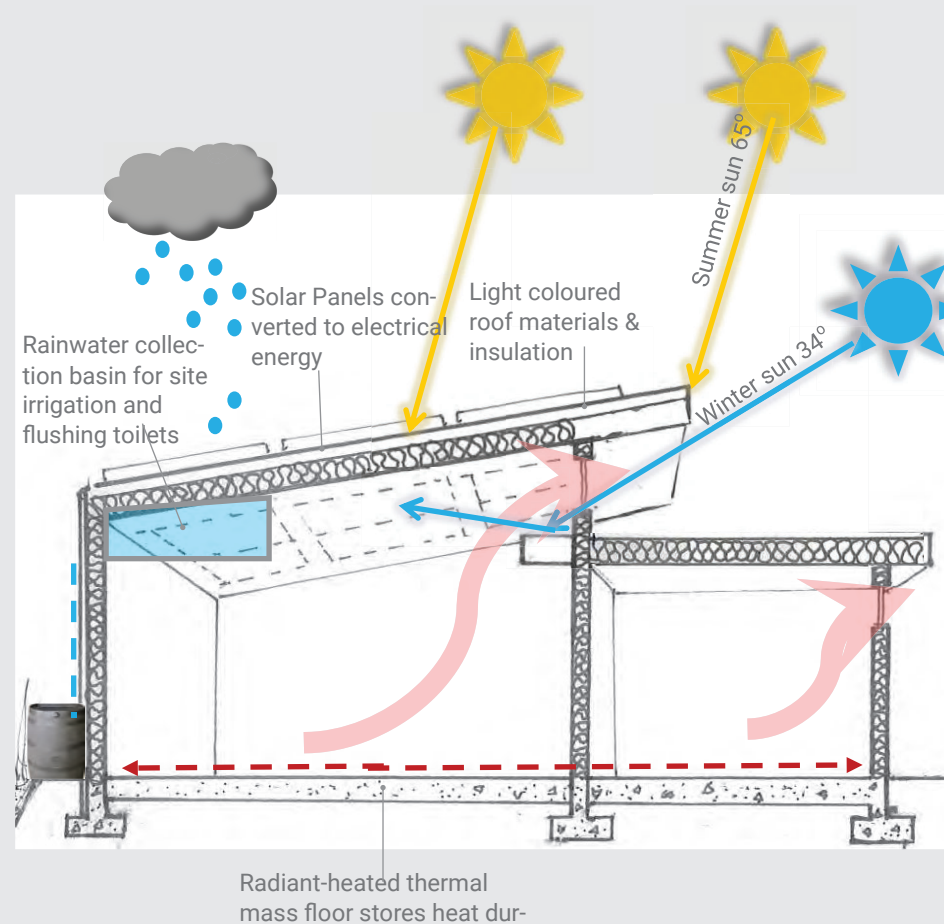
- Builders & Designers should avoid using materials like gypsum wall board that we can’t recycle in the Okanagan. Consider using hemp board, and **ORI** mill-work to divide spaces that can be repurposed later
- Buildings account for 11% of B.C.’s Greenhouse Gas (GHG) emissions.¹ With life spans of 50–100 years, today’s buildings will impact our energy use and emissions for the next century. Reducing GHG emissions from the built environment has been identified as an important priority in reducing overall human induced GHG emissions. Therefore designers need to procure materials with low embodied carbon

¹ BC Climate Leadership Plan (2016a). URL: <https://climate.gov.bc.ca/>

BUILDING LONGEVITY

BUILDING ENVELOPE STRATEGIES

- High performance windows and doors, maximize passive solar radiation (free heat). Large windows maximize daylight, reducing reliance on electric lighting
- Introducing extended overhangs on southern exposures to reduce summer solar heat gain and allow winter sun. Exterior window shades block heat loss on winter nights & heat gains on summer days
- Clearstory roof level windows vent warm air out in summer and allow indirect light to bounce into the middle of the interior space
- Foundation insulation 8" EPS R34
- Heat pump water heater—90-96% efficient
- Heat Recovery Ventilation System—85-95% efficient. Provides low energy climate control
- Drain water heat recovery—reduces water heating by 25%
- Use of rapidly renewable, recycled content materials. Wood products are made from sustainable, FSC-certified sources
- **The Recycling Council of British Columbia** offers a list of salvage yards and reusable building material stores in BC. I.e. **Meier's Building Products**



