



TRIBAL SUSTAINABILITY

Green Projects in Indian
Country

Gepetta S. Billie

Tribal Energy Program Review

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Overview

- Introduction
- Green Building
- Elements
- Benefits
- Green Building in Indian Country
- Conclusion



INTRODUCTION

Connecting Green Building to Renewable Energy



Power
Generation

- Distribution
- Transmission

R & D

- Highly technical
- Nerd work

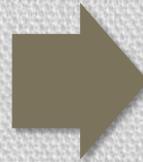
Energy
Efficiency

- Less technical
- People work

Where Do We Start?

Current Practices

- Energy Use
- Population & Consumption



Tribal Housing

- Housing Stock
- Housing Need



Sustainability

- Who's definition?
- What does it mean?

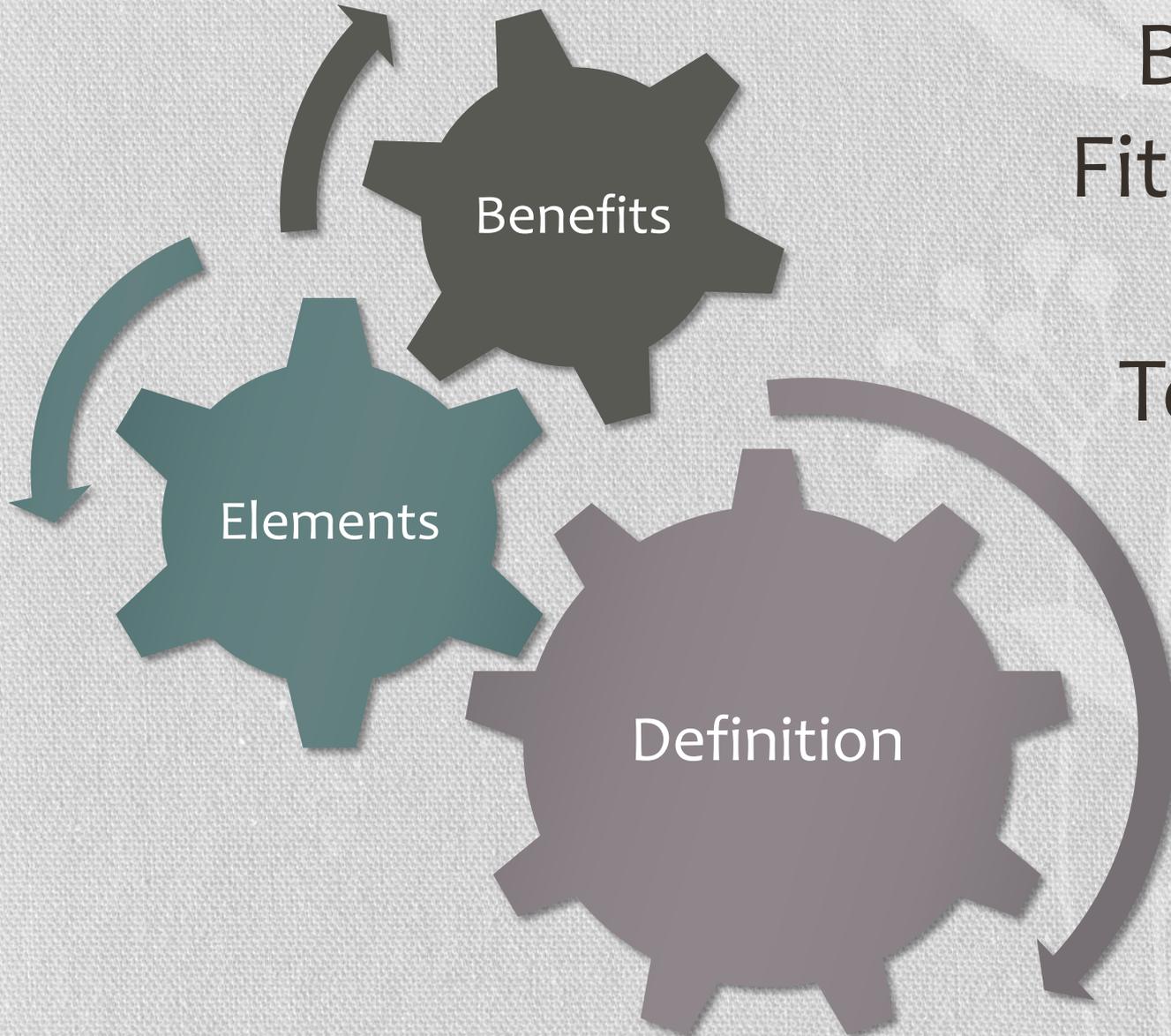


Tribal Sustainability



GREEN BUILDING

Green Building: Fitting the Pieces Together



Defining Green Building

*We did not inherit the Earth from our parents.
We are borrowing it from our children.*
~ Chief Seattle



