



## WHO WE ARE

The Arizona Solar Energy Association (ASEA) is the Arizona affiliate of the American Solar Energy Society (ASES). Founded in the 1970's as a technical association of early solar technology professionals, the group has evolved into a diverse assemblage of individuals from all walks of life who share a common interest in sustainable human activity and the use of solar energy. ASEA reaches out to both professionals and non-professionals alike.

As a founding and sustaining organizational member of the Arizona Solar Center ([www.AZSolarCenter.org](http://www.AZSolarCenter.org)), ASEA provides a platform for its members to educate and advocate for a sustainable future for Arizona. Depending upon local preferences, local chapters may have meetings, workshops, a newsletter and other activities. Members are active in industry associations, workshops with the Arizona Corporation Commission (ACC), the State Legislature, Maricopa Association of Governments (MAG), the Governor's Solar Energy Advisory Council (SEAC), and other groups that welcome our input.

In addition, ASEA conducts lectures on sustainability and solar technology at the invitation of groups from all over the State. A long-standing lecture series in Scottsdale (<http://www.scottsdaleaz.gov/greenbuilding>) continues to draw large attendance. Our speakers' bureau is available to address your organization on many sustainability and solar-related topics.

Your donation supports ASEA efforts. ASEA is entirely a volunteer, non-profit organization and welcomes new supporters. Whether you simply want to support our efforts with your donation, or want to also become actively involved, we welcome your participation.

Please join us in our efforts to achieve a sustainable future for Arizona.

The Arizona Solar Center, Inc. (AzSC) is a not-for-profit organization dedicated to the implementation and integration of solar, renewable energy and sustainability in Arizona. The AzSC was created by a collaboration of members from the Az. Dept. of Commerce Energy Office; the solar industry (Az. Solar Energy Industries Association - AriSEIA); the State chapter of the American Solar Energy Society (Arizona Solar Energy Association - ASEA); Arizona utilities (APS, SRP and TEP); the educational community (ASU, U of A, NAU); renewable energy and sustainability businesses, and solar and sustainability professionals.

The AzSC has created a website with over 80,000 discrete hits professional education programs statewide Solar and Sustainability tours and open houses; provides workshops at various public and school venues; executed development of down-loadable education materials and teaching/lecture tools; participated in local, regional and national forums re: renewable energy and sustainability; and is evolving a physical center for the purposes of further education as well as exploration and development of energy and resource efficient and appropriate materials and equipment.



[www.azsolarcenter.com](http://www.azsolarcenter.com), currently per month; partners in public and pro- and lectures, as well as the bi-annual

[www.azsolarcenter.com](http://www.azsolarcenter.com)

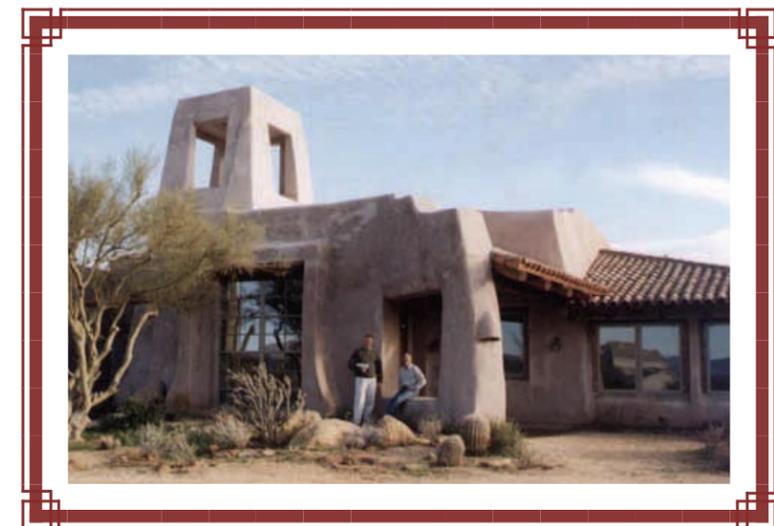
### Scottsdale Green Building Program Sustainable Building in the Sonoran Desert

The Scottsdale Green Building Program encourages a whole-systems approach through design and building techniques to minimize environmental impact and reduce the energy consumption of buildings while contributing to the health of its occupants.

