climate Ready

CERTIFICATION CHECKLIST

bsag
BUILD SA GREEN

Name of Builder/Designer	Name of Applicant	Phone number & e-mail
Address of Home	Model Name/Number (if applicable)	EARZ location?
Conditioned Sq. Ft.[4]	Lot Sq. Ft.	Lawn (turf) Sq. Ft. Impervious Sq. Ft.

Review Fee (see below)

Statement of Intent

In submitting this home for certification, the applicant assures Build San Antonio Green® that the home will adhere to all the requirements listed for certification. All substitutions, if required, will be noted and signed by the applicant and the Build San Antonio Green® Certification Staff before the construction is completed.

By signing below, you agree to (i) unconditionally release and forever discharge Build San Antonio Green® from any and all claims, causes, actions, demands, suits, liabilities, and judgments, whether in law or equity, that you or the home owner may have or assert against Build San Antonio Green® with respect to the program and/or the certification of the property, including, without limitation, the property's compliance with the program or the property's market value or efficiency, and (ii) to indemnify and hold harmless Build San Antonio Green® from and against any and all losses, damages, costs, or expenses (including, without limitation, attorneys' fees) now or hereafter incurred, paid or suffered by Build San Antonio Green with respect to or arising out of any such claims, causes, actions, demands, suits, liabilities, and judgments, or otherwise in connection with the certification of the property.

Applicant Signature _____ Date _____

Review Fee Calculation

A Review Fee payment must accompany this checklist. The Review Fee is based on the area of conditioned space using the fee table below. Please make your check payable to "Build San Antonio Green."

Conditioned Space (sq. ft.)	Review Fee
up to 1500	$75.00
1501 -2500	$125.00
2501+	$150.00

PURPOSE

REFER TO GUIDELINES

This checklist is a quick form builders or designers can use to determine whether an individual home can meet the minimum requirement to receive certification. For detailed description of each of these requirements, refer to the "Guidelines for Building a BSAG Certified Home."

CHOOSE A LEVEL

To determine whether a home can receive a designation higher than Level 1, refer to the guidelines or choose the option for level 2 or 3 where applicable. Certification Level will be determined by which requirements are met.

USING THE CHECKLIST

For Certification, each home must incorporate all items listed on this checklist. (Where applicable choose the items for Level 2 or 3 if seeking certification beyond Level 1.) Substitutions may be allowed with BSAG's approval. If there are items on this checklist which you are not able to achieve, please contact Build San Antonio Green. Our certification staff will work with you to find an appropriate substitute measure.

Pre-Construction Requirements	Post Construction Requirements
1. Provide a set of plans for each floor plan submitted. 2. Provide a site plan for each home submitted. Indicate area information on the previous page. 3. Provide a construction waste plan. 4. Provide proof of rater/tester's certification with RESNET.	1. Proof of HERS Index 2. 2018 IECC Emissions Report 3. ENERGY STAR® Certificate and Home Report 4. ENERGY STAR® Home Summary Report 3.0 & 3.1

DIGITAL OR PAPER SUBMISSIONS

While BSAG does accept paper submissions, we encourage you to submit digital files whenever possible, including plans, supporting documents, and the checklist.

Energy Requirements

Pre-requisite for ALL levels:

- ☐ Build a 2018 IECC Compliant home
- ☐ Home must achieve ENERGY STAR® for Homes Program certification
- ☐ No batch testing or sampling allowed
- ☐ All builder-installed equipment and appliances, where applicable must be ENERGY STAR® qualified or have an equivalent efficiency factor. These may include, but is not limited to, refrigerators, freezers, dishwashers, and clothes washers.[1]
- ☐ Solar thermal is not required but is highly encouraged.

CLIMATE READY Energy Resiliency Requirements

Building Design & Orientation

- ☐ Strategic placement of building to reduce heat gain from orientation
- ☐ Strategic placement of rooms and window areas

Renewable Energy Required

- ☐ EV Charging Ready (Level 1)
- ☐ EV Charging Required (Level 2)

Battery Energy Storage

- ☐ Backup Power

Increased R-value walls and Roof

- ☐ Use continuous insulation sheating on exterior walls with a minimum R-3 value & installed as per manufacturer's guidelines to reduce thermal bridging & water infiltration
- ☐ Increase wall insulation to R-15 min. in addition to exterior continious insulation

Reduce Energy Loss / Heat Gain of Floors

- ☐ Install slab edge insulation

Daylighting Strategies To Increase Passive Lighting

- ☐ Strategic placement of windows to take advantage of natural daylight as much as possible.
- ☐ Stategic shading of windows is required to reduce the amount of heat gain in the summer while allowing daylight in winter months.

