

Client:	Northern Cheyenne elders and tribal members	Design Collaborators:	Community members and homeowners
Developer:	Red Feather Development Group	Systems Engineer:	Art Fust, P.E., Energy A.D.
Design + Build:	Nathaniel Corum, Mark Jensen, Sergio Palleroni	Other Partners:	U.S. Department of Agriculture Rural Development, Indian Health Services, Enterprise Rose Architectural Fellowship
Contractor:	Red Feather Development Group + volunteers		



Photo: Michael Rosenberg

VOLUNTEER BUILD

Working with Northern Cheyenne tribal members, Red Feather Development Group (RFDG) has developed a cooperative design/build. The homes are designed in collaboration with low-income first-time home owners and built through donations and volunteer efforts. Typically building one house each year, RFDG has created homes with several Northern Cheyenne families and initiated a similar program with the Hopi in Arizona. These load-bearing straw-bale homes represent a climate-appropriate, super-insulated response to the Northern Plains' winter conditions.

CORE PROJECT EMPHASES:

Natural Building

Training

Partnership

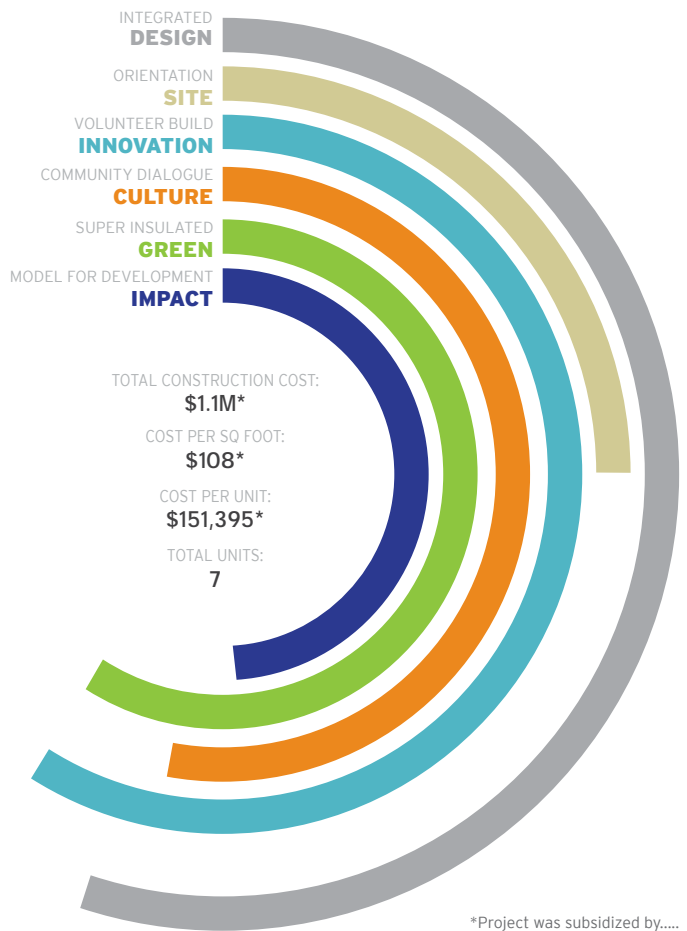
Engagement

LESSONS LEARNED

- Culturally appropriate features can be easily incorporated into new housing through dialogue with residents.
- Innovative and climate-appropriate heating systems result from working closely with project engineers.
- Volunteer-built projects need to be well coordinated but provide savings on labor.

BEST PRACTICES

- Cultural elements include east-facing doors, large kitchens for gatherings, locating windows for key views and privacy concerns, and designing accents specific to each family.
- Radiant heat and heat-recovery ventilation combined with a super-insulated straw-bale wall system lowers energy costs significantly.
- Community outreach is key, especially when combined with volunteer labor.



\*Project was subsidized by....