[www.ci.scottsdale.az.us/greenbuilding](http://www.ci.scottsdale.az.us/greenbuilding)



# VALLEY OF THE SUN TOUR OF Solar & Sustainable Buildings



## *Living With the Sun — Arizona Style*

Presented by:

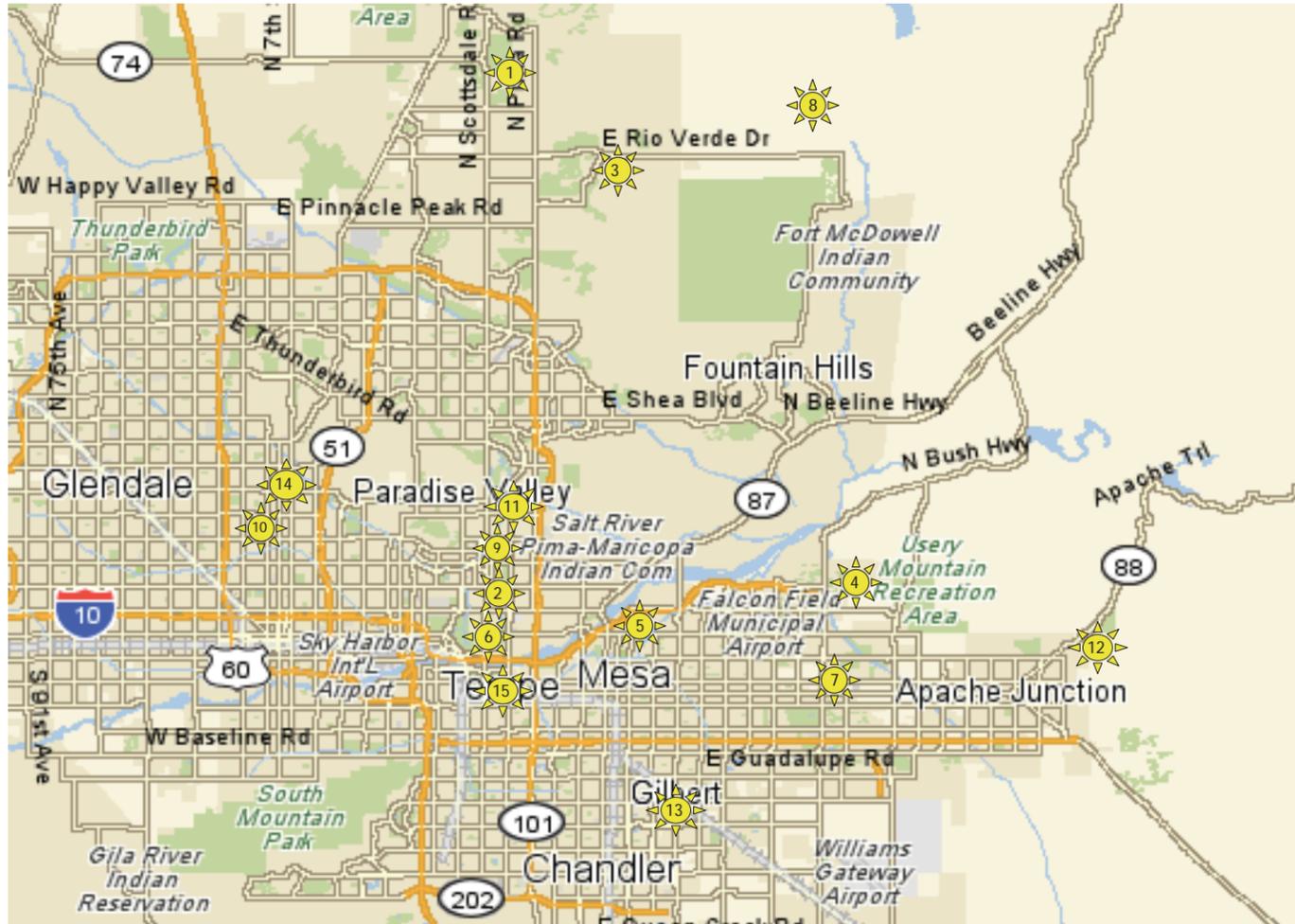
*Arizona Solar Energy Association*

*Arizona Solar Center*

*Scottsdale Green Building Program*



# Arizona Solar Facts



1. Edwards Residence	8151 E Smokehouse Trail	North Scottsdale
2. Feliciano Residence	7701 Avalon Drive	Scottsdale
3. Foster Residence	29457 114th Street	North Scottsdale
4. Frias Residence	7814 E Palm Lane	Mesa
5. Frisch Residence	2632 N Brimhall	Mesa
6. Fuller Papercrete Project	1 Continental Drive	Tempe
7. Gilbert Residence	6409 E Decatur	Mesa
8. Lo Tempio Residence *	30107 N 173rd Place	North Scottsdale
9. Mc Kay Residence	2647 N Miller Road	Scottsdale
10. Pierson St. Ecohood	912 W Pierson Street	Phoenix
11. Scottsdale Senior Center	1700 N Granite Reef Road	Scottsdale
12. Roebuck Zen Strawbale	4801 E Hildago Street	NE of Apache Junction
13. Outdoor Univ Reforestation	602 W Rawhide Drive	Gilbert
14. Urban Farm	6750 N 13 <sup>th</sup> Place	Phoenix
15. ASU ISTB2	850 S McAllister Ave	Tempe

\* starred locations involve travel on dirt roads and may not be suitable for low-clearance vehicles

- ☺ Arizona receives MORE sunshine than any other state in the entire country. *National Weather Service*
- ⚙️ Arizona could be the next Persian Gulf of solar energy ... that's one of our greatest resources, and we ought to use it. *Gov. Janet Napolitano*
- ⚙️ Countries are not doing enough to expand the use of solar energy. Governments and business have been warned. *Mikhail Gorbachev, July 22, 2006*
- ⚙️ Solar is the most democratic of energy choices - it falls on everyone and anybody can use it.
