

Spencer & Jane Dohm Residence

***Certified:* Intermediate**
***Architect:* Architectural
Design Studio**
***Builder:* Harmony
Builders, Inc.**

- Close to urban trails, public transportation and open space/recreational areas
- Minimized disturbance
- Xeriscape
- Passive solar design
- Durable finish
- Rainwater collection
- Composting
- Regional materials
- No chemical pesticides used
- Energy Star appliances



Spencer & Jane Dohm Residence

Passive Solar Design



Minimized Disturbance & Urban Trail Access

Mike & Carol Sheehan Residence

***Certified: Advanced
Designer/Builder: Mike
Sheehan***

***Building Support: Mark
Hunter***

- A smaller strawbale house
- Completely off-grid
- PV solar setup
- Passive solar design
- Cross-ventilation & cooling
- Xeriscaped & rainwater collection
- Rainwater treatment for domestic use
- Regional and durable materials
- Formaldehyde free materials
- Permeable walkways and driveways
- Efficient indoor lighting



Mike & Carol Sheehan Residence



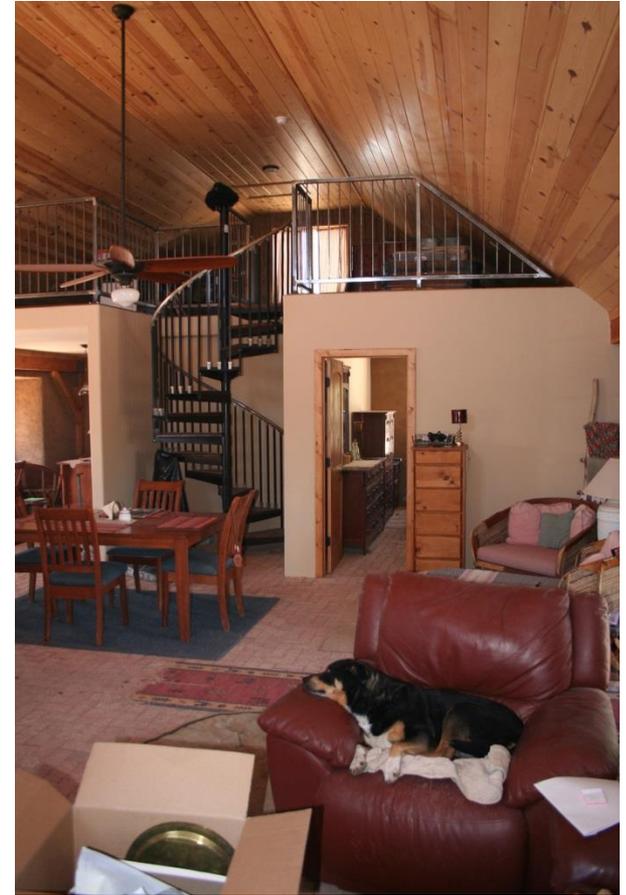
Photovoltaic Setup
With Off-Grid
Storage Capacity



Mike & Carol Sheehan Residence

Smaller,
Strawbale
Construction

Rainwater
Storage for
Domestic Use



Indigenous Community Enterprises Project

Certified: Intermediate Designer/Builder:
Indigenous Community Enterprises

- Open space & minimal land impact
- Xeriscape, durable design, daylighting
- Strategic ventilation for indoor air quality
- Use of regional and salvaged materials
- Strawbale panel integral walls
- Natural insulation
- Traditional Hogan style
- Building affordably
- Connecting to community partners



Indigenous Community Enterprises Project



Traditional,
Hogan-Style
Design

Indigenous Community Enterprises Project

Efficient Heating & Cooling



Insulating Strawbale Design

Tim Clark Residence

***Certified: Intermediate
Designers: David
Carpenter, Tim Clark,
Jana Aukon
Residential Design
Builder: Hope
Construction, Inc.***

- Near open space, services, & transit
- Advanced Framing techniques
- Multi-generational housing
- Waste reduction strategy
- An urban infill project
- Rainwater collection
- Graywater irrigation
- Low VOC materials
- Daylighting