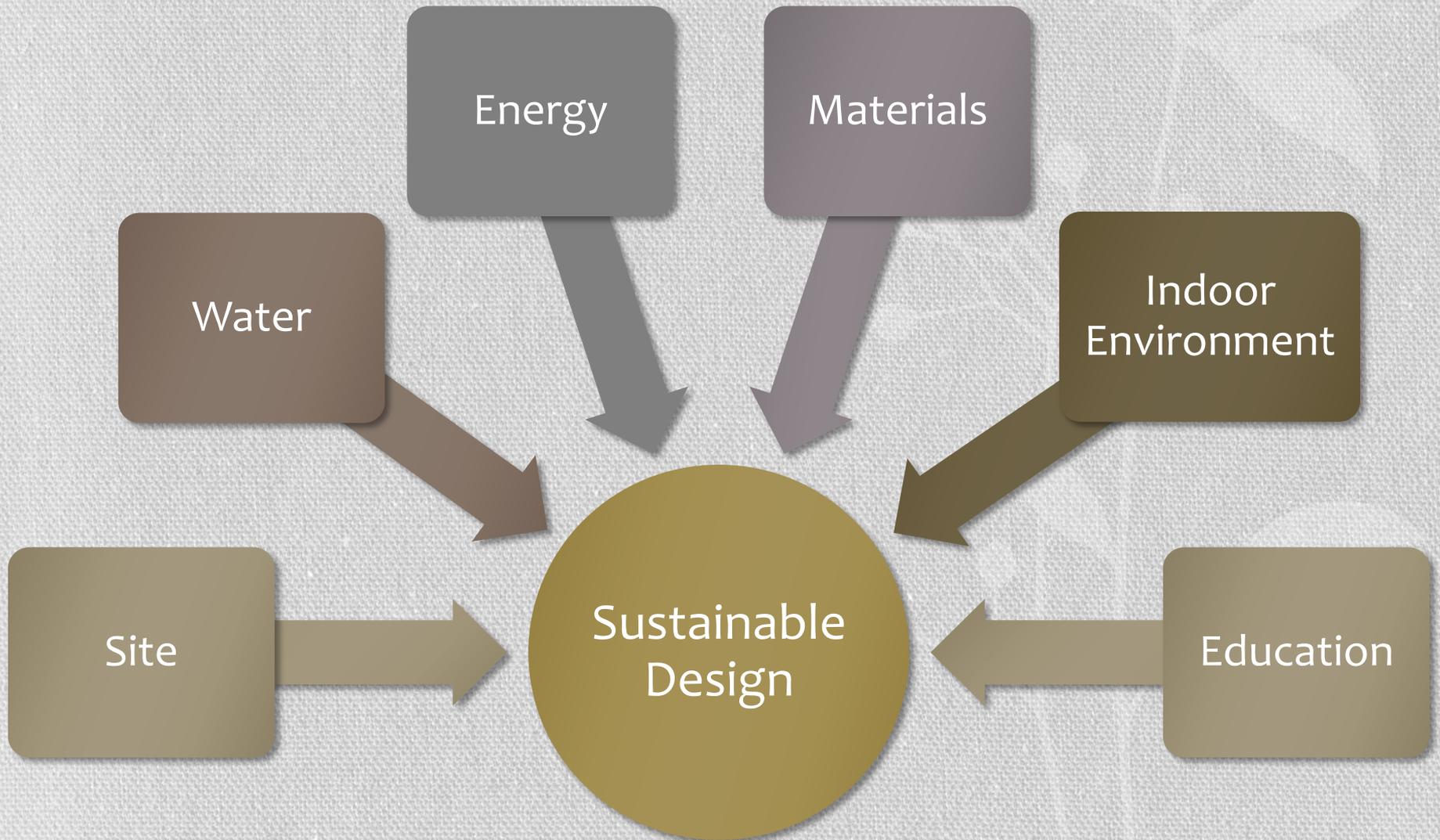
Hozhó



Green Building

ELEMENTS

Six Green Building Elements



Site

Green Building Strategies



Use appropriate building sites

Preserve open space

Reduce sprawl

Develop brownfields

Safeguard endangered species

Restore damaged environments

Design to optimize sun, wind, and light

Water

Green Building Strategies



Developing a water use management plan

Indoor water conservation

- Using low-flow plumbing fixtures
- Using high-performance appliances

Outdoor water conservation

- Using rainwater collection systems
- Using sustainable landscaping techniques
- Using high-efficiency irrigation systems

Innovative waste water management

- Using gray water recovery systems
- Using waterless urinals

Using biological treatment or other “off grid” systems

Energy

Strategies to Consider

