



LIVING WITH THE SUN ARIZONA STYLE – 2012



Valley of the Sun Solar and Sustainability Tour

Saturday, October 27, 2012

9:00am-4:00pm

Sunday, October 28, 2012

9:00am-3:00pm

Two Special Workshops

9:00am-11:00am and 1:00pm-3:00pm



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Valley of the Sun

Solar and Sustainability Tour

Saturday, October 27

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Overview

This free, self-guided tour of Valley solar, sustainable, and Green buildings offers the public access to a dazzling variety of technologies, equipment, and strategies for energy and resource wise, desert appropriate, and environmentally responsible living in the Arizona desert.

Arizona's Solar & Sustainable Buildings Tour is part of the American Solar Energy Society's (ASES) National Solar Tour. ASES is the nation's largest and oldest solar and sustainability membership organization.

See projects ranging from new construction to remodels; from residences to public buildings; and from simple to complex. See passive (non mechanical) and active (mechanical) solar applications for heating and cooling, water heating; power generation and even cooking. See energy and resource efficient applications of water catchment and water reuse. See a variety of Green building strategies in creating a comfortable and environmentally appropriate lifestyle in our severe desert environment.

A special treat — meet the people who created and live in these building and who will be sharing their experiences in creating and experiencing these solar and sustainable buildings. Ask questions, learn about ways to incorporate their lessons and experiences into your own life and environments. Talks at each site will be on the hour with a noon-time break.

There is something for everybody, whether it is low cost, high technology, desert design, or simple environmental and behavioral techniques: a day of technology, strategies and the people taking action. If you have children, please provide oversight as you tour the personal residences and buildings of people who have graciously opened up their houses and themselves for the public.

Specific Tour information will be at the Arizona Solar Center www.azsolarcenter.org — Check it often as content may change — with the addition of sites or adjustments in availability.

This free, self-guided tour is put on by the Arizona Solar Energy Association — State Chapter of the national Solar Energy Society; the Arizona Solar Center — the State's go-to non-profit solar collaborative; and the City of Scottsdale Green Building Program.

Special thanks to Dr. Martin Pasqualetti and Michael Dalrymple and the volunteers from ASU. For questions and additional information please contact Dan Aiello at J2envarch@aol.com. Or call 602-503-5574.

LIVING WITH THE SUN ARIZONA STYLE — 2012
Valley of the Sun
Solar and Sustainability Tour

Saturday, October 27

9:00am to 12:00pm and 1:00pm to 4:00pm
Free, Self-Guided Tours

SCOTTSDALE

Becker Residence — 12176 East Double Tree Ranch Road, Scottsdale, AZ 85259	1
Douglas Architects Office — 4400 North Civic Center Plaza, Scottsdale, AZ 85251	2
Edwards Residence — 8151 East Smokehouse Trail, Scottsdale, AZ 85266	3
Edwards Remodel — 8737 East Valley View Road, Scottsdale, AZ 85250	4

MESA

Barnhart Studio — 506 North Center St., Mesa, AZ 85201	5
Catlin Residence — 120 South Omaha Street, Mesa, AZ 85205	6

PHOENIX

Dalrymple Residence — 4622 East Palo Verde Drive, Phoenix, AZ 85018	7
Note: This residence is open from 9:00am to 12:00pm only	
Peris Residence — 337 West Roma Avenue, Phoenix, AZ 85013	8

Sunday, October 28

9:00am to 12:00pm and 1:00pm to 3:00pm
Free, Self-Guided Tours

9:00am to 11:00am and 1:00pm to 3:00pm
Two-hour Solar/Xeriscape Workshop

MESA

Titmus Residence/The Bee Oasis — 2652 East Butte Circle, Mesa, AZ 85213	9
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1 Becker Residence

October 27

12176 E Double Tree Ranch Road
Scottsdale, AZ 85259

Directions: From 101 in Scottsdale, take the Shea Blvd exit. Travel east on E. Shea Blvd. Turn right onto N. 124th Street. Turn right onto E. Doubletree Ranch Road. Home is at end of the road on the right.



The Becker Residence is the result of a creative solution to an awkwardly shaped site squeezed by utility corridors and a desert wash that was previously scraped bare and left by a subdivision developer. The owners decided that the lot's deep arroyo and view of the McDowell Mountains outweighed the negatives.

Rainwater harvesting, site contours and swales were constructed to collect rain water on the lot for abundant plant growth while creating a desert oasis. A gray water recovery system collects household water that would otherwise go down the drain.