Tim Clark Residence

Multi-Generation Housing



Rainwater Catchment for Landscaping

Tim Clark Residence

Energy
Performance
Testing



Urban Infill &
Community Connectivity



Tom Bevers & Darlene Lee Residence

Certified: Advanced
Architect: JA Residential
Builder: Mark Page Builders

- Rainwater collection & treatment
- Located near open space
- Topsoil preservation
- Erosion control
- Solar PV system
- Local lumber used
- Composting system
- Donated excess materials
- Formaldehyde-free insulation
- Energy Star appliances
- R 24 rated insulated walls to lower heating and cooling cost and energy need



Tom Bevers & Darlene Lee Residence

Abundant Use of Local Timber

Including Local
Ponderosa Pine
and Salvaged Fir

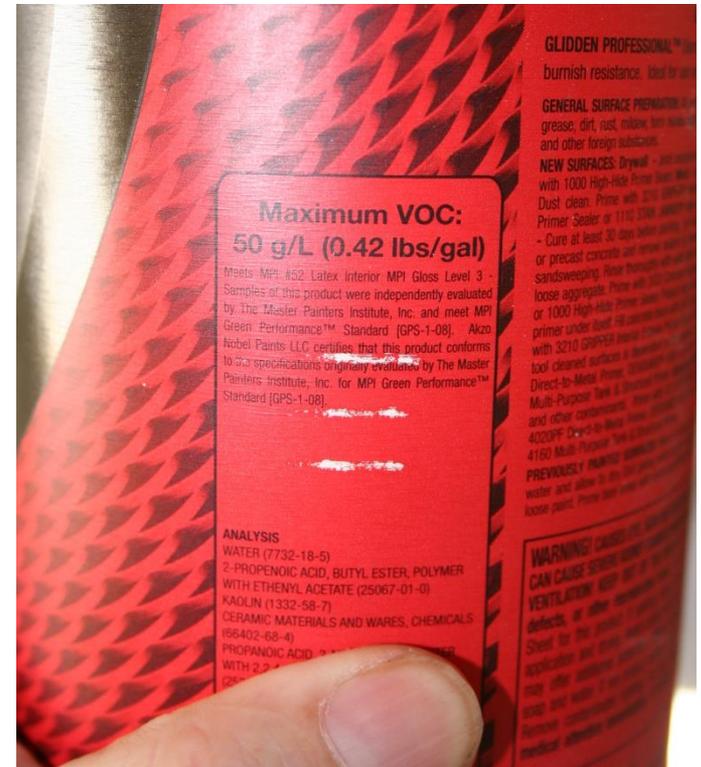


Tom Bevers & Darlene Lee Residence



Grid-Tied Photovoltaic System

Low VOC Paints & Adhesives



Chuck McDougal & Denise Hudson Residence

Certified: Advanced Plus

Designer: Reynold P. Rodaccia

Builder: Stilley-Tulloss Design Build Group

- Erosion control plan & topsoil preservation
- Community connectivity: transit, trails, open space, & services
- Timer-activated air circulation system
- Rainwater and graywater irrigation
- ICF construction
- Low VOC and formaldehyde free materials
- Rainwater collection, storage, and use



Chuck McDougal & Denise Hudson Residence



Solar
Thermal
Water
Heating
System

Efficient
Wood
Burning
Stove



Chuck McDougal & Denise Hudson Residence

Local Artist
Details



Wood Pellet Burning
Grill



Customized
Cement
Finishes



Johnstone Residence

Certified: Advanced Plus

***Architect: Design Group
Architects***

***Builder: Spillman Custom
Homes, Inc.***

- Minimum vegetative impact
- An urban infill project
- Rainwater collection
- Passive solar design
- Energy Star appliances
- Salvaged timber
- Durable materials
- Donated excess materials
- Solar PV for 100% of energy
- Solar thermal hot water system
- Low flow faucets and showerheads
- Fully insulated hot water lines to minimize energy loss



