

# **Solar in San Antonio**

## ***Bridging the Gap to Carbon Neutral***

How Build San Antonio Green is working on innovative programs and opportunities to help expand solar and prepare San Antonio.



## *Our Mission*

**To protect and enhance the quality of life of the citizens of the metropolitan San Antonio Area by developing standards by which to certify newly constructed and existing structures to green standards, and to provide leadership, expertise, and education for the wise, efficient, and sustainable use of energy and resources.**

### **Green Building**



### **Bring Solar Home**



### **Community Engagement**





- San Antonio's Climate Action & Adaptation Plan.
- Goal is to be Carbon Neutral by 2050.
- Mitigation & Adaptation in an Equity framework.

**[www.SAClimateReady.org](http://www.SAClimateReady.org)**

# Bridging the Gap

- Green Building Program
- Bring Solar Home Program
- History of Solar and where we are going
- New innovative programs as Climate Solutions



# Certification Program



Single Family  
Retrofit



Single Family  
New Construction



Multifamily



Mixed Use



Commercial

# What is a Build San Antonio Green Home?

## Energy Efficiency

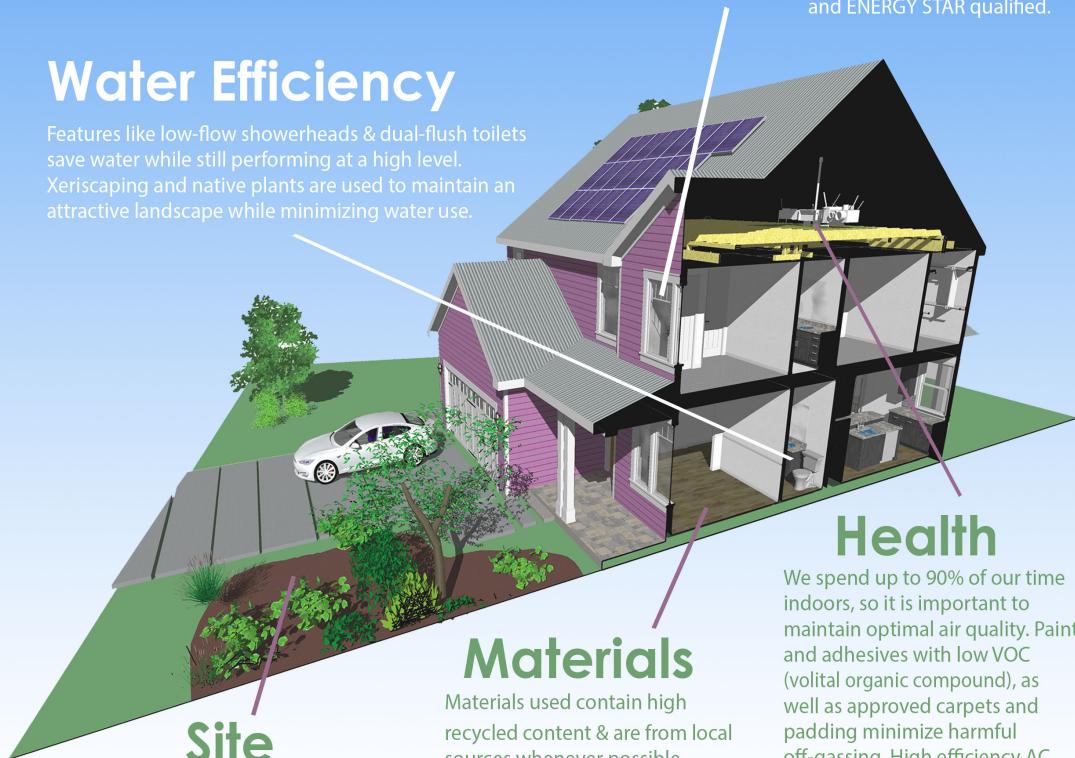
These homes have been tested & verified for increased efficiency. This includes insulation, windows, & doors, HVAC, lighting, and appliances. Our homes are at least 15% more efficient than the average San Antonio home and are HERS rated and ENERGY STAR qualified.

