COCONINO COUNTY

Sustainable Building Program

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." -World Commission

www.coconino.az.gov/sustainablebuilding

Sustainable Building Program
Guidelines and Rating Worksheet 2016

Submittal Date: _____ **Final Date:** _____

Point Rating: _____ **Point Rating:** _____

Owner:		Phone:	
Project Name:		Project #	
Site Address:		Parcel #	
City, St.:		BD#	
Builder:		Phone:	
Architect/Designer:		Phone:	

Entry Level	**Intermediate Level**	**Advanced Level**	**Advanced Plus Level**
By qualifying at the entry level you will be meeting the CCSBP's baseline for sustainably responsible building.	The intermediate level is designed to achieve a higher level of environmental building performance.	At the advanced level, the building demonstrates exceptional environmental commitment.	At the advanced plus level, the building demonstrates above and beyond exceptional environmental commitment.
Accumulate a total of 200 points From the rating worksheet	Accumulate a total of 275 points From the rating worksheet.	Accumulate a total of 375 points From the rating worksheet.	Accumulate a total of 425 points From the rating worksheet.

Summary of Rating Categories	
1. Site	7. Plumbing Systems / Water Appliances
2. Passive Solar Design / Modeling & Performance / Renewable / Ratings	8. Interior / Exterior Finishes
3. House Size	9.Solid Waste
4. Structural / Thermal Elements	10. Resilient and Adaptive Design
5. HVAC	11. Education and Innovation
6. Lighting / Power / Energy Appliances	

A project which qualifies for any level of certification may earn a Net Zero Energy Distinction if the project meets the Net Zero Energy requirements. This distinction will appear on the project plaque received upon completion of the program. Projects must meet all prerequisites to achieve any level of certification.

	Fundamental Elements for the Coconino County Sustainable Building Program *(These elements are strongly encouraged for new home construction)*	Project Adherence	Verification Phase	Owners Manual
1	Project meets the requirements of International Energy Conservation Code as currently adopted by governing jurisdiction.		PR, II, R, F	NA
2	If there is a forced air heating/cooling system, it must have a programmable/set-back thermostat.		FC	Y
3	Hot water lines are insulated to min R-3.6 under slab or in crawl spaces, not in conditioned space walls. (E.g. 1/2" foam insulation over 1/2" - 3/4" pipe.)		PR, US or II	NA
4	Home manual and owner education provided.		FC	Y
5	Home owner agrees to provide Coconino County with copies of all utility bills for a period of two years to assess the performance of the home. (If home is builder-built for purpose of resale, or if the construction is 100% off-grid requiring no municipal utilities, this item can be negotiated.)		FC	NA
6	All tropical woods used anywhere in the project are FSC or FSI certified.		FC	Y
7	Carbon monoxide (CO) detectors installed per manufacturer's recommendations. At minimum, there is one per floor.		FC	Y

Orig Sort	Sustainability Goal	Building Aspects	Checklist Item	Potential Points	Project Points
1.0	Community & Site	Community Connectivity	**Community Connectivity:** • Project is located within city limits. ***15 pts*** ____ • Project is located within 0-2 miles of an urban trail. ***3-5 pts*** ____ • Project is located within 0-2 miles of public transportation. ***3-5 pts***____ • Project is located within 0-1 mile of open space, forest trails, and/or active recreation areas including parks, community meeting/gathering places. ***5-10 pts*** ____ • Project is located within 0-2 miles of basic shopping services. ***5-15 pts*** ____	50	
2.0	Community & Site	Site	Project is located within a density of more than 7 dwellings per acre development area.	3	
3.0	Community & Site	Site	Building is placed on previously developed land or urban infill.	4	
4.0	Community & Site	Site	**Site Impact:** Site is developed with Low-Impact Development (LID) strategies and/or green infrastructure such as: • Building sited to preserve open space and reduce impact on site vegetation, topography and natural drainage. ***1-2 pts*** ____ --- • Construction minimizes impact through designated "no-disturbance zone" marked on drawings and flagged during construction. ***1 pt*** ____ --- • Hard surfaces constructed with permeable materials or drain to permeable surfaces. ***1-2 pts*** ____ --- • Storm water retained on site using wattles during construction and swales, berms or infiltration basins after construction. ***1-2 pts*** ____ --- • Spread of invasive weeds is reduced through use of ground cloth, spraying vehicles clean and reduced disturbance area. ***1 pt*** ____ --- • Erosion control through the application of mulch. ***1 pt*** ____ --- • Trees are protected during construction (use of barricades, boundaries, and no-disturbance zone around trees and their roots). ***1 pt*** ____	10	
5.0	Community & Site	Site	Summer shade, natural cooling, and wind protection landscaping used.	1	

