Partnering with the Pinoleville Pomo Nation: A Human Centered Co-Design Approach

Ryan Shelby

Alfred P. Sloan Ph.D. Student Fellow

Dept. of Mechanical Engineering

Angela James

Vice Chairperson of the Pinoleville Pomo Nation

Dir. Of Tribal Economic Development

2009 NAISA National Conference

May 22, 2009

Introduction to CARES

- CARES is an engineering and sustainability assessment organization based at UCB

- Participants include community, industry, academia, and government reps

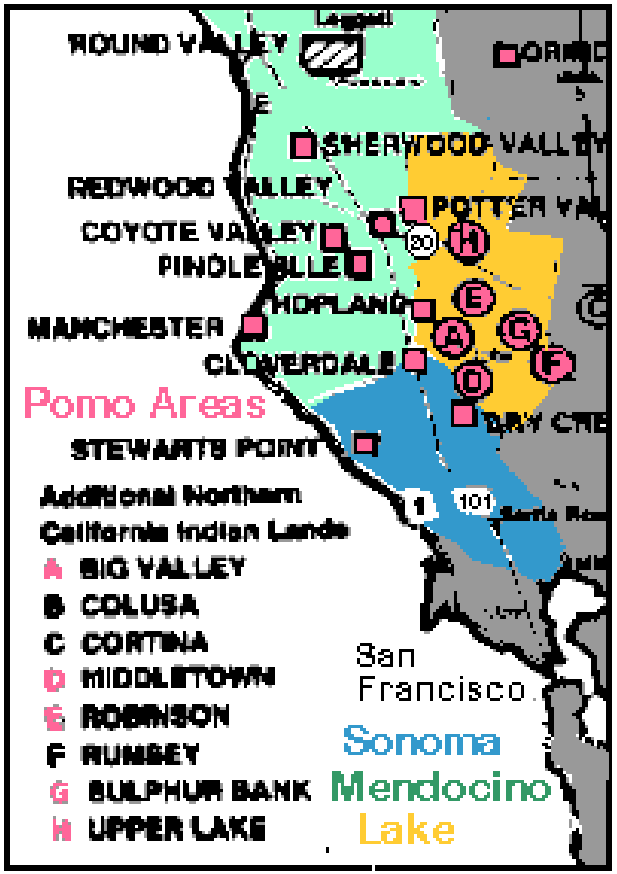
- Team members disciplines:
  - Architecture
  - Engineering
  - Business
  - Environmental Design and Planning

Mission of CARES

- Enable consumers and stakeholders to make informed decisions about sustainability and renewable energy technologies.

The Pinoleville Pomo Nation

- The Pinoleville Pomo Nation is a Native American tribe located in Mendocino County



The Pinoleville Pomo Nation: Ukiah Parcel

- The PPN's land reserve consists of ~106 acres on two parcels

Concerns of the Pinoleville Pomo Nation

- Rising heating and cooling costs
- Drought conditions
- HUD-financed housing provides basic necessities
- No representation of the cultural and traditional values

Pinoleville Pomo Nation and UC Berkeley Partnership

- Engineering 10 is a freshmen engineering design class

- Project goal: Assess the needs and design sustainable housing that could be integrated into the tribal community

