City of Scottsdale

One- and Two-Family Residential Green Building Checklist



New Construction, Major Remodels & Additions Version 6.0 (July 2023)

Plan Check #	Building Permit #	GB Rating Level
Project or Owner's Name:		
Project Address:		
Architec/Designer Name:		
Builder Name:		

Use this rating worksheet to qualify projects under the Green Building Program for <u>one- and two-family dwellings</u> and <u>multiple single-family dwellings</u> (townhouses) not more than three stories above grade plane in height with a separate means of egress (International Residential Code - IRC Section R101.2).

All building system components, materials, and equipment must be installed per code and manufacturer's instructions.

Tier 1 - GB Designation	Tier 2 - GB Designation
 Meet all <u>10 mandatory measures</u> (p. 2 – 6). 	 Meet all <u>10 mandatory measures</u> (p. 2 – 6). Accumulate at least <u>20 points</u> from the rated options in the checklist (p. 4 - 12).

Tier 2 - Rating Categories and Maximum Available Points										
1. Site	20 pts	6. Lighting and Power	14 pts	11. Doors, Cabinetry, Trim	11 pts					
2. Structural Elements	29 pts	7. Plumbing System	16 pts	12. Flooring	15 pts					
3. Energy Rating/Renewables	40 pts	8. Roofing	12 pts	13. Solid Waste	11 pts					
4. Thermal Envelope	7 pts	9. Exterior Finishes	9 pts	14. House Size	+/- varies					
5. HVAC	19 pts	10. Interior Finishes	4 pts	15. Innovative Design	8 pts					

TIER 1 – MANDATORY MEASURES	LEVEL		VER	IFICAT	ION
SITE	Tier 1	Tier 2	Plan Review	City Insp.	3 rd Party
 M1. a) All exterior entrances to conditioned space shall be protected from direct summer sun exposures (east, west, south) with recessed or covered elements. b) At least 50% of site hardscape (e.g. walkways, patios, playgrounds, recreation courts, driveways, parking areas) shall be provided with one or more of following: Light colored surface with a minimum solar reflectance index (SRI) of 29. Permeable paving system with an open-graded engineered base to accommodate drainage and migration of water (e.g., - permeable and opencell pavers, pervious concrete, porous asphalt). Stabilized decomposed granite (open-graded uniform-sized aggregate). At least 80% of improved landscape shall be Xeriscape with native and/or adapted plants and a non-sprinkler type irrigation system (e.g. – drip or no irrigation). At least 50% of roof run-off shall be diverted to landscape areas via roof edge, gutters, downspouts, scuppers, grading, swales and micro-basins. Where installed, landscape irrigation systems shall meet the following: Shall be divided into zones to regulate water needs based on plants, soil, exposure, and other factors (ground cover, shrubs, trees on separate valves). Shall be provided with a moisture sensor or weather-based smart controller. 			Plan Review		Cert. of Compl.
THERMAL ENVELOPE	Tier 1		Ve	rificatio	n
 M2. Ceiling/roof insulation shall comply with one of the following: a) Provide <u>unventilated attic with spray applied insulation</u> (with adhesive binder) installed at underside of roof sheathing (batt is not acceptable for meeting the purposes of this requirement when installed at the underside of roof sheathing). b) Provide <u>ventilated attic with batt, blown-in or foam insulation</u> installed at bottom of attic space with a <u>radiant barrier</u> at underside of roof sheathing. 			Plan Review	City Insp.	Cert. of Compl.
HEATING, COOLING, VENTILATION	Tier 1	Tier 1 Verification		rificatio	n
M3. HVAC system shall have at least two space-conditioning zones with independent thermostatic controls. Exception: One bedroom dwelling units.			Plan Review		Cert. of Compl
 M4. <u>Ducts and air handlers</u> shall be located completely within the contiuous air barrier and building thermal envelope (excluding underground return ducts). a) <u>Duct seams and connections</u> shall be sealed with water-based mastic. b) <u>Return air filter grilles</u> shall be located and installed so as to facilitate access and regular service without special tools. 			Plan Review	City Insp. for duct	Cert. of Compl.