6.0	Community & Site	Site	Plan or proof of food producing garden is provided.	2	
7.0	Community & Site	Site	**FireWise Site:** • Conifer spacing 30' between crowns. ***1 pt*** ____ • Tree branches pruned 6-10' above ground. ***1 pt*** ____ • "Fire-free" area- no fuels- within 5' of home. ***1-2 pts***____ • Wildfire protection plan implemented, or hydrant. ***1 pt*** ____ • Building envelope is made with fire resistant material ***5 pts***	10	
8.0	Material & Resource Use	House Size	Credit awarded for smaller houses (all buildings in project). The square footage per bedroom is: <300 sf = ***50 pts***, <400 sf = ***44 pts***, <500 sf= ***40 pts***, <600 sf= ***30 pts***, <700 sf = ***20 pts***, <800 sf = ***10 pts***	50	
9.0	Community & Site	Site	Outdoor living space is included (patios, porches, etc) and has an area equal to at least 25% of the total indoor livable area	5	
10.0	Energy Efficiency & Use	Building Information Modeling	Building Information Modeling completed (i.e. - REM Design, Energy 10, Energy Scheming, Energy Plus, HERS, ResCheck, CommCheck, etc.).	4	
11.0	Energy Efficiency & Use	Passive Solar Design	**Passive Solar Design:** • Home oriented on the lot so the longest axial dimension faces within 20° of True South. ***2-5 pts***___ --- • Windows on south side of building. ***3 pts*** ____ --- • South glass has proper overhang or other shading feature to afford both summer shading and winter sun. ***1-2 pts*** ____ --- • For South glass, the highest Solar Heat Gain Coefficient is used when paired with the lowest U-value. If cooling is a significant concern, the SHGC will not exceed 0.55. ***1 pt*** ____ --- • Thermal Mass is included in the design (trombe wall, concrete floor, etc.). ***1-4 pts*** ____ --- • Exterior shading devices, screens, or landscaping for windows on the East/West side of the building, or no East/West windows are installed. ***1 pt*** ____ --- •Minimal use of windows on the north side of the building. ***1-2 pts*** ____ --- • Home is designed for passive solar winter heating using modeling or solar heat gain analysis to meet: 80%= ***4 pts*** 60%= ***3 pts*** 40%= ***2 pts*** 20%= ***1pt*** of annual need. ____ --- • Place rooms with low heating, lighting, and use requirements, such as utility rooms, storage rooms and garages, on the north side of the building. ***1 pt*** ____	23	