Photo: Skip Baumhower



Single Family

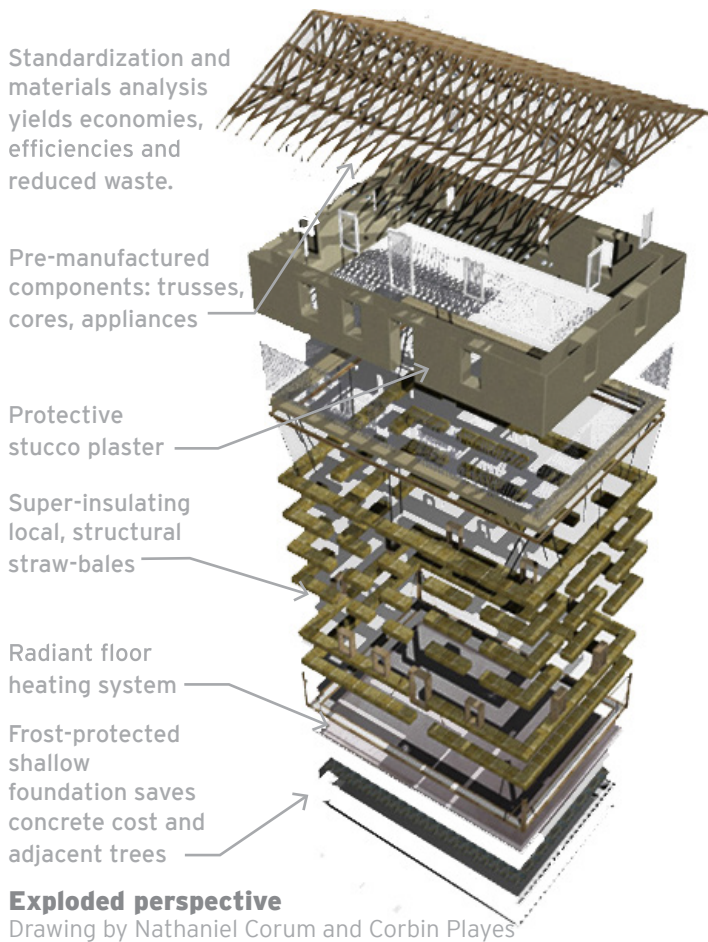


Northern Plains

# STRAW BALE HOMES

## INNOVATION

The Straw Bale Construction Internship (SBCI) provides paid training for tribal members to learn and utilize construction and project management skills. SBCI equips tribal members with the necessary skills to address long-term housing needs in their communities. Equally important, the vocational skills participants learned to help pave the way for future employment opportunities. The SBCI program addresses the need for safe and affordable tribal housing by combining sustainable home construction technology with hands-on, paid construction training. The program equips tribal members with the skills to address long-term housing needs in their communities while strengthening future employment opportunities.



## GREEN

The Red Feather Development Group (RFDG) employs green approaches where possible without sacrificing efficiency, cost-effectiveness or ease of construction/maintenance. Straw-bale is suited well to the community/volunteer build approach and represents a local, renewable, non-toxic and carbon-sequestering material. RFDG typically builds a super-insulated, load-bearing straw bale envelope atop a thickened-edge high-volume fly ash concrete foundation. Stained concrete floors avoid many interior pollution issues and typically contain radiant floor systems. Other green features include: solar PV and/or hot water, post-consumer attic insulation (newspaper), rainwater harvesting, efficient fixtures and appliances, local wood and low/no VOC paints and stains

## CULTURE

Culturally-appropriate features connected with these Northern Cheyenne homes include east-facing doors to face the rising sun, large kitchens open to living areas for celebrations and gatherings, and design accents preferred by individual tribal member families. Cultural features include site orientation and location adjustments, location of windows to control key views and privacy concerns, shade structures and covered entries, building portions made of salvage materials, live-edge wood porch columns and tribal and family designs such as rafter profile details. Such features reflect respect for native-to-place materials.



## IMPACT

Though the number of homes needed on the Northern Plains is very high, the Red Feather process has been an effective and scale-able path to incremental development. The impact of this work goes far beyond the seven houses constructed. Red Feather shows that continuing to work with the same community yields results over time. The cultural bridges built between volunteers, students, RFDG staff and tribal members are lasting and have incredible value. Also, producing publications, curriculum and workshops alongside homes has had wide ranging effects. In one case a group of tribal members in Yakima, Washington used the construction handbook to create a house for themselves without RFDG assistance.