M5. Every enclosed habitable room with a door (excluding bathrooms, kitchens, closets, pantries, and laundry rooms) shall have a <u>return air path</u> through the use of return air inlets, transfer grills and/or jumper ducts. <u>Exception</u> : Where room to room pressure differences are measured to be 3.0 Pascals or less.		Plan Review	City Insp.	Cert. of Compl
M6. Install ceiling fans or electrical ceiling boxes for ceiling fans in at least half of habitable rooms (e.g living room, dining room, study, bedrooms).		Plan Review		Cert. of Compl
APPLIANCES	Tier 1	Ve	rificatio	n
M7. Installed appliances (refrigerator, freezer, dishwasher, clothes washer, clothes dryer) shall be Energy Star certified (www.energystar.gov/products).		Plan Review		Cert. of Compl
PLUMBING	Tier 1	Ve	rificatio	n
 M8. Water treatment systems. a) Where installed, water softeners shall be equipped with demand-initiated regeneration control and have a max. regeneration of 4 gallons per 1000 grains of hardness removed in accordance with NSF/ANSI 44 (cation exchange water softeners). Such water softeners shall use potassium rather than sodium. b) Where installed, reverse osmosis treatment systems shall be listed and labeled in accordance with NSF/ANSI 58 and equipped with an automatic shut off valve that prevents the production of reject water when there is no demand. Such systems shall yield at least 85 gallons of treated water for each 100 gallons processed. 		Plan Review		Cert. of Compl
SOLID WASTE	Tier 1	Ve	rification	on
M9. Provide at least two 9-gallon pull-out bins for recycling /trash in kitchen base cabinets.		Plan Review		Cert. of Compl
OPERATION AND MAINTENANCE	Tier 1	Verification		n
 M10. A homeowner's manual shall be provided including the following: a) Product literature, operation and maintenance manuals for materials, finishes, fixtures, appliances and equipment, including whole-house ventilation system. b) Listing and contact information of vendors and contractors. c) A diagram showing location of valves and controls for electrical panels, air filters, air intake, water shut-off valves, sewer diverter valves and clean-outs. 		Plan Review		Cert. of Compl

TIER 2 – RATED OPTIONS	LE'	VEL	VERIFICATION			Pts
1. Site (90% threshold unless otherwise noted)	Tier 1	Tier 2	Plan Review	City Insp.	3 rd Party	Select
1.1 <u>Topsoil and/or natural desert granite</u> shall be isolated from the disturbed area and preserved in a separate location for re-use to minimize the importing of soil.					Cert. of Compl.	3
1.2 At least 90% of <u>existing on-site native plants</u> including trees shall remain in place or be salvaged.			Plan Review			2
1.3 At least 90% of <u>improved landscaping</u> shall be native and/or Xeriscape (no turfgrass).					Cert. of Compl.	2
1.4 A <u>rainwater collection and storage system</u> shall be sized and installed to supplement the irrigation system based on seasonal irrigation needs, roof collection area, and annual rainfall.					Cert. of Compl.	3
1.5 Non-toxic termite control shall be used in lieu of toxic treatments (e.g., borate treatment, physical barriers, pest-resistant building materials).					Cert. of Compl.	2
1.6 Building design shall incorporate a <u>semi-enclosed courtyard</u> (2 or more sides) with shading provided by trees and/or structures.			Plan Review			3
1.7 <u>Shaded outdoor living spaces</u> shall be provided with an area equal to at least 20% of the first and second floor livable floor area.			Plan Review			3
1.8 At least 90% of <u>outdoor structures and/or hardscape</u> (e.g., retaining walls, fences, landscape planter boxes, ramadas, gazebos, decking, pavers) shall be made from salvaged, reclaimed or recycled content (minimum 25% combined post-consumer & pre-consumer recovered) materials.			Plan Review			2
		Su	b-total of	points s	elected:	
2. Structural Elements (90% threshold unless otherwise noted)		Tier 2	Ve	erificatio	n	Select
Dwelling has at least one <u>shared common wall</u> within a two-family (duplex) or multiple single-family (townhouse) building as regulated under the International Residential Code (IRC). Additional Points for two shared common walls.			Plan Review			2
2.2 Non-asphalt based dampproofing shall be used for basement and/or retaining wall applications (e.g zero VOC/water based liquid acrylic, 1 ply membrane, bentonite clay, and cement-based waterproof coating).					Cert. of Compl.	2