Southwestern tree species and plants were selected for drought tolerance and year-round color. Most of the trees adjacent to the residence were placed for shading and reducing heat gain.

Other features include sun protected building entries; graywater collection from bathroom sinks and showers that supply a 400 gallon storage tank to irrigate trees; rainwater collection from roofs directed to landscape areas via roof drains; thermal mass (concrete flooring) and exposed masonry that tempers daily indoor temperatures and contributes to healthy indoor environment; and use of local and regional materials including masonry, stone and recycled metal.

2 John Douglas Architects October 27

4400 North Civic Center Plaza
Scottsdale, AZ 85251

Directions: From Camelback Road and Scottsdale Road, head east on E. Camelback Road toward Arizona Canal Trail. Turn right onto North Civic Center Plaza. Turn right onto East Indian Plaza. East Indian Plaza turns left and becomes North Civic Center Plaza.



The Douglas Architects Office is a major renovation of an existing office space located on an infill lot in downtown Scottsdale. The project involved a reconfiguration of a 1,614 sq. ft. two story structure into a 2,382 sq. ft. two story building. The project was initially submitted and certified under Scottsdale's Commercial Green Building Program. With funding from the city awarded Energy Efficiency and Conservation Block Grant, the Douglas Office was able to receive a post-occupancy performance evaluation. The assessment was used to help certify the building under the new city adopted International Green Construction Code (IgCC). The Douglas office building structure reuses 68% of existing building materials, reduces annual energy costs by 42.3%, supplies 25% of annual electric energy consumption with an roof deck mounted solar PV system, provides daylighting in at least 50% of regularly occupied spaces and reduces indoor water use by 21%.

3 Edwards Residence

October 27

8151 E. Smokehouse Trail
Scottsdale, AZ 85266

Directions: From the intersection of N. Scottsdale Road and E. Carefree Hwy., go south on Scottsdale Road about 1/2 mile. Turn east onto E. Westland Rd. Travel east on Westland Road 1 mile to Hayden Road then turn south on Hayden Road. Turn east onto Smokehouse Road — 4th house on right.



Completed in 1999, the Edwards Residence in North Scottsdale incorporates many Green Building elements in its construction. Its Southwestern design blends with the surrounding desert with an emphasis on sustainability.

The Edwards residence was also the first straw bale home to be permitted in the City of Scottsdale. Features include:

- Straw bale R-50 walls
- Thermal mass floors
- Cooling tower
- Thermal pane windows
- water heating
- Grid-tied 5.0 kW PV system
- Highly insulated attic, R-67
- Dual-drain plumbing for graywater

4 Edwards Remodel

October 27

8737 E. Valley View Road
Scottsdale, AZ 85250

Directions: From Pima Rd. and McDonald Rd. go West to 86th street then turn south (left). Go 7 blocks until you come to Valley View Rd. turn East (left) drive about a block the house is on the south side (right) follow the house numbers.



This House was built in 1961 — the era of cheap energy, and the insulation and mechanical system equipment reflected it. There was no wall insulation, just masonry block and single pane windows and HVAC equipment with a SEER rating of about 8 located on the roof, with the leaky duct work running through the hot attic. This is the typical situation found in the existing inventory of homes in the valley. An attic fire provided the opportunity for a complete remodel.

It was decided to reconstruct this home as a super energy efficient structure, which allowed the Owner to minimize the expense of future utility bills but also offers a good example of a practical approach to modernizing existing homes.

The thermal envelope is the center piece of this remodel and is achieved by replacing the windows, wrapping the masonry walls with a unique wall system that has aluminum backed foam and a ventilated air space for the radiant barrier and air flow. The ceiling area is a hybrid that is fully ventilated for the radiant barrier and air flow benefits while adapting the roof trusses to encapsulate the HVAC duct work within the conditioned air space.

Mechanical equipment is the most efficient available in today's market with a SEER rating of 20. The appliances, lighting and plumbing fixtures will all be selected to optimize today's cutting-edge technologies.

Indoor environmental health is another consideration, by utilizing continuous mechanical air exchanges, selecting low VOC products, and providing easy-to-clean surfaces.

Passive solar adaptations include incorporating large overhangs and strategic placement of vegetation. Active solar PV and thermal water heating applications are currently being planned for by providing the space and integrating conduit and piping to the appropriate locations for gray water, and other green technologies.

