



American Indian Housing Initiative



Letter from the Director

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Greetings! It has been an exciting period of growth and change for the American Indian Housing Initiative at Penn State. After a strategic decision to take part in the 2007 Solar Decathlon, the AIHI program has advanced its practices and programs in pursuit of sustainable housing solutions. Through the Decathlon, and the construction of the MorningStar Montana, the AIHI team helped raise awareness of the challenging housing conditions faced by American Indian tribes. More importantly, we have made measurable progress in finding solutions that combine the energy efficient strawbale construction methods developed in early projects, with clean and green solar energy technologies.

This summer we will be putting the finishing touches on the MorningStar Montana built last summer by AIHI and the Penn State Solar Decathlon team. We will also be installing a solar hot water heating system on the demonstration home constructed by AIHI in 2003. This year's team of students has also organized a sustainability workshop and youth activities for our summer trip to Lame Deer.

What's next is perhaps the most exciting new development for our program. AIHI has been invited to advise the Turtle Mountain Community College (TMCC) and Housing Authority on the development of a new program in which sustainable and energy efficient housing will be constructed by tribal members. A member of the Chippewa family of tribes, the Turtle Mountain Reservation is located in North Dakota, close to the border of Canada. The collaboration was sparked by the visit of TMCC President Jim Davis, who is also an alum of Penn State's American Indian Leadership program.

Thank you to all of our sponsors and supporters who have helped us grow. Please consider continuing your support of AIHI. We are also appreciative of our recently departed friends and colleagues **Autumn Evans** and **Nelsa Avalon** who moved to California in February. This year **Jude Simpson** has taken over the reins of AIHI as program coordinator and is doing an outstanding job to build upon our relationships with the Cheyenne. More recently, **Greg Olsen** has joined the team as our coordinator of design and construction. Both Greg and Jude, and the new associate director of the Center for Sustainability, Lisa Brown, will be on site in Montana this July to help lead our 2008 projects.

Sincerely,

David Riley, Associate Professor
Department of Architectural Engineering

Director, American Indian Housing Initiative

AIHI Book Preview

A new book to be published this fall at Penn State titled "**Homes for our Future**" will document the collective work of AIHI and also help raise funds for future projects.

Look for it on our website this fall!

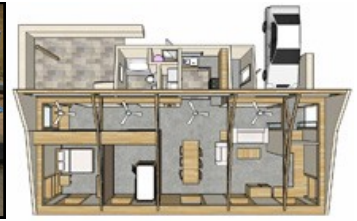
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MorningStar MT: Northern Cheyenne First Solar Home

The 2008 AIHI team will journey to the campus of Chief Dull Knife College in Lame Deer, MT, to put the finishing touches on the *first all-solar* residence on the Northern Cheyenne Reservation. The 2007 team built **MorningStar MT** during a four week "blitz build" last summer. This affordable, 1,000-square-foot solar strawbale home will accommodate visiting facility at the College, and provide the key first steps to developing a community-based home-building collaborative with the Northern Cheyenne Housing Authority.

MorningStar MT, sister home to **MorningStar PA**, Penn State's debut entry to the Solar Decathlon, is a



MorningStar Montana

hybrid two phase site-built home consisting of a pre-fabricated technical core, built at Penn State, and a site-built living space. The home cost \$150,000 in materials to build. The prefabricated technical core is designed for mass production. The rest of the home, built on site has the potential to provide much needed jobs in the community, stimulate the local economy, and utilize local resources. Straw, a local rapidly renewable resource, is ideally suited for

building construction on Montana's arid plains.

The thick, densely packed bales provide optimal insulation and durability with an R factor of 40, while maintaining cool summer and warm winter temperatures.