- possible energy efficiency is achieving Step 3 of the new BC Step Code for energy efficiency. Step 3 represents 20% greater efficiency than conventional building techniques
- 10-1/2" double wall system with rock wool & fiberglass and exterior rain screen R30
- Low energy use LED lighting fixtures and power harvested in batteries from rooftop solar panels converts solar energy to carbon-free electrical energy. Battery back up for off-grid power
- Water saving plumbing fixtures and rain water harvesting from roof for use flushing toilets and irrigating rooftop garden space
- Continuous air-tight envelope construction with continuous super-insulation to ensure no thermal bridging, reduces heat losses & gains
- Use of light coloured roofing materials to reflect light and heat absorption. Double layer rock wool batt in ceiling—R60
- Home Owners and Builders are encouraged to learn more about sustainable building strategies from the following leaders; **Passive House, Canada Green Building Council, Net Zero, Healthy House**, Roots to Rooftops—Okanagan Eco Building Collective

BUILDING ENVELOPE ENVIRONMENTAL STRATEGIES

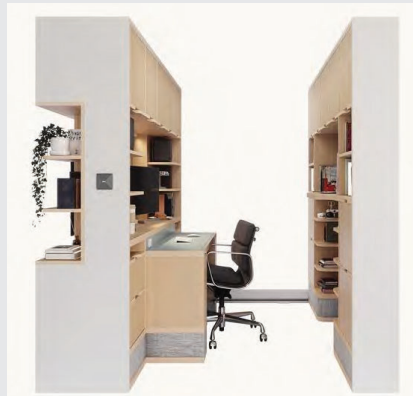


FRAMED NATURAL VISTAS & LANDSCAPE—SEAMLESS INTERIOR TO EXTERIOR LIVING



FLEXIBLE FURNISHINGS

FURNISHINGS WITH RECYCLED CONTENT FABRICS



RECLAIMED & REFINISHED CABINETS



ACCESSIBLE / BARRIER FREE DESIGN



NATURAL WOOD MATERIALS—RECLAIMED WOOD



WARM NEUTRAL COLOURS



RENEWABLE/CARBON NEUTRAL CORK PLANK FLOORS

FLEXIBILITY

- Good design is achieved with a flexible internal layout that can be modified based on day to day use as well as have the longevity to meet future needs over time.

ACCESSIBILITY

- The space is designed to be fully accessible with appropriate barrier free path of travel, door styles, hardware, plumbing fixtures, and bathroom layout. Should the occupant not require accessible interior features such as counter heights, vanity widths, grab bars or plumbing fixtures, alternative options that do not require structural changes can be offered.

MINIMALISM APPROACH

- The interior finishes are inspired by a 'less-is-more' minimalist and hide-away approach which creates a feeling of openness even though the interior is only 860 sq ft. Innovative storage solutions reduce clutter and create a calm and clean vibe — which in turn supports a calm and clear mind. Everything will have its place.
- The recommended interior colour / materials scheme is warm and inviting, just as the homes were in the 20's and 40's. Keeping the colours light and neutral will be timeless, reflect light, and allow each resident to personalize with their own furnishings. The use of contrasting colours and textures will be considered for accessibility as needed. Black plumbing fixtures and door hardware support this as well as create some continuity between the interior and exterior material colours.
- High ceilings and quiet walls to reduce noise within the home. Framed natural landscape vistas and layout conducive of seamless interior to exterior living