2.3 <u>Building structural components</u> shall be constructed of non-solid sawn lumber (metal, engineered lumber, recycled content materials, not including concrete slabs or pre-fabricated wood trusses). <u>Point</u> for at least 75% of roof structure <u>Point</u> for at least 75% of floor structure <u>Point</u> for at least 75% of beams, headers and columns <u>Point</u> for at least 75% of interior framing		Plan Review		1 1 1
2.4 <u>Lumber shall be certified</u> by the Forest Stewardship Council (FSC) or Sustainable Forest Initiative (SFI) as a sustainable source. <u>Point</u> for at least 75% of floor structure <u>Point</u> for at least 75% of beams, headers and columns <u>Point</u> for at least 75% of interior framing			Cert. of Compl.	1 1 1
2.5 No decorative non-structural wood beams, non-load bearing columns or double exterior walls (where 2 nd is non-load bearing) shall be used in the building project.		Plan Review	Cert. of Compl.	1
2.6 Interior <u>borate treated lumber</u> used for at least 50% of wood structure, not including trusses.		Plan Review	Cert. of Compl.	1
2.7 All <u>sub-floor</u> , <u>roof and wall sheathing</u> shall contain no added urea- formaldehyde resins.			Cert. of Compl.	1
2.8 An integral wall system shall be used that combines structural and thermal properties, and/or finish. Options include integral insulated masonry, structural insulated panels (SIP), insulated concrete forms (ICF), autoclaved aerated concrete (AAC), insulated sandwich panel (ISP), and solid foam panels. Natural materials such as cob, strawbale, adobe, pumice, thatch, rammed earth, and stone may also qualify. Additional Points for regionally extracted or recovered, processed & manufactured within 500 miles Additional Point for regionally extracted or recovered, processed & manufactured within 250 miles		Plan Review	Cert. of Compl.	2 1
2.9 <u>Structural elements</u> (beams, lintels, headers, columns, not including concrete slabs or pre-fabricated wood trusses) shall be sourced from regional manufacturers within 250 miles. 1 pt. per category (max. 2 pts.)			Cert. of Compl.	

2.10 Building design shall be based on <u>modular dimensions</u> and utilize one of the following systems: a) Advanced framing techniques (e.g., 2-stud corners, single top plates, stud spacing greater than 16" o.c., alignment of multistory load bearing modules) b) Panelized wall and roof systems		Plan Review		Cert. of Compl.	2
	Su	b-total of	points s	elected:	
3. Energy Rating and Renewables	Tier 2	Ve	erificatio	n	Select
3.1 Improved energy performance: 2 pts. credit for each 5 point reduction below the HERS index of 52 or each 5% improvement over the 2021 IECC (max. 10 pts.)		Plan Review		Cert. of Compl.	
3.2 <u>Utility supplied electric power</u> shall be available upon the completion of the floor slab and used during construction. <u>Additional Points</u> for use of solar power or other renewable energy source through the course of construction sufficient for power tools.			City Insp.		3
3.3 Provide an on-site photovoltaic (PV) solar system. 1 pt. for each 5% of the modeled annual electrical usage (kWh) produced by the PV system (max. 10 pts.)		Plan Review		Cert. of Compl.	
3.4 On-site renewable energy system is sized to produce as much energy as the building consumes on an annual basis (zero-net energy).		Plan Review			10
3.5 Provide an on-site <u>energy storage system</u> sized to meet summer peak demand.		Plan Review			6
	Su	ıb-total of	points s	elected:	
4. Thermal Envelope	Tier 2	Ve	erificatio	n	Select
4.1 <u>Wall insulation</u> . Spray foam – 2 pts. Blown-in with adhesive binder – 1 pt.		Plan Review	City Insp.		
4.2 Building shall be insulated with <u>HCFC-free</u> rigid or spray foam insulation.		Plan Review		Cert. of Compl.	1

4.3 Insulation shall have a minimum of <u>25% recycled content</u> (e.g., cellulose, cotton) or is made with 95% bio-based or natural materials (e.g straw, cotton).		Plan Review		Cert. of Compl.	1
4.4 Building shall be insulated with <u>formaldehyde-free insulation</u> (manufactured without added formaldehyde).				Cert. of Compl.	1
4.5 Where not restricted by planning and zoning regulations, steep-slope roofs (greater than a 2 in 12 pitch) that are directly above cooled conditioned spaces, shall have a minimum initial Solar Reflectance Index (SRI) of 29.		Plan Review		Cert. of Compl.	2
	Su	ıb-total of	points s	elected:	
5. Heating, Ventilation and Air Conditioning (HVAC)	Tier 2	Ve	erificatio	n	Select
5.1 Provide an <u>energy or heat recovery (ERV or HRV) ventilator</u> that operates automatically or continuously.		Plan Review		Cert. of Compl.	4
5.2 Provide a <u>whole-house ventilative cooling system</u> to cool indoors with outside night air during temperate seasons (spring, early summer, autumn).		Plan Review		Cert. of Compl.	3
5.3 Provide <u>air filter with the following minimum MERV rating</u> or <u>electronic air filter system</u> for each HVAC return. Verify that the HVAC equipment and ductwork is able to accommodate the greater pressure drop on the return air side of the system. <u>MERV 13</u> – 1 pt. <u>Electronic air filter</u> – 2 pts.				Cert. of Compl.	
5.4 Provide an independent whole-house filtration system with a minimum MERV 12 rating or HEPA filter.				Cert. of Compl.	2
5.5 Fenestration openings shall be configured to allow for stack and/or cross ventilation for seasonal cooling. Cross ventilation paths shall not exceed 50 ft.		Plan Review			3
5.6 <u>Central vacuum system</u> shall be provided with outside exhaust.			City Insp.		1
 5.7 Radon Protection. a) Test for radon on building site. Radon testing information is available on the US EPA Web site - www.epa.gov/radon/radontest.html b) Design and build with radon-resistant construction techniques as prescribed by US EPA. 		Plan Review		Cert. of Compl.	1 3
	Su	ıb-total of	points s	elected:	
6. Lighting and Power	Tier 2	Ve	erificatio	n	Select

