

## Appendix E Voluntary Program – Silver State Sustainable Home (Proposed)

### What is a Silver State Certified Sustainable Home?

A Silver State Sustainable Home (S3H) is designed and built to be environmentally sustainable. It is a green home that uses less energy, water and natural resources, creates less waste and is healthier for the people living inside compared to a standard home. A Silver State Sustainable certified home provides greater durability and lower maintenance costs. It is energy efficient and much more. It is also a high performing home in these other key areas: water use, materials and resource use, indoor air quality and site development. Homes are built to last decades and the operation and maintenance costs of a Silver State certified home will cost less than the standard home for its lifetime.

### Key Features

- Voluntary Option
- Comprehensive and Credible
- Rigorous Yet Attainable
- Benefits Developers, Tenants / Occupants, Community
- Designed for Affordable Housing Developers in Nevada

For more information about S3H Contact **Barbara Collins, ERH West**, or **Brenda Hungerford, All Phase Inspections**, the Division Energy Consultants, at [bcollins@erhwest.com](mailto:bcollins@erhwest.com) and [brenda@allphaseinspections.com](mailto:brenda@allphaseinspections.com) with any questions.

### Construction Types

Single-family Homes (including townhomes)

Low-rise Multifamily (1-3 story buildings)

Mid-rise Multifamily (4 -5 story buildings)

### Certification Levels

Tier 1 – Mandatory Measures plus 15 points, minimum 12 from Resource Efficiency and Site Development

Tier 2 – Meet Tier 1 requirements plus 25 points from any category

Tier 3 – Meet Tier 1 requirements plus 50 points from any category

### Plan Review Mandatory Measure

<b>Plan Review</b>	<b>Building plans are reviewed and analyzed pre-construction to verify compliance with requirements. Design team meets with certifier to discuss plans and path to certification.</b>
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### Operations and Maintenance Manual Mandatory Measure

<b>Operations and Maintenance Manual</b>	<b>A manual which covers operation and maintenance of equipment and building systems shall be provided to the building owner or property management.</b>
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### Energy Efficiency Mandatory Measures

**Energy Performance  
Modeling**

**Energy modeling using nationally approved building energy use simulation software is done on each unique dwelling type based on type, size and location in a project, using worst case.**

	<b>Orientation building for energy use. Minimum performance shall meet Energy Star Homes v3.1</b>
<b>Mechanical Equipment</b>	
<b>HVAC System Sizing</b>	ACCA Manual J/S or equivalent required
<b>Return Air Balancing System</b>	In dwelling units with $\geq 2$ bedrooms, pressure difference with bedroom door closed and air handler running is $< 3$
<b>Air source heat pump</b>	Climate Zone 3 $\geq 15$ SEER; 8.5 HSPF Climate Zone 5 $\geq 14.5$ SEER; 8.5 HSPF
<b>Conventional Forced Air Furnace, Natural gas / propane</b>	Climate Zone 3 $\geq 90$ AFUE Climate Zone 5 $\geq 92$ AFUE
<b>Split System Central A/C</b>	Climate Zone 3 $\geq 15$ SEER Climate Zone 5 $\geq 14.5$ SEER
<b>Thermostatic Expansion Valves</b>	Required
<b>Thermostat</b>	Programmable
<b>HVAC System Location</b>	HVAC air handler and duct distribution systems located within the thermal and air barrier boundary
<b>HVAC System Leakage</b>	$< 4$ cfm or less/100 sq ft living space leakage to outside $< 8$ cfm or less/100 sq ft living space total
<b>Combination Space Heating/Water Heater</b>	$\geq 80\%$ Recovery Efficiency ; 0.67 Energy Factor
<b>Water Heater Only</b>	Residential Tank, Natural gas / propane $\geq 0.67$ Energy Factor Tank Electric $\geq 2.2$ Energy Factor Commercial Tank, Natural gas / propane $\geq 84\%$ Thermal Efficiency Electric $\geq 2.2$ Energy Factor
<b>Spot Ventilation and Mechanical Fresh Air Ventilation System</b>	Ventilation equipment shall be Energy Star, high efficiency, low sone.
<b>Plumbing Fixtures</b>	
<b>Showerheads</b>	Use $< 2.0$ gallons per minute
<b>Faucets</b>	Use $< 1.5$ gallons per minute
<b>Building Envelope</b>	
<b>Insulation Levels</b>	Minimum required insulation levels for attics/ceilings, walls, band joists, floors over unconditioned space and slab foundations, must be equal to or greater than IECC code Foam board sheathing on exterior walls required: Climate Zone 3 $\geq R-4$
<b>Air Sealing and Insulation Installation Inspections</b>	Pre-drywall inspections of air sealing and insulation installation required. Insulation installation must achieve RESNET Grade 1 (QII in CA)