INTERIOR DESIGN NARRATIVE



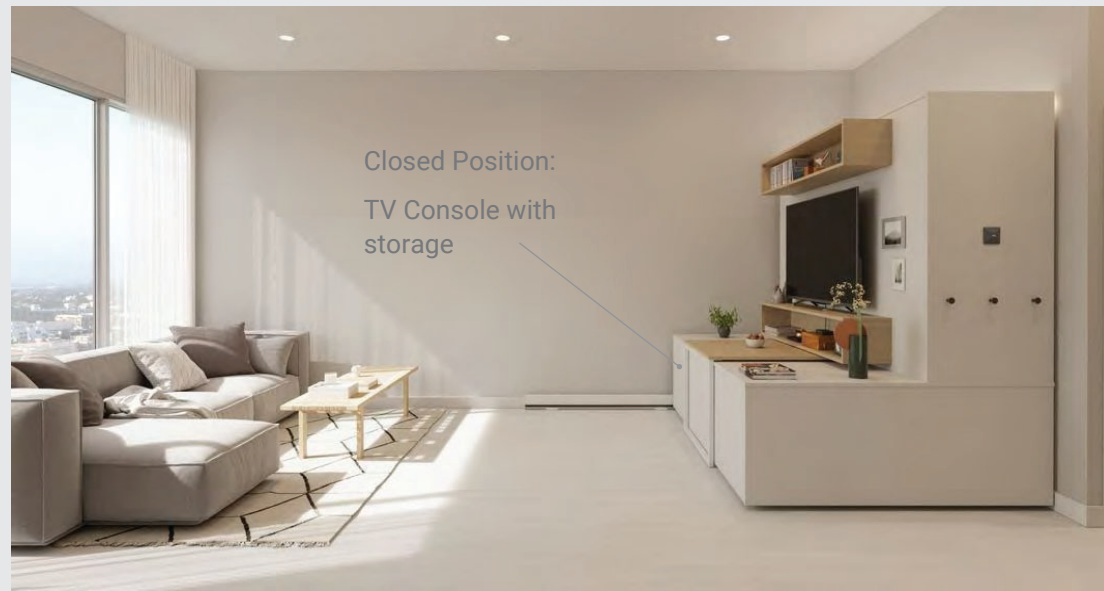
INTERIOR GREEN DESIGN STRATEGIES

- Millwork cabinets from Okanagan Habitat for Humanity Restore and doors given new finish, giving these cabinets an extended second life
- Use of **Millwork** to divide space in lieu of gypsum walls that can not be recycled or reused at end of life
- All interior doors salvaged and refinished from Meiers Building Salvage Yard in Coldstream
- Ensure use of sealants, coatings, wood products are VOC and formaldehyde free
- Millwork and partition layouts are arranged to open the space to more natural light
- Chose from locally sourced materials to minimize transportation impacts. Chose materials with recycled content when possible and 'RED LIST' Free materials
- Renewable and non-toxic no added urea formaldehyde linoleum flooring or renewable carbon neutral cork plank flooring with mold resistant subfloors
- Chose furniture made with natural latex foam and textiles free of PFAS stain repellents & flame retardants
- Energy Efficient Energy Star rated appliances
- Water saving plumbing fixtures and rain water harvesting from roof for use flushing toilets and irrigating rooftop garden space
- Direct access to Garden Space supports sustainable food production so minimizing stress on community and use of Indigenous natural plantings
- Low energy use LED lighting fixtures and power harvested in batteries from rooftop solar panels
- Interior Energy Monitory system
- Low-EMF shielded electrical wiring, Hard-wired shielded networking and phone lines