- ⚙️ More energy, in the form of sunlight, falls on a typical Phoenix area house than that house uses. *Daniel Peter Aiello/Az. Solar Center*
- ⚙️ Zoning is part of the energy problem. It creates the condition which requires transportation.
- ⚙️ Tearing down to build new is energy wasteful. It took energy to build the original structure; it takes energy to tear it down; and it takes energy to build new.
- ⚙️ Every dollar spent on energy efficiency and passive solar design reduces equipment costs by \$8 to \$16. *Dan Aiello/Lane Garrett*
- ⚙️ In 1 hour more sunlight falls on the earth than what the entire population uses in a year.
- ⚙️ Just using "off the shelf" energy-efficient technologies, heating, cooling, and lighting costs of homes and workplaces can be reduced by 80%. *U.S. Dept of Energy and Maryland Energy Administration*
- ⚙️ A 1-KW solar system will prevent about 170 lbs. of coal from being burned, 300 lbs of CO2 from being released into the atmosphere and 105 gallons of water from being consumed **every month!**
- ⚙️ Replacing one incandescent lightbulb with an energy-saving CFL means 1,000 pounds less carbon dioxide is emitted to the atmosphere and \$67 dollars is saved on energy costs over the bulb's lifetime. *U.S. Environmental Protection Agency and Alliance to Save Energy*
- ⚙️ The Thermonuclear Sun gives light and life. It is an inexhaustible supply of pollution-free power.
- ⚙️ There are utility rebates available for solar equipment and energy efficiency (see your utility's website for details at [APS.com](http://APS.com) or [SRPnet.net](http://SRPnet.net))
- ⚙️ There are Federal and Arizona rebates and tax credits for solar equipment and energy efficiency. (See [www.AZSolarCenter.com](http://www.AZSolarCenter.com) for a complete listing of Incentives and Credits)
- ⚙️ *What are YOU WAITING for?*

Thanks to APS, our Solar Partner for printing this tour guide.