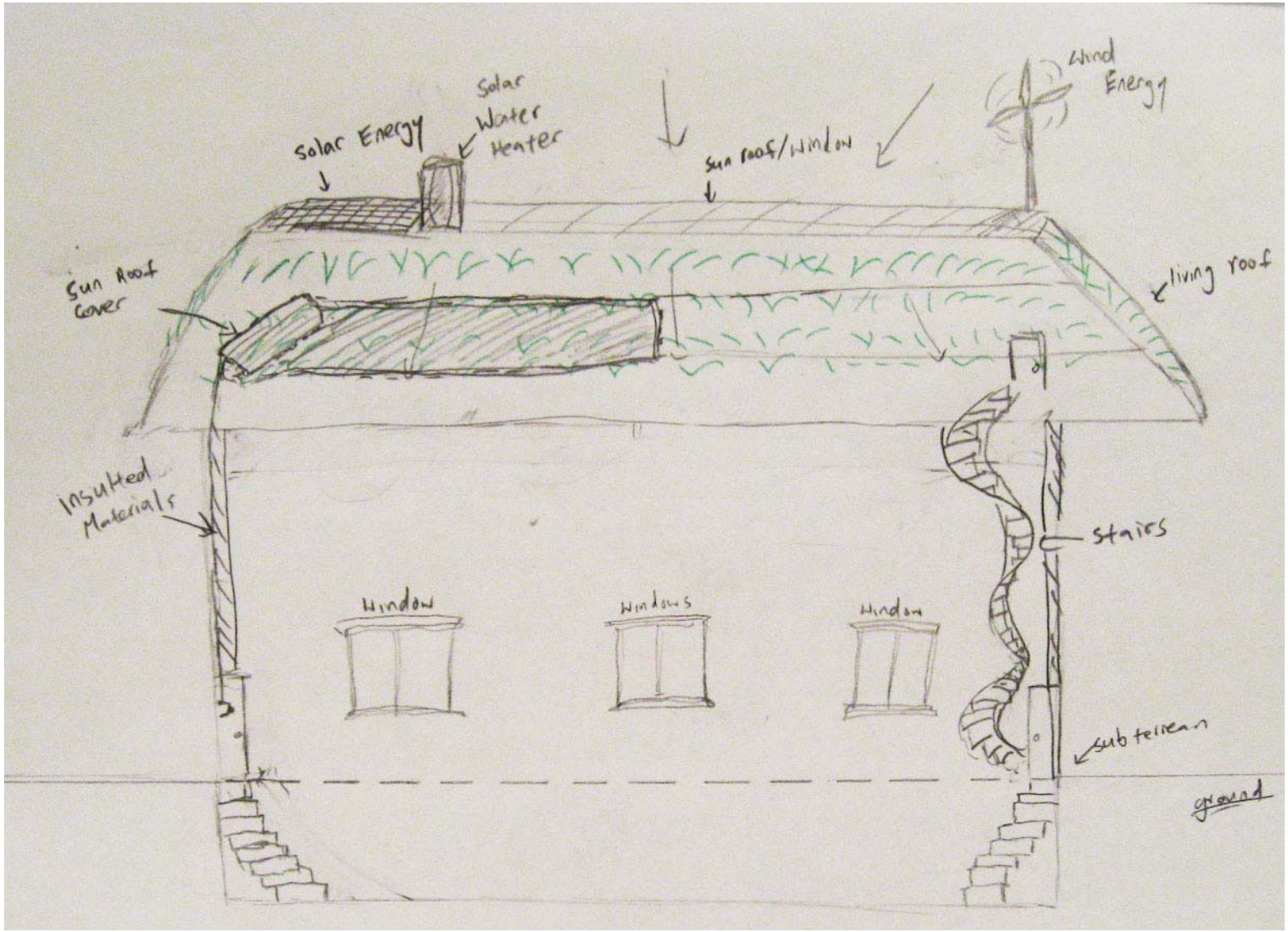
Human Centered Co-design Innovation Workshop

- Workshop held to understand needs and brainstorm concepts with PPN.
- End user is the expert!
- Community generated knowledge is a priority

Innovation Workshop: Top Needs

- Energy Conservation
- Learn and Use Traditional Techniques (Cultural Values)
- Privacy
- Exercise
- Storage
- Safety
- Comfort
- Lower Energy Costs
- Space

Brainstormed Concepts and Designs



Design 2: Daylighting with green roof and ground cooling

Culturally Relevant Innovative Building

News Articles

A Real-life Lesson in Design

What started as a six-week project for freshmen engineering students may create culturally sensitive and energy-efficient housing for a small California Indian tribe.

A roundhouse-style design conceived in last spring's E10 Engineering Design and Analysis course has been embraced by members of the Pinoleville Pomo Nation. The tribe plans to submit the UC Berkeley concept when it applies for federal funding to build up to 25 new homes in the Mendocino County community of Ukiah.

"There's an acute need for housing here," says David Edmunds, environmental director for the tribe, which has about 300 members scattered throughout Northern California. "Housing is considered a linchpin for a lot of things the tribe wants to accomplish."

Student design embraced by Pinoleville Pomo Nation

Engineering students working on a balsa wood model of their design for Pinoleville Pomo Nation homes

What started as a six-week project for engineering freshmen is helping to create culturally sensitive and energy-efficient housing for a small California Indian tribe.