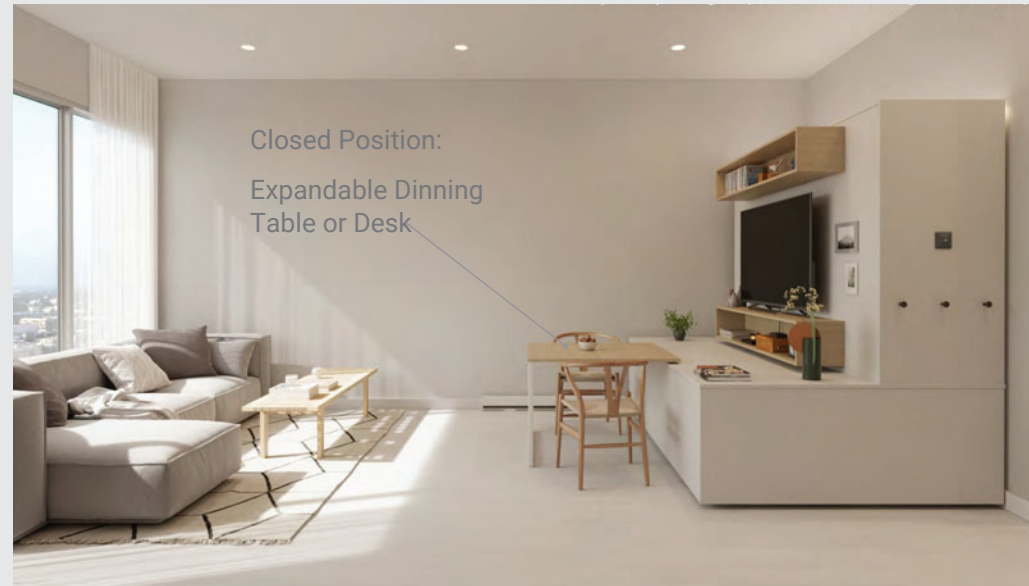
INTERIOR GREEN DESIGN STRATEGIES



INTERIOR RENDERINGS



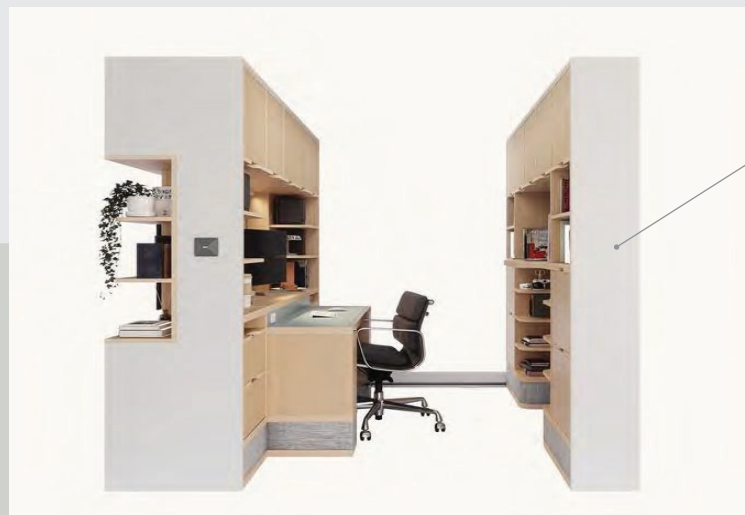
Closed Position:
TV Console with
storage



Closed Position:
Expandable Dining
Table or Desk



Open Position:
Queen Trundle Bed
with Closet storage



Open Position:
Storage to Office
space when opened



Pocket Closet
offers more
room space
when closed
and full closet
storage when
opened



FLEXIBLE FURNISHINGS

Unique to this design is the integration of flexible multipurpose furnishings positioned to create multi-functional spaces and provide additional storage.

Efficient space utilization can decrease the building footprint, without compromising on the end-product while also providing more value for the resident.

Reduced building footprint decreases both the capital investment and operational / energy costs. It also further reduce costs in material and labour by simplifying the HVAC systems and reducing the number of walls, ceilings, and closets to be constructed using conventional methods.

Utilizing furniture solutions to divide space in lieu of gypsum wall board partitions which can not be recycled locally here in the Okanagan. The following space solutions can easily be disassembled and repurposed in another build when they've reached end of use in this home. Therefore, extending their lifecycle costs.