Elevated Mechanical Equipment / Utilities / Other Exterior Infrastructures

- ☐ Outside equipment (i.e. HVAC compressors) and utilites (i.e. natural gas meters) are required to be elevated above the flood level in properties that are in a flood-prone area or with significant water flow during storm events.

FOR LEVEL 1

Home must be ≥15% above 2018 IECC[1] –or-must meet the following Prescriptive criteria:

- ☐ Minimum SEER 15/EER 12 AC unit or Heat Pump
- ☐ Minimum AFUE 80 Gas Furnace –or-

- ☐ Minimum HSPF 8.2/12 EER Heat Pump
- ☐ 4 ACH Infiltration rate
- ☐ All ducts and air handlers located in conditioned space
- ☐ ENERGY STAR® qualified windows: ≤0.35 U-factor, ≤0.24 SHGC
- ☐ Skylights must be ENERGY STAR® qualified for the Southern Climate Zone or equivalent.
- ☐ All exterior doors with ≥50% glazing must be ENERGY STAR® qualified or equivalent
- ☐ Water heater must meet one of the following criteria:

  ☐ ENERGY STAR® qualified water heater or equivalent Energy Factor (tank or tankless; gas, gas condensing, or heat pump) as specified in the guidelines.
  ☐ Electric tank water heaters must meet one of the EF as specified in the guidelines
  ☐ Solar Water Heater, OG-300 certified by the Solar Rating Certification Corporation (SRCC)
  ☐No more than 10% of incandescent lighting

FOR LEVEL 2

Home must be ≥20% above 2018 IECC[1] –or-must meet the following Prescriptive criteria:

- ☐ Minimum SEER 16/EER 12 AC unit or Heat Pump
- ☐ Minimum AFUE 80 Gas Furnace –or-
- ☐ Minimum HSPF 8.5/12 EER Heat Pump
- ☐ 3 ACH Infiltration rate
- ☐ All ducts and air handlers located in conditioned space
- ☐ ENERGY STAR® qualified windows: ≤0.35 U-factor, ≤0.24 SHGC
- ☐ Skylights must be ENERGY STAR® qualified for the Southern Climate Zone or equivalent.
- ☐ All exterior doors with ≥50% glazing must be ENERGY STAR® qualified or equivalent
- ☐ Water heater must meet one of the following criteria:

  ☐ ENERGY STAR® qualified water heater or equivalent Energy Factor (tank or tankless; gas, gas condensing, or heat pump) as specified in the guidelines
  ☐ Electric tank water heaters must meet one of the EF as specified in the guidelines
  ☐ Solar Water Heater, OG-300 certified by the Solar Rating Certification Corporation (SRCC)

☐ No more than 10% of incandescent lighting

FOR LEVEL 3

Home must be ≥20% above 2018 IECC[1]-or- must meet the Level 2 Prescriptive criteria before renewable energy credit –and :

☐ Must feature a photovoltaic (PV) system that will produce at least 75% of projected energy consumption

Water Requirements

☐ Kitchen sink fixture must have a flow rating of 1.5 gpm. [1, 3]

☐ Lavatory sink fixtures must be EPA WaterSense qualified or must have a flow of 1.5 gpm or less. [1, 3]

☐ One showerhead per shower allowed with a flow rate of 1.75 gpm or less. [1,3]

FOR LEVEL 3 ☐ Lavatory sink fixtures must be EPA WaterSense qualified or must have a flow of 1.0 gpm or less. [1, 3]

☐ Install WaterSense High Efficiency Toilets (HET) or toilets with an equivalent rating of 1.28 gpf or less.[1,3,5]

☐ Insulate all hot water supply lines within exterior walls, within crawl spaces, and in the attic with R-3 insulating material.

Either:[1, 2]

☐ Locate hot water fixtures within 20 feet of water heater -OR-
☐ Install a hot-water-on-demand system -OR-
☐ Install tankless water heaters near hot water fixtures

☐ Any installed water softener must meet the NSF/ANSI 44 standard.[1]

Utility rooms where tank-type water heaters are located must have:

☐ A catch pan with a drain to the exterior -OR-
☐ A leak detector with an automatic shut-off valve.

