

CCSBP QUARTERLY

2010 CCSBP and USGBC Sustainable Building Awards

On November 6, 2010, the Coconino County Sustainable Building Program in partnership with the Northern Arizona Branch of US Green Building Council will host the annual Sustainable Building Awards Ceremony. The event will be held at the new Lumberyard Taproom and Grille, which is complementary to the occasion because they will be receiving a Sustainable Building award for reusing and recycling the old lumber mill as well as incorporating many other resource efficient features. The affair will showcase residential and commercial sustainable building projects,

programs that provide resources, as well as present thirteen projects with their 2010 Sustainable Building Award plaques. This free social event will also highlight local LEED certified projects. Come on out and help us celebrate sustainability in our community!

When: Saturday,
November 6, 2010
2:00-4:30 PM

Where: Lumberyard
Taproom and Grille
5 S San Francisco St
Appetizers will be served.

2010 Awarded Projects:

- * Grand Canyon Fire Station
- * Scott Residence
- * Lumberyard Taproom and Grille
- * City of Flagstaff's Izabel Land Trust Homes
- * Garrison Residence
- * Ulm Residence
- * Highlands Fire Station #23
- * Policastro Residence
- * Bothands-Vickers Park Duplex
- * Jones/Glotfelty Shipping Container Residence
- * Leonard Off-Grid Aspen Residence
- * Stonewood Caretakers Compound
- * Protiva Remodel



Sustainable Building Program

SPECIAL POINTS:

- ◆ CCSBP and Northern Branch of USGBC Sustainable Building Awards Ceremony
- ◆ CCSBP Sustainable Home and Building Tour Re-Cap
- ◆ 2010 Sustainable Building Awardees



Thank you to our Award Ceremony Sponsors

The Coconino County Sustainable Building Program & the Northern Branch of the USGBC would like to thank APS and Unisource for helping making this ceremony a successful community celebration!



from UniSource Energy Services

www.uesaz.com



www.aps.com



IN THIS ISSUE

<i>Sustainable Building Awards</i>	1
<i>2010 Sustainable Building Projects</i>	2-6
<i>Sustainable Certification Explained</i>	6
<i>Free CCSBP Services</i>	6
<i>2010 Sustainable Home and Building Tour Re-Cap</i>	7
<i>Get Involved</i>	7
<i>Visit our Website</i>	7

The Mission of the Coconino County Sustainable Building Program (CCSBP) is to educate, support, encourage and help develop sustainable building practices and processes for the citizens of Coconino County and the City of Flagstaff.



Since 2004, CCSBP has awarded over 60 projects throughout Coconino County and the City of Flagstaff. **This year, there are 32 current projects in the process of being awarded.**

This newsletter provides a summary of the 13 projects being awarded this year.

“IN ORDER FOR A BUILDING TO BE SUSTAINABLE, IT MUST BE LOVED; IT MUST TOUCH THE SOUL...FUTURE GENERATIONS MUST FIND ENOUGH VALUE IN A BUILDING TO CONTINUE TO OCCUPY IT.”
-DAVID ARKIN



A Showcase of Awarded Sustainable Projects

Highlands Fire Station #23-Advanced Plus Level

On the Fourth of July this year, the CCSBP awarded the Highlands Fire Station #23 with the highest level of Sustainable Building Award. The Advanced Level of award has a rating of 375 points and the fire station accumulated 422! This particular fire station is part of the Highlands Fire District and serves over 6,000 residents in five communities. Fire Station #23 has a solar thermal hot water system, a solar photovoltaic system that meets half of the station’s

energy needs, and an efficient building envelope. All fixtures are water saving including the toilets which are dual flush. Throughout the station, reused and recycled materials were used like the rubber floor mats in the workout room. The station boasts a gray water system that irrigates the local Xeriscape landscape. Proper air ventilation and non-toxic materials improve the indoor air quality for the hard working fire fighters.

The station provides an excellent community service while mitigating the impact on the environment.