The ORI Studio Suite is a robotic furniture solution designed to create flex spaces within an open floor plan. This can be configured as an entertainment unit with book shelves with an expandable dining table or touch down work space. With the touch of a button it can slide closer to the sofa and a queen trundle bed can be pulled out on the opposite side. Ample storage is provided in the closet above. The clear space on the living room side when the bed and table are tucked away provides an area large enough for a yoga mat for a daily stretch or meditation routine.

Ori Pocket Closet and Ori Pocket Office have also been integrated into this design.

INTERIOR DESIGN FLEXIBLE FURNISHINGS

TABLE 1—STEP CODE TARGET METRICS

	STEP CODE METRIC	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
MECHANICAL	% better than reference house	0%	10%	20%	40%	No Target (report score)
	Mechanical Energy Usage Intensity (MEUI)	No Target (report score)	158 kWh/m ² year	143 kWh/m²year	118 kWh/m ² year	88kWh/m ² year
AIR TIGHTNESS	ACH @ 50Pa	No Target	3.0 ACH@ 50Pa	2.5 ACH @ 50Pa	1.5 ACH @ 50Pa	1.0 ACH @ 50Pa
BUILDING ENVELOPE	Thermal Energy Demand Intensity (TEDI)	No Target (report score)	52 kWh/m ² year	45kWh/m²year	35 kWh/m ² year	22 kWh/m ² year

TABLE 2—PROJECTED STEP CODE METRICS

	PROJECTIONS	THE SPROUT
RATINGS	Projected Step Code Level	Step 3
	Projected EnerGuide Amount of Energy the home uses	143-120kWh/m ² year
	Projected Amount of Electric Energy generated from solar panels	500-550kWh/m ² year/panel
	Projected EnerGuide Rating/Score	72GJ/year=20%more efficient
	Ref Typ. New House EnerGuide Score	90GJ/year
MECHANICAL	% better than conventional systems	30-40%
	Mechanical Energy Usage Intensity (MEUI)	75 kWh/m ² year
AIR TIGHTNESS	ACH @ 50Pa	2.5-2.0 ACH @ 50Pa
BUILDING ENVELOPE	Thermal Energy Demand Intensity (TEDI)	45-50kWh/m ² year

TABLE 3—CONSTRUCTION DETAILS

	PROJECTIONS	
MECHANICAL COMPONENTS	Ventilation	HRV with 50% SRT at 0°C @60cfm/min.—85-95% efficient
	Heating/Cooling System (Opt. passive mech cool)	Ducted VRV-split air source heat pump 11-12 HSPF 16.5-22.6 SEER—80-97% efficient
	Air Con or Heat Pump	Air source heat pump—80-97% efficient
	Hot Water	1 electric water conserver tank 40 US gal. fed by solar water heat collectors on rooftop. Drain water heat recovery—25% efficient
AIR TIGHTNESS		2.5-2.0 ACH @ 50Pa
ENVELOPE COMPONENTS	Slab Insulation	8" EPS R34
	Concrete Frost Wall	8" Concrete
	Above Grade Walls	10-1/2": Double wall @24"OC, 2.5" Fiberglass R8 + 5.5" Rock Wool R22
	Headers / Box Joists	2.5" Fiberglass + Spray foam R7.5
	Flat & Vaulted Ceilings	14" parallel truss or I-joist or LVL @ 16"OC R60 Rock Wool Batt in ceiling
	Air & Vapour Barrier	Smart air vapour barrier placed between double wall system
	Windows & Doors	Windows: USI >1.4, SHGC 0.25—0.8 Glass Doors: USI >1.4, SHGC 0.3—0.8 Insulated Fiberglass Doors: R9 Solid Wood Doors: R15
	Openings to Wall Ratio	18.13% (Conventional Avg. 20-30%)

This home has been designed to meet today’s building code requirements for energy efficiency and can easily be modified for even greater efficiency. The following tables detail two options for meeting Step 3 of the BC Step Code, which represents **20% greater efficiency** than conventional building techniques. Additional options (ie. renewable energy generation) could achieve even greater levels of environmental sustainability