Passive solar design

- Optimizing site, design and orientation
- Landscaping to provide natural shade
- Using natural day lighting
- Using natural heating and ventilation

Energy management plan

- Evaluating tradeoffs & minimizing projected energy costs
- Training building occupants
- Tracking and optimizing performance over time
- Employing an energy management system

Energy efficient or high performance materials

- Thermal insulation
- Roofing and glazing
- Lighting
- Heating, ventilation, and air conditioning systems

Indoor appliances

- Energy Star
- Renewable energy

Materials

Green Building Strategies



Prepare a Green Building Product Selection Plan



Use Salvaged Building Products



Use Recycled-content Building Products



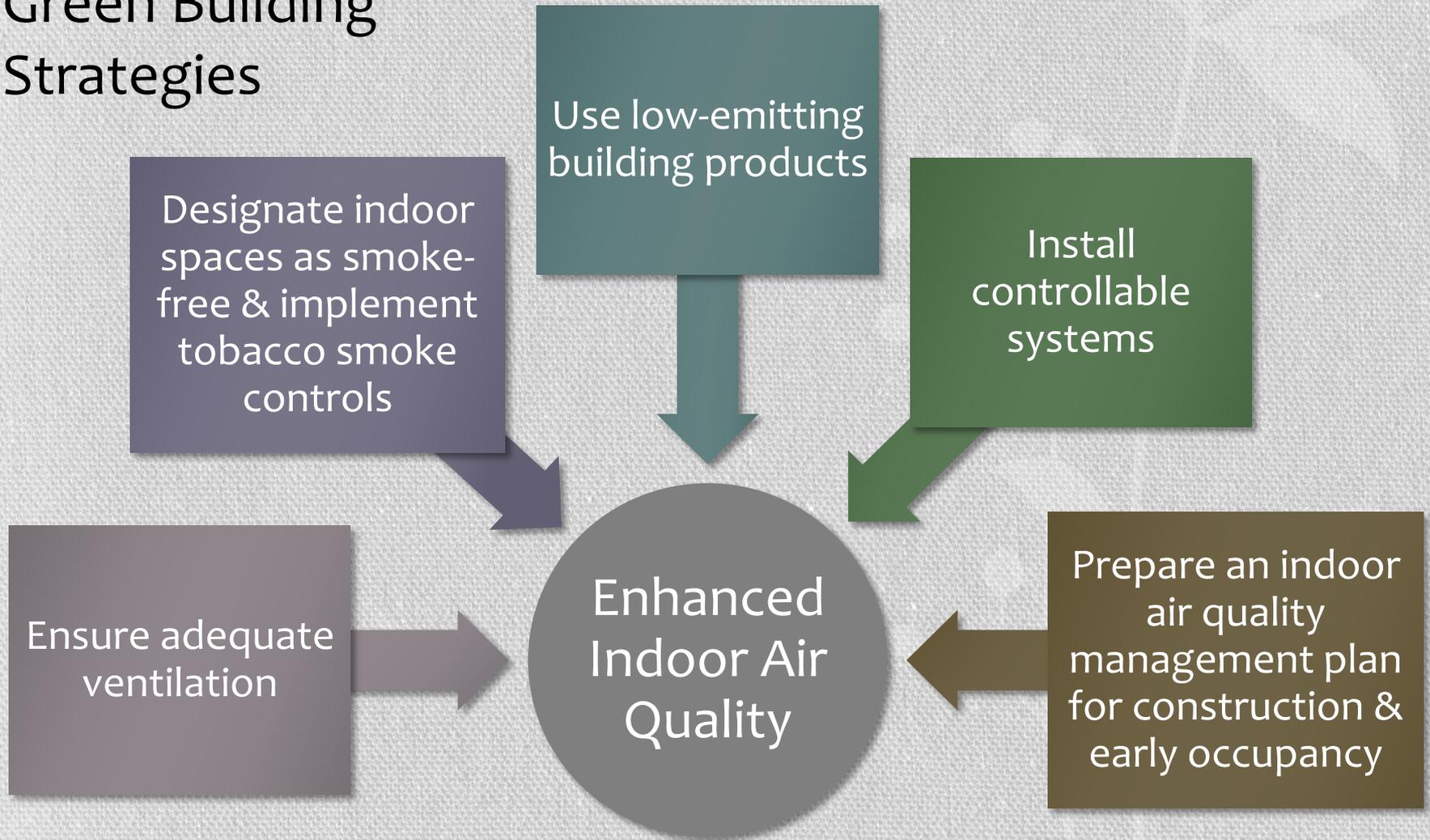
Use Locally Available or Naturally Occurring Building Products