12.0	Material & Resource Use	Structural-Thermal Elements	Use of Optimal Value Engineering (OVE), LEAN Engineering, or advanced framing techniques. Must include examples on drawings.	5	
13.0	Material & Resource Use	Durable Adaptive Design	Credit will be awarded for designs with extra consideration for durability and resilience to weather damage from these elements: freeze-thaw cycles, wind, flooding, storm water, moisture, temperature extremes, and UV radiation exposure.	10	
14.0	Material & Resource Use	Durable Adaptive Design	Home is designed to be adaptive in use. Examples include accessibility to additions to accommodate aging in place, ADA accessible, residential to commercial, home based industry, extended family, smart wiring, etc.	10	
15.0	Energy Efficiency & Use	Structural-Thermal Elements	**Building Envelope:** • Foundation is insulated on the interior or exterior. R-10 for 2' =***3 pts*** >R-10 for 2'=***5 pts*** _____ --- • *Wall assemblies:* ***(14 points max)*** R-24=***2 pts*** ___ R-26=***2 pts*** ___ R-30=***4 pts*** ___ R-40=***6 pts*** ___ <R-40=***8 pts*** ___ -Have thermal break. ***4 pts*** ___ -Integral structure system used to combine structural and thermal properties. ***2 pts*** --- • *Ceiling Assembly:* ***(16 points max)*** -R-49=***5 pts*** R-60= ***10 pts*** ___ -Has thermal break. ***4 pts*** ___ -Integral structure system used to combine structural and thermal properties. ***2 pts*** ___ --- • *Windows:* ***(8 points max)*** -Strategically placed and minimally sized ***4 pts*** ___ -U-value of .32 or lower ***2 pts*** ___ -Have a proof of low-E coating on the 2nd and 4th surface of the double pane. ***1 pt*** ___ -Window coverings for additional insulation. (shades, quilts, insulating drapes) ***1 pt*** ___ --- • *Doors:* ***(4 points max)*** -All exterior opaque doors are insulated to: R-5=***1 pt*** ___ R10= ***2 pts*** ___ -Garage door(s) is insulated to R-10 for attached and/ or conditioned garages. ***2 pts*** ___ --- • *Air Sealing* ***(10 points max)*** -Thermal envelope and penetrations are completely air sealed. ***4 pts*** ___ -Attic is conditioned space, or access is sealed and insulated. ***2 pts*** ___ -Diagnostic Blower Door test results show 3 ACH50 or less (Minimum 2012 IECC level). ***2 pts*** ___ -Vestibule is used to minimize heat loss at main entrance(s). ***1 pt*** ____ Gasketed doors ***2 pts*** ___	57	

16.0	Energy Efficiency & Use	Heating & Cooling	**Heating:** *Furnace Efficiency:* • 90%=***12 pts*** 92%=***14 pts*** 96%=***16 pts*** 97%= ***18 pts*** _____ • Duct blaster test is performed and results show that total duct leakage ≤ 6 cfm/sf to outdoors per 100 sq ft of conditioned floor area. ***2 pts*** ____ *Boiler Efficiency:* 90%=***14 pts*** 92%=***16 pts*** 95%=***18 pts*** 97%=***20 pts*** _____	20	
17.0	Energy Efficiency & Use	Heating & Cooling	**Cooling:** • Stack and/or cross ventilation capacity exists for seasonal cooling. (Paths < 40 ft.) ***1 pt*** ____ • An open floor plan will allow air to circulate freely throughout the house. ***1 pt*** ____ • No AC is installed. ***3 pts*** ____ • Central AC unit with a SEER rating of 13 or better or AC unit installed as a single unit with an EER (Energy Efficiency Rating) of 40+ ***1 pt*** ____	6	
18.0	Energy Efficiency & Use	Heating & Cooling	• Multi-speed ceiling fans (Energy Start Certified) are installed in 50% of rooms.	2	
19.0	Energy Efficiency & Use	Heating & Cooling	• No HVAC air handling equipment is in non-conditioned spaces.	1	
20.0	Environmental Quality	Ventilation	**Ventilation Addresses ASHRAE Standard 62.2:** • Heat recovery ventilator or air-to-air heat exchanger is installed. ***20 pts*** ___ • Furnace with fresh air intake. ***10 pts*** ___ • All bathroom exhaust fans are wired with light, occupant sensor, or on a timer. ***5 pts*** ___ • Kitchen exhaust fans rated for 1.0 sone (noise rating) or less. ***2 pts*** ___ • All exhaust fans lead outdoors. ***2 pts***___	20	
21.0	Environmental Quality	Ventilation	Passive or active radon ventilation system is installed per EPA guidelines.	10	
22.0	Environmental Quality	Ventilation	Project has detached garage, no garage, or an exhaust fan in garage on a timer and/or wired to door opener on attached garage.	2	
23.0	Energy Efficiency & Use	Lighting-Power-Energy Appliances	**Lighting:** • Daylighting provided in all rooms, including solar tubes (not skylights) ***3 pts*** ____ • Interior light fixtures are non-incandescent: (Points based on % of total fixtures installed) Compact or tubular fluorescent: ***6 pts*** Energy Star certified : ***8 pts*** LED: ***10 pts*** ____	13	