ENERGY EFFICIENCY



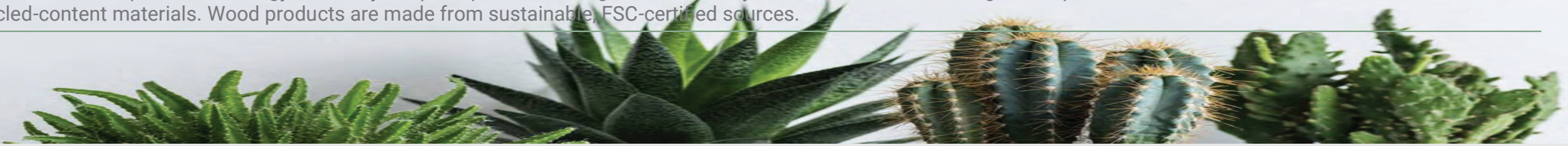
TABLE 4—AFFORDABILITY COST ANALYSIS

	REFERENCE TYPICAL CUSTOM BUILD	THE SPROUT BASE MODEL DESIGN	1 BED/1 BATH REDUCED FOOTPRINT + ENERGY EFFICIENCY UPGRADES
DESCRIPTION	2 BED / 2 BATH + GARAGE	2 BED / 2 BATH	1 BED / 1 BATH
BUILDABLE AREA	HOME (968sqft)+GARAGE (240sqft)	968sqft	762 sqft
INCOME			
RENTAL INCOME	\$1,400 /month –\$16,800/year	\$1,400 /month –\$16,800/year	\$1,000 /month –\$12,000/year
ECO GRANTS & REBATES	\$0	\$5,000 Canada Greener Homes Grant	\$5,000 Canada Greener Homes Grant
NET OPERATING INCOME	\$16,800year–\$17/ sqft	\$16,800year–\$17/ sqft	\$12,000/year-
CAPITALIZATION RATE (Annual ROI)	3%	3%	3%
TOTAL ANNUAL INCOME	\$17,304	\$17,304	\$12,360
EXPENSES			
SOFT COSTS			
Design Fees	\$8,000	\$0	
Municipal Fees	\$5,000	\$1,000	RENEWABLE ENERGY UPGRADE OPTIONS:
HARD COSTS			
Site Works	\$26,000	\$26,000	AquaPavers:–\$10.50 sqft Bioswale: \$750
Foundation Works	\$21,000	\$21,000	6 Solar Panel system: \$5,350
Super Structure	\$145,000	\$160,000	Rain water Collection Basin: \$250
Fixtures & Appliance	\$32,000	\$21,000	
Interior Finishing	\$45,000	\$15,000 -salvage doors, millwork, finishes	
OPERATING COSTS (property tax, maintenance)	3%	2%	0.5% –\$4 sqft
TOTAL INITIAL CONSTRUCTION COSTS/EXPENSES	\$309,760–\$320 sqft	\$242,000–\$250 sqft	\$190,500 –\$250 sqft
TOTAL PROFIT (Value minus Cost)	\$57,544	\$140,192	
EXISTING AVGERAGE HOME & LAND VALUE	\$350,000	\$350,000	\$350,000
TOTAL ROI—RETURN ON INVESTMENT	6%	24%	32%