### A Build San Antonio Green Home

When a home is certified by Build San Antonio Green, it meets a rigorous set of criteria to ensure it is green in 5 target areas: Energy Efficiency, Water Efficiency, Site, Materials, and Health. We are an above code program based on building science and verified by a series of site observations to assure the program criteria is met.

## Water Efficiency

Features like low-flow showerheads & dual-flush toilets save water while still performing at a high level. Xeriscaping and native plants are used to maintain an attractive landscape while minimizing water use.



## Site

During Construction, trees must be protected & the site is minimally disrupted. Any removed vegetation must be mulched & reused on site. A construction waste plan minimizes the amount of material sent to the landfill. BSAG homes also require a limited amount of impervious cover.

## Materials

Materials used contain high recycled content & are from local sources whenever possible, minimizing the embodied energy. materials are more durable & efficient than traditional materials, resulting in lower operation & maintenance costs.

## Health

We spend up to 90% of our time indoors, so it is important to maintain optimal air quality. Paint and adhesives with low VOC (volatile organic compound), as well as approved carpets and padding minimize harmful off-gassing. High efficiency AC filters promote clean indoor air.

BUILD SAN ANTONIO GREEN  
HAS WORKED TO CERTIFY  
**22.1 MILLION**  
SQ FT OF GREEN BUILDINGS



**9,568**  
PROJECTS  
CERTIFIED  
**9,554**  
SINGLE FAMILY HOMES  
**14** MULTIFAMILY  
MIXED-USE  
& COMMERCIAL

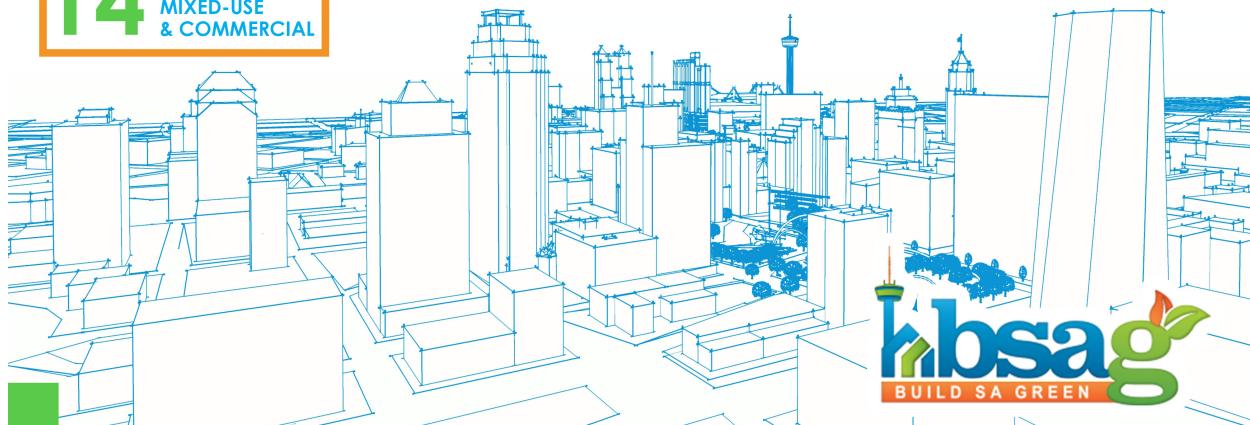
WHICH IS EQUIVALENT  
TO REMOVING NEARLY  
**22,250**  
CARS  
FROM SAN ANTONIO ROADS EACH YEAR

PROTECTING  
OUR AIR  
FROM OVER  
**205**  
THOUSAND  
LBS OF  
**NOx**

SAVING  
OUR CITY  
**16**  
MW PEAK DEMAND  
REDUCTION

PROTECTING  
OUR AIR  
FROM OVER

**270**  
MILLION  
LBS OF CO<sub>2</sub>



**bbsag**  
BUILD SA GREEN

[www.buildsagreen.org](http://www.buildsagreen.org)

We Love You San Antonio!



WELCOME TO

## BRING SOLAR HOME

Bring Solar Home is a Build San Antonio Green program designed to help you discover if solar generation is right for you, and if so which program is the best fit. We are working with CPS Energy and solar installers to simplify the process of "Going Solar" by bridging the gap between consumers and industry professionals.

