

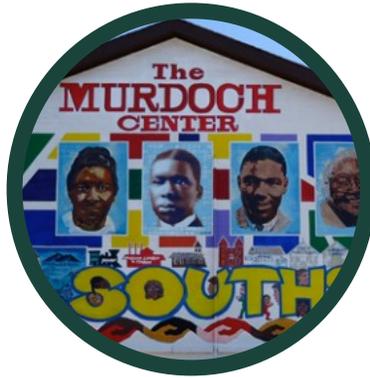
2013 SUSTAINABLE BUILDING & CREATIVE SPACES TOUR

homes



- ECCLESTON
- HUBLITZ
- THOMAS
- MOLINE

education



- WILLOW BEND
- NACET
- MURDOCH CENTER
- GRAND CANYON TRUST
- MUSEUM OF NORTHERN AZ

2013 Tour Features:

- Adobe and Strawbale
- Solar Thermal & Solar PV
- Insulated Concrete Forms
- Passive Solar Design
- Rainwater/Greywater
- Xeriscaping and Gardens
- Community Enhancement
- Accessory Dwelling Unit
- Environmental Education
- Living Roof



Made possible by:

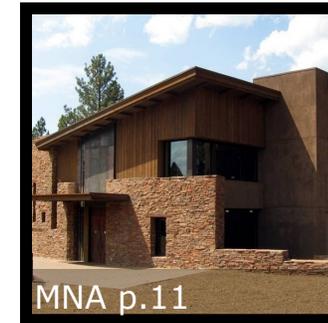
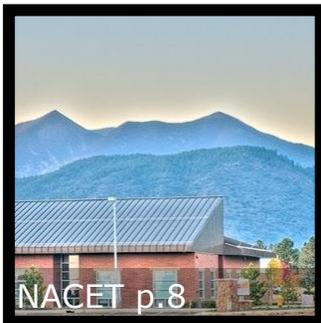
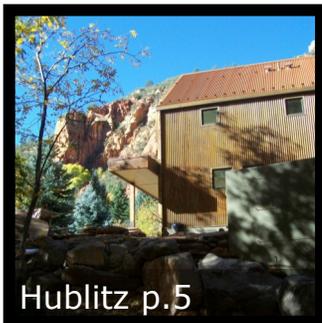
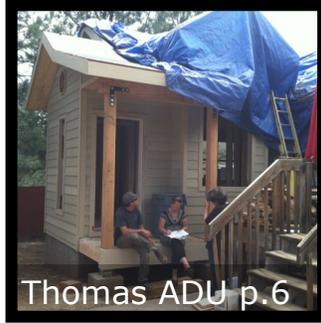
- Coconino County Sustainable Building Program
- Amanda Acheson, Manager
- City of Flagstaff Sustainability Program
- Nicole Woodman, Manager
- Willow Bend Environmental Education Center
- Russell Tweed, Director
- USGBC Northern Arizona Branch Governing Council
- Transportation provided by NAIPTA

The Sustainable Building and Creative Spaces Tour team would like to thank all our tour participants, sponsors, building professionals, and homeowners for sharing their knowledge and time.

The Tour Guide

This tour guide contains a short written summary of the features at the 9 sites on the tour, a regional map, as well as driving directions for each location. The overview map (following) will help you orient yourself and allow you to “plot a course” for the day. Written directions and individual maps use Willow Bend as a point of origin.

This tour is self-guided and all participants assume their own liability while traveling to, or visiting each site.



Willow Bend Environmental Education Center

creating "a world we want our children and grandchildren to inherit."