<b>Air Infiltration</b>	<b>Building envelope shall be pressure tested with blower door at finish and meet code requirement</b>
<b>Windows</b>	Climate Zone 3 < U-value 0.30 ; SHGC 0.25 Climate Zone 5 < U-value 0.27 ; SHGC Any
<b>Lights and Appliances</b>	
<b>Lighting</b>	100% of interior light fixtures shall be Energy Star qualified LEDs or equivalent
<b>Appliances</b>	These appliances, if installed, shall be Energy Star: Refrigerator, Dishwasher, Clothes Washer, Clothes
<b>Ceiling fans</b>	Shall have high efficiency motors with minimum performance of 100 cfm/watt at medium speed. Light kits
<b>On-Site Renewable Energy Ready</b>	
<b>Solar Energy Ready</b>	When renewable energy is not installed in project construction, design and build the project so that it will readily accommodate the installation of solar photovoltaic panels. Project must meet one of the following 1. DOE Zero Energy Ready Home PV-Ready Checklist 2. CalGreen, Section 110.10.b Requirements for Solar Ready Buildings Required with Renewable Power Contracts.

## Points

<b>Renewable Energy</b>	
<b>Renewable Energy Installation 4 points per 5% of project's annual electrical energy</b>	Design and install solar photovoltaic energy to meet portion of energy demand for project.
<b>Renewable Energy Installation / On- site battery energy storage system installation. 5 points per 5% annual electrical energy demand.</b>	Design and install solar photovoltaic energy to meet portion of energy demand for project with a battery energy storage system
<b>All Electric Construction 18 points</b>	All equipment used in the building is electric
<b>Renewable Power Contract 10% =1 point, 20% = 2 points 30% = 3 points, 40%</b>	Provide at least 10% of the project's total energy consumption through renewable energy sources by contracting to purchase green power for at least two
<b>Energy Performance Improvement Path 1% = 1 point</b>	Energy Performance Improvement over IECC 2018, cannot be used with Prescriptive Improvements.
<b>Prescriptive Improvements</b>	

<b>Air Infiltration</b> <b>2 points</b>	Maximum ACH/50 Climate Zone 3 < 3 Climate Zone 5 < 4
<b>Energy Recovery Ventilator</b> <b>2 points</b>	Install Energy Recovery Ventilator to provide mechanical ventilation
<b>Whole Building Lighting</b> <b>2 points</b>	All exterior area lighting, high efficacy
<b>Air Source Heat Pump</b> <b>1 SEER increase = 1 point each</b>	Install air source heat pump that exceeds mandatory efficiency specification
<b>Mini-Split heat pump</b> <b>1 SEER increase = 1 point each</b>	Install air source mini-split heat pump that exceeds mandatory efficiency specification
<b>Heat Pump Water Heater</b> <b>4 points</b>	Install Energy Star qualified heat pump water heater
<b>Tankless Water Heater</b> <b>2 points</b>	Install Energy Star qualified tankless water heater with recirculating pump
<b>Conventional Forced Air Furnace, Natural gas / propane</b>	Climate Zone 3 ≥ 92 AFUE Climate Zone 5 ≥ 96 AFUE

## Water Efficiency Mandatory Measures

<b>Plumbing Fixtures</b>	
<b>Toilets</b>	WaterSense; use < 1.28 gallons per flush
<b>Showerheads</b>	Use < 2.0 gallons per minute
<b>Faucets</b>	Use < 1.5 gallons per minute
<b>Appliances</b>	
<b>Dishwashers &amp; Clothes Washers</b>	Dishwashers and clothes washers must be Energy Star

## Points

<b>WaterSense hot water distribution 2 points</b>	<b>Design and install water system that meets the WaterSense volume limit for hot water distribution.</b>
<b>Xeriscaping 2 points</b>	75% of landscape is xeriscaped
<b>Drip Irrigation 2 points</b>	Drip or subsurface irrigation systems is installed for all landscape areas requiring irrigation
<b>Limit Turf 2 points</b>	Total turf area in landscape < 20%
<b>Mulch 2 points</b>	≥ 2 inches of air and water permeable mulch is installed over all no-turf vegetation areas. weed barriers must be air and water permeable.
<b>Irrigation Controller 2 points</b>	Install a WaterSense irrigation controller

## Indoor Air Quality Mandatory Measures

<b>Mechanical Ventilation</b>	<b>Meet ASHRAE Standard 62.2 Ventilation for Acceptable Indoor Air Quality. Continuous mechanical ventilation shall</b>
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	<b>provided, bath and kitchen intermittent exhaust shall be provided.</b>
<b>Combustion Appliances inside conditioned space</b>	Power vented or direct-power vented unit. No natural draft combustion appliances in conditioned space.
<b>Radon Mitigation</b>	In EPA Zone 1 areas, passive radon-resistant features below the slab and a vertical vent pipe with junction box within 10 feet of an electrical outlet shall be installed.
<b>Interior wall paint</b>	Low Volatile Organic Compound (VOC) paint shall be used for interior walls. Paint shall comply with VOC limits in Table 1 of the CARB Suggested Control Measure for Architectural Coatings.

