



# The Co-design of Eco- and Culturally-inspired Housing for the Pinoleville Pomo Nation

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## Introduction

- The Pinoleville Pomo Nation (PPN) has strong values about environmental harmony
- The PPN, however, did not have a plan to proceed and began to seek partnerships with universities.
- This project focuses on the development of culturally inspired homes that incorporate renewable energy and sustainability best practices.
- The design created shows promising potential to achieve substantial energy and water savings while maintaining the unique cultural aspects of the PPN



Fig. 1: Members of PPN and Berkeley



Fig. 2: HUD-financed housing



Fig. 3: Group Discussions on Needs

## Motivation

- The PPN is facing several critical challenges:
- ~300 members scattered throughout N. CA
  - Many are seeking to return to the lands of the PPN
  - Rising heating and cooling costs
  - Drought conditions
  - HUD-financed housing provides basic necessities
  - No representation of the cultural and traditional values of the PPN in HUD housing

## Yurt Style Design

- House features a large decagon with five hexagon shaped attachments, skylight, and a dome like roof.
- The five hexagon attachments: bedrooms or storage.
- The skylight: natural lighting and heating.
- Green roofs: space for native plants, solar hot water heaters or PV systems.



Fig. 7: Yurt Style Design Side View



Fig. 4: Conceptual Home Design with Grey Water, Wind, and PV System



Fig. 5: Top Down View



Fig. 7: Roof Removed

## Human Centered Design Approach

- An innovation workshop was held to identify PPN and brainstorm concepts.
- Human centered design: end users are experts on their needs.
- Co-designing with end users can lead to better solutions and which are readily adopted.

## Innovation Workshop Results

The top needs from innovation workshop are:

- Privacy • Exercise • Energy Conservation
- Storage • Safety • Comfort • Lower Energy Costs
- Learn and Use Traditional Techniques • Space

## Impact

- The design was used to apply for federal funding to build culturally inspired, sustainable buildings.
- The PPN has begun to make more informed decisions about various renewable energy options
- The PPN has also begun developing plans to implement sustainability best practices

## Future Research

- Begin construction in Summer 2009
- Incorporate grey water, and rainwater capture systems
- Create energy efficiency retrofit options
- Develop strategic energy action plan with PPN
- From more information: <http://www.planetcares.org>