Architect: LEA Architects, LLC

Builders: Kinney Construction Services



Scott Residence-Advanced Level

The Scott Residence is located in Valle, AZ, just minutes from the Grand Canyon. The house is totally off the grid and almost entirely self sufficient. It generates its own power from a 2.0 kW photovoltaic solar panel system, and its heat comes from a thermal hot water system. This system provides all of the homes heating needs as well as domestic hot

water needs. Rainwater is harvested in a 10,000 gallon rainwater catchment system utilizing 3-stage filtration, including ultra violet for domestic use. This high performance home underwent a complete energy model & audit. Upon completion, the Home Energy Rating (HERS) for the house was 11 – for a comparison, a new home built to code must be 100 or

lower, while an Energy Star home must be rated 85 or lower. The goal from the start was to build the homeowners an energy saving home that was sustainable and would last a lifetime.

Owner: Ann & Michael Scott

Architect: Architectural and Environmental Associates, Inc.

Builder: Hope Construction

The City of Flagstaff’s Izabel Land Trust Homes-Intermediate Level

The Izabel Land Trust Homes are affordable, efficient, and beautiful. The City and developers improved the community by replacing hazardous buildings and built energy efficient affordable housing. The wood siding on the exterior is Oriented Strand Board made from

wood chips. OSB was also reused from another project. All appliances are Energy Star and the furnace is insulated and 96.6% efficient. The landscape is made of native Xeriscape plants and the insulation is blown cellulose aka: recycled newspaper. All three houses are Energy Star certified.

The floor plan of each house is open to allow for natural lighting and ventilation. This project is a great example of how sustainable building can be affordable, architecturally pleasing and a great addition to any community.

Architect: Shapes and Forms Architects, Inc.

Builder: Loven Contracting, Inc.



Energy Consultant: E3 Energy, Inc.

A partnership with Bothands, Inc, and the City of Flagstaff Land Trust Program

Sustainable Building Awardees

Lumberyard Taproom and Grille-Intermediate Level

This building is the last remaining structure from Flagstaff's lumber era. The owners used lumber and roofing from the original building to create eaves, benches, siding and booths. The brick walls are standing in the same place they did 120 years ago. The flooring is made from concrete recycled from the original lumberyard. The bar top is made of recycled glass and concrete. All windows are weatherized and well sealed for energy efficiency

and durability. Most appliances in the kitchen are Energy Star or reused and the toilets in the restrooms are low flow. Paints contain low VOCs, keeping the indoor air quality of the Lumberyard healthy for patrons. The restaurant has a reclaimed water system that provides irrigation for plants near the outdoor patio and around the parking lot. There is composting outside the Lumberyard where local farmers come to purchase used grain from the brewing process.

The Lumberyard improved local economic development by using local construction companies, builders, architects, contractors and sub contractors to do the renovating. The Lumberyard has created 70 jobs for the Flagstaff community, while also providing excellent food and brews.



Owners: Winnie and Evan Hanseth

Architect: Smith Architects, Inc.

Builder: Loven Contracting, Inc.

Garrison Residence-Intermediate Level

This residence is durable, low maintenance and efficient and was designed to fit in with the overall look of the neighborhood. All of the appliances in the home are Energy Star certified and the house boasts a 95% efficient furnace. Four skylights are scattered across the ceiling including solar tubes that bring in natural sunlight. All windows in the home are tightly sealed and

the home uses passive solar design to help heat the house. The back of the house faces south which has the most windows and below are dark, porcelain tiles that collect heat from the sun and radiate throughout the house supplying heat. The home passed an intensive energy performance test for Energy Star. There is a gray water system that takes

water from the laundry room and bathrooms to drain sub-surface into the landscape. Rainwater is directed to the landscape to naturally water the plants. Overall, the home incorporates the owner's love and work as a quilt maker and the views of the mountains for inspiration.



Architect: Catherine Garrison

Builder: Holmes Building Construction, LLC.

Energy Consultant: E3 Energy, Inc

Ulm Residence-Intermediate Level

This home incorporates an open floor plan and is oriented at an east/west axis for passive solar design on the south side. Inside, the floor is made of stained concrete flooring to add thermal mass to absorb the sun's heat. The water heating system is powered by a high efficiency natural gas boiler. Again, recycled newspaper as blown in cellulose will insulate

the house. All appliances are Energy Star and lighting is energy efficient. The home uses its gutters and downspout drains to direct rainwater to irrigate the Xeriscape yard. There is a two pipe plumbing system that diverts all grey water into a holding tank for landscape use. To instill excellent indoor air quality, a radon ventilation system and

a HRV air exchanger was installed. The Ulm residence is Energy Star certified.