Featuring:

- + passive solar design with south facing windows
- + strawbale construction-efficient, renewable and highly insulated building material
- + Tromb  walls provide passive solar heat collection with transmission of warmth during cool times
- + 6.2 kWh per day solar photovoltaic power system donated by Prometheus Renewables
- + Willow Bend's transportation is a BioBug (VW) powered by vegetable oil
- + rainwater catchments with diversion to landscape
- + blown-in fiberglass insulation in ceilings for an R-50
- + energy efficient lighting using CFL's and day lighting strategies
- + low water native gardens



We are a community resource for environmental education, founded by the Coconino Natural Resource Conservation District in 1978 as a 501(c)(3) non-profit organization. Built in 2002, our building and site are excellent examples of using space creatively. The building has a very pleasant, warm, open feel, with lots of natural light making it an ideal place to work, meet, and teach. In addition to serving as our classroom, exhibit space and offices, other organizations use our building for meetings and workshops. Walk down the trail to the Rio de Flag and look for large chunks of metal and concrete sticking out of the ground. These are remnants from the sawmill that occupied this site. The land has been repurposed and is now used for retail, housing, offices, Coconino County Sawmill Park, and Willow Bend Environmental Education Center.

Award Certification Level : Advanced (2004)
Builder: Ed Dunn, Solar Design and Construction
Architect : Paul Moore



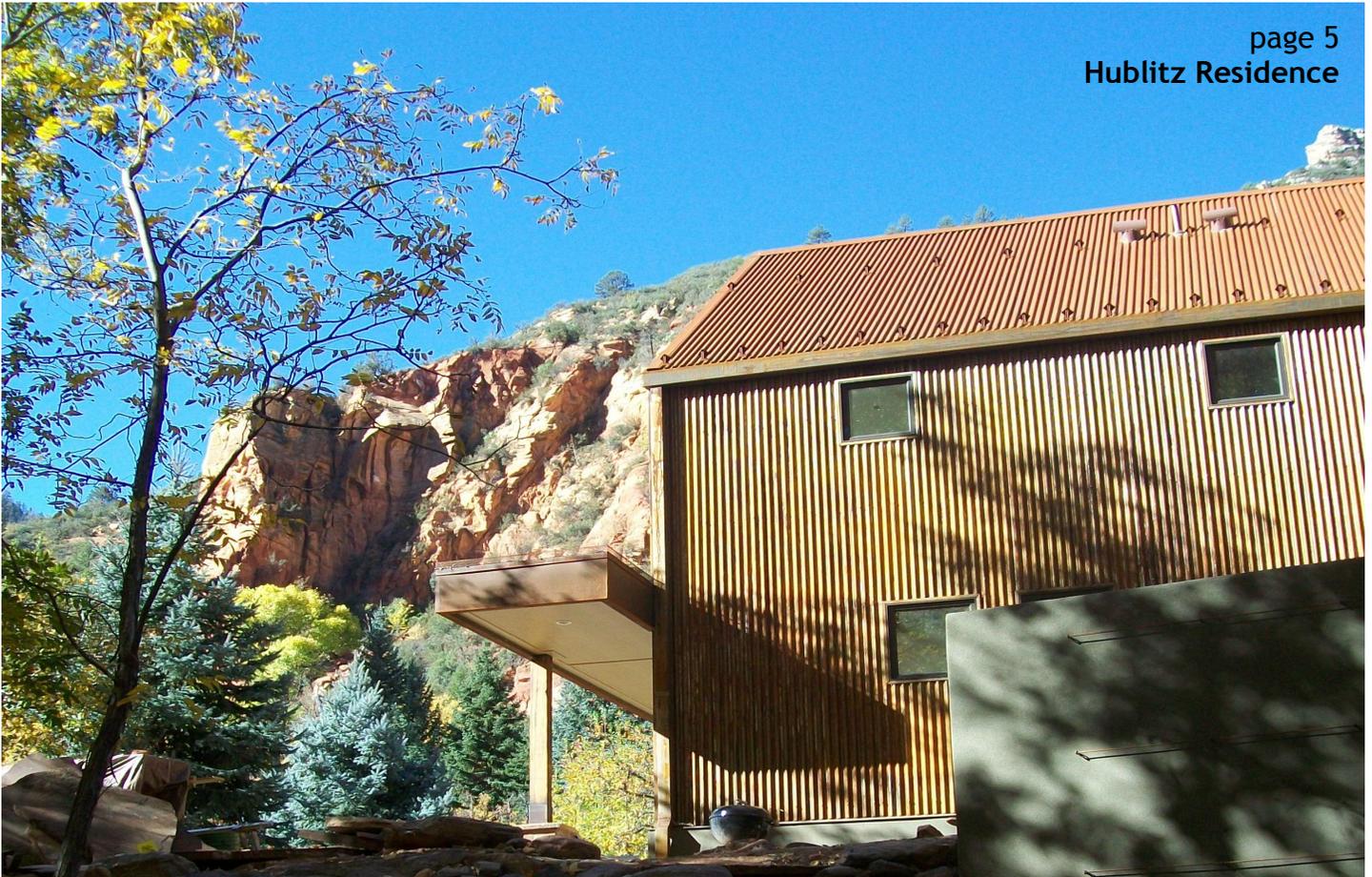
Featuring:

- + natural day-lighting strategy implemented in all conditioned rooms
- + Insulated Concrete Forms (ICF) construction
- + evacuated tubes solar thermal heating for domestic hot water and radiant-floor heating
- + excess building materials donated to a non-profit building association
- + no chemical pesticides or chemical herbicides used on site
- + rainwater harvesting and greywater systems
- + energy Star appliances and LED lighting
- + outdoor living space with access to urban trails
- + pureWash Eco-Friendly laundry system
- + Passive solar design to collect light heat
- + mulch made from removed tree stumps
- + low flow faucets and shower heads

During the design phase of our home, a motto my wife and I never deviated from was, “Functional, purposeful, with room to grow.” Every space needed to have a purpose, and the placement of each room and space was meticulously deliberate, based on our building site, building orientation, and sustainable building practices. From the layout of our living and business areas, to our private roof-top deck and our abundant outdoor spaces, we truly feel we have succeeded with this goal. We look forward to sharing with you our hard-earned lessons of being owner-builders and the wonderful result of our amazing home with you.



Award Certification Level : Advanced (2013)
Owners: Bobby & Cheryl Eccleston
Builder: Bobby & Cheryl Eccleston w/ Barden Home Builders
Plumbing And Electric: Plumbing and Electrical Concepts
Architect : Terry Averill



Featuring:

- + passive solar design with south orientation
- + insulation of R-24 at walls and R-49 at ceiling, formaldehyde free insulation all equal healthy in door air quality
- + energy efficient lighting using CFL's and day lighting strategies
- + ventilation strategy, home is cooled by natural air movement
- + solar hot water system, passive clothes drying
- + no use of chemical pesticides or herbicides
- + passive radon ventilation

Nestled between the red rock walls of Oak Creek Canyon, this Junipine Estates home, built by Ian Hublitz of Green Mountain Construction, is a rustic contemporary new construction with an emphasis on sustainability. Both materials and design aimed to make the most efficient organic building envelop while maintaining the integrity of this unique and historic community. Features such as ICF's (Insulated Concrete Forms), reclaimed lumber, metal details and attention to fine finishes throughout the home focus on fitting to the land. The builder and homeowners collaborated on the decision to mirror some of the old local cabin's most picturesque aesthetic features, including on this new home corrugated steel and accents of stone. It was an important consideration to maintain a low profile home that tucks nicely and blends into the land. This translated into the main living space flowing out over one level with the bedroom on the lower level taking advantage of the 18 ft.



Award Certification Level : Advanced (2011)
Owners: George & Louise Hublitz
Builder: Green Mountain Construction, Inc.
Architect: Intrinsic Architecture, Inc.



Featuring:

- + rainwater distribution system
- + no chemical pesticides or herbicides used on-site
- + Energy Star appliances and passive clothes drying system
- + Day-lighting strategy implemented in all conditioned rooms
- + use of natural breeze to cool the house without the use of an AC unit installed
- + recycled and salvaged material used
- + Surplus building materials were recycled and/or donated to non-profit organizations
- + xeriscaping
- + low-flow toilets
- + Energy Star space heating

Accessory Dwelling Units (ADU's) - through small size, shared utility metering, shared driveways, shared yard space (all those things you don't have to pay for twice!); provide an optimum environmentally friendly building option for any community.

