

**UCLA**

**American Indian Culture and Research Journal**

**Title**

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**Permalink**

<https://escholarship.org/uc/item/8bk1m6px>

**Journal**

American Indian Culture and Research Journal , 36(4)

**ISSN**

0161-6463

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**Publication Date**

2012-09-01

**DOI**

10.17953

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# ARTICLES





# A Sampling of Community-Based Housing Efforts at Pine Ridge Indian Reservation

*Clinton L. Wood and Caroline M. Clevenger*

## INTRODUCTION

We begin with a brief background on the origins of Pine Ridge Reservation in southwestern South Dakota, followed by a few facts and figures about the state of its housing today. We next describe the housing programs of the federal government of the 1960s and the problems created or exacerbated by such housing programs. We then present the challenges created by the land tenure situation on the reservation. Finally, we conclude the introduction by discussing the general inadequacy of research in housing programs to demonstrate that there is a gap in documentation and need for further research related to community-based housing projects on the reservation.

The Great Sioux Reservation was created by treaty in 1868. It encompassed parts of South Dakota, Nebraska, and Wyoming with a total area

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of approximately 60 million acres. In 1876 the United States government violated the 1868 treaty by allowing homesteading and other private activities in the Black Hills, thus carving out 7.7 million acres from the reservation. The General Allotment Act of 1887 divided the Great Sioux Reservation into several agencies, including Pine Ridge Agency.

Today, Pine Ridge Reservation (henceforth referred to as “Pine Ridge”) comprises 1,773,716 acres and is one of the poorest areas of the United States.<sup>1</sup> Raquel Rolnik, a special rapporteur to the United Nations Human Rights Council, reported that in Pine Ridge it was commonplace to have three to four families living in a three-bedroom house, and that the housing conditions were the worst observed during her mission to the United States.<sup>2</sup> Of the 4,697 occupied housing units, 393 lack complete plumbing facilities and 334 lack complete kitchen facilities. Furthermore, there are 690 unoccupied housing units on the reservation.<sup>3</sup> Given that the Lakota are in need of several thousand houses, the existence of this large number of unoccupied houses highlights a disparity between appropriate housing and available housing.

In 1962, the first fifty units of Indian public housing in the United States were completed at Pine Ridge in forms commonly known as “cluster housing,” wherein six to eight houses were built on one acre in a suburbia-style arrangement. The project encountered significant obstacles. Topographical and climate factors limited construction site options or increased the cost of construction and maintenance. Poor water quality, contaminated soils, wetlands restrictions, and the remoteness of the sites also required a much greater capital investment than typical for metropolitan areas.<sup>4</sup> In addition, the 1960s government projects have failed to meet the cultural and familial needs of the Lakota.<sup>5</sup> The cluster housing remains culturally inappropriate, and the interior spaces of these houses are compartmentalized in response to mainstream America’s suburbs and are not suited to activities of extended families in rural areas.<sup>6</sup>

These shortcomings ultimately render the housing culturally inappropriate and therefore unsustainable, regardless of the materials used to construct them or how efficiently they use energy.<sup>7</sup> The authors recognize that the term *sustainability* has a range of definitions, many of which include environmental, economic, and social components. In this paper, the term *sustainability* generally refers to the social and economic considerations. Many interviewees constructed homes with local, natural, and salvaged materials, but this was usually because these materials were low-cost. The 1960s cluster housing projects were not built in a socially conscious manner and, therefore, have been an unsustainable approach to Pine Ridge housing.

Land tenure and ownership issues further complicate the housing situation on Pine Ridge. The land is held in trust by the US government and hence the Lakota cannot use the land as collateral to obtain loans. Also, land parcels

become less contiguous as family land is bequeathed to children or other relatives; this process is known as “fractionation.”<sup>8</sup> A Lakota man or woman might inherit land from his or her father, mother, or other relatives but these parcels will in all likelihood be in different places on the reservation. Thus, the land may be more difficult to utilize than if it were contiguous. There are mechanisms through which parcels can be consolidated, but the process can be confusing and time consuming.<sup>9</sup>

Research on indigenous housing is inadequate in most countries, in part because the indigenous peoples are a small percentage of the total population and because of the invisibility of their problems to the mainstream population.<sup>10</sup> Aboriginal Australian housing, for example, is much more overcrowded than that of other Australians.<sup>11</sup> A twenty-year backlog of indigenous housing exists in Australia and it is estimated that the housing shortfall requires billions of dollars to correct.<sup>12</sup>

In the United States, the relationship between Native American tribes and the US federal government has historically been troubled, and this has made it difficult for the government to assess tribal needs in general.<sup>13</sup> Although progress has been made in addressing housing needs of Native Americans through comprehensive community planning, there remains a lack of understanding of culture and the role housing plays in cultural identity.<sup>14</sup> Western ideas of dwelling are based upon concepts of permanency, stability, and privacy,<sup>15</sup> and hence contemporary European-style housing may be culturally and socially inadequate for indigenous peoples who traditionally value mobility and interaction with community.<sup>16</sup> The housing challenge at Pine Ridge and elsewhere therefore arises, in part, from lack of cultural understanding and from conflicting messages about what is desired.