Owners: Mark and Jill Ulm

Architect: Alexander Studio, LLC.

Builders: Harmony Builders, Inc.

Energy Consultant: E3 Energy, Inc.



**Awarded
Projects
Continued...**



“WHEN WE TUG AT
A SINGLE THING IN
NATURE, WE FIND IT
ATTACHED TO THE
REST OF THE
WORLD.”
-JOHN MUIR

Grand Canyon Fire Fighting Facility-Advanced Plus Level

This facility is in process of becoming USGBC LEED Gold certified but already achieved an Advanced Plus rating from Coconino County. The sustainable features include permeable sidewalks and driveways, Energy Star appliances, low flow faucets and showers, gray water irrigation system, and insulated hot water lines. The facility also faces south to maximize passive solar heating and shading on the west side. There is a solar thermal hot water heating

system which meets 80% of the facilities hot water needs. The walls have great insulation with a rating of R-24, very high. About 90% of the construction waste was recycled or reused. Recycled materials were also used to build the facility itself. Throughout the building, there are low emitting materials that contain low amounts of VOCs and no urea formaldehyde. This building incorporates natural lighting and lighting

sensors to mitigate energy use. This facility is an excellent example of sustainability in a national park atmosphere.

**Architects: LEA Architects, LLC
Builder: FCI Constructors, Inc.**



Policastro Residence-Intermediate Level

This home was built having little impact on the surrounding environment during construction. Like most projects, this home has Energy Star efficient appliances and is orientated to the south to use the sun’s rays for natural heating. The walls have a spray in cellulose insulation for high efficiency. There is no urea formaldehyde in the

insulation to provide a healthy indoor air quality. The owners used durable metal roofing, which can be recycled later. The owners also provided a Xeriscape vegetation type to minimize the need for water. The owner/builder designed and built this home to be efficient, affordable, durable and low maintenance.

**Owners: William and Therese Policastro
Builders: Joseph and William Policastro
Engineer: SE Consultants, Inc.**



Vickers Park Duplex-Advanced Level

Vickers Park is a wonderful example of an efficient and affordable community development and is a new addition to the Sunnyside neighborhood. The duplex walls are constructed with Structurally Insulated Panels (SIPs) that provide R-41 insulation and a tight building envelope. The roof has

spray foam insulation with a rating of R-49. Due to the tightness of the duplex, fresh air is brought in to ensure healthy indoor air quality. This is done with the use of an efficient Heat Recovery Ventilator (HRV) system. There are Energy Star appliances, low-flow water fixtures including toilets and a

rainwater collection and storage system with on-site distribution to the Xeriscape plants. Each residence has their own private yard, but they also have easy access to a communal playground and gathering place.

**Owner: Bothands, Inc
Builder: AHC Homes, LLC
Architect: PWM Architecture
Energy Consultant: ReGroup Performance Contracting, LLC.**



Congratulations to our Award Recipients!



Designer: SolarTerra Designs, LLC

Builder: Stilley-Tulloss Design Build Group

Energy Consultant: E3 Energy, Inc



Leonard Off-Grid Aspen Residence-Intermediate Level

The home is entirely off-grid, with its own solar PV system that supplies ten kilowatts to create electricity for a comfortable lifestyle. There is a solar thermal system to provide domestic hot water and space heating with a boiler for back up. The stone fireplace provides extra heat on particularly cold winter days and a nice thermal mass to collect and store heat. Even in the master bedroom there's a LPG stove to make it extra cozy. On the south side of the home are large windows that provide passive solar heating to come in and

warm the house in the winter. There are well placed overhangs above to shade in the summers. All the stem walls and the basement's walls are ICFs which provide excellent strength and insulation. The exterior walls are made up of a stick frame method with thermal breaks and spray foam insulation for a tight barrier and high energy efficiency. The roof is composed of recyclable metal and spray foam insulation and small vents below the metal sheeting to prevent condensation. Rainwater is drained through gutters and

then collected and treated for domestic use. The Leonard's home boasts a HRV system that takes the exhausted air from the ventilation system and exchanges it with fresh air which improves indoor air quality and the health of the owners. The home has its own gray water system with a bypass valve that will adapt according to seasons and reduce the load on the septic system.