5 Barnhart Studio

October 27

506 N. Center St.
Mesa, AZ 85201

Directions: From Main Street and Center Street in Mesa, north on Center for ½ mile to University. Studio is on West side of street approximately 500 feet north of University.



Completed in 2008, the studio is constructed from glass and steel, and a vast amount of additional material in this project are used or recycled. The Studio is 3,700+ sf with 28 foot ceilings. Beautiful natural light pours through the 7 skylights and north windows.

The Studio is complete with a rock climbing wall, sculpture garden, a fireman's pole, and a VW Bus mounted 12 feet off the floor that has been converted to a bedroom, and accessible by a glass catwalk.

A 1,500 lb arched steel and concrete-ball entry gate gently pivots across the driveway to the front, and a lushly planted xeriscaped sculpture garden graces the rear of the property.

6 Catlin Residence

October 27

120 S. Omaha Street
Mesa, AZ 85206

Directions: From Main Street and Val Vista, drive East on Main Street. Turn right on S. Norfolk. Make a left turn on E. Alder. At the end of that street turn right onto Omaha. The home is the next to last house on the right side of Omaha.



The homeowners created a system designed to eliminate all electric bills – even during the summer!

There are three different photovoltaic systems with three different inverters located here (roof- and pole-mounted panels with one system having battery backup), for a total of 12 KW of installed capacity. The home also features:

- A solar water heater
- Solar clothes dryer (clothes line)
- Solar-powered attic fan
- A water feature with fish, raised gardens and fruit and pecan trees.

Information about energy production, system costs, and return on investment will be provided.

7 Dalrymple Residence

October 27— 9:00am-12:00pm only

4622 E. Palo Verde Dr.
Phoenix, AZ 85013

Directions: From the intersection of Camelback and 44th Street: Go north approximately one mile on 44th Street. 44th Street curves right (east) and becomes McDonald Drive. Take the second right (south) onto 47th St. Take the first right (west) onto Palo Verde Drive. Residence is the 3rd house on the right.



In their tireless quest to create as sustainable a home as possible, the Dalrymples are happy to share more progress since the last time their 1975 block home was on tour. By completing the “outsulation” and a esthetic exterior remodel, they are now at a 75% energy reduction since beginning their journey. Eco-friendly interior finishes create a warm and inviting feel while ample daylighting and views bring the outdoors in.

Notable features include:

- SEER 16 variable speed heat pump
- Solar water heating
- 3 kW solar PV system
- Tubular skylight
- Demand-activated hot water recirculation pump
- Natural clay plasters
- High-efficiency pool pump
- Patio cover with retractable shade fabric
- Cork and reclaimed FSC wood flooring
- Xeriscaping, composting, food production
- Recycled FSC paper countertop
- Rainwater harvesting system, dual-flush toilets
- High-efficiency fiberglass windows and doors throughout

8 Peris Residence

October 27

337 W. Roma Avenue
Phoenix, AZ 85013

Directions: From the intersection of Indian School and Central Avenue, go north on Central Avenue. Take a left onto West Turney Avenue. Take a right onto North 3rd Avenue. Go one block to West Roma Avenue. Take a left. The house is on the south side of the street.



In the mid-1930s Yagle Park was the country getaway from urban Phoenix. Now, only two blocks away from the Central Avenue Metro stop at Campbell, this 1938 Territorial Revival house has been beautifully restored and tastefully expanded with an outdoor patio to create a true urban retreat without compromising its historic character.

The southern exposure of the backyard made it a perfect candidate for a passive solar ramada, which provides full shade in the summer months, full sun on the house during the winter months, and pleasant partial shade inbetween. The thermal mass of the brick and stucco southern wall gently radiates heat into the house during winter evenings.

Commentary

Back to the future? History is replete with buildings that were built to respond to their environment *without* the advantages of mechanical devices — Adobe, the most common material in the world, is a long tested and accepted material appropriate for desert conditions — with its long thermal lag and heat carrying capacity. Learn from history, with a contemporary view — from the owner, Luis Peris — a specialist on environmental impacts, mitigation, and daylighting issues and strategies. The past, accepted for what it brings, combined with the new, sun control and daylighting strategies and techniques, coupled with environmental strategies like thermal decomposition provided by the landscaping and location — give a unique and important perspective as to what can/should be done today. Old and new —to create a future of appropriate solar and sustainable buildings in the valley.