Use Smart Wood or Alternative Lumber Products

Indoor Environment

Green Building Strategies



Education

Since the homeowner knows how to best run their households, it is also important for them to understand how to run the house itself.

Successful Implementation of Sustainable Design Strategies

Prepare A Handbook For Homeowners

- Water Use Management Plan
- Benefits
- Responsibilities

Provide A Homeowners Orientation

- Common Sense Steps
- Low-Cost Water Conservation Techniques
- Energy Efficiency Techniques



Green Building
BENEFITS

Benefits of Incorporating Green Building Design Strategies

Environmental

Enhances & Protects Biodiversity & Ecosystems

Improves Air & Water Quality

Conserves & Restores Natural Resources

Reduces Energy Consumption & Climate Impacts

Reduces Waste

Financial

Reduces Energy Costs

Reduces O&M Costs

Creates & Expands Local Markets for Green Products & Services

Social

Enhances Community Values

Increases Aesthetic Qualities

Enhances Occupant Comfort & Health

Minimizes Strain on Local Infrastructure

Improves Quality of Life

Cultural

Is in sync with Traditional Practices

Respects & Observes Cultural Values & Practices

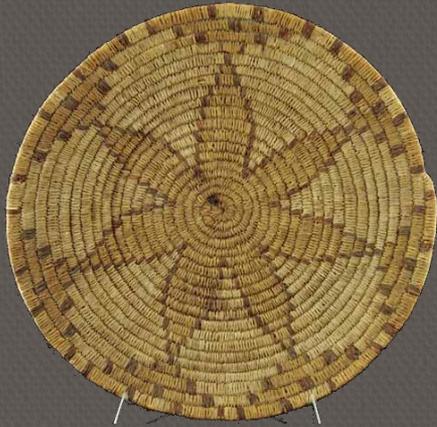
Increases Community Participation



GREEN BUILDING IN INDIAN COUNTRY

Mescalero

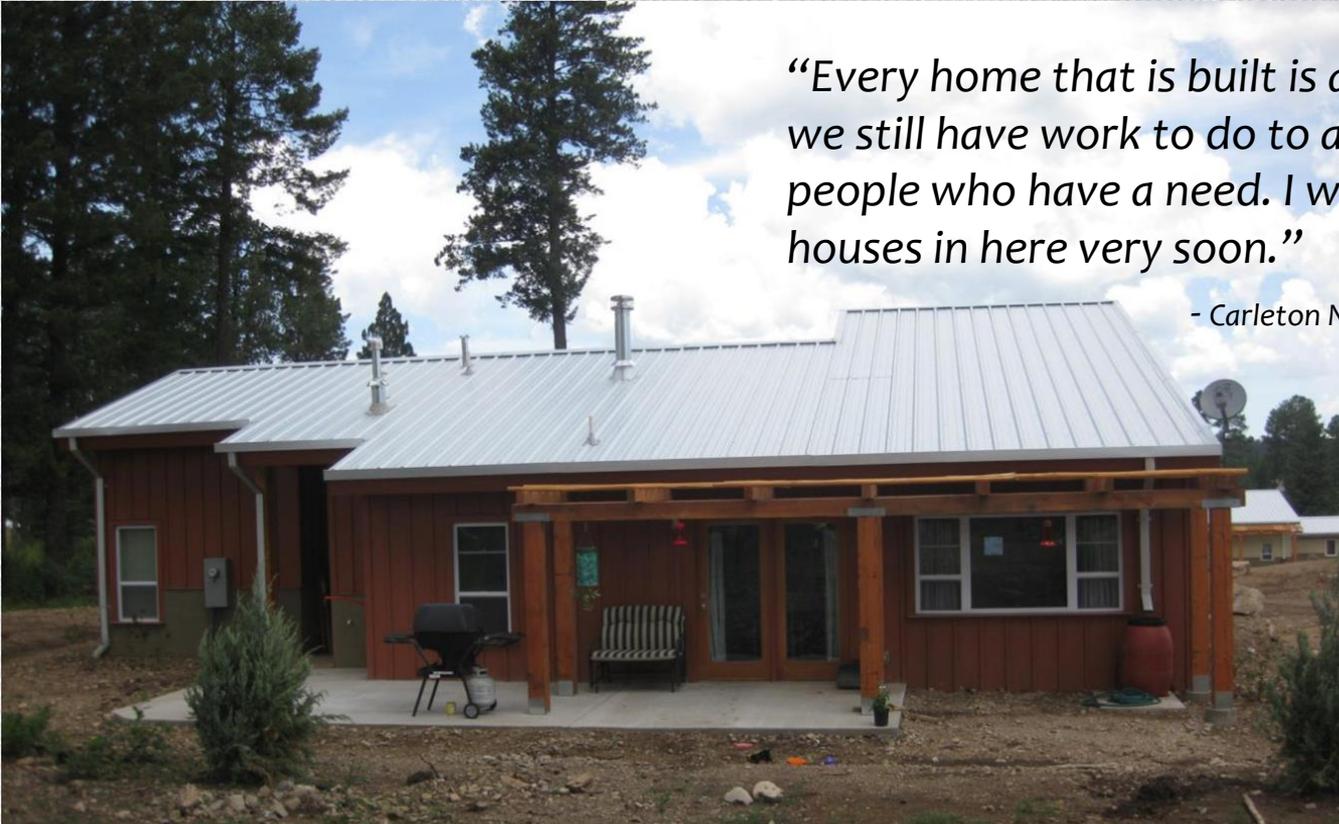
Mescalero, New
Mexico



Seeing is Believing

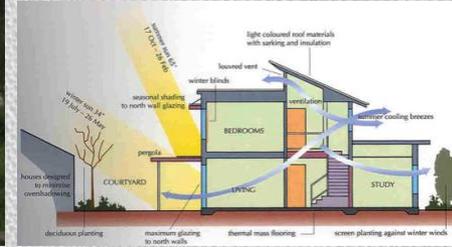
“Every home that is built is a blessing for our people, we still have work to do to accommodate all the people who have a need. I wish and pray we get more houses in here very soon.”

- Carleton Naiche-Palmer, Former Tribal President



I-Sah'-Din'-Dii Housing Development
Mescalero Apache Reservation

I-Sah'-Din'-Dii, Design



“... this housing development has been designed to have as minimal an impact as possible on Mother Earth. .”

- Tim Horan, Former MAHA Exec. Direct.