Kudos go out to Ian Hublitz, Green Mountain Construction, for exceptional project management and general contracting (CM/GC) services. He brought to life the Thomas ADU "eye candy" design created by local architect Tim Whiteside (Johnson/Walzer Associates). This 600 s.f. space sparkles with expert craftsmanship and surprising details. Come by and experience for yourself what it means to "Build Small but Live Large" with an ADU project!



Award Certification Level : Advanced (2013)
Owners: Susan Thomas
Builder: Green Mountain Construction, Inc.
Architect: JWA Architects



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Moline Residence

Featuring:

- + Adobe construction, thermal mass walls
- + Formaldehyde-free materials used on-site
- + airlock vestibule to minimize heat loss at main entrance(s)
- + no chemical pesticides or herbicides use on-site
- + top soil preservation and erosion control
- + energy efficient lighting using CFL's and day lighting strategies
- + rainwater catchments with diversion to landscape
- + Energy Star appliances
- + on demand hot water heater
- + composting system for food waste
- + xeriscape
- + greywater reuse

Casa Molina is a small, passive solar adobe home nestled amongst the Ponderosa and sunshine on Hospital Hill. This adobe abode exemplifies building with a small footprint, but offering well thought-out living spaces, in the spirit of 'no so big houses.' A thirteen hundred square foot layout offers two floors of living spaces. The home is built with both handmade and pressed adobe bricks that were made on site! Arizona wood joined with mortise and tenon, and local clays blend together create a cozy casa that will be cool in the summer and warm in the winter all on its own. This adobe home is under construction, so it's a great time to inspect the 'nuts and bolts' of adobe construction. Owner Angie Moline and builder Adam Wayne, from Beyond Adobe, will see you there!



Award Certification Level : Advanced (2012)
Owners: Angie Moline
Builder: Beyond Adobe, Adam Wayne
Architect: Daniel Paduchowski



NACET's incubation engagement program includes:

- + Business strategy and management advising
- + Introductions to angel investors and early stage venture firms
- + Dedicated recruiting staff to source and screen job candidates
- + Lunchtime Seminars instructed by Members of our Mentor Network
- + Mentoring program - *pro bono* services from experienced professionals to support client businesses (accounting, law, marketing, capital, engineering and more)
- + Collaboration with University research teams and domestic and international student interns
- + Coordination with public and private partners
- + Brown Bag networking lunches for clients
- + Intellectual Property advisement services

For more information visit the NACET website at <http://www.nacet.org/>



NACET is a regional business incubator that fosters business growth and economic vitality, creating high-quality jobs. Partnering with a variety of non-retail, service, manufacturing, high technology, science and renewable energy firms, NACET offers a program designed to transform innovation into viable companies. NACET has four strategic initiatives: to nurture startup and growth-stage companies with coaching, mentoring, training, and access to resources to encourage growth, stabilization, employment and community foundations; to promote entrepreneurship as a career path to young people; to support Native American entrepreneurs through the Native American Incubator Network; and to foster a culture of entrepreneurship in Northern Arizona.



Featuring:

- + Mosaic funded Solar Site— 90 community investors funded this \$18k project
- + 36 panel, 9kW Solar PV System
- + Community technology access point
- + Flagstaff Co-operative Pre-school campus
- + Former site of Flagstaff's Dunbar School—an all-black school until 1954 integration
- + Flagstaff Capoeira Classes
- + Monthly Community meetings (Good Neighbor, Southside Community Association)



The goal of the Murdoch Center is to provide residents of Southside and Flagstaff a place to embrace historical value of Southside as well as to be a gathering place for all. As the historic site of Flagstaff's Dunbar School, it demonstrates historic preservation and adaptive reuse. Its solar array, crowd funded through Mosaic, is an exemplar of community support and ownership. The Center is located between downtown and Northern Arizona University, which makes it a site of great potential for university-community collaboration.