Stonewood Caretakers Compound-Advanced Level

With 381 points, this project received the Advanced Level rating from CCSBP. The project racked up points for everything from permeable walkways to using CFLs. The compound has Xeriscape surroundings and a solar power system that supplies 75% of its power. There is an on-site rainwater

collection system that irrigates the surrounding plants and filtered for domestic use. The walls, roofing and footings are made of Insulated Concrete Forms (ICF) and have a high efficiency rating of insulation. The compound improves indoor air quality by providing a heat recovery

ventilator (HRV) to circulate and recycle used air. All finishes are durable; a steel roof, stucco pavers, and concrete floor will last a long time. The compound scored innovation points for their radiant in floor heating, domestic water manifold system, and being a net zero water building.



Owner: Marilyn Hanna, Caretakers Leancy and Nancy Rupert

Builder: Construction Management Associates, Inc.

Architect: Living Systems Architecture and Design

Energy Consultant: Helio-centric



Designers: Marie Jones, Marvin Glotfelty, Tom Hahn, ECOSA Design Studio
Architect: Anthony Brown, ECOSA Design Studio
Builder: Dan Miller, Cornville

Jones/Glotfelty Shipping Container-Intermediate Level

Marvin Glotfelty and Marie Jones have innovatively used retired shipping containers as their home. There are six containers total, with a solar panel system and a rainwater collection system. The rainwater is collected on the flat roofs and then drained into two 3,000 gallon water tanks to

irrigate the yard. There is a solar power system made up of three rows of six panels totaling 3.5 kilowatts of power that can supply energy to most of the home. The shipping container home uses passive solar to heat the house in the winter. Other sustainable features include low flow/dual flush

toilets, CFL lighting, and a recycled wood composite deck. There is a Kalwal wall inside the living area that is insulated and recycled fiberglass. It's more efficient than a regular glass wall and still allows light to shine through. There are plans for an indoor greenhouse for winter shelter for plants.

Awarded Sustainable Building Projects Continued

Protiva Remodel Residence

This home is a retro-fit that added new sustainable systems to an older residence. The home has high energy efficiency but with added comfort and durability. There is added urea formaldehyde free insulation in the walls and ceiling to conserve energy, all windows have a high rating of insulation that limits heat loss, all appliances are Energy

Star and water fixtures and toilets are low flow. There are also solar tubes in the ceiling to add natural lighting. All other lighting uses CFLs. Old building materials were reused and those that could not be, were donated. Most materials are durable concrete or stucco. The residence boasts a radiant floor heating system and low VOC

paints. For the future, the home is wired for the addition of a solar energy system. A high efficiency hot water system was installed and there are gutters to re-route rainwater to the landscape. Not only is the home sustainable, but the owners added beautiful curb appeal to their neighborhood.



**Owner: Barb Protiva
Builder: Spillman
Customs Homes, Inc.**

The Sustainable Certification Process Explained

So far this year, **the Coconino County Sustainable Building Program will award 13 completed projects and has 22 projects** that are working towards certification. These projects go through a free consultation on building practices and site inspections to ensure the builders are on track with all necessary requirements in the Sustainable Building Program checklist. Projects are required to meet prerequisites such as

Energy Star appliances, low flow toilets and programmable thermostats. Projects are then critiqued according to the program's checklist based on six categories: community and site, water use and efficiency, energy use and efficiency, materials and resource use, indoor environment quality, and lastly, innovation and education. For example, the **Leonard off-grid residence** is self sufficient with insulated concrete forms for walls, passive

solar design, solar thermal, gray water system, and a ten kilowatt solar photovoltaic system on the roof.