I-Sah'-Din'-Dii, Conservation



“This project is a wonderful example of how truly sustainable housing can be built on New Mexico’s tribal lands.”

- Diane Denish, NM Lt. Governor

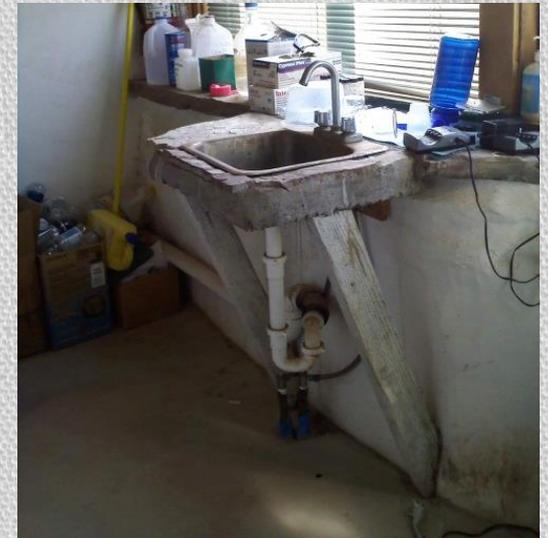
Hualapai

Peach Springs, Arizona



Earthship

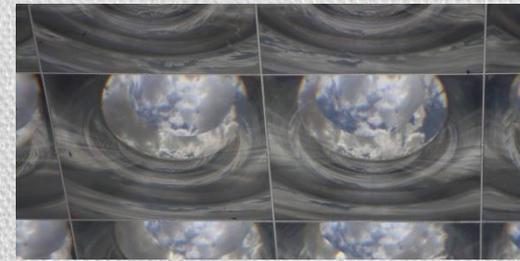
Peach Springs, AZ



Hualapai Social Services Building

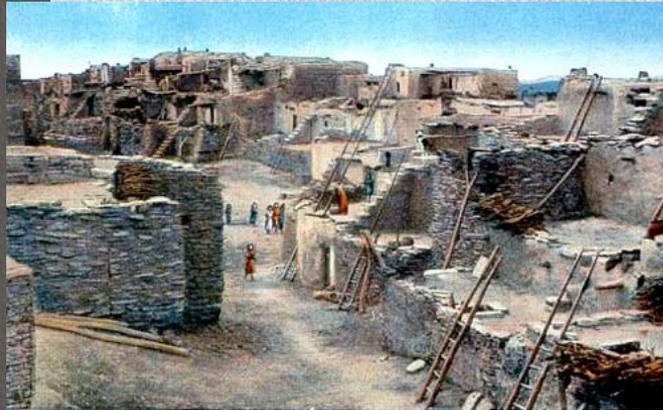


Hualapai Cultural Center



Hopi

Hopi, Arizona



Moore Residence

Hopi, AZ



Santo Domingo

Santo Domingo Pueblo,
New Mexico



Santo Domingo Pueblo Safety Complex



10,000 square feet

Volunteer Fire & Police
Substation

LEED Silver 08/30/2011

The Safety Complex is designed to demonstrate the high technology requirements of today's emergency response teams, but also to respect traditional values and architectural heritage of Santo Domingo Tribe.

Safety Complex Features



Six Bays: Ambulance & Fire Trucks

Equipment Storage

Residential Quarters

Kitchen

TV Room

Fitness Area

Office Space

Small Holding Cell

Community Conference Room

Space for Long-term Training Facilities

Kewa Pueblo Safety Complex

Water Catchment System

Low Flow Fixtures

Dual Flush Toilets

Permeable Pavement

Xeriscaping



Water



Materials

Rastra Building Material (ICF)

Local Material (Within 500 mi)

Construction Waste Management System (Separate bin for contaminated materials)



Natural Lighting Recycling Program





Honoring Tradition



CONCLUSION

Why Green Building?

Fills Housing
Need

Facilitates tribal
people's ability to
work toward
achieving healthy,
livable
communities

Allows tribal
people to
reconnect with
the natural world



Ahé' héé'

Gepetta Billie
Strategic Site Planner
Sandia National Laboratories
gsbilli@sandia.gov