Johnstone Residence



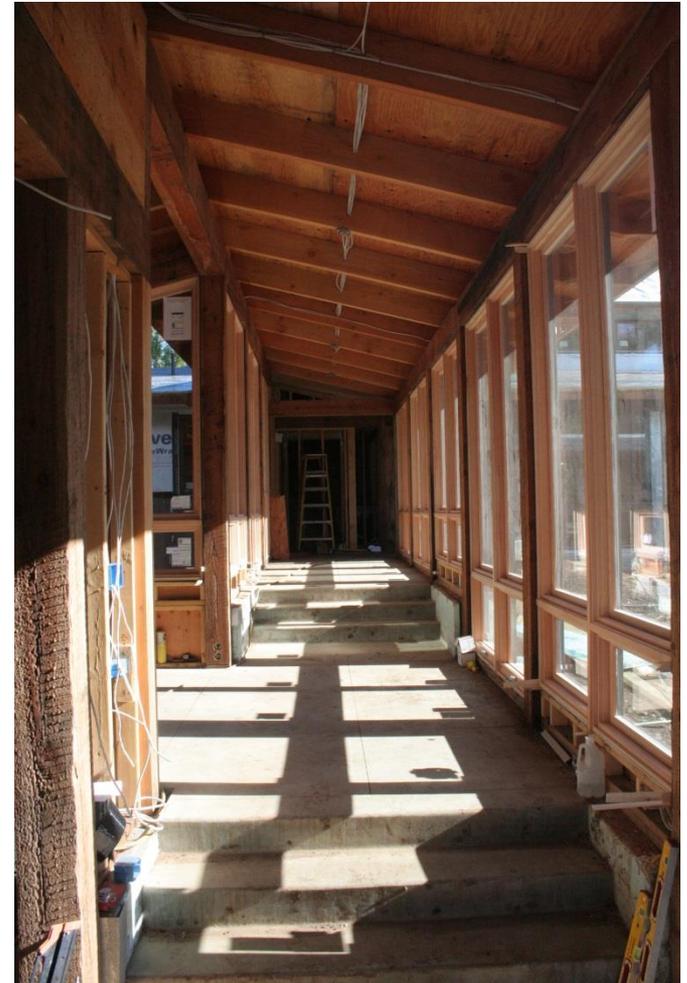
Local Flagstone and
Timber Used



Johnstone Residence

Passive Solar and Daylighting Design

Solar Thermal Water Heater



Hanna House/Leancy & Nancy Rupert Residence

Certified: Advanced
Architect: Paul Moore

Builder: Construction Management Associates, Inc.

Engineer: Jason Hale, Core Structure Group

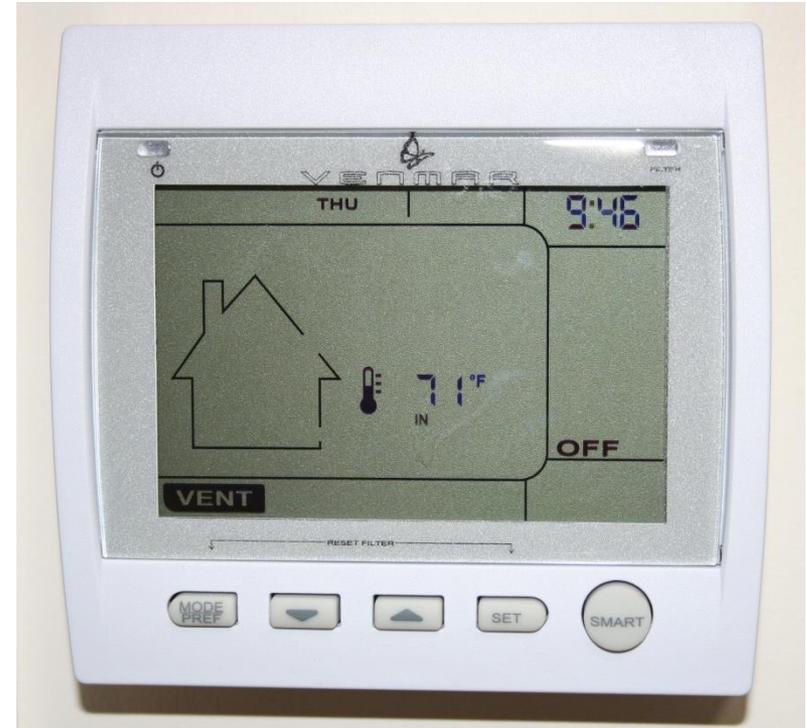
- Advanced framing techniques (ICF R-50 arcs)
- Permeable driveways and walkways
- Outdoor living area
- Rainwater collection, storage and purification
- Passive solar orientation
- Solar PV power system
- Solar thermal hot water system
- Durable finishes