The *MorningStar* is culturally significant to many Native American people. Northern Cheyenne use it to refer to their great chief, Dull Knife, who led his people out of Indian Territory in Oklahoma to their present land in Montana. Its presence in the morning sky, just before sunrise, brings promise of a new day. Perhaps a day where the 200,000 plus shortage of government issued housing units on reservations in the United States no longer exists. **MorningStar MT**, our homage to all Native American people, may be a bright ray that tribal families can see as they await their much needed homes. 🌅



AIHI 2007 Team

AIHI Presented at Clinton Global Initiative Conference

Penn State Architectural Engineering students, Sarah Klinetob and Kaitlin Vacca, were given the opportunity to attend the inaugural **Clinton Global Initiative University Conference** in New Orleans, LA. The conference, sponsored by former President Bill Clinton, brought together globally-conscious minded college students from around the country and world. Topics discussed included Energy & Climate Change, Poverty Alleviation, Global Health, and Human Rights & Peace.

The students used the opportunity to promote the work being done at Penn State, specifically with the **American Indian Housing Initiative**, an applied education and research program in sustainable building methods on the Northern Cheyenne Reservation. 🌍

Penn State to Pilot Residential Solar Hot Water Project

The 2008 Penn State AIHI student team will implement a solar hot water pilot program on the Northern Cheyenne Reservation this summer 2008. This year's project includes an on-site installation of a solar hot water heater system on the 2003 AIHI demonstration home.

Montana's 300-plus days of sunshine a year provide an ideal environment to employ this simple, carbon-free sustainable technology. The solar heaters have the potential to cut the cost of residential water heating by 50 to 85 percent per year.

AIHI students will work alongside the Northern Cheyenne Housing Authority during the installation. The visible project in the community will help introduce and promote solar technology and develop a sense of teamwork between our groups! 🌍

Recently Completed Projects



2007-2008
MorningStar MT



2005-2006
Early Childhood Learning Center



2004
Technology Center



2003
Demonstration Home



2002
Adult Education Center



2001
Bearquiver Residence

Please Support for AIHI!

AIHI relies on funding from organizations and individuals to defray costs incurred by participants and to fund projects. It's because of this generosity that AIHI can continue to offer students and participants this unique opportunity.

Please consider contributing to this very worthy cause. Visit our website for more information, www.engr.psu.edu/greenbuild.

Support the American Indian Housing Initiative

Please consider making a tax deductible donation to AIHI

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AIHI
104 Engineering Unit A
University Park, PA 16802

PSU Solar Decathlon Team takes 4th Place!



MorningStar Home

2007 Solar Decathlon in Washington D.C

Congratulations to the **2007 Penn State Solar Decathlon** team for fourth place overall at the Solar Decathlon international competition on the Mall in Washington, DC! Their debut entry, **MorningStar PA**, a beautiful, livable and completely solar powered high performance home beamed with Penn State pride! The team's two-year effort gives us a compelling glimpse of our near future and how we will live and use energy. In August 2008, the MorningStar PA will be reassembled on the Penn State campus and made available for tours. 🌞

Visit the MorningStar Home at Penn State

Tour information will be available this fall on the Center for Sustainability Web site

www.cfs.psu.edu



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AIHI Sustainability@Home Workshop

One thing was clear to the 2008 **AIHI** students and residents of the Village at Penn State after the **Sustainability@Home Workshop** this spring: we all need to work together, young and old alike, to ensure a sustainable future for generations to come.

The five-part student presentation examined the individual resource and energy consumption patterns we create while living in our homes and going about our daily activities.

The class offered “smart” and simple in-home technologies and easily attainable personal goals designed to lesson demand on energy and water use. These strategies reduce daily resource consumption, save money, increase home efficiency and decrease environmental impact. The workshop will be repeated in Montana this summer for members of the Northern Cheyenne Tribe. 🌞

Sustainability@Home WORKSHOP

Where: Chief Dull Knife College

Auditorium

When: Thursday, July 10

Time: 10:30 am-3:00 pm

The community is invited to take part in Penn State's **AIHI GREEN TEAM's** presentation that helps homeowners identify ways to reduce energy, save money and decrease our impact on the environment.