

A San Carlos Apache Community

An Architectural Thesis by David M. Allen

May 7, 1984

Ball State University



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David M. Allen

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Department of Architecture
College of Architecture and Planning
Ball State University
Muncie, Indiana

Dedicated to my wife,

Sarah Allen,

whose intangible contributions to this work

are immeasurable

Credits

Studio Critics: Dr. Bruce F. Meyer

John E. Wyman

Outside Critic: Alfredo R. Missair

Thanks to:

Jerry Rambler

San Carlos Indian Housing Authority

Dr. James L. Coffin

Associate Professor of Anthropology
Ball State University

Michael Munninger

Architectural Alliance Southwest
Phoenix, Arizona

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INTRODUCTION