### 13 Outdoor University of Reforestation (OUR™)

602 W Rawhide Avenue Gilbert, AZ

#### DRIVING DIRECTIONS

From the intersection of Cooper and Elliott, go South on Cooper about 200 yards to Madera Parc. Turn East on Madera Parc then take first Right (southeast) on Rawhide. Proceed to third house on the left.

OUR™ mission is *Reforesting the Earth, one Tree at a time.*

This home's owner has transformed the Bermuda grass and gravel yard of an ordinary Gilbert suburban home into a Permaculture Oasis in the desert. The amazingly oxygen-rich and deliciously edible landscape (almost every plant is edible) compliments the living "passive" shade which modifies the climate surrounding the entire home - buffering temperature extremes and saving thousands of dollars in cooling and heating bills over time. The harvesting of the site's rainwater and precious joules of sunlight feed the 200 species of edible plants, which then feeds the family. The solar and water harvesting process creates an oxygen content of 26% compared to 17% on Phoenix city streets.



### 14 The Urban Farm

6750 N 13th Place Phoenix, AZ

#### DRIVING DIRECTIONS

From the intersection of 16th Street & Glendale Ave, go WEST on Glendale to the 5th street (13th Place). Turn SOUTH on 13th Place—home is 3/4 down the block.

This environmental showcase site is designed to inspire visitors in creating change in their lives by demonstrating easy and effective ways to live a more sustainable life. Technologies such as grey-water and rainwater harvesting, edible landscaping, two types of solar systems, over 60 fruit trees, and a outdoor living space made primarily out of reclaimed materials are featured. Be sure to ask about the urbanite structures throughout the yard.



### 15 ASU Interdisciplinary Science & Technology Bldg 2

850 S McAllister Avenue Tempe, AZ

#### DRIVING DIRECTIONS

ISTB2 is on the west side of McAllister Ave., midway between University Drive (to the north) and Tyler Street (to the south).

Parking will be provided in Parking Structure #4 - on the west side of Rural Road, south of University Drive and north of Apache Boulevard (More precisely-south of Terrace Road and north of Lemon St.)



ASU's strong commitment to sustainable design is evident in this new engineering research lab. ISTB II, which supports advanced pavement research, soils dynamics, fluid dynamics, thermodynamics/combustion research, geology, hydraulics, and structures testing, achieved a LEED Silver certification. LEED certification required that the building be ENERGY STAR compliant. Everything from the roofs to storm water retention to smart occupancy sensors that control the air conditioning system and room lighting were selected to meet LEED standards. The building was constructed of environmentally friendly recyclable building materials where possible and all construction waste was environmentally disposed of. Native arid plants were used in the landscaping design.

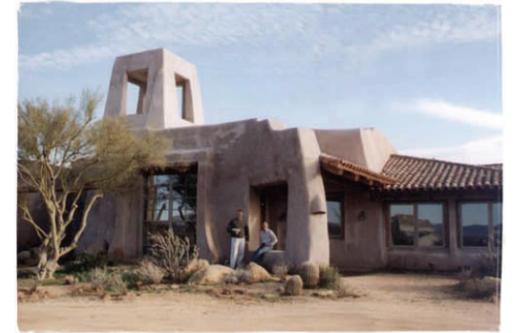
ISTB 2 was recognized in *Southwest Contractor* magazine's "Best of 2005" green-building projects, and won "High Honors" in *R&D Magazine's* Laboratory of the Year awards competition.