The Jones/Glotfelty shipping container project reuses old train shipping containers as a home that includes a gray water system and solar panels. By recognizing and awarding these types of developments, the CCSBP works towards building a sustainable community, one project at a time.

“ORGANIC ARCHITECTURE SEEKS SUPERIOR SENSE OF USE AND A FINER SENSE OF COMFORT, EXPRESSED IN ORGANIC SIMPLICITY.”

-FRANK LLOYD WRIGHT

CCSBP Free Services—Yes, Free!

- **Consultation:** on sustainable building methods- plan review before you submit for a building permit, learn ways to make your existing home more energy/resource efficient.
- **Award Program:** by minimum requirements of the Program rating worksheet, your home/building can receive a **Sustainable Building Award Plaque** and be able to participate in local tours and events. See the checklist.
- **Resources:** on sustainable building products, methods, practices, businesses that provide local sustainable building services, suppliers as well as a listing of tax incentives for sustainable development and renewable energy.
- **Educational Opportunities:** lecture series, solar/sustainable home/building tours, workshops, seminars and information on sustainable building classes that are offered at CCC or NAU. The program also provides educational presentations to groups, conferences and schools.

CCSBP 2010 Sustainable Home and Building Tour



On Saturday, October 2, the Coconino County Sustainable Building Program in partnership with the City of Flagstaff Sustainability Program, Willow Bend Educational Center, and the Northern Branch of the USGBC, held the annual Sustainable Home and Building Tour in Flagstaff. The self-guided tour kicked off at the Willow Bend Environmental Educational Center and featured residential, commercial and LEED certified

Projects. The tour was part of the Flagstaff Festival of Science and the American Solar Energy Society's National Solar Tour. **Amanda Acheson, the County's Sustainable Building Program Manager says there were around 200 participants in this year's tour of ten building projects.**

Projects included: the Trathnigg's straw bale residence, the LEED Silver Certified Drury Inn, the Jones/

Glotfelty re-used shipping container residence, the Spillman City in-fill residence, the off-grid Leonard Aspen residence, the USGBC LEED certified Museum of Northern Arizona artifact collection center, the Garrison residence, the Stonewood Caretakers Compound, and the tour ended at the City in-fill Lumberyard Taproom and Grille—just in time for Oktoberfest!

“SUSTAINABLE DEVELOPMENT IS A PROCESS WHICH ENABLES ALL PEOPLE TO REALIZE THEIR POTENTIAL AND TO IMPROVE THEIR QUALITY OF LIFE IN WAYS WHICH PROTECT AND ENHANCE THE EARTH'S LIFE SUPPORT SYSTEMS.”

-SARAH PARKIN



Get Involved!

Citizens Advisory Committee (SBCAC): Come learn from building professionals, attend sustainable building seminars, tour local sustainable building projects, and support sustainable development in Coconino County. Meet on the last Monday of every month at 3:30-5:00pm at Willow Bend Environmental Educational Center.

Internship opportunities: Work with the CCSBP to help educate, support and develop local sustainable building practices.

Participate in: Local Solar and Wind Energy Tours, Sustainable Home and Building Tours, Green Building Lecture events, workshops and fairs!

Sign up: For CCSBP Weekly Announcements that provide information on upcoming events, sustainable development happenings as well as educational and job opportunities! Email CCSBP manager, Amanda Acheson at aacheson@coconino.az.gov to sign up.

Visit our Website: www.coconino.az.gov/sustainablebuilding

- ☼ Download the **Award Application**
- ☼ Review the **Sustainable Building Guide and Checklist**
- ☼ Get **information** on site planning, water use, solar power, energy use, building materials, and a step by step guide on getting your home or building certified.
- ☼ Use the **Resource Directory** to find local architects, contractors, designers, suppliers, universities with sustainable programs and many, many more!
- ☼ See the **Permit Codes and Guidelines** and national program information from USGBC, US Dept of Energy, APS and UniSource.

Coconino County
Sustainable Building
Program
2500 North Fort Valley
Road
Building 1
Flagstaff, AZ 86001

Phone
(928) 679-8853
Fax
(928) 679-8850
E-mail
aacheson@coconino.az.gov

Website
www.coconino.az.gov/sustainablebuilding