### 3 Simple Steps to Bring Solar Home

#### Learn



Learn how Solar energy works, How its applied, how to read your energy bill, and much more.

#### Decide



Discover if your home is ready for solar with the help of online calculator tools that show how solar can help with your energy needs.

#### Apply



Ready for solar? We have 3 options that can suite your solar energy needs and help you Bring Solar Home .

# Solar in San Antonio

- San Antonio is #1 in Texas
- #5 Nationally for installed solar capacity
- 646 MW Total Capacity Online by 2019
- Largest Municipally Owned Gas & Electric Utility in the U.S.
- CPS Energy is meeting more than 20% of energy demand with renewable energy
- CPS Energy Flex Path for power goals beyond 2040

# Solar Potential in San Antonio

Providing Options to Fill the Solar Desert

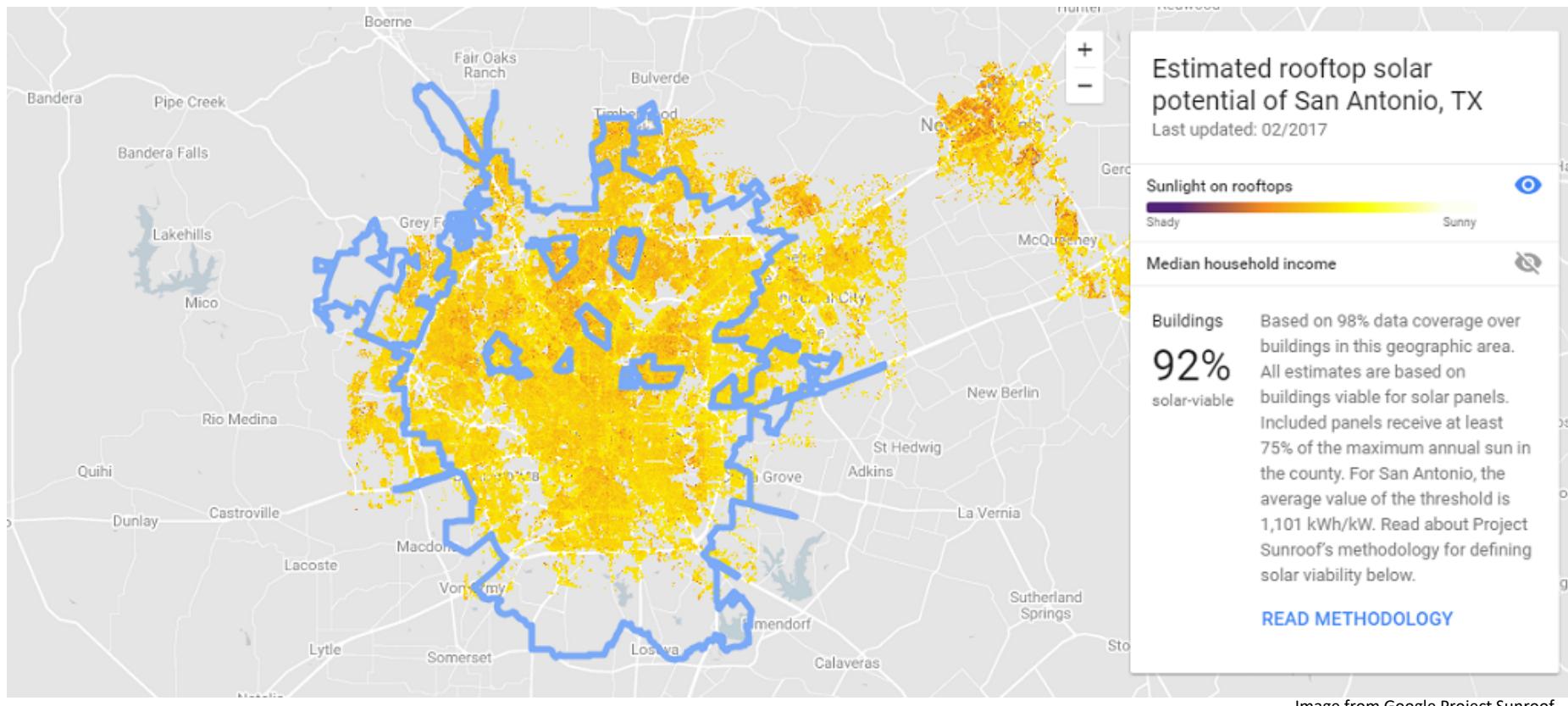
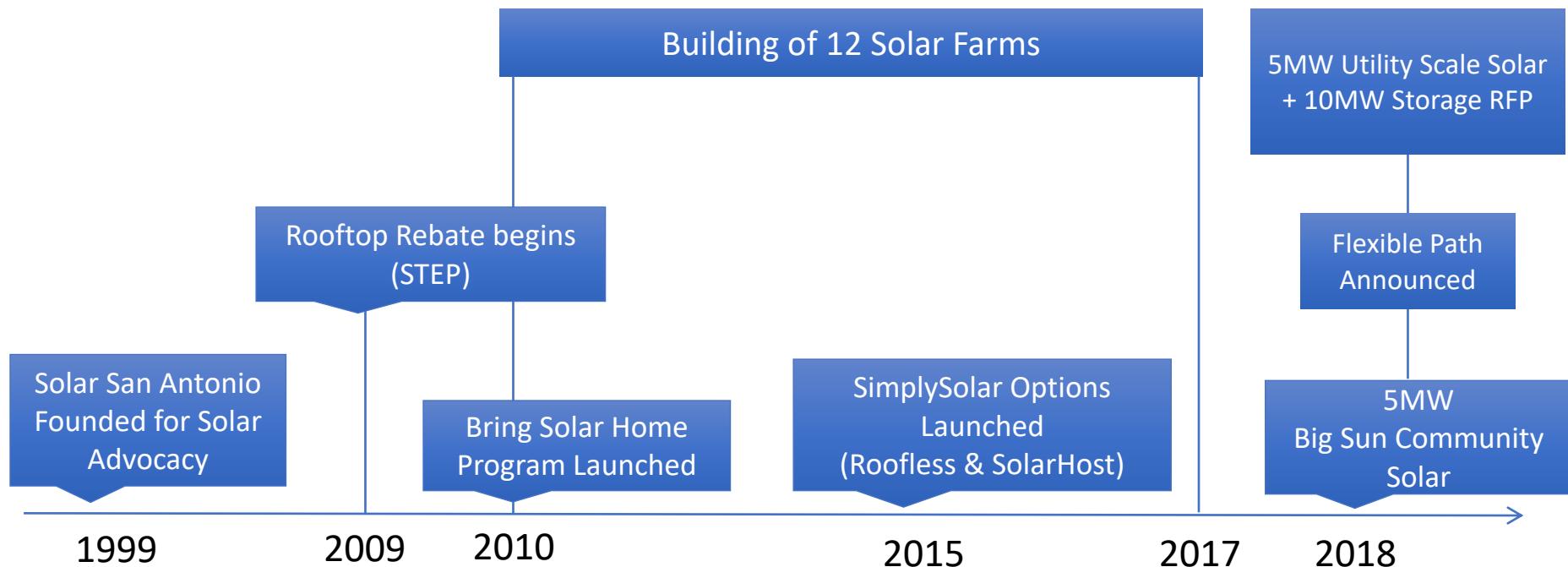