### 1 Edwards Residence

8151 E Smokehouse Trail Scottsdale, AZ

#### DRIVING DIRECTIONS

From the intersection of N Scottsdale Rd and E Carefree Hwy go South on Scottsdale Rd about 1/2 mile then turn East onto E Westland Rd. Travel East on Westland Rd 1 mile to Hayden Rd then turn South on Hayden Rd. Turn East onto Smokehouse Rd—4th house on Right.



This super-insulated (R50 walls, R67 attic) builder's strawbale home has it ALL. It incorporates a plethora of passive and active energy-saving strategies—including orientation, energy efficient windows, structure shading wing walls, thermal mass plenum floors, cross ventilation, a cool tower (gravity driven evaporative cooling system) and more. A grid-tied PV system supplies electricity for the super-efficient appliances and greywater reclamation waters the veggie garden.

### 2 Feliciano Residence

7701 E Avalon Drive Scottsdale, AZ

#### DRIVING DIRECTIONS

From Thomas St turn North on 78<sup>th</sup> St (between Miller and Hayden), then turn West on Avalon Drive



This 50-year young home features some of the latest technology including a 2 KW Grid-tied Solar PV system, recirculating hot water, programmable thermostat, CFLs on sensors/timers and energy star appliances. The attic insulation is even made of recycled cotton!

### 3 Foster Residence

29457 114th St Scottsdale

#### DRIVING DIRECTIONS

From N Pima Rd go East on Dynamite (also called Rio Verde) to 114th St. Turn North on 114th to the home.



This LEED certified custom home incorporates many passive thermal control and air-handling strategies along with daylighting, a 5 KW grid-tied PV system and solar hot water. A greywater collection system is currently being installed.

### 4 Frias Residence

7814 E Palm Lane Mesa, AZ

#### DRIVING DIRECTIONS

From the intersection of McDowell & Power Rd, go EAST approx 1 1/4 miles to 78th St. Go NORTH on 78th St to Palm Lane (1/4 mile) then EAST on Palm Lane to 7814.



This residence is a new, custom-built ZERO-Energy home with many energy saving features — including a 3.2 KW PV array with dual-axis tracking and a solar water heating system.

## 5 Frisch Residence

2632 N Brimhall Mesa, AZ

### DRIVING DIRECTIONS

From the intersection of Mesa Drive & McKellips, go North on Mesa Drive 1/2 mile to E Lehi Rd. Turn East on Lehi then go 2 streets to Brimhall. Turn North on Brimhall to 2632.

This newly constructed family home (and we do mean FAMILY - Dad, Mom & 6 children!) contains a plethora of passive solar design strategies, a Photovoltaic system supplying about 1/3 - 1/2 of the owner's electricity needs and additional energy/resource efficient features. Water conservation features abound including rainwater harvesting and greywater plumbing to the garden.



## 6 Fuller Papercrete Project

1 Continental Dr Tempe, AZ

### DRIVING DIRECTIONS

From the intersection of 68th St. and Curry Rd, travel North approx. 1 mile to Continental Drive; then go West approx. 200 yards to the PeraClub. Enter the gated area and follow signs to the papercrete demonstration site.

This 500 square foot office structure is constructed of 4 tons of waste paper mixed with other materials to provide a low-cost high insulation prototype building material. The facility, which cost about half what conventional construction costs, is expected to consume about 70 percent less electricity and includes monitoring devices for power usage and various structural elements of the building.



## 7 Gilbert Residence

6409 E Decatur St Mesa, AZ

### DRIVING DIRECTIONS

From the intersection of University Dr and Power Rd, go west on University 1/2 mile to 64th St. Turn North on 64th St. to Decatur St. Home is on the Southeast corner of 64th St and Decatur St.

A DIY'ers dream—this solar pioneer's home boasts hand-made racks for the 5 KW of solar panels from various manufacturers—all grid-tied with battery backup. Don't miss the hand-made solar water distiller, hand-made solar ovens and a 400 watt wind generator. Charts and graphs presenting power generation and usage for the past several years is available for viewing.