- Regional materials
- Energy Performance analysis completed and passed

Hanna House/Leancy & Nancy Rupert Residence

Efficient Wood Burning Stove



Heat Recovery Ventilation (HRV) System

Hanna House/Leancy & Nancy Rupert Residence



Durable Finishes
& Regional
Materials Used

Adv. Framing
& Integral Walls
(ICF R-50 Arxx)



Chris & Amy Flory Residence

***Certified: Advanced
Designers: Chris and Amy
Flory, owners; Sara
Herron; Al Trumpp
Builder: Henderson
Construction Companies***

- urban infill
- rainwater collection & irrigation
- water-based concrete sealants
- OSB used, then mulched leftovers
- passed a blower door test
- durable finishes
- south-facing windows
- appropriate overhang on windows for shading
- durable floors
- cement counters
- a family project



Chris & Amy Flory Residence

Oriented Strand Board (OSB)
Used & Excess Mulched



Homemade Custom
Concrete Counters



Chris & Amy Flory Residence

Soy-Based Insulation



First LEED
for Homes
in Flagstaff

Smith Architects Offices

***Certified: Advanced
Architect: Ryan Smith,
Smith Architects, Inc.
Builder: Loven Contracting,
Inc.
Energy Consultant: E3
Energy, LLC***

- Urban infill with innovative “wedge” design
- Access to transit and services
- Automatic faucets
- Innovative rainwater irrigation
- Passive solar design, no AC unit
- Integral wall system
- Durable materials
- Narrow point holds mechanical systems
- Connects site with community services



Smith Architects Offices

Innovative
Urban Infill
Design

Window
Framing for
Solar Design



Smith Architects Offices

Natural Rainwater & Drainage Plan



Smart Building Climate Controls including HRV

Northland Preparatory Academy

Certified: Advanced

**Architect: JWA
Architects, LLC**

**Builders: BWA
Enterprises, Inc &
Woodruff Construction**

- Natural lighting and ventilation improves health performance
- Durable materials
- Rainwater catchment and watershed management
- Integrating built and natural environment for educational opportunities
- Insulated hot water lines
- Xeriscape yard
- Some passive solar design



- Efficient indoor lighting Indoor air ventilation system installed
- Low VOC materials used
- Daylighting strategy used

Northland Preparatory Academy

Daylighting
Techniques
Solar Tubes



Natural
Cross
Ventilation

Tom Weinert and Allison Adams Residence

***Certified: Advanced
Designer/Builder: Tom
Weinart & Alison Adams***

- Rainwater collection, storage system and purification
- Graywater irrigation
- Xeriscape yard
- Solar photovoltaic power system supplies 100% of home's energy
- Durable finishes
- Solar hot water heating system
- Donated excess construction materials
- Energy Performance analysis
- Integral wall system used
 - With Innovative properties
- Passive radon ventilation system installed for healthy indoor air quality



Tom Weinert and Allison Adams Residence

Plenty of Outdoor Living Space



Durable Finishes & Solar PV System

City of Flagstaff

Izabel II Land Trust Homes

Award Certification level:
Intermediate

Architect: Shapes and
Forms, Architects, Inc.

Builder: Loven Contracting,
Inc.

Energy Consultant: E3
Energy, Inc.