This lack of understanding creates a need for research. Lee and Parrott noted that diversity is a major issue in many societies, but has been neglected in housing research.<sup>17</sup> Few studies explore relationships between cultural differences and housing satisfaction, preferences, or needs. Housing research concerning Native Americans tends to generate aggregate data and focus on quantitative information, but community studies can add depth to the numbers and give a voice to community residents and leaders.<sup>18</sup>

Aside from a few publications documenting one construction project or providing general data of housing conditions, there are few studies of community-based or non-governmental housing efforts that focus on Pine Ridge Reservation.<sup>19</sup> To date, several notable community-based housing efforts have been undertaken, ranging from homes attempted by untrained Lakota do-it-yourselfers to projects managed by on-reservation, white philanthropists assisted by outside professionals. This research focuses on fifteen individuals involved in such projects. These hardworking people often encounter

challenges such as lack of resources, internal conflict, and land disputes; these are different from the challenges typically met by government programs. Such challenges often prevent the completion of housing projects or, in the cases of conflict and land disputes, prevent the occupation of completed houses. In order to document these challenges, this paper presents interview data related to the efforts of these Pine Ridge residents and identifies common themes. The paper concludes with recommendations for improving the housing process at Pine Ridge.

## OBJECTIVE AND METHODOLOGY

The objective of this research is to document the experiences of individuals who have been involved with community-based housing efforts on Pine Ridge so that other Pine Ridge residents can learn from their mistakes and successes. Underlying research questions include:

- What problems and barriers have the Lakota encountered in their community-based efforts to build homes on the reservation?
- What factors contribute to success or failure of such housing efforts?

To gather data to answer such questions, the authors interviewed twelve individuals who have attempted to build a home and three who are otherwise knowledgeable about housing efforts on the reservation. A “snowball” sample of interviewees was generated. This sampling technique generates lists of interviewees by asking each interviewee to recommend further individuals who may be able to provide more insight into housing efforts. The process began with leads suggested by colleagues, as well as leads established by the authors on past visits to Pine Ridge. The method of initial contact varied greatly: some interviewees were called by phone, but most were initially contacted by visiting them at their homes, because this is generally the most reliable way to find people on the reservation. All interviews were completed during fall and winter of 2010 in two visits to the reservation of four to five days each.

The research methodology and interview questions were pre-approved by both the Colorado State University Research Review Board and the Oglala Sioux Tribe Research Review Board. All participants agreed to be audio-recorded. Most participants gave permission to include their names and contact information in versions of this report to be distributed on the reservation as a community development tool. However, to maintain individual privacy personal identifying information has been omitted from this article.

Interviewees welcomed the authors and were interested in talking about their projects. Many interviews took place in homes but other settings were common, such as places of employment or the local college center. Interview

questions were generally open-ended to support qualitative research techniques. The interviews began with and were directed by several specific opening questions, but the interviewee was free to expand on these questions and elaborate as he or she saw fit. Consequently, the interviews varied greatly in length, content, and structure. Interviewees often had many other topics they wished to discuss, suggesting that housing should not be studied in isolation from other social considerations. Interviews were subsequently transcribed. From this data, the authors performed thematic analysis and developed thematic tables to analyze the interview data. Thematic analysis is a common research method for analyzing ethnographic interviews where researchers loosely perform the following steps: collect data through transcribing interviews using either direct quotes or paraphrase; identify all data that relates to classified patterns; combine and catalogue data in the patterns into emerging sub-themes; build and present an argument for choosing the sub-themes identified.<sup>20</sup>

## INTERVIEW FINDINGS

While not all interviewees had actually tried to construct their own home, all did have knowledge of construction technologies, housing programs, or had assisted with the construction of a home. As background, the authors provide brief descriptions of these technologies in table 1.

TABLE 1  
DESCRIPTIONS OF HOUSING TECHNOLOGIES

Technology	Description
Earthship	Walls often built with tires filled with soil; soil may be piled against outside of walls or house may be built partially in the side of a hill. Numerous found objects and salvage may be included in the walls for structure or decoration. Passive solar heating is common.
Cob	A mixture of sand, clay, and straw, similar to adobe but forming a more monolithic structure. This structure is then plastered.
Straw bale	Walls formed by stacking straw bales similar to a typical brick configuration. Bales are then typically plastered.
Earth bag	Domes, arches, and walls formed by stacking heavy-duty sacks filled with soil, similar to sandbags. These are then plastered.

The authors sought individuals who had demonstrated a desire to improve the housing environment on the reservation, whether for themselves or other Pine Ridge residents, and who chose a community-based or self-help approach. Table 2 summarizes the experiences of the fifteen interview participants.



TABLE 2  
SUMMARY OF HOUSING EXPERIENCE FOR INTERVIEWEES  
(CODIING USED FOR ANONYMITY)

Interviewee	Housing Type(s) or Activity
AA	Built earthship; experimenting with various housing and energy technologies
BB	Knowledgeable in law, land issues, treaty rights, loan programs
CC	Built a small demonstration cabin of local wood, clay, and straw; investigating various housing and energy technologies
DD	Assisted in construction of straw bale and geodesic dome projects
EE	Built a log home (large D-shaped milled timbers); lumber milled on site
FF	Assisted in construction of a cob and straw bale home (same project as MM)
GG	Attempted to build a cob and straw bale home
HH	Assisted in construction of an earth bag home
II	Built a small home with pallets, logs; had an abandoned cabin moved to her land; outside organization began a geodesic dome
JJ	Refurbished a log “kit” house; investigating structural insulated panels; active in community development
KK	Attempted to build a log home
LL	Knowledgeable about conventional wood (stick) frame
MM	Managed construction of a cob and straw bale home (same project as FF)
NN	Knowledgeable about construction history of the log home built by her family in which she lives; her home was retrofitted with siding, interior wallboard, and other materials
OO	Constructed a new house from a salvaged, wood-frame military house

In the process of transcribing the interviews, several themes, or common experiences, emerged from interviewees’ accounts of their projects. These included: use of local and salvaged materials; reliance on the local “informal” economy; planning a house of a manageable size; valuing home ownership; land ownership issues; and factors influencing success or failure. Each of these themes is discussed in more detail below.