## 8 Lo Tempio Residence

30107 N 173rd Place Scottsdale, AZ

### DRIVING DIRECTIONS

From the intersection of Pima Rd & Rio Verde (Dynamite) travel EAST on Rio Verde to 168th St. Turn NORTH on 168th to Dixieletta then turn EAST on Dixieletta. Travel EAST on Dixieletta to 172nd St. and turn NORTH on 172nd St. Go NORTH on 172nd for 1/2 mile then EAST on Windstone Trail and Follow "Solar Tour" Signs to the only white house with a RED metal ROOF.



This new, OWNER-built highly energy-efficient custom home incorporates many unique features to meet LEED certification standards. A unique double-roof system insulated with soy-based eco-friendly foam tops the E-Crete walls and metal studs. Overhangs, Low-E glass and EnergyStar appliances throughout compliment the 6 KW PV System and Solar Hot-Water System with greywater reclamation. Custom Radon venting, fiberglass doors and window frames, soapstone stove, engineered wood, titanium roof underlayment and many other features.

## 9 McKay Residence

2647 N Miller Road Unit #21 Scottsdale, AZ

### DRIVING DIRECTIONS

Entrance to this neighborhood is directly across from E. Princeton Ave. off Miller (south of Thomas). Upon entering, turn right and park by the swimming pool. The home is East of the pool.

This home boasts a 1.92 KW Grid-connected Solar PV system, programmable thermostat, CFLs and solar tubes to provide natural daylighting in interior spaces. Rainwater harvesting, recirculating hot water and soon-to-be-installed tankless water heater provide water conservation features.



## 10 Pierson Street Ecohood

912 W Pierson Street Phoenix, AZ

### DRIVING DIRECTIONS

From 7th Ave and Camelback, proceed South two streets to Pierson St. Turn West onto Pierson St. Home is half-way down on the right.

This eco-friendly revitalization project intends to demonstrate a more sustainable way of life in an urban setting. Many permaculture techniques are used in the landscape design which includes plants of an edible, medicinal and utilitarian nature—all irrigated by greywater. Household solar hot water compliments the energy-saving appliances and lighting. Rainwater harvesting is facilitated by the FDA food-grade, heat reflecting roof surface. Many more features make this an environmentally friendly "hood".



## 11 Scottsdale Senior Center

1700 N Granite Reef Road Scottsdale, AZ

### DRIVING DIRECTIONS

From the intersection of Hayden Rd and McDowell, go EAST on McDowell about 1/2 mile to Granite Reef Rd. Turn NORTH on Granite Reef—Center is down one block on the WEST side of street.

The new Scottsdale Senior Center is the first city facility to earn a Leadership in Energy and Environmental Design (LEED™) Gold level certification. This is a multi-purpose facility which incorporates energy-effective lighting strategies and both passive and active solar systems.



## 12 Roebuck Contemporary Zen Strawbale

4801 E Hildago Street NE of Apache Junction

### DRIVING DIRECTIONS

US 60 East to Idaho Exit—Turn left on Idaho (North) go 3 miles to Route 88—Turn right (East) on Route 88 4 miles to Nodak—Turn right (South) on Nodak follow curve to Val Vista—right (South) on Val Vista to Hidalgo—right (West) on Hidalgo—last home on left (street dead ends) at State Land.

ECO-FRIENDLY, Contemporary Minimalism, VERY UNIQUE structure! Dollars spent on highest quality and efficiency, not 'fluff'. Designed and built by nationally renowned, environmental expert and architect, Tom Hahn. Super energy-efficient HVAC, appliances, windows and R-44 walls. Healthy indoor air quality, 100% fresh air capable ventilation, low-VOC products and finishes. Unique construction, steel frame and strawbale infill insulation. Timeless, desert-evolved structure with passive solar design sited on this 1.25 ac. parcel makes the most of the spectacular mountain views. This building is currently on the market but the owner and realtor Dee Jaye Lockwood "The Arizona Queen of Green" will be on hand to educate visitors and answer questions.