**A partnership with City of
Flagstaff and Bothands,
Inc**

- Energy Star Furnace, water heater, washer and dryer
- Programmable/set-back heating system thermostat
- 100% of toilets are low-flow
- Located within a quarter mile of FUTS, public transportation, and open recreation areas
- Near shopping services



- No chemical herbicides used
- Small scale house: 1,200-1,350 sq. with up to 4 bedrooms and 2 bath
- Xeriscape landscaping
- Daylighting strategy
- Formaldehyde free fiberglass insulation used in building envelope
- R-38 ceiling insulation

Posey Affordable Housing Project

Designer: Steve Posey

Builder: Bob Hansen, Blue Ribbon Homes

Manufacturer: Cavco, Industries, Inc.

Award Certification: Entry

- Affordable housing/Housing Replacement Program
- Passive solar orientation
- NRFC rated windows
- Low-flow toilets faucets & showerheads
- Energy Star rated heating equipment & appliances
- Sealed ductwork & whole house ventilation
- Passive ventilation capability
- ADA/Age-in-place features
- Durable Finishes



Wayne & McKenzie Anderson Residence

Designer: Wayne & McKinsey Anderson

Building Support: All Services; Western Builders, LLC

- Minimized disturbing surrounding natural ecosystems during construction
- Permeable walkways and driveways to No chemical pesticides or herbicides used
- Efficient hot water system
- Rainwater collection, treatment and storage system
- Two pipe system installed for future graywater use
- Solar water heating system
- Efficiently insulated envelope walls-structurally insulated panels (SIPS)



- Donated excess materials to non-profit building organization
- Durable finishes
- Low VOC material
- Composting system

Wayne & McKenzie Anderson Residence



Passive Solar Design
With Strategic
Thermal Mass

SFI Certified
Wood & Efficient,
2nd Hand Appliances



Mother Road Brewing Co.

Award Level:
Intermediate

Architect: Paul Moore

Contractor: Vance
Peterson, ReGroup
Performance
Contracting, LLC

Owners: Michael
Marquess & Urs Riner

- Water conservation method
- Urban infill and development
- Recycled and reused materials
- Local builders and regional materials
- Reuse of building materials
 - Conduit, wood, plumbing fixtures, concrete, and pipes
- Natural lighting and ventilation



- Durable and easy to clean materials to reduce chemical usage and labor
- Brew house equipment is reused from a closed brewery

Mother Road Brewing Co.

Industrial
Renovation &
Urban Infill



Innovative Brewing
Strategies & Art
Gallery

Ron & Rita Hubert Residence & Greenhouse

Award: Community Model
Builder: Residence-Ed Dunn;
Greenhouse-Growing
Spaces, Ron Hubert, Joe
Costion & Community
Members

- Includes natural cleaning systems i.e. local snails
- Insulated for frost
- Durable concrete foundation
- 100% rainwater use
- Operable windows with paraffin tubes that adjust with the outdoor temperatures
- County/neighborhood garden food share
- Native landscaping and seeds
- Permeable walkways
- Xeriscape
- Wind barrier



Ron & Rita Hubert Residence & Greenhouse

Heavily Insulated,
Aquaculture, &
Year-Round Food
Production



Geodesic Design,
Long-Term Durability, &
Passive Heating/Cooling

Ron & Rita Hubert Residence & Greenhouse

Traditional Hogan-Style
Wind Barrier & Native
Landscaping



Rob & Heidi Trathnigg Residence

Award: Community Model

**Designer: Rob & Heidi
Trathnigg**

Builder: Rob T Construction

- Strawbale construction for efficient insulation and durability
- Energy Star appliances
- Recycled and renewable building materials
- Rainwater collection, storage and treatment system
- Graywater irrigation and recovery system
- Xeriscape yard
- Passive solar design
- Solar photovoltaic power system that supplies 100% of home's energy needs
- Solar hot water system



- Constructed with minimum impact to natural vegetation
- Faucets and showerheads are low flow

Rob & Heidi Trathnigg Residence



Strawbale Construction
with Passive Solar
Design



Solar PV &
Thermal Systems

Scott & Darcy Wachowski Residence

Award: Community Model

**Designer: Scott & Darcy
Wachowski**

**Builder: Matt Robinson,
Western Builders, LLC**

- High efficiency boiler
- Glycol hydronic system
- Low flow water fixtures
- Passive solar design and thermal blinds
- SIPs integral wall system
- Ambitiously met energy upcoming energy code
- Innovative window design
- De-coupled walls for thermal and sound barriers
- Rainwater harvesting for domestic use
- Xeriscaping



Scott & Darcy Wachowski Residence

Rainwater Harvesting
for Domestic Use

Low Flow Appliances
and Fixtures



Jay Lively Activity Center & Ice Rink

Award: Community Model
Builder: Loven Contracting, Inc.