9 Titmus Residence/The Bee Oasis

October 28 (tour plus 2-hour workshops)
Workshops start at 9:00am and 1:00pm

2652 East Butte Circle
Mesa, AZ 85213

Directions: From the intersection of Main Street and Lindsay in Mesa, travel north on Lindsay. Take the 2nd left onto East Billings Street. Take the 3rd right onto North 26th Street. Take the 1st right onto East Butte Circle.



A Workshop experience of the Bee Oasis and its many Solar aspects.

A detailed tour of actual examples of solar shading, solar lighting, solar dryer, solar hot water and solar cooking. Then rainwater harvesting, worm box, composting, hybrid chicken tractor in the veggie garden, bee condos, and much, much more.....

The bee oasis is a designed sustainable living homesite, with no one element in the design being more important than another, since all are connected. This is Permaculture and our family is on the path to an intentional, sustainable living practice.



About the Arizona Solar Center

www.azsolarcenter.org

The Arizona Solar Center, Inc. (AzSC) is a not-for-profit collaborative of professionals dedicated to the development, implementation and integration of solar, renewable energy and sustainability in Arizona. The AzSC Board is comprised of representatives from various elements of the solar, RE and sustainability arena including government (the Arizona Department of Commerce Energy Office); the solar industry (Arizona Solar Energy Industries Association—AriSEIA); non-profits (Arizona Solar Energy Association—ASEA); Arizona utilities (APS, SRP and TEP); the educational community (ASU, UofA, NAU); the architecture, design and construction industry; the renewable energy and sustainability businesses sector; and solar and sustainability professionals. The AzSC hosts an informational and interactive website, which is the go-to central location for unbiased and trusted information for Arizonans; provides, and partners in, public and professional education programs, lectures, and workshops, and is involved in a variety of state-wide events such as the annual Solar and Sustainability tours and open houses.

Informative and educational outreach is performed at a number of levels: information and education for the general public; specific audience programs; and the new professional/business forum of the Arizona Solar Center Meet-Up Group (www.meetup.com/az-solar-center), which produces technical tours, and talks/information exchange from industry, manufacturers, business people, researchers and professionals in the various RE, solar, and sustainability industry arenas. This professional/business focused AzSC element currently has participation by the AzSC, AriSEIA, ASEA, the City of Scottsdale Green Building Program, and the Phoenix Alternative Energy Meet-up Group.

The AzSC is also a resource, directly and with others, in the development and production of informational and education materials and teaching/lecture tools; participates in local, regional and national renewable energy and sustainability forums; and is evolving a physical center to further its solar and sustainability education and development mission, as well as support the exploration and development of renewable energy, resource efficient applications and appropriate materials, and equipment.



About the Arizona Solar Energy Association

www.azsolarenergy.org

The Arizona Solar Energy Association (ASEA) is the Arizona affiliate of the American Solar Energy Society (ases.org). 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 (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 continues to draw large attendance. Our speakers' bureau is available to address your organization on many sustainability and solar-related topics.

ASEA is entirely a volunteer, nonprofit 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. Visit the ASEA website or our Facebook page for more information.



About the Scottsdale Green Building Program

www.scottsdaleaz.gov/greenbuilding

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.

OVERVIEW

The Scottsdale Green Building Program rates building projects in the following six environmental impact areas: Site Use, Energy, Indoor Air Quality, Building Materials, Solid Waste, and Water. A green building point rating system is used to qualify projects into the program. Design flexibility is achieved by offering over 135 green building options, while maintaining a whole building systems approach.

A builder, designer, or developer may enter any given number of projects into the program. The Green Building Program is voluntary and open to builders in the Scottsdale area.

INCENTIVES

As a consumer-driven program, the city of Scottsdale is engaged in an ongoing effort to bring the program to the attention of the general public and building industry:

- Development process assistance (expedited plans)
- Construction job site signs
- Directory of participating builders and designers
- Certification (green building inspections)
- Lecture series, workshops, and special events

PARTICIPATION

Every builder and designer who enters a project into the Green Building Program is expected to attend at least two green building related lectures, workshops, or seminars. These educational programs provide information on energy/resource efficient and environmentally responsible buildings, and feature experts in all areas of environmental design and construction. Lectures, workshops, and special events are held throughout the year.

2012 Solar and Sustainability Tour Presented by:



www.azsolarenergy.org



www.azsolarcenter.org



www.scottsdaleaz.gov/greenbuilding



www.ases.org

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