☐ Do not install water-sensitive flooring or carpeting in kitchens, bathrooms, powder rooms, laundry rooms, or utility rooms.

☐ Install only turf and landscaping from the SAWS approved plant list.[1]

☐ It is strongly recommended that not more than 50% of the landscaped area is planted in turf.

LEVEL 2 & 3

- ☐ It is strongly recommended that not more than 25% of the landscaped area is planted in turf.
- ☐ Install at least four (4) inches of soil in areas where turf and/or irrigation are installed. Otherwise, landscape is to be left in a native state.

LEVEL 3

- ☐ Install at least six (6) inches of soil in areas where turf and/or irrigation are installed. Otherwise, landscape is to be left in a native state.
- ☐ All non-turf landscaped areas must have a minimum of 3 inches of organic or inorganic mulch, excluding plastic.
- ☐ Irrigation, if necessary, in non-turf areas is limited to drip or bubblers; irrigation sprays are prohibited in areas narrower than 5 feet.
- ☐ If an irrigation system is installed, it must include a rain sensor.[1]
- ☐ Provide an irrigation plan to homeowner (required by TCEQ of irrigator).[1]
- ☐ Provide a seasonal Irrigation schedule (required by TCEQ of irrigator).[1]
- ☐ Irrigation systems installed in projects ≥5 acres in dimension must comply with the COSA conservation ordinance.
- ☐ Artificial turf is prohibited.
- ☐ If installing gutters, downspouts must drain onto a pervious surface (tuf or land scaping), into a "rain garden," or into a rainwater harvesting cistern.

Climate Ready Water Security Requirements

Water Purification/Filtration For Emergency

Water filtration system must meet EPA standards; emergency filtration examples include:

- ☐ Water treatment tablets
- ☐ Filtered water bottles
- ☐ Filtration straw
- ☐ Gravity/filtration systems (i.e. The Outback, Alexapure Pro, ect.)

Site Requirements

- ☐ Comply with the City of San Antonio Tree Protection Ordinance.
- ☐ Preserve existing on-site vegetation as much as possible; where trees and understory must be removed, mulch the removed vegetation and reuse on the site.
- ☐ Retain on-site soil and rock waste generated by site preparation processes & re-use the material on the site to minimize site waste.
- ☐ Shade exterior hardscapes by preserving existing vegetation or planting new trees.
- ☐ Impervious surfaces must not exceed 20% of the total lot area minus the area of the building (house and garage) footprint, and driveway.

- ☐ See guidelines for impervious areas restrictions in homes featuring swimming pools.[2]
- ☐ Designate parking, material storage and staging away from root protection zones by using temporary fencing during construction.
- ☐ Provide a plan for recycling and/or reuse/grinding of construction waste.

Climate Ready Site Requirements

Low Impact Development

- ☐ Follow the San Antonio River Authority guidelines for L.I.D. landscape design.

Depth of Landscaping Soil

- ☐ All landscaping soil must have a minimum depth of 6 inches

Depth of Service Lines

- ☐ Service lines must be buried at a minimum deapth of 6 inches

Health & Materials Requirements

Follow all requirements to earn the EPA's Indoor airPlus

-OR-

Meet all of the following requirements:

- ☐ Use no less MERV 8 rated HVAC filters or equivalent.
- ☐ Seal HVAC ducts during construction as ducts are being installed.
- ☐ Vacuum boots and grills before first use.

- ☐ Install carbon monoxide detectors in units with natural gas appliances or equipment, and/or attached garages.[1,2,3]
- ☐ Fireplaces are allowed only with restrictions.[1,2]
- ☐ A fan/light time delay switch is recommended for every laundry room and bathroom/powder room which includes an exhaust fan.
- ☐ Fiber duct board (if installed), must comply with the fiber duct board requirements as described in the Guidelines.[1]
- ☐ Do not use vapor barrier materials on interior surfaces of perimeter walls.

- ☐ Use Carpet & Rug Institute's Green Label certified carpet in all carpeted areas.[1]
- ☐ Carpet adhesive or padding if used must also be Green Label certified.[1]
- ☐ Vinyl composition tile and plastic laminated flooring is not recommended. (not allowed for level 3)
- ☐ All adhesives and sealants must be GREENGUARD certified or meet equivalent low-VOC standards as described in the guidelines.
- ☐ Low-VOC or Zero-VOC interior wall paint.
- ☐ No VOC restriction on trim paint (max. 15%).
- ☐ Houses built over the Edwards Aquifer Recharge Zone must use borate treatment on all wood framing and sheathing or use a non-toxic termite barrier. [1]

Climate Ready Health Requirements

Air Purification System

- ☐ Install an enhanced air purification system with a microbial reduction of 95% or more.