Architect: Smith Architects, Inc.

- Renovation of facility after roof cave in
- Reduced by half the landscape water use
- Low emitting paints, sealants, coatings, carpets, and wood
- High efficiency coolers for ice rink
- High roof insulation
- Efficient lighting
- Low flow water fixtures



Community Leader: Red Feather Development Group

- Red Feather Development Group partners with American Indian nations to develop and implement sustainable solutions to the housing needs within their communities.
- Founded in 1995, Red Feather works to address the more than 60% percent lack adequate housing of the 2.5 million tribal members living on American Indian reservations
- The Hopi community works alongside volunteers from around the country to construct straw bale homes for their fellow tribal members fostering greater understanding between diverse cultures.
- Red Feather also promotes education in sustainable construction and supports tribal members on their path to home ownership.
- Here in Arizona, Red Feather has constructed six strawbale homes on the Hopi Reservation since 2005.
- Visit www.redfeather.org



Community Leader: Red Feather Development Group



Regional Strawbale
Materials

Community-Based
Development & Construction



Local LEED Projects



<http://www.usgbc.org/>

Museum of Northern Arizona Easton Collection Center



- 17,283 Sq. Ft.
- LEED Platinum Building
- Masonry & Steel Construction
- Living green – sloped roof
- Hydronic in-floor heating and cooling
- Photovoltaic panels

Ramsey Residence

1st LEED for Homes in AZ



- LEED Platinum
- Passive solar design with structurally insulated panels.
- Grid tied photovoltaic solar system
- solar hot water system
- Rainwater catchment and grey water systems.
- Native landscaping with minimal disturbance of existing natural systems.

Flory Residence

1st LEED for Homes in Flagstaff



- Slated for LEED Platinum Certification
- Solar Thermal Hot Water System
- Heat Recovery Ventilation System
- Water Based Concrete Sealant
- Oriented Strand Board (OSB) Construction
- Blower Door Tested

Smith Architects Offices

- Slated for LEED Silver
- First LEED commercial building in the City of Flagstaff
- Durable and recycled materials
- Daylighting and efficient lighting strategies
- Heat Recovery Ventilation and purifying air system



LEED Projects at Northern Arizona University



<http://www.usgbc.org/>

**NORTHERN
ARIZONA
UNIVERSITY**



<http://nau.edu/>

Distance Learning Center



- 24,812 Sq. Ft.
- Reclaimed water
- Two Green Screen living walls
- Controlled day lighting
- Natural cotton fiber insulation
- Water efficient
- Active chilled beam

Applied Research & Development Building



NAU's Applied Research and Development building.
Photo courtesy of NAU.



- 160 kilowatt photovoltaic system
- Back-up heating system using solar thermal panels
- Sunlight providing more than 75% of the lighting for occupied spaces
- Automated shade controls
- Reduction of energy needs by 40%

W.A. Franke College of Business



- 86% of construction waste was diverted
- 50% greater energy efficiency than baseline
- 44% of materials manufactured regionally (500 miles)
- Potable water consumption reduced by 93% through reclaimed water use
- LEED Gold Certification

Engineering & Natural Sciences Building



- Over 70% of construction waste was recycled
- 40% more efficient than conventional
- Photovoltaic energy supplementation
- Xeriscaping reduces potable water consumption by 50%
- Reclaimed water in waste system reduces potable water consumption by 90%
- Certified LEED Gold

Health & Learning Center Slated for LEED Gold



**Recreation Fields
Slated for LEED Silver Certification**

Native American Culture Center Slated for LEED Silver Certification



**Liberal Arts
Renovation
Slated for LEED Silver**