### *Local and Salvaged Materials*

The use of local and salvaged materials was a common theme among the interviewees and is summarized in table 3. The majority of the materials mentioned here were obtained on the reservation (often at the building site) or from Rapid City and other surrounding towns. This is a radius of approximately seventy miles.

TABLE 3  
USE OF LOCAL AND SALVAGED MATERIALS

Interviewee	Local Materials
AA	Clay, adobe, salvaged tires, salvaged steel from trailers; experimented with many different kinds of local materials
BB	Grandfather built a log house using logs cut from the reservation
CC	Small cabin of local wood, clay, and straw
DD	Straw bale
EE	Log (large D-shaped milled timbers) from reservation; lumber milled on site
FE, MM	Straw bales, clay, straw; locally milled wood; salvaged barn wood; concrete slabs
GG	Cob and straw bale, "busted cement," salvage from old local log cabins
HH	Earth bag (soil from on-site)
II	Pallets, logs; abandoned cabin moved to her land
JJ	Refurbished log "kit" house (chose to reuse local structure)
KK	Logs, concrete slabs
NN	Log from ¼ mile away
OO	Dismantling old wood-frame military house on the reservation and rebuilding a new structure

EE built his house almost completely from trees he harvested on the reservation. He planned ahead and saved eight-inch D-shaped timbers from the lumber milling process for the main log walls. He milled wood for his own homemade trusses for the roof structure and made his own wood shakes for the final roofing layer, although these eventually leaked and were replaced by asphalt shingles. He also used local stone in the foundation to reduce the amount of concrete required.

KK attempted to build a log house using trees from his family's land. His first attempt was not successful but he was encouraged by his progress and plans to try again. KK also obtained concrete slabs for the foundation from the CAP (Community Action Program) office in the town of Manderson, just a few miles down the road.

MM and FF used local materials extensively in their cob house. They used straw from Rapid City, wood from a small, family-run sawmill in Chadron, Nebraska, local clay, soil from the building site, concrete sand from a company in Rapid City, salvaged windows, and numerous found materials such as pipes, lights, and fixtures. Many things were found in dumpsters or trash piles. The bulk of the foundation was built using concrete slabs obtained in Manderson.

CC advocated the use of local materials to keep construction costs down. Reducing handling and shipping is important. He was instrumental in establishing the relationship between MM and the sawmill in Chadron, which

reduced the cost of his project significantly. CC constructed a twelve-foot by sixteen-foot cabin with locally milled wood and local straw and clay.

The use of local materials was a dominant theme among the interviewees with nearly all interviewees (fourteen of fifteen) discussing their use. Local materials reduced costs, were readily available, and were familiar to local labor.

*Reliance on the Local Economy*

Many building projects involve significant transactions within the local, informal economy. While the local economy of Pine Ridge provides limited traditional services and institutions such as hardware and building supply stores, gas stations, grocery stores, Internet cafes and a college, the Lakota also highly depend on an informal economy.<sup>21</sup> These informal economic activities rely on transactions such as bartering, trade, and gifting, and are summarized in table 4.

TABLE 4  
OBSERVATIONS ABOUT OR ACTIVITIES WITHIN THE LOCAL ECONOMY

Interviewee	Observation or Activity
AA	Promoting locally produced, renewable energy to prevent money from leaving the reservation
BB	Advocating for factories to be built on the reservation to provide jobs
CC	Supporting business and networking on the reservation; recognizes “underground” economy
EE	Milled and sold lumber from local trees
FF (and MM)	Bartered for heavy equipment and salvaged wood
GG	Would like to see the tribe have access to their timber, as granted through treaty rights, for possible sale value
JJ	Runs community development organization; says houses need to be viewed as an investment
KK	Attempted to barter with labor (unsuccessful)
OO	Does gardening work in trade for heavy equipment; giving excess materials to helper

CC kept construction costs down by promoting the use of local materials and reducing handling and shipping, as he did for MM’s and FF’s project. He hopes that his small cabin project will inspire someone on the reservation to create a supplemental housing cabin business.

CC advocated more energy-efficient homes and locally produced energy so that less money leaves the reservation via fossil-fuel-based utility payments. AA is also interested in the role that energy efficiency can play in the economy:

I'm looking at more efficiency, and if we had, if everyone lives in efficient housing here on the rez [reservation] we'll have an efficient economy because we'll be saving and spending more here on the rez. Because we all live in 1970s mobile homes and everything's paper-thin and you're freezing. Two-thirds of your income goes on heating alone.

Bartering, mostly with labor, was utilized in three projects. MM's family bartered for materials and equipment. MM created a website for an organization called Hands of Faith in exchange for borrowing a dump truck, backhoe, and tractor. The family also obtained materials from a barn in exchange for dismantling it and creation of another website.

Similarly, OO does gardening in exchange for the use of a trailer and tractor and is getting help from a man who wants to use some of OO's extra building materials. KK also attempted to barter with friends by helping them mill lumber, with the understanding that they would help him with his house, but they did not reciprocate.

EE already had a lumber business and an on-site milling operation, so it made sense to use those resources for his own house. He paid for his house logs with money earned from milling lumber from the rest of the log.