24.0	Energy Efficiency & Use	Lighting-Power-Energy Appliances	Smart home system installed for heating and lighting control and telecommunications. • Remote control of heat only: ***1 pt*** ____ • Remote control of lights, heat, etc.: ***2 pts*** ____	2	
25.0	Community & Site	Lighting-Power-Energy Appliances	**Dark Sky Lighting:** (Points based on % of total fixtures installed) • Exterior lights are fully shielded. ***1-3 pts*** ____ • Bulbs are low pressure sodium or amber LED light. ***1-2 pts*** ____	5	
26.0	Energy Efficiency & Use	Lighting-Power-Energy Appliances	**Clothes Drying:** • No dryer is installed & clothes line or rack is installed. ***10 pts*** ____ • Energy Star dryer is installed. ***4 pts*** ____ • Condensing Heat Pump dryer installed. ***6 pts*** ____ • Gas dryer stub-out is installed. ***1 pts*** ____ • Clothes line or rack installed. Inside: ***2 pts*** Outside: ***1 pts*** ____	10	
27.0	Energy Efficiency & Use	Renewable	Clean renewable energy system installed (solar electric (photovoltaic) power and/or wind power): Points are awarded based on percentage of the project's energy needs met • ***5 points*** for every 10% of energy needs met; a maximum of 50 points is awarded for 100%. ____ • Solar-ready ***5 pts:*** ____	50	
28.0	Energy Efficiency & Use	Lighting-Power-Energy Appliances	Utility supplied electric power (or solar generation) is on site and used at start of framing.	5	
29.0	Energy Efficiency & Use	Other Programs	Project is also participating in another energy certification program (i.e. LEED, NAHB, Engineered for Life, Certified Plus, Build America, Utility Company Programs, Energy Star, etc.)	1	
30.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	Plumbing drainage capability to lower sustained temperature in winter during periods of vacancy (Drain Down)	2	
31.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	**Greywater:** • Two pipe drain system for future gray water recovery system is installed. ***10 pts*** ____ • Complete gray water irrigation system is installed. ***20-25 pts*** ____ • Reclaimed water is used in landscaping. ***20-25 pts*** ____	25	

32.0	Energy Efficiency & Use	Plumbing Systems-Water Appliances	**Water Heating:** • *Tanked Water Heater:* -EF of 0.7 or higher for gas or 2.0 or higher for electric. ***8 pts*** ____ -Electric or gas heat pump water heater installed in lieu of conventional electrical water heater. ***12 pts*** ____ -Recirculation system with a timer and shut off switch is installed or point of use recirculation system. ***3 pts*** ____ • *Tank-less (instantaneous) Water Heater* installed with an Energy Factor (≥ 0.90 for Electric, ≥ .80 for Gas) ***12 pts*** ____ • *Solar water heating system* SRCC certified and sized to meet: 50% of annual hot water needs: ***12 pts*** 80% of annual hot water needs: ***15 pts*** ____	15	
33.0	Energy Efficiency & Use	Plumbing Systems-Water Appliances	**Hot Water Lines:** • Water heater is within 20-pipe feet length of fixtures. ***2 pts*** ____ • Fully insulated to min. R-3.6 throughout entire house, including conditioned spaces (including trunk lines, branch lines, joints, elbows, and lines installed under slab) ***3 pts*** ____	5	
34.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	**Rainwater Collection for Domestic Use:** • Filtration and use for toilet flushing ***20 pts*** ____ • Treatment for domestic water use in whole house ***30 pts*** ____	30	
35.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	Point of entry water or point of use water purification system meets ANSI/NSF standards (does not include reverse osmosis systems).	2	
36.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	**Water Fixtures:** gpm = gallons per minute (Points based on % of total fixtures installed) • Bathroom Faucets are low flow: 1.5 gpm (WaterSense rated)= ***1 pt*** ___ 1.2 gpm= ***3 pts***___ <1.2 gpm= ***5 pts*** __ --- • Kitchen faucets are low flow: 1.5 gpm (WaterSense rated)= ***3 pts*** ____ <1.5 gpm = ***5 pts*** ____ --- • Showerheads are low flow: 2.0 gpm (WaterSense rated)= ***10 pts*** ____ 1.5 gpm= ***15 pts*** ____ --- • Toilets are: 1.28 gallons per flush (WaterSense rated)= ***10 pts*** ____ < 1.28 gal per flush= ***15 pts*** ____ Composting toilets= ***20 pts*** ____	45	