Image from Google Project Sunroof

# Solar Development

- Phase 1 – Private Ownership
- Phase 2 – Utility Scale Solar
- Phase 3 – Community Solar & Solar Hosting
- Phase 4 – Batteries & Beyond

# History of Solar in San Antonio



# **Where we are Today: Diverse Options Are Our Strength**

- 160 MW of Rooftop installed through May 2019 (Residential & Commercial)
  - 1 MW of Community Solar (5 MW will be added with the addition of Big Sun Solar.)
  - 4.3 MW for SolarHost program YTD
  - 15 Solar Farms generating 555 MW
- 

**725.3 MW Total Capacity Online by 2020**

# The Changing San Antonio Climate

## More days of Extreme heat.

- In the coming years San Antonio will be subject to more days of 100+ degree high temps and higher low temps. This will stress our infrastructure and the materials that make up the home, as well as, raise the energy consumption needs of buildings to maintain comfort and health inside the building.

## More Severe Weather

- As the global temperatures rise there will be a corresponding increase in severe storms that produce damaging winds, flooding, and more lightning. This will also be a stress to the roofs, windows and exterior cladding of San Antonio homes.

## Greater periods of Drought and Floods

- Based on climate models, San Antonio will have greater and more severe droughts as well as greater risks for severe flooding. These events will stress building foundations and the site around houses

days annually with a heat index above 100 degrees.

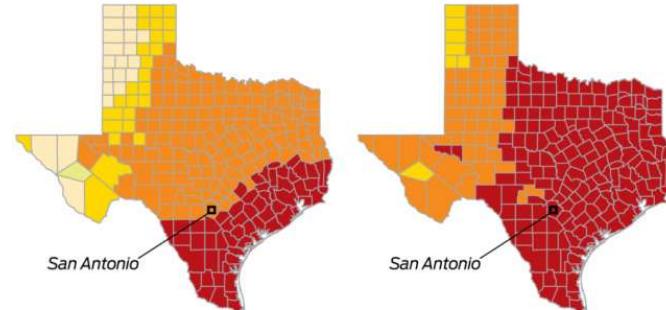
### AVERAGE DAYS PER YEAR WITH HEAT INDEX ABOVE 100 DEGREES



### WITH NO ACTION ON CLIMATE CHANGE

Mid-century, 2036-2065

Late-century, 2070-2099

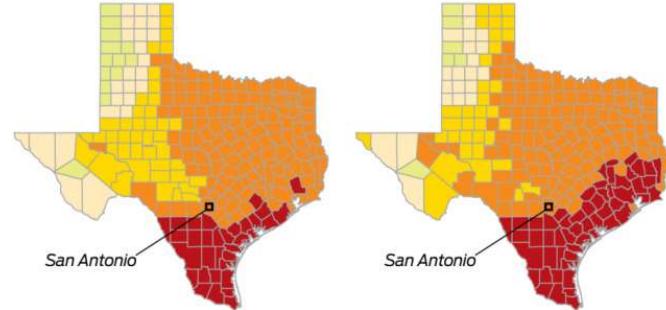


### WITH SLOW ACTION

*In this scenario, heat-trapping emissions continue to increase before starting to decline at midcentury. Global average temperatures warm by 4.3°F by 2100.*

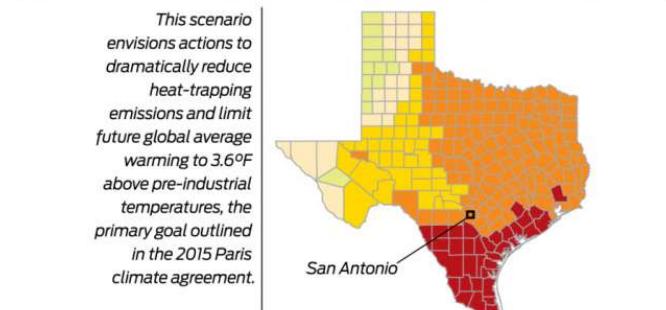
Mid-century, 2036-2065

Late-century, 2070-2099



### WITH RAPID ACTION

*This scenario envisions actions to dramatically reduce heat-trapping emissions and limit future global average warming to 3.6°F above pre-industrial temperatures, the primary goal outlined in the 2015 Paris climate agreement.*





## Climate Ready Building

A Climate Ready building is a BSAG home built above code with added elements that make it adaptable to our changing climate. Climate projections for San Antonio show that we can expect an increased number of hot days, greater floods, and longer periods of drought. A Climate Ready building also incorporates additional features that focus on preparedness for extreme weather events.



A Climate Ready Building is a Build San Antonio Green Building designed to reduce risks & vulnerabilities while increasing the durability, comfort, and resilience of the building in the face of climate change.

## High-Wind Resistant

Building Materials are used to protect against increasingly severe storms.



## Health

An Air Purification System is used to protect against poor air quality days caused by natural & man-made sources.

## Water Security

Water Storage & Water Purification / Filtration is crucial for emergencies when local water sources are compromised due to flooding or other disasters.

## Heat Resistance

Roofing & Cladding to protect against increasingly hot weather.