AFFORDABILITY

TABLE 5—THE SPROUT: WRITTEN DESCRIPTION

EVALUATION CRITERIA	HOW THE EVALUATION CRITERIA WAS MET
<p>1. DESIGN (10 points): Successful designs will be high-quality, attractive, and practical. Contestants would therefore benefit from knowledge of the real estate preferences of locals. Designs will demonstrate compatibility with the form and structure of principal buildings and neighbourhood housing stock/types (fit as broad or a range of contexts and Page 4 neighbourhoods as possible i.e. fitting with contemporary and heritage primary homes alike), while considering the region's context and architecture. • Good designs will have a desirable internal layout (i.e. suitable for couples and small families) with attractive exteriors and aesthetics</p>	<ol style="list-style-type: none"> 1. The Sprout is respectful of the local heritage and culture. The use of horizontal clapboard siding along side a contemporary vertical wood cladding is a nod to the 1920's farmhouses. 2. A skillion-inspired shed roof with clerestory windows refers to the mid-century era style home as well as a period of rapid growth in Vernon, the 1970's which had a flatter roof pitch. 3. Spacious 1-storey, fully detached, self contained, ground level accessory dwelling designed for accessible yet independent living. 4. Flexible design options (968 sq ft & 762 sq ft) to fit a variety of lot conditions, budget and home owner requirements. 5. Additional features / upgrades available based on lot size, site conditions, and budget, such as patio pavers, landscaping pergola, raised vegetable garden beds and solar panels. 6. Passive Home inspired energy efficient design considerations and specifications for occupant comfort and reduced operational costs. Practical design with an efficient and cost effective square shape of the structure, 10.5" wall assemblies, heat pump and HRV specifications for heating and cooling systems. Size and location of windows as well as roof style and overhang supporting energy efficiency while also providing a desirable design feature. 7. The 12 ft high sloped ceiling creates a feeling of expansiveness. Natural light from the operable clerestory windows, allow for natural air flow and venting. 8. Flexible interior layouts with the use of innovative furnishings that were considered in the pre-design phase so they would integrate well with the space. 9. Flex space for the ORI Studio which can be configured as an entertainment unit, dining table or a trundle bed with ample storage OR this can be built out as traditional bedroom or den. 10. Simple 'less is more' design which is attractive to all demographics.
<p>2. GOOD HOME, GOOD NEIGHBOUR (10 points): successful designs will be appreciated by both neighbours and occupants of the Secondary Dwelling. They will have street appeal (an attractive design that will appeal to most) and afford privacy to both occupants and adjacent neighbours. Occupants will benefit from a high-quality interior that will be as house-like as possible (high ceilings and quiet walls to reduce noise within the home)</p>	<ol style="list-style-type: none"> 1. Street appeal is achieved by clean and simple lines that do not distract, and warm organic materials that are inspired by the natural elements of the Okanagan. 2. The scale of the structure, whether it be the Sprout or the Mini-Sprout, is designed to relate to the existing home to compliment it rather than overpower it. 3. Landscaping with taller vegetation, and planter boxes to grow vegetables, will provide sustainable food production, increase curb appeal, provide privacy and absorb sound. 4. Generous front and rear building setbacks allows opportunity for adding green space with use of Indigenous natural plantings. 5. Aqua-Pavers Paving System allows rain to infiltrate a permeable paving stone before being released into storm sewers and reduce impact on existing drainage in the neighbourhood. 6. Aqua-Pavers with grass provides a green aesthetic that looks like a lawn rather than a driveway. 7. Street-side bioswales mitigate additional stormwater runoff from the new home, which supports green infrastructure by reducing impact on municipal storm-sewer systems. 8. Windows are strategically placed to optimize light entering the interior, providing optimal views as well as maintaining privacy for and from neighbours. 9. Home design and layout promotes inclusivity and liveability for a variety of demographics and supports multigenerational living on the same property and diverse neighbourhoods. 10. Building better with materials and specifications to enhance the resiliency and sustainability of neighbourhoods in the face of climate change. 11. Home interior is flexible layout... serves need of current and future residents (add to this and make specific to each home) 12. 12' high sloped ceiling, quality-interior finishes selected for longevity and ease of maintenance, along with high STC rated exterior and interior walls create a beautiful and quiet home.