6.1 At least 50% of habitable rooms shall be daylit from at least two sides (windows, clerestories and skylights).		Plan review			3
6.2 Recessed ceiling lights shall not penetrate the thermal (insulation) barrier.			City Insp.		2
 6.3 One or more of the following energy management tools shall be used to improve building energy performance: a) Load controller/shedding system designed to minimize the electrical load during peak demand periods by preventing the simultaneous operation of multiple appliances, lighting and/or equipment. b) Energy monitoring system (with sub-metering capability) designed to measure and calculate real-time energy usage and costs. 		Plan Review		Cert. of Compl.	3
6.4 Provide <u>electric vehicle supply equipment</u> (min. 240volt/40 amp) for not less than two vehicles.		Plan Review		Cert. of Compl.	4
	Su	Sub-total of points selected:			
7. Plumbing System	Tier 2	Ve	erificatio	n	Select
 7.1 Provide a graywater drain line from at least one plumbing fixtures (shower, tub, lavatory faucet, washing machine, utility sink) to discharge in landscape area. The graywater drain line shall be provided with an accessible diverter valve for the option of diverting graywater to building sewer line when not in use. a) Provide graywater drain connection from two or more plumbing fixtures. b) Graywater landscape irrigation system in compliance with 2021 IRC Section P3009. a) Graywater toilet fixture flushing in compliance with 2021 IRC Section P2911. 		Plan Review	City Insp.	Cert. of Compl.	3 3 4 6
	Su	b-total of	points s	elected:	
8. Roofing (90% threshold unless otherwise noted)	Tier 2	Ve	erificatio	n	Select
8.1 A minimum of 50% of roof area shall have <u>recycled or recycled content roof</u> <u>material</u> (e.g. metal, rubber, or salvaged roof tiles). <u>Additional point</u> for 75% or more of roof area.		Plan Review		Cert. of Compl.	2
8.2 Roof shall be a <u>high durability/low maintenance material</u> such as slate, clay, metal, or fiber-cement (not including concrete tiles unless vented). <u>Additional point</u> if roofing material is recyclable or reusable.		Plan Review	City Insp.		2

8.3 Roof covering material <u>weighs less than 350 lbs/100 sq. ft.</u>		Plan Review			2
8.4 Roofing shall have <u>a bitumen underlayment</u> (min. 90 lb. underlayment) or equivalent pliable membrane under concrete, clay, or slate roofing materials.		Plan Review		Cert. of Compl.	2
8.5 Ventilated attics shall be provided with a <u>continuous ridge vent and vented</u> <u>eaves</u> with unrestricted air flow.		Plan Review	City Insp.		2
	Su	b-total of	points s	elected:	
9. Exterior Finishes (90% threshold unless otherwise noted)	Tier 2	Ve	erificatio	n	Select
9.1 Exterior veneers shall be derived from regional sources within 500 miles of jobsite. This includes stone or cultured stone veneers that are regionally quarried or processed.		Plan Review		Cert. of Compl.	2
9.2 <u>Siding</u> shall be composed of reconstituted or recycled-content material (minimum 50% pre-or post-consumer).		Plan Review		Cert. of Compl.	2
9.3 Stucco or siding material shall be integrally colored.		Plan Review		Cert. of Compl.	1
9.4 <u>Stucco</u> is applied directly to masonry without lath.		Plan Review	City Insp.		1
9.5 Exterior structural materials (e.g. CMU, stabilized adobe, rammed earth, steel) shall be left exposed and in their natural state without a veneer or finish other than a sealer.		Plan Review	City Insp.		2
9.6 <u>Fascia, soffit and trim elements</u> shall be (a) certified lumber (FSC/SFI), (b) made of recycled-content materials (including metal) or (c) engineered wood products such as finger jointed trim, fiberboard, laminated strand lumber or OSB.		Plan Review		Cert. of Compl.	1
	Su	b-total of	points s	elected:	
10. Interior Finishes (90% threshold unless otherwise noted)	Tier 2	Ve	erificatio	n	Select
10.1 Wallboard and/or plasters used in the home shall be made with min. 25% recycled content (e.g gypsum board made with industrial by-product gypsum or flue-gas waste product, wheat board made with agricultural by-products)				Cert. of Compl.	2
10.2 <u>Interior paints</u> shall contain no acetone, formaldehyde or ethylene glycol (EG).				Cert. of Compl.	1
10.3 Natural plaster, paints and/or finishes shall contain a minimum of 20% recycled content.				Cert. of Compl.	1