Many of the above experiences are examples of what CC termed "underground trade." He said,

But then we have some roadblocks in there where you can't get money to do it because we're on tribal trust land and jobs are very few. I mean, proving income and things like that. I mean, there's a whole underground trade thing that happens on the reservation just for survival. Anything from trading EBT [Electronic Benefit Transfer, a type of food assistance program] to cars to whatever to get to a certain point where you have enough materials to do things. Horses or cows . . . I mean there's a whole horse trade thing that goes on to get enough materials to build a building.

Off the reservation, local economy movements are gaining popularity as a way to keep money in a community and reduce environmental impact from shipping. On Pine Ridge, these interviewees are working within the local and informal economies often by necessity. Many found that material costs could be reduced significantly and equipment could be obtained that would have otherwise been inaccessible.

### *Planning a House of a Manageable Size*

Several interviewees mentioned that building a small house, or one of manageable size, was important to the success of a project because the house could be completed in one summer before bad weather set in. Similarly, a roof was an

important construction milestone because it provided both shelter for workers and protection for the structure, no matter the extent of progress.

Table 5 summarizes interviewees’ observations about building small and getting a roof on the house.

TABLE 5  
OBSERVATIONS ABOUT BUILDING SMALL AND  
GETTING A ROOF ON THE HOUSE

Interviewee	Observation
FF	House with roof gave workers a place to stay as bad weather set in. Psychological benefit of getting a roof up: “I didn’t think it would be happening but it is now.”
GG	“Build smaller, that way you could get it done.” Roof should have been built first to protect straw bale walls.
KK	“I learned that I’ve got to get it done, ASAP, as soon as possible” (to protect logs from weather).
MM	Build smaller, plan an addition if necessary.
OO	“I was just trying to do this quick so that I can have a roof over my head. During the summer I can build on to it.”

Both GG and KK said that completing a roof could have prevented the weathering and eventual destruction of their houses. FF also described a psychological benefit of getting the roof up:

The best part about it was seeing that roof go on. Like it was just the top right here [referring to the tops of the cob walls], and then I seen the rafters and I wondered how high that was going to be, and here they start putting it on and I said gee, and then in one, two, three days they’ve put it up and it really looks like a house. I was amazed. I didn’t think it would be happening but it is now.

Many of the interviewees built homes of alternative or natural materials, such as log, cob, and straw bale. These materials and techniques often require more time in labor and hence a smaller structure (at least initially) may be wise where experience and/or money are scarce.

### *Valuing Home Ownership*

Interviewees spoke of numerous benefits of owning a home, such as being able to have a garden, having more space for kids to play safely outside, not having to pay rent, and getting away from the cluster housing situation. Table 6 summarizes interviewee’s views about benefits of home ownership or reasons they live in their own home.

TABLE 6  
 VIEWS ON BENEFITS OF HOME OWNERSHIP  
 OR REASONS FOR OWNING A HOME

Interviewee	View
AA	Can have sweat lodge, garden, livestock. “Kids can go out and play and learn while they’re playing.”
DD	Help the people become more independent of Indian Reorganization Act (IRA) government.
GG	Wants to build a sturdy, warm house.
HH	More lenience with utility payments.
II	“I’m safer out here. I never lock my doors.”
JJ	Home is an asset: “it’s where you live, it’s where you spend most of your time, you’re probably going to pass it on to your kids.”
KK	Wants to have a choice of housing, and show his kids they can have a choice, too.
LL	“I can do anything. No rules or nothing. I can do what I want to.”
MM	Provide a place where family can be the best they can be. Less likely to be vandalized.

DD viewed building a house on one’s own land as a direct countermeasure to Indian Reorganization Act (IRA) policies and repercussions. Speaking of the coalition that completed a straw bale house for a Pine Ridge family, he said,

There was initially a spirit that came into it, you know, because this is a good idea, this is going to help the people become more independent of this IRA government because we had a stance that we had taken against the IRA government. They were going to take control of our land, we don’t want them to, so in order for us to do that when you do have people move back to their land, so that’s what we were working toward doing, creating these alternative housings.

HH appreciated a little more lenience in paying utility bills. When asked about the benefits of living in her own home versus renting or HUD (Department of Housing and Urban Development) homes, she responded, “Not getting evicted. If you don’t pay your bills on time if you live in the housing they can shut you off right away. Here [in her own home on her family’s land] they give you like a month.”

In many interviews the issue of cluster housing projects was also discussed in contrast to the benefits of homeownership. Interviewees’ perceptions about cluster housing are summarized in table 7. Italics indicate a question posed to the interviewee.

TABLE 7  
PERCEPTIONS OF CLUSTER HOUSING IN CONTRAST TO  
BENEFITS OF HOMEOWNERSHIP

Interviewee	Comment
AA	"Some 70 to 80% of the people living in the cluster housing, they all want to go back to their own land."
CC	"There's no sense of responsibility and there's no sense of purpose and things like that."
DD	Described cluster housing as "little ghettos."
FF	"In Wounded Knee it . . . was difficult because there was nothing really to do over there, I couldn't go outside to have a garden and a shed."
GG	"[Cluster] housing people have become more dependent on the government, and unless they migrate and go find jobs they're going to live on a set income and that poverty is never going to get better because you're only allowed so much money to live on."
HH	<i>Are there advantages to living in HUD or cluster projects?</i> "No."
JJ	"When you do stuff for people and they're not actively involved in the process there's not a sense of ownership, there's not a sense of pride, there's not a sense of 'I'm going to fix that, I'm going to fix that because I own this.'"
KK	"To be honest these housing houses ain't fit to live in but people live in them because they have no other choice."
LL	<i>What things can you do around here that you're not allowed to do in the housing?</i> "Oh, keep it clean, things like that."
NN	"I don't want to move nowhere, especially to the housings." <i>You don't want to move to the housings? Why not?</i> "Well, it's kind of bad. They all drink."
OO	"I don't have to pay nobody nothing, no rent, maybe electricity. Because these other people they're all paying rent and whatnot."