## Energy Resilience

Renewable Energy w/Battery Storage is important to maintain communications & climate controls during power outages.

## Site

We encourage Low Impact Development as well as an increase in the depth of service lines & soil to protect against soil erosion from flooding

[buildsgreen.org](http://buildsgreen.org)



## A Climate Ready Building

A Climate Ready building is a BSAG home built above code with added elements that make it adaptable to our changing climate. A Climate Ready building also incorporates additional features that focus on preparedness for extreme weather events.

- High-Wind resistant building materials
- Heat Resistance Roofing & Cladding
- Renewable Energy w/Battery Storage
  - An Air Purification System
- Water Storage & Water Purification / Filtration
- Low Impact Development & Depth of Service Lines

# What is a Climate Ready Building?

## Energy

*We are shifting beyond energy efficiency to energy resilience.*

**Building Design & Orientation** to reduce heat-gain.

**Daylighting Strategies** to increase passive lighting in winter and reduce heat gain in summer

**Renewable Energy with Battery Backup** to protect communications and climate controls

**Increased R-value Walls and Roof** to reduce thermal bridging & water infiltration

## Water

*We are Shifting from water conservation to water security.*

**Water Purification/Filtration** for emergencies when municipal water supply is compromised during heavy flooding or other natural / man-made environmental disasters.

## Site

*Thoughtful planning to prevent erosion from flooding.*

**Low Impact Development** to protect from soil erosion

**Depth of Landscaping Soil & Service Lines** to a minimum depth of 6 inches to protect communications, energy, and water quality.

**Elevated Mechanical Equipment, Utilities & Exterior Infrastructures** to protect outside equipment (i.e. HVAC compressors) and utilities (i.e. natural gas meters) during storm events

## Health

*Protecting the air & water inside the home from outside pollution.*

**Air Purification System** to protect inside air quality when outside air quality is poor as a result of natural or man made sources.

## Materials

*Building with Heat Resilient & Wind Resistant materials.*

**Class IV roof /Cool Roof that is durable and Heat resistant** to protect from increasingly hot days during the summer months

**High-Wind Resistant/Aerodynamic Roof Design & Framing** to protect home from strong winds during increasingly severe storms

**Alternative Building Materials** with thermal resistance and low water absorbtion that are appropriate for our hot and humid climate zone to protect building envelope from weather extremes (i.e. ICF / SIP panel / Liquid thermal coating)

## Preparedness Plan

*Be ready when a climate emergency strikes.*

Having a preparedness plan checklist and kit list required for all Climate Ready buildings.

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 gallon 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.

[buildsagreen.org](http://buildsagreen.org)



## **The Prepared Home**

A Prepared Home is designed to keep homes and families safe during extreme weather events or a disease outbreak event such as a pandemic. To help homeowners and building occupants maintain energy & water security as well as healthy indoor air quality.

- Energy & Communication Security
- Indoor Air Quality & Personal Health
- Water Security
- Emergency Lists & Guidelines





## ENERGY & COMMUNICATION SECURITY

A battery-operated & rechargeable emergency home power system (backup power) is extremely important in case there is a power outage due to an emergency. This is also critical to maintain communications that can keep you and your family safe during emergency situations

## WATER SECURITY

During an emergency event when municipal water supply is compromised during heavy flooding or other natural / man-made environmental disasters it is important to have Emergency Water Storage & a Water Purification / Filtration System.

for more info visit us @ : [buildsagreen.org](http://buildsagreen.org)

## INDOOR AIR QUALITY & PERSONAL HEALTH

During an emergency event where air quality is compromised due to natural or man-made causes or in the event of a airborne viral pandemic, it is important to maintain air quality inside your home. The use of MERV13 air filters in your HVAC system, HEPA air purifiers ,& the implementation of UV light disinfection devices is highly recommended to protect and maintain the air quality inside the home.

## EMERGENCY LISTS & GUIDELINES

BSAG strongly recommends downloading a copy of the already available emergency checklists and guidelines from The Federal Emergency Management Agency (FEMA) , Center for Disease Control & Prevention (CDC), & The Environmental Protection Agency (EPA)

# Thank You!



[buildsagreen.org](http://buildsagreen.org)

[bringsolarhome.com](http://bringsolarhome.com)

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