Director: Reggie Eccleston
Programming by: Southside Community Assn
Solar Project: Mosaic



Featuring:

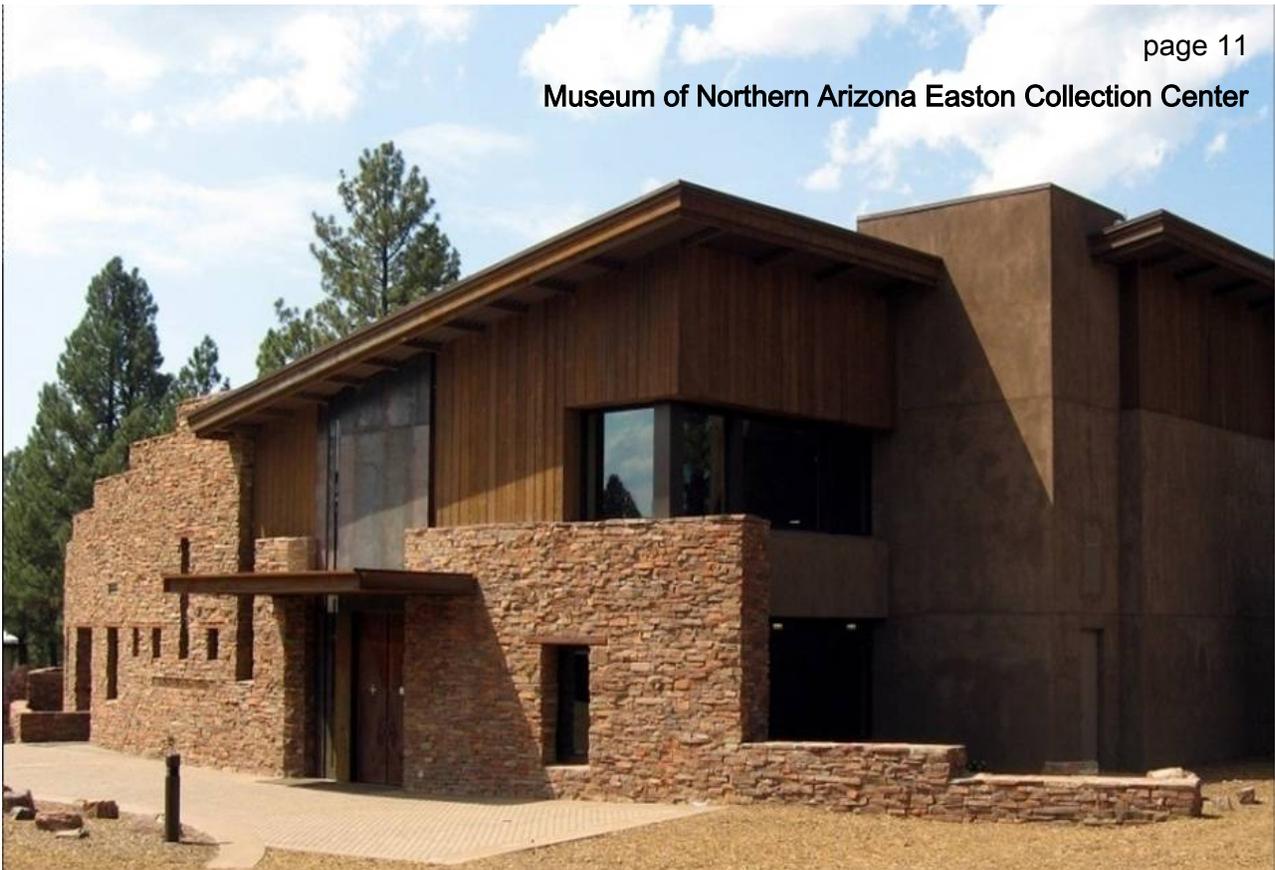
- + passive solar site orientation
- + energy efficient windows, natural lighting and solar tubes
- + site conservation: soil reuse, planned composting, xeriscaping, semi-pervious parking area
- + material from old barn was salvaged and used on other local building projects
- + low-water landscaping with native plants
- + metal roof for rainwater harvesting
- + solar tubes for natural day lighting
- + on-site recycling
- + permaculture design
- + solar panel installation

The Grand Canyon Trust "barn" is a staging area for the volunteer conservation work we do to accomplish our mission to protect and restore the Colorado Plateau, as well as a beautiful gathering space for outdoor events. The goal was to balance economy while modeling sustainable design and function. Generous contributions from the Flagstaff community, GCT volunteers, members, and Board of Directors made our dream possible. The new barn complements the Trust's historic 1930 Lockett Homestead Headquarters, and the landscaping demonstrates our Colorado Plateau land stewardship ethics in an urban space. The ecological design utilizes rainwater harvesting, native plants, and is being implemented through community partnerships and service learning workshops.