37.0	Water Efficiency & Use	Plumbing Systems-Water Appliances	**Water Appliances:** • Washing machine is Energy Star rated. ***20 pts*** ____ • Dishwasher is Energy Star rated. ***5 pts*** ____	25	
38.0	Water Efficiency & Use	Site	**Rainwater Collection for Irrigation:** • Passive system to direct water to plants (swales, berms) ***1-5 pts*** ____ • Rain gutters ***5-10 pts*** ____ • Cistern or storage tank ***5-10 pts*** ____ • Distribution piping from storage to direct water to plants ***5-10 pts*** ____	35	
39.0	Water Efficiency & Use	Site	**Landscaping:** • Xeriscaped (based on % of landscaped areas) excluding vegetable/fruit gardens ***20 pts*** ____ • No irrigation system installed (beyond stored rainwater or greywater) ***10 pts*** ____ • Turf minimized: <200 sf= ***5 pts*** ___ <400 sf = ***3 pts*** _____ • Include invasive weed management brochure in owner's manual ***2 pts*** _____ • Rainwater sensor shut-off ***2 pts*** ____ • Non-spray, zone irrigation ***2 pts***____	41	
40.0	Material & Resource Use	Building Materials	Use of durable finishes (i.e. warranty or life expectancy of 40+ years). Points are based on % of total finish used in each category: roofing ***(3 pts)***, siding ***(3 pts)***, and indoor flooring ***(3 pts)***.	9	
41.0	Material & Resource Use	Building Materials	**Regional materials:** Points are based on % of total material used. *Extracted within 500 miles of site. List materials and percentage of total materials. ***10 pts max*** *Manufactured within 500 miles of site. List materials and percentage of total materials. ***5 pts max***	15	
42.0	Material & Resource Use	Building Materials	Materials used are FSC or FSI certified. Locally milled wood can also receive this credit. Points are based on % of total material used. List materials and percentage of total materials. ***10 pts max***	10	
43.0	Material & Resource Use	Building Materials	Recycled, salvaged, and/or rapidly renewable materials are used. Points are based on % of total material used. List materials and percentage of total materials.	15	
44.0	Environmental Quality	Building Materials	**Finish Material VOC level** (flooring, adhesives, sealants, paints, etc.) Points based on percentage of finished area: • Zero VOC materials are used ***10 pts*** ____ • Low VOC materials are used ***5 pts*** ____	10	
45.0	Environmental Quality	Structural-Thermal Elements	Formaldehyde-free insulation is used for building envelope insulation.	5	

46.0	Environmental Quality	Other Programs	Energy Star's Indoor Air Package certified.	5	
47.0	Environmental Quality	Heating & Cooling	100% of combustion appliances including fireplaces & woodstoves are sealed-combustion. ***5 pts***___ No fireplaces or woodstoves. ***2 pts*** : ____	5	
48.0	Community & Site	Local Economy	Project incorporates support for the local economy by hiring local contractors, buying materials from locally owned and operated stores, employing local building professionals, etc.	10	
49.0	Material & Resource Use	Solid Waste	**Construction Waste Management:** • Waste management area located in area that reduces impact. ***1 pt*** ____ • Site has clear waste segregation strategy and area. ***3 pt*** ____ • There is waste management plan. Verbal: ***1 pt*** Written: ***4 pts*** ____ • Construction waste is reduced through reuse, recycling and donation of excess materials. ***6 pts*** __ • Removed stumps and tree limbs are ground for mulch for use on site. ***1 pt*** ____	15	
50.0	Aesthetics, Innovation & Education	Aesthetics	Intentional aesthetic enhancement credit: Points are awarded based on 1.Composition and expression 2. Craftsmanship and 3.Response and association with place and context.	15	
51.0	Aesthetics, Innovation & Education	Education & Innovation	Educational aspects are integrated throughout the construction (eg construction blog, tours, speaking at local schools about project)	5	
52.0	Aesthetics, Innovation & Education	Education & Innovation	Innovation	10	
53.0	Aesthetics, Innovation & Education	Education & Innovation	Owner agrees to open house for a County Sponsored Home Tour within 2 years of the certificate of occupancy.	5	