Examples include:

- ☐ Air filter media MERV 13 or higher
- ☐ Electronic air purifier installed in the HVAC's AHU or furnace
- ☐ Ionic air purifier system
- ☐ Emergency air circulating fan and purifier (i.e. Dyson Pure Heater/Fan)
- ☐ UV Air Sanitizer

Climate Ready Materials Requirements

Class IV roof / Cool Roof that is durable and Heat resistant

- ☐ A metal roof is strongly recommended; other roof matierials are allowed due to possible cost constraints.
- ☐ Roofing installation best practices are required to minimize dam age during a strong wind or storm event.

High-Wind Resistant/Aerodynamic roof design & framing

- ☐ Hip Roof
- ☐ Dutch Hip Roof
- ☐ Strong Wind Proof roof ties for rafters
- ☐ Anchored bottom plate to concrete slab

Alternative Building Materials

- ☐ The use of alternative building envelope materials with thermal resistance and low water absorbtion that are appropriate for our hot and humid climate zone is extremely recommended.

  Examples of these materials include but are not limited to:

- ☐ ICF
- ☐ SIP panel
- ☐ Liquid thermal coating

Preparedness Plan Recommendations

- ☐ Having a preparedness plan checklist and kit list required for all Climate Ready homes. Please make sure to provide homeowner with available information on how to prepare for an emergency due to a natural disaster or a disaster of other kind.

  Emergency Preparedness plans available to use include:

  - ☐ Ready South Texas Emergency Kit List
  - ☐ Fema Emergency Supply List
  - ☐ CDC's Make Water Safe & Drink Water Safe Guidelines

Emergency Water Storage

- ☐ The Amount of water to be stored for an emergency is recommended to be at least one galon of potable water per person per day for three days as per FEMA guidelines. The CDC recommends to storage enough water for 2 weeks supply.

Examples of water storage may include:

- ☐ Rain catchment system in conjection with a water filtration/purification system
- ☐ Commercial unopened, unused bottled water stored in a cool and dark place in your home.
- ☐ Bathtub Storage kit (i.e. AquaPod Kit)

IMPORTANT - FIREPLACES

The presence of a fireplace is a significant factor in indoor air quality as well as the byproducts of the fuel used. Any installed fireplace should be either a gas-fired direct vent with a sealed gas front, or a wood burning stove or fireplace insert that is listed on the EPA List of Certified Wood Heaters (dated May 15, 2015 or later). If a chimney is installed, the chimney and chimney surround should be located within conditioned space to minimize poor chimney performance due to the stack effect.

ELECTRIC VEHICLES

In addition to earning the BSAG certification, homes may also be certified as "EV Ready". This option will provide the infrastructure needed for a future addition of an EV charging station. Additional pre-construction measures will be necessary to ensure the appropriate electrical infrastructure and ampacity for your project. Make sure to tell your certification reviewer if you would like to have your project certified as "EV Ready".

RECYCLED CONTENT

Where possible, use building materials with a high-recycled content. Builders are also required to provide a waste management plan to promote materials recycling or materials re-use to reduce waste ordinarily destined for the landfill.

Marketing Your Home

Build San Antonio Green yard signs are available to use for the applicant to show the public during construction that the house is pending certification with the Build San Antonio Green program. Because final certification is not earned until the house is finished and the results of the testing are submitted, a provided paper notice may be taped to the inside of a street-facing window during construction. The yard signs are the property of Build San Antonio Green and applicant may be asked to return the yard sign/signs when the house is sold.

Post Construction Packet for Homeowner

The Build San Antonio Green® staff will provide to the applicant a BSAG Certificate and a link to download a Homeowner's Manual for each home.

FOOTNOTES

1. Provide documentation supporting this item with your application
2. Refer to the Guidelines for further explanation of this item.
3. Use the local jurisdictional code if it is more conservative.
4. If the attic is unvented or conditioned, do not include its square footage in the total "conditioned square footage" calculation.

Questions?

Contact Lina Luque
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