Award Certification Level : Advanced (2013)
Owners: Grand Canyon Trust
Builder: Harmony Builders
Architect: Rick Moore & Paul Moore

Museum of Northern Arizona Easton Collection Center



Featuring:

- + local masonry & steel construction (durable materials)
- + Northern Arizona's largest living roof provides insulation, cooling in summers, minimizes storm runoff
- + low VOC paints and sealants for healthy indoor air quality
- + surrounding area and building site was not disturbed during construction
- + 75% of construction waste has been reused or recycled
- + 23,000 KW annual production photovoltaic power system
- + hydronic in-floor heating and cooling
- + passive solar design
- + high thermal mass inside building's envelope
- + high insulation ratings
- + low E windows for high insulation values and mitigating heat loss
- + dual flush and low flow toilets



The Museum of Northern Arizona's Easton Collection Center is home to most of the Museum's expanding collections. The building was designed to preserve special artifacts by incorporating fire suppression, temperature and humidity controls, and insect protection systems. The museum received the highest LEED rating of Platinum. The creators agree that the center provides a shining example of a collections facility that preserves the past of the Colorado Plateau and its peoples.

"culture and history in LEED Platinum"

Award Certification Level: Advanced (2009)
Architect: Robert Jones Associates, Inc.
Builder: Kinney Construction Services
Living Roof Consultant: Rana Creek Living Architecture

Resources

Coconino County Sustainable Building Program

The mission of the CCSBP is to educate, encourage, support and help develop sustainable and energy efficient building practices throughout northern Arizona: www.coconino.az.gov/sustainablebuilding

City of Flagstaff Sustainability Program

The Sustainability Program is dedicated to promoting sustainable living and providing practical solutions to the Flagstaff community. <http://flagstaff.az.gov/sustainable>

City of Flagstaff Water Conservation Program

The City of Flagstaff Water Conservation Program promotes using the City's water resources wisely and implements educational opportunities for the community. <http://www.flagstaff.az.gov/index.aspx?NID=31>

Willow Bend Environmental Education Center

The nonprofit center's mission is to provide education outreach services that build environmental awareness and an ethic of responsible stewardship of our natural and cultural resources. www.willowbendcenter.org

Northern Arizona Branch of the US Green Building Council: www.usgbcaz.org

Northern Arizona University Office of Sustainability: <http://home.nau.edu/sustain>

Northern Arizona University Sustainable Energy Solutions: <http://ses.cefn.s.nau.edu>

Coconino Community College Alternative Energy Technology Degree

<http://www.coconino.edu/academics/curriculum/collegcatalog/Pages/AASAlternativeEnergyTechnology.aspx>

Coconino Community College Sustainable Green Building AAS Degree

http://www.coconino.edu/academics/curriculum/collegcatalog/Pages/AAS_SustainableGreenBuilding.aspx

American Solar Energy Society: <http://ases.org/>

American Wind Energy Association: <http://www.awea.org>

Arizona Solar Center: www.azsolarcenter.org

Tax Incentives-Utility Rebate Programs

Residential and non-residential rebate and incentive programs exist through utility providers such as Arizona Public Service (APS), Salt River Project (SRP), and Unisource Energy Services (UES). Please refer to their websites for information.

APS: <https://www.aps.com/en/residential/accountservices/serviceplans/Pages/green-choice-plan-options.aspx>

SRP: <http://www.srpnet.com/environment/earthwise/solar/Default.aspx>

UES: <https://www.uesaz.com/>

City of Flagstaff: <http://www.flagstaff.az.gov/index.aspx?nid=1030>

Listing of State and Federal Tax Incentives

<http://www.dsireusa.org>

NACET (Northern Arizona Center for Entrepreneurship & Technology)



Don't forget to recycle this packet! Or pass it on to an interested builder, homeowner, gardener, or student!