## Points

<b>HVAC System Protection 1 point</b>	<b>Ducts covered during construction, with tape, plastic, sheetmetal or other methods from rough-</b>
<b>High MERV air filter 13 = 1 points 16 = 2 points</b>	Install MERV 13 or higher air filter in HVAC, adequate air flow design details in plans.
<b>Low VOC Insulation 2 point</b>	Thermal Insulation installed meets low VOC defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or
<b>Low VOC kitchen and bath cabinets 3 points</b>	Kitchen and bath cabinets meet CARB Composite Wood Air Toxic Contaminant Measure Standard or
<b>Hard Surface Flooring Systems 3 points</b>	Hard surface flooring meets one of the following: 1. Products certified under UL GREENGUARD Gold 2. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
<b>Low VOC carpet, cushion and adhesive 2 points</b>	Carpet, carpet cushion and carpet adhesives shall meet the testing and product requirements of one of the following: 1. Carpet and Rug Institute's Green Label Plus Program 2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350). 3. NSF/ANSI 140 at the Gold level 4. Scientific Certifications Systems Indoor Advantage™ Gold. Carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's
<b>Composite Wood Products 3 points</b>	Composite Wood Products Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in the CARB Air Toxics Control Measure for

<b>Moisture Content of Building</b> <b>1 point</b>	<b>Building materials with visible signs of water damage not be</b> installed. Wall and floor framing not be enclosed when the framing members exceed 19% moisture content
<b>No Smoking Policy</b> <b>3 points</b>	Agreement to establish a no-smoking policy for project (including all indoor common areas, units, and balconies/patios) and within 25 feet of buildings and include a non-smoking clause in the lease for each household.

## Resource Efficiency – No Mandatory Measures

### Points

<b>Construction Waste Management</b> <b>60% = 1 point</b> <b>75% = 2 points</b>	<b>Non-hazardous construction waste is recycled:</b> <b>Recycle 60% of three items below</b> <b>Recycle 75% of three items below</b> <b>Cardboard, concrete, wood, drywall, asphalt and metals.</b>
<b>Recycling Station for Occupants</b> <b>2 points</b>	Provide readily accessible station/dumpster on site for recycling, must include paper, cardboard, glass, plastics (#1 #7), and metals.
<b>Recycle Bins</b> <b>2 points</b>	Recycle bins adjacent to other waste receptacles in common areas and walkways.
<b>Building Materials With Recycled Content</b> <b>2 points per component</b>	Use materials with 25% recycled content value for a minimum of 75% of the total value of the building component, based on estimated cost of materials on the project. Insulation Framing Sheathing Flooring Roofing Site
<b>Sustainably Harvested Wood</b> <b>2 points</b>	All wood in the building must be certified by the Forest Stewardship Council, or equivalent.

## Site Development – No Mandatory Measures

### Points

<b>Walkability</b> <b>2 points</b>	<b>The site (or designated center of scattered-site projects) is</b> within 1/2 mile from 3 - 5 or more of the following: grocery, pharmacy, bank, school, day care, parks, community centers, medical facilities, library, place of worship, post office (day care facilities not applicable for Senior Housing)
<b>Infill Site</b>	The project is on an infill site with existing infrastructure such

**2 points**

as roads, water and sewer connections, etc. and site boundary is adjacent to existing development on at least one side

<b>Wellness/Exam Room 1 point</b>	<b>Provide a room for tenants to see medical professionals for routine wellness service and exams</b>
<b>Shuttle Bus Service 2 points</b>	Provide shuttle service to occupants a minimum of 1 day per week for transportation to appointments and
<b>Transit Access 2 points</b>	Project is located within 1/2 mile of existing or planned transit service
<b>Outdoor Amenity 2 points</b>	Picnic area equipped with, for each 100 units, a minimum of three charcoal or gas barbeque units and one 6' picnic table with benches and shade tree/structure, on separate concrete slabs no less than 200 square feet evenly distributed throughout the project
<b>Computer/Study Room 1 point</b>	Computer/study room with full Internet access that is a minimum of 100 square feet and is equipped with at least one computer for every 20 units. (meet QAP requirements)
<b>Recreation Areas 2 points</b>	Install two recreation areas from the following: Shuffle Board, Horseshoe Pits, Sand Volleyball Court, Pool Table, Piano, or Dog Park (meet QAP requirements)
<b>Electric Vehicle (EV) Charging 2 points / station</b>	Install Level 2 electric vehicle supply equipment (EVSE) in EV designated parking space
<b>Electric Vehicle (EV) Charging with Renewable Power 4 points / station</b>	Install Level 2 electric vehicle supply equipment (EVSE) in EV designated parking space. Charger energy supplied by renewable energy source.
<b>Electric Vehicle Charger Ready 1 point / space</b>	Install EV charging infrastructure in designated EV parking space
<b>Heat Island Mitigation 3 points</b>	Install reflective paving with a Solar Reflectance Index (SRI) of at least 29
<b>Tree Canopy 1 point each additional 10% increase</b>	Exceed local jurisdiction code requirements for tree canopy
<b>Light Pollution Reduction 2 points</b>	Reduce light pollution by using full cutoff exterior lighting and using downlighting only