Sub-total of points selected:							
11. Interior Doors, Cabinetry, and Trim (90% threshold unless otherwise noted)		Tier 2	Verification			Select	
11.1 <u>Solid wood doors</u> shall be domestic hardwoods or certified by the Forest Stewardship Council (FSC) or the Sustainable Forest Initiative (SFI).					Cert. of Compl.	2	
11.2 Composite doors shall contain no added urea-formaldehyde resin.					Cert. of Compl.	1	
11.3 <u>Cabinets, counter substrates and built-in furniture</u> shall contain no added urea-formaldehyde resins.					Cert. of Compl.	1	
11.4 Exposed substrate materials containing formaldehyde, such as the inside of cabinets and the underside and edge of counters, shall be sealed with a water-based formaldehyde blocking finish.					Cert. of Compl.	1	
11.5 <u>Cabinets, counter substrates and built-in furniture</u> shall be made of domestic hardwood from a <u>FSC</u> (Forest Stewardship Council) or <u>SFI</u> (Sustainable Forest Initiative) certified sustainable source and/or consist of a rapidly renewable material (a material that re-generates itself within a ten year period).					Cert. of Compl.	2	
11.6 <u>Interior trim</u> shall be made of one or more of the following: (a) finger-jointed/engineered wood; (b) domestic hardwood; (c) FSC- or SFI- certified; (d) rapidly renewable material (bio-based materials that regenerate within 10 years); or (e) min. 20% recycled content with no added ureaformaldehyde resins.					Cert. of Compl.	1	
 11.7 <u>Countertops</u> shall be made of one or more of the following: (a) min. 20% recycled content material (b) concrete containing no added urea-formaldehyde (c) regionally quarried/processed stone or manufactured tile from within 500 miles of project site. 					Cert. of Compl.	2	
11.8 No tropical woods shall be used in the entire building project.					Cert. of Compl.	1	
		Su	b-total of	points se	•		
Ta. Flooring In order to receive points in this category, the total area of the selected finish floor material must be at least 25% of total conditioned floor area unless otherwise noted.		Tier 2	Verification		on	Select	

				Cert. of Compl.	2			
				Cert. of Compl.	2			
				Cert. of Compl.	2			
				Cert. of Compl.	2			
				Cert. of Compl.	2			
				Cert. of Compl.	2			
		Plan Review	City Insp.	Cert. of Compl.	2			
				Cert. of Compl.	1			
Sub-total of points selected:								
	Tier 2	Verification			Select			
		Plan Review		Cert. of Compl.	4			
				Cert. of Compl.	2			
		Plan Review		Cert. of Compl.	1			
		Plan		Cert. of	2			
		Tier 2	Tier 2 Ve	Sub-total of points so Tier 2 Verification Plan Review Plan Review Plan Review Plan Review Plan Review	Compl. Cert. of Compl.			

Sub-total of points selected:								
14. House Size Calculate the number of <u>bonus or deductive points</u> based on house size.		Tier 2	Verification			Select		
14.1 <u>Dwelling under 3000 sq. ft.</u> of total conditioned space. <u>1 Point</u> for every 100 sq. ft. under 3000 sq. ft.			Plan Review					
14.2 <u>Dwelling over 3500 sq. ft.</u> of total conditioned space. <u>Minus 1 Points</u> for every 250 sq. ft. over 3500 sq. ft.			Plan Review					
Sub-total of points selected:								
This section recognizes innovative and emerging technologies, practices, and products that fulfill the intentions of the program, but are not addressed in the checklist. Projects can earn up to 8 additional points by submitting a written justification to plan review staff for review and determination of awarded points.		Tier 2	Verification			Select		
15.1			Plan Review		Cert. of Compl.			
15.2			Plan Review		Cert. of Compl.			
15.3			Plan Review		Cert. of Compl.			
15.4			Plan Review		Cert. of Compl.			
Sub-total of points selected:								
TOTAL POINTS (As Submitted)								
TOTAL POINTS (As Approved)								