According to CC, people in the housing projects have no sense of ownership so if a window breaks, a faucet leaks, or a door leaks they don't feel that they should spend their own money to fix it. The attitude is, "That's housing's problem." CC compares this attitude to some inner city situations where there are a lot of destructive practices. He alluded that the housing projects may actually be disempowering:

I've thought about this fairly in-depth: why is our society so bad. I mean, if you help somebody to do something then it's like as if you have, they expect you to give them more help all the time whenever they want it. It's like an entitlement thing that just drives me nuts because I want to see some people step forward and help themselves to have a better life. . . . Otherwise, you know, go get a HUD house and expect somebody to haul out your garbage and keep your roaches away.

KK provided some additional insight into the care and maintenance of homes in the cluster projects:

You know, with all that easy resources [people in the housing projects] have, they should, everything should be good. Then when you walk into their houses, and the houses are just junk. Dirty, everything. They don't even take care of their houses. And with us guys, you know, our trailer don't look, looks pretty bad from the outside but from the inside it's pretty nice, fixed up, clean.

Living out in the country does not solve all problems, however. NN said that drunks are a problem in both the cluster housing and in the country. Likewise, when asked if security and vandalism worried her because of living out in the country, GG said that there are problems with security and vandalism everywhere: "You have burglaries and vandalism all over; you know, what's to say it's any different here?" Similarly, JJ said, "People get their homes broken into no matter where they are. I have not had too many problems out of the country."

In general, interviewees felt more independent in their own homes and believed that they could build a more comfortable home that would enrich their lives and be an asset to them and their families. Interviewees associated cluster housing with lack of pride in housing and uncleanness.

### *Factors Influencing Success or Failure*

While many factors affected a project's outcome, three main factors emerged as common to either success or failure of the projects: experience and leadership, resources and money, and accountability or follow-through of off-reservation entities. Success was primarily associated with strong construction experience and leadership. Failure was associated many times with insufficient resources and money, as well as a lack of accountability for off-reservation entities. These factors are discussed in more detail below.

### **Experience and Leadership**

MM's and HH's projects highlight the importance of construction skills and leadership. Their projects had three things in common: (1) they involved outside volunteer or apprentice labor; (2) they utilized alternative technologies; and (3) the land was owned by the intended occupant. Nonetheless, their outcomes were very different. HH felt that a major reason her family's project failed was because there was no depth to the construction team; the project leader was the only one who knew anything about the building process. In contrast, although MM's project also had only one person who knew the entire process from start to finish, it was a success. MM's project also demonstrates that the effective leader and the foreman do not need to be one and the same: MM managed the project logistics, while the foreman handled the training and technical aspects.



The difference in outcomes between these projects results from differences in abilities and competence of the respective leaders and managers. MM's foreman has been building cob houses and leading internships for years, and MM ensured materials were onsite when needed, putting forth great effort to ensure everyone involved had good working relationships. In contrast, the leader of HH's project attended a few workshops and seemed to generate discord among the construction workers. In hindsight, HH said she should have been more involved and seemed to think that she could have filled the role of effective leader and alleviated some of the bickering. She said, "Always be involved. I wasn't involved the whole time; I kinda just let him take over. A lot of people did come down and some of them left because of him. Yeah, I should have been more involved."

DD elaborated on experience and organizational abilities and their importance in successful projects:

You have to understand first of all that in order to be successful and even building an alternative method style house, you have to have some kind of experience. You can't just come in raw and say—or else you're going to have to set up training programs and do all that stuff first. So even [MM], for example, she had to have some amount of resources in line before she came in and had to come in and know what she needed, what she needed to do, all part of the planning stages.

The construction of a house requires considerable skill, dedication, and preparation. A successful project must have the guidance of at least one skilled and knowledgeable person and be overseen by an effective leader.<sup>22</sup> This is true both on and off the reservation.

### **Availability of Resources and Money**

Although projects may fail on and off the reservation for similar reasons, accessing resources is particularly difficult in impoverished areas such as Pine Ridge. This is often because builders do not have enough money to pay for gasoline to transport materials or workers, pay for help, or provide lunch for workers.

KK said that the biggest problem on his project was "lack of resources." Not having wood protectant and stain for his logs were big problems. Lack of roofing materials and vehicle and chainsaw breakdowns were big challenges as well.

According to BB, a significant problem with the second round of houses in a program called "Self-Help" was getting all the participants to each work site. Often people did not have money for gasoline, their own vehicle, or a ride. Similarly, DD said that after the straw bale house was completed, the "interest died as soon as the money started running out" and the group fell apart. "The

resources just weren't there, you know the gas money that you need, not paying the labor, just providing the gas money, lunch, paying for the electricity to run the tools, those kinds of things, they just gradually started running out."

When asked what the most difficult aspect of his project was, OO stated simply, "Help. But I ain't got the money. And I've got nephews at home not doing nothing and they know how to do this but it's that money, you know? If I had money I would have a house up already."

Lack of money may be an obvious obstacle when constructing a house, but in remote and impoverished areas such as Pine Ridge this obstacle seems to magnify the difficulty exponentially rather than linearly. This may be because financial credit is difficult for the residents to obtain.<sup>23</sup> Running out of key construction materials and volunteer support may delay a project so severely that workers may lose motivation or the house may deteriorate beyond repair.