<p>3. AFFORDABILITY (25 points): Initial construction costs and the ongoing costs of maintenance must also be taken into consideration</p>	<ol style="list-style-type: none"> 1. Building materials chosen were selective/minimal to minimize cost of labour for multiple trades. Materials were selected that were available locally and readily available to reduce shipping costs. 2. Salvaged building materials like interior doors, finishes, fixtures and hardware were selected from Meirers Salvage to bring initial construction costs down. 3. Refurbished cabinets for kitchens and baths were recommended for purchase from Habitat for Humanity to dramatically reduce the millwork budget from conventional new construction. 4. Various renewable energy sources and rainwater collection strategies employed to reduce ongoing operational/maintenance costs. 5. Our strategy was to bring the typical base construction costs down with the above strategies so that the more costly energy efficient building material strategies and systems could be afforded up front.
<p>4. FLEXIBILITY & LONGEVITY (5 points): the winning designs will be those that are the most elastic, meaning adaptable to and replicable across a variety of lots, neighbourhoods, lot configurations, and topographies. Maximize opportunities for easy customization to accommodate individual appetites for affordability, finishing, and sustainable design features. Entrants will be rewarded for designs that show promise of a long shelf life</p>	<ol style="list-style-type: none"> 1. The Sprout has been intentionally designed so that the foot print can be easily reduced from a two bedroom/2bath solution to a 1 bedroom/1bath solution (968 sq to 762 sq ft) should site constraints, affordability / budget, or if there is no need for the additional square footage. 2. Can be situated on a sloped lot east / west or north / south with the addition of a retaining wall or building steps or a ramp to the front entrance in multiple configurations on a lot. 3. Design is timeless and will compliment local architecture without over powering existing home on the site. Roof is low and pleasing to look at with the clerestory windows. 4. Quality, durable and low maintenance construction materials have been specified. Interior design is classic minimalist, with natural materials and a neutral timeless colour scheme. 5. Upgrades for sustainable design features such as solar are available and can easily be added post construction due to pre-planning for such features (roof slope and orientation and roughing in electrical for solar power battery). 6. The longest shelf life takes into consideration what happens beyond the shelf life! The Spout has been designed for eventual disassembly decades down the road by considering all materials as part of a circular economy. Gypsum wall board has been replaced with hemp board and the need for conventional wall construction has been reduced by using innovative furniture solutions such as ORI.
<p>5. ECO-DESIGN (5 Bonus points): will be awarded to designs that consider energy efficiency and a built form that will complement and fit into their landscape (rural & urban context). Green materials are used where appropriate, and maximum possible energy efficiency is achieved. For additional bonus points, designers are encouraged to showcase options to add other sustainability features that require additional investment (e.g. living roofs) in recognition of the importance of climate action and sustainability. Where there is a return on investment over a given timeframe, this can be specified</p>	<ol style="list-style-type: none"> 1. Foundation insulation 8" EPS R34; 10-1/2" ; Double exterior wall system with rock wool & fiberglass plus exterior rain screen R30. 2. Continuous air-tight envelope construction with continuous super-insulation to ensure no thermal bridging, reduces heat losses & gains. 3. Use of light coloured roofing materials to reflect light and heat absorption. Option to add low maintenance green roof on flat portion* 4. Double layer rock wool batt in ceiling—R60. 5. High performance windows and doors, maximize passive solar radiation (free heat). Large windows maximize daylight, reducing reliance on electric lighting. 6. Extended overhangs on southern and eastern exposures to reduce summer solar heat gain. Exterior window shades block heat loss in winter & heat gains in summer. 7. Clerestory windows vent warm air out in summer and allow indirect light to bounce off a light shelf onto the ceiling to illuminate the interior space. 8. Heat pump water heater—90-96% efficient; Heat Recovery Ventilation System—85-95% efficient which provides low energy climate control. 9. Drain water heat recovery—reduces water heating by 25%; Water saving plumbing fixtures and rain water harvesting from roof for garden irrigation. 10. Low energy LED light fixtures and power harvested in batteries from rooftop solar panels* converts solar energy to carbon-free electrical energy. Battery back up for off-grid power* 11. Possible to achieve Step 3 of the new BC Step Code for energy efficiency. Step 3 represents 20% greater efficiency than conventional building techniques.* 12. Use of rapidly recyclable, recycled-content materials. Wood products are made from sustainable, FSC-certified sources.





The design team thanks you, the municipalities for the opportunity to contribute to this amazing cause. We are eager to see all the submissions and different views on how to solve such an important challenge we are currently facing in our region.

THANK YOU