A yurt-style house design conceived in last spring's E10, Engineering Design and Analysis, was used as the base concept for several successful housing grant applications by members of the Pinoleville Pomo Nation (PPN), who will use the funds to build up to 26 new homes in the Mendocino County community of Ukiah, California.

DECEMBER 11, 2008 VOL. 79, NO. 9F

Real-life lessons in native design

PHOTO COURTESY OF RYAN SHELBY

COLLABORATIVE: Students work on a Pomo tribe house design for E10.

What started as a six-week project for freshmen engineering students may create culturally sensitive and energy-efficient housing for a small tribe of California Indians.

A roundhouse-style design conceived in last spring's E10 Engineering Design and Analysis course has been embraced by members of the Pinoleville Pomo Nation. The tribe plans to submit the UC Berkeley concept when it applies for federal funding to build up to 25 new homes in the community of Ukiah.

Outcomes of Partnership

- Empowered the PPN to make informed decisions about various renewable energy options
- E10 students were able to develop professional and communication skills
- Federal funding secured to build culturally inspired sustainable homes and buildings
- Construction begins in Summer 2009

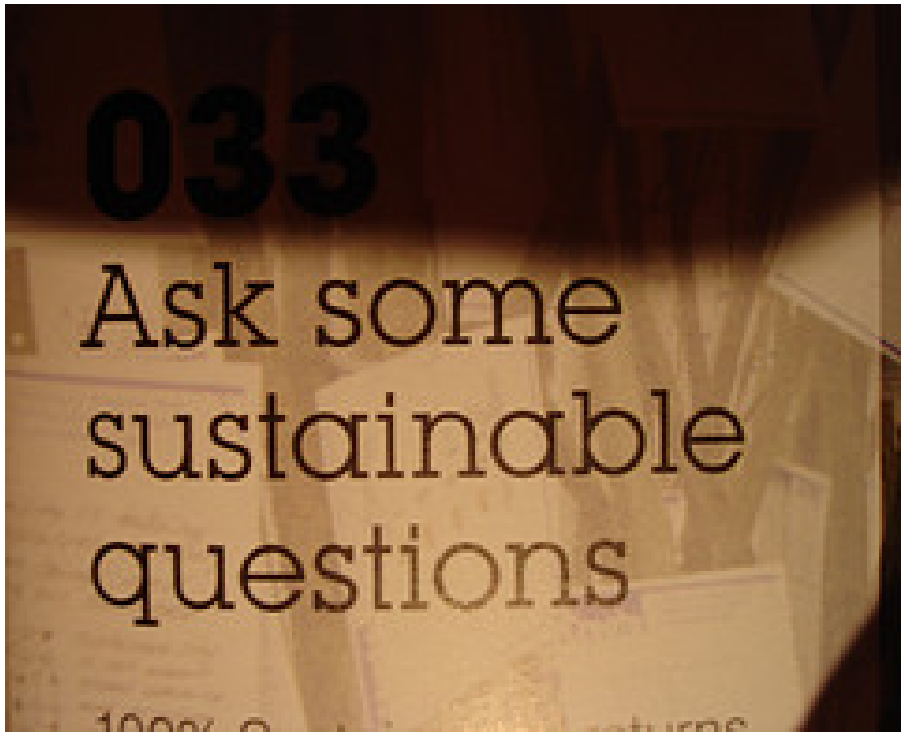
Final Thoughts

- Successful products/projects must have constant user interaction
- Human centered design: needs of community are the priority
- Power dynamics are equal or shifted towards the community
- Co-designing → Best solutions → Willingness to Adopt
- A model for future collaboration between Native Americans tribes and universities

Acknowledgements

- Pinoleville Pomo Nation Tribal Council and citizens
- Angela James
- David Edmunds
- Kimberly Tallbear
- Alice Agogino
- Yael Perez, Tobias Schultz, Francesca Francia, Cynthia Bayley, Che (Tommy) Liu, Yao Yuan, and Aaron Chang

Q/A?



- Web: http://www.ryanlshelby.com/ or http://www.planetcares.org/
- Email: ryan_shelby@berkeley.edu
- Office: (510) 643-8146