### **Accountability of Off-Reservation Entities**

Both GG and II suggested that outside organizations' motives may not always be completely altruistic or what they seem. The woman who came to build GG's house may not have had GG's interests foremost in mind. GG said,

What she finally came up with and said was, "I am building you the house I always wanted. This is my house." So it became like a, I don't know what do you call people who do that? Like a, like an attachment? So it became like something in her life, that maybe her life wasn't good so she was focusing her thoughts and energy into a house. So it did become her house in that sense.

II wonders if her dome house project was being used for the organization or church to make a profit. She didn't want to have anything to do with something where she was being used to make a profit or with people who were arguing about who would get the prestige for building the house. Similarly, GG said that nonprofits have often come in and done what they wanted to do and had a "missionary" kind of attitude.

As GG suggested, a clearinghouse might help the Lakota find skilled leaders and avoid involvement with incompetent ones. The clearinghouse would review projects proposed by nonprofits, require builders to show competence, and require updates concerning progress and use of funds. GG cited an example of one nonprofit performing some work on a house that caused the roof to collapse:

They started dismantling the house from the inside and they caused the roof to cave in. So the roof caved in and it ruined the whole floor underneath and when that family went over and told them what they did they said, "Oh well if you don't have insurance there's nothing we could do because they're just volunteers."

HH said that one of the volunteers for her project wants to make a documentary film about unfinished projects on the reservation, suggesting that this type of problem may be very common. GG says the clearinghouse would send a message that “you want to come in and do something good on the reservation then, you know, do it right!”

The tribe already has a research review board to ensure that the Lakota see benefits from studies; could the tribe also benefit from a builder’s review board? The review process would not need to be extensive. A little formality and accountability could add a lot of incentive for a group to do things right and finish what they started, or discourage inexperienced people from starting in the first place. Yet a clearinghouse concept does raise questions. In ensuring that any people coming to do work for them on the reservation be competent and trustworthy, how much responsibility should lie with the homeowner? Does it make sense to have a clearinghouse for private projects? How would it be funded?

### Other Factors

Of the factors determining success or failure, those discussed above were the most prevalent, but interviewees also mentioned other challenges. These are summarized in table 8 below.

TABLE 8  
VARIOUS HOUSING OBSTACLES AND CHALLENGES  
ENCOUNTERED BY INTERVIEWEES

Interviewee	Housing obstacles or challenges
AA	Land disputes
BB	Land disputes, undeeded land Difficulty in getting loans Incompetent inspectors for tribal housing Getting workers to building sites
CC	Cost of materials, especially shipping costs Societal and familial problems Difficulty in getting loans No sense of purpose or ownership
DD	Lack of help and materials (his own home) Lack of money to feed volunteers or pay for electricity to run tools Lack of experience No knowledge of funding or other assets Political issues, derailment
FF	Difficulty in accepting a house that was mostly a gift
GG	Technical incompetence Cultural insensitivity No access to forest resources granted by treaty Questionable motives of outside help

Interviewee	Housing obstacles or challenges
HH	Ineffective leadership Technical incompetence Owner (HH) feels she should have been more involved
II	Inappropriate housing (“transition houses”) Questionable motives of outside help
JJ	Black mold Lack of financial literacy No sense of pride or ownership
KK	“Lack of resources” Equipment breakdowns Lack of help, help backing out
MM	Finding materials Getting materials to site Maintaining community relations
NN	Age and safety of home
OO	Lack of money and help

Cultural, societal, and community issues were of concern to CC, GG, and MM. CC felt that traditional family units and roles of men and women have been broken, and this causes problems both with constructing houses and creating a stable home life. GG had problems with the individuals that came to the reservation to help with her house because they drank and partied a lot. This led her to reflect on how she would behave if she were an outsider in another country. Finally, MM repeatedly stressed how much effort she put into maintaining community and neighbor relations in order to ensure a harmonious work environment.

Of particular note are construction obstacles that arise due to land tenure issues. Interviewee BB discussed at length issues with heirship and undivided lands. When a parcel of land is passed to children it is not divided among them in a manner that gives each person a deed for a distinct piece of land. Instead, all the heirs get a percentage share of the entire undivided parcel. This can create problems with home building activities if the builder does not first secure the written permission of a sufficient number of his or her fellow heirs. BB stated, “So if you are building and you have permission from your father and then he passes away and siblings say, ‘I wanted that piece of land,’ unless there is something in writing, it will stop everything.”

The interviewees’ experiences with land tenure are summarized in table 9 below.

TABLE 9  
INTERVIEWEES' EXPERIENCES WITH LAND TENURE

Interviewee	Experience with land tenure
AA	Started a house off his lease on family's undivided heirship, had to abort the project
BB	Spoke of land disputes, undeeded land Difficulty in getting loans
CC	Difficulty in getting loans Advises consolidating and ensuring sole ownership of land before building
DD	No problems with straw bale house because owners had the allotment title
EE	Lives on deeded land, not trust land; therefore permission and tenure were not problems
FF	Got permission to build from the people with whom he shares the land
GG	Owens lands jointly with three cousins
HH	Land is undivided family land; HH got permission from everyone to build
II	Shares an heirship; did not need permission to build
JJ	Advises that you protect your home investment by sorting out the land tenure issue first
KK	Shares land with family; they support him
LL	Land was owned by LL's mother; there were no problems with getting permission
MM	Land is undivided heirship; they secured a 15-year lease to build
NN	House is on family land but they had no disputes
OO	Leases land from the tribe for \$25 per year

FF and MM had to deal with land ownership issues at the beginning of their project, and AA had to stop construction on his earthship because of land disputes. However, KK, NN, II, GG, and LL did not seem concerned about the matter. Rather, it seemed that their families collaborated on houses, or at least provided support. JJ advised that because a house will be an investment, you should protect that investment by ensuring you have permission to build. BB further advised that the permission should be in writing.

## RECOMMENDATIONS

Based on this research, we offer the following four recommendations for residential construction on the reservation: (1) do not use Pine Ridge as a testing ground; (2) change the focus of government assistance; (3) build community capacity, not just houses; and (4) use construction to support and grow the local economy.

### *Do Not Use Pine Ridge as a Testing Ground*

Organizations and individuals, in particular those from off the reservation, need to avoid conducting "demonstration" projects. The reservation is not a testing

ground; the Lakota need real solutions and real houses. Demonstration projects may include innovations that are not easily replicated or practical. In addition, the perception exists that environmental innovations may not be applied in “regular” projects.<sup>24</sup> People are generally cautious about adopting new technologies in their houses and want some assurance that the technology will perform well and is acceptable to others.<sup>25</sup> Projects that are intended to demonstrate a housing technology but do not have habitation as the goal do not demonstrate value and are, therefore, not likely to persuade people to try the technique. For example, a straw bale or cob structure intended to be a playhouse or passive shelter can indeed be simple and quick to build because plumbing, heating, and electrical needs are not part of the equation, but in a house intended for full-time habitation, such requirements account for a significant portion of the planning, permitting, inspection, and, perhaps most importantly, cost and expertise.<sup>26</sup> Interviewee DD said that the only thing “alternative” about the straw bale house on which he worked were the straw bales in the walls, and that these represented a cost savings but did not impact overall functionality.

The Lakota’s housing situation is serious and life threatening. Builders must not indulge in innovation for its own sake, but should apply innovations thoughtfully in response to a change in circumstances.<sup>27</sup> It is important to note that several interviewees stated that some housing, appropriate or not, is better than no housing at all. Nevertheless, rather than relying on the community to accept and adopt the latest innovation, new technology and materials should also address the social and cultural needs of the community.<sup>28</sup> For instance, during fieldwork on passive cooling technologies in Baja California, Porta-Gándara, Rubio, and Fernandez found that local inhabitants were not readily receptive to new technology unless there was “overwhelming evidence of betterment.”<sup>29</sup> Such evidence seems lacking in one small straw bale demonstration structure on Pine Ridge Reservation that uses a hyperbolic parabolic roof system. To have far-reaching and significant impact, technologies must be readily understood and easily replicated.

One man on Pine Ridge (not a formal interviewee) asked the authors why white people advocate the construction of “mud houses” on the reservation if white people do not live in them themselves. Similar design dilemmas were encountered in housing programs for aboriginal Australians. Memmott discusses how Australians wish to retain their culture and uniqueness of behavior, but also desire equality, acceptance, and recognized status.<sup>30</sup> Deviations from conventional houses are often resented or considered an insult. The challenge is to create housing that allows individuals to carry out their culturally specific lifestyles, and also meets their expectation of modern convenience.

There are times when alternative technologies are the most appropriate. Krinsky says that whereas in one case traditional adobe or wood may be most

appropriate, reinforced concrete, steel, and glass may be most appropriate in another.<sup>31</sup> Function, climate, cost, building codes, and personal taste are the deciding factors. Chiu argues that contemporary cultural and aesthetic values can be mixed with those of the past, and that this may deepen the local cultural identity.<sup>32</sup> According to Chiu, housing not only reflects the way a people live, but also reflects changes in the way they live due to technological advancement and to adaptation to natural habitat. There should be a balance between tradition and innovation.<sup>33</sup> Buildings do not have to be primitive to be culturally appropriate. Robin Spence, Jill Wells, and Eric Dudley state that the important thing about housing is not what it is, but how it supports people's lives.<sup>34</sup>

### *Change the Focus of Government and Outside Assistance*

While test projects may be ineffective, housing on the reservation should also not take the "one size fits all" approach. Cultural and familial needs should be understood and inform the housing process. Memmott describes the dangers of providing unvaried designs or services to large groups of people, or "mainstreaming." Mainstreamed designs may inadvertently disadvantage a cultural group by conflicting with their values and practices and, in fact, may legally constitute indirect discrimination.<sup>35</sup> Rodriguez and Pettus suggest that the mainstreaming of architectural designs is partly a result of "cultural homogenization."<sup>36</sup>

In the past, the government's answer has been to focus primarily on cluster housing. While cluster housing may reduce up-front infrastructure costs, research has shown that housing that does not meet the needs of its users will be poorly cared for and will not last long.<sup>37</sup> Therefore, in the long run housing in general will likely cost more. Both CC and JJ stated in their interviews that houses that have been provided through government programs have not been well maintained because there is no sense of ownership or purpose. Other interviewees mentioned destructive practices, dependency on government handouts, and inefficient use of government funds as problems associated with government housing.

The 1996 Native American Housing Assistance and Self-Determination Act (NAHASDA) established the housing block grant system through which individual tribes can create their own tribal housing programs and apply for federal monies based on population and need. In spite of reports by tribes that the act is generally effective, it has not been effective at alleviating the housing shortage on Pine Ridge.<sup>38</sup> When DD was asked if NAHASDA was helping to correct IRA policies and remove obstacles to housing on the reservation, he said, "I have no idea. You know, we still have waiting lists of 3000 or better."

GG believes that if the tribe had access to timber, as provided in their treaty rights (which have been broken), they could bring logs from the Black Hills to the reservation for building purposes or as a source of revenue through the sale of wood products.

### *Build Community Capacity, Not Just Houses*

On Pine Ridge there is a huge disparity between appropriate housing and available housing. Housing, however, is more than shelter. Well-built housing encourages wealth generation because it provides healthy, comfortable spaces in which to raise a family and care for the elderly, provides places of employment, and confers status upon its owner.<sup>39</sup> Furthermore, family, religious beliefs, connections to environment, and life in general are all reflected in homes, and their form and organization are influenced by the social interactions and rituals of the culture in which they develop.<sup>40</sup> Adesoji D. Jiboye, L. Ogunshakin, and I. A. Okewole state that housing is not only a reflection of culture, but also contributes to the growth of culture and morals, and thus is a reflection of the societal system that creates it.<sup>41</sup>

These social and cultural interactions were important to the projects with which MM and DD were involved. DD said the most successful part of the straw bale house project with which he was involved was bringing all the people together to do it: “there was initially a spirit that came into it.” Similarly, MM said that overall, her family’s cob house is great, and rates it an “8.” She worked hard to maintain healthy community relationships and to keep everyone inspired, and her efforts paid off.

A healthy building culture is one in which people improve their own lives by being involved in the creative aspects of the housing process.<sup>42</sup> Housing is not just a product; it is also a process that is fundamental to the cultural well-being of the society that creates it and uses it.<sup>43</sup> Hence, local projects must employ and involve local builders and designers.<sup>44</sup> When outsiders command the housing process, they take away a significant portion of the housing benefits.

This concept is reinforced by several interviewees’ assessments of their own projects. Completion of a house was not the sole metric of a successful project. GG encountered significant obstacles and did not complete her house, but still rated her project a “five” on a one-to-ten scale because she had learned technical aspects of building and valuable lessons about how to recruit competent people. Similarly, KK said that the most successful aspect of his log home project was “learning the do’s and don’ts” and he gave his project “beyond ten” on the rating scale. OO’s project is not yet complete, but he rates his project a “seven.” He says his current construction efforts are “just the beginning.” These ratings suggest that even when a project is not completed, participants benefit from the process.



Outside help should not be categorically rejected, because there may be insufficient community expertise available in engineering, planning, or architecture. Nevertheless, lasting and comprehensive solutions to the housing problem are more likely to be found when projects are conceived and controlled by the Lakota. Instead of merely providing the end product—houses—future projects should strive to empower local people to build for themselves and remove any obstacles hindering the local housing process.

### *Use Construction to Support and Grow the Local Economy*

The Lakota have devised numerous ways to survive in the tough Pine Ridge economy. Much of that economy is driven by “subsistence production, home-based enterprise, and socially based exchanges of goods and services.”<sup>45</sup> CC referred to the “horse trade thing that goes on to get enough materials to build a building.” The informal local economy is significant and should not be overlooked in housing programs; in fact, it should be supported.<sup>46</sup>

In his interview, AA offered the following advice: “whatever you do it has to come from the land.” If the Lakota use local natural resources, follow community-based approaches, and keep money and resources on the reservation, they may have more successful housing projects. It is not necessary to be relatively close to cities and airports to prosper in a rural setting. Identifying resources and knowing how to use those resources are more important skills.<sup>47</sup> Historically, however, political and economic environments have made it difficult for the Lakota to control their own natural resources.<sup>48</sup> To fully realize the potential of local materials and stimulate the local economy on Pine Ridge, Lakota control needs to be reestablished. Interviewee EE, for example, demonstrated the viability of local timber and lumber production, both as a profitable business and a means to build his house. Similar opportunities may exist for adobe brickmaking and/or production of construction-grade straw bales.

## CONCLUSIONS

Many interviewees in this study attempted to construct their own homes to reestablish a sense of pride in their dwellings and free themselves from discontent with government cluster housing projects. They met with numerous challenges, but even when their projects were not completed, most still showed a desire to try again and said they had learned many things about building a house. Such side benefits of the housing process are important. The Lakota need to benefit from the housing process: by earning a living, learning construction techniques, developing a sense of ownership, and building appropriate houses that enrich lives and build pride. Government and outside assistance is important but

should focus more on removing obstacles in the housing process and making reparations for past transgressions. Outside assistance should make it easier for the Lakota to access, manage, and utilize their own local natural resources.

Pine Ridge is in need of approximately 3000 to 6000 houses. Simply “gifting” finished houses is neither an appropriate nor sustainable method of meeting this need. The Lakota should be integral to the planning, designing, building, and maintenance of homes and communities. The distribution of these findings to the Lakota community is a first step in helping neighbors to learn from each other’s mistakes and successes and promoting a sustainable strategy for residential construction on Pine Ridge. While such research begins to remove obstacles and build capacity to bring the Lakota closer to better housing, many questions remain. Future research should address such questions as: Are these individual successes scalable, and can they serve as realistic and appropriate models for building thousands of houses? What materials best support the local economy and keep costs down? How can outsiders help while maintaining a high degree of accountability within the community?

### *Acknowledgments*

The authors wish to thank the residents of Pine Ridge Reservation for their time and hospitality during the interview process. The Oglala Sioux Research Review Board and Colorado State University Research Review Board also offered excellent advice on how to conduct the research in a respectful manner. Kathy Sherman, director of the Department of Anthropology at Colorado State University, provided much-needed background on the cultural aspects of the reservation. David Bartecchi, director of Village Earth, shared his knowledge about land and housing issues. Brian Dunbar, the director of the Institute for the Built Environment, also gave important feedback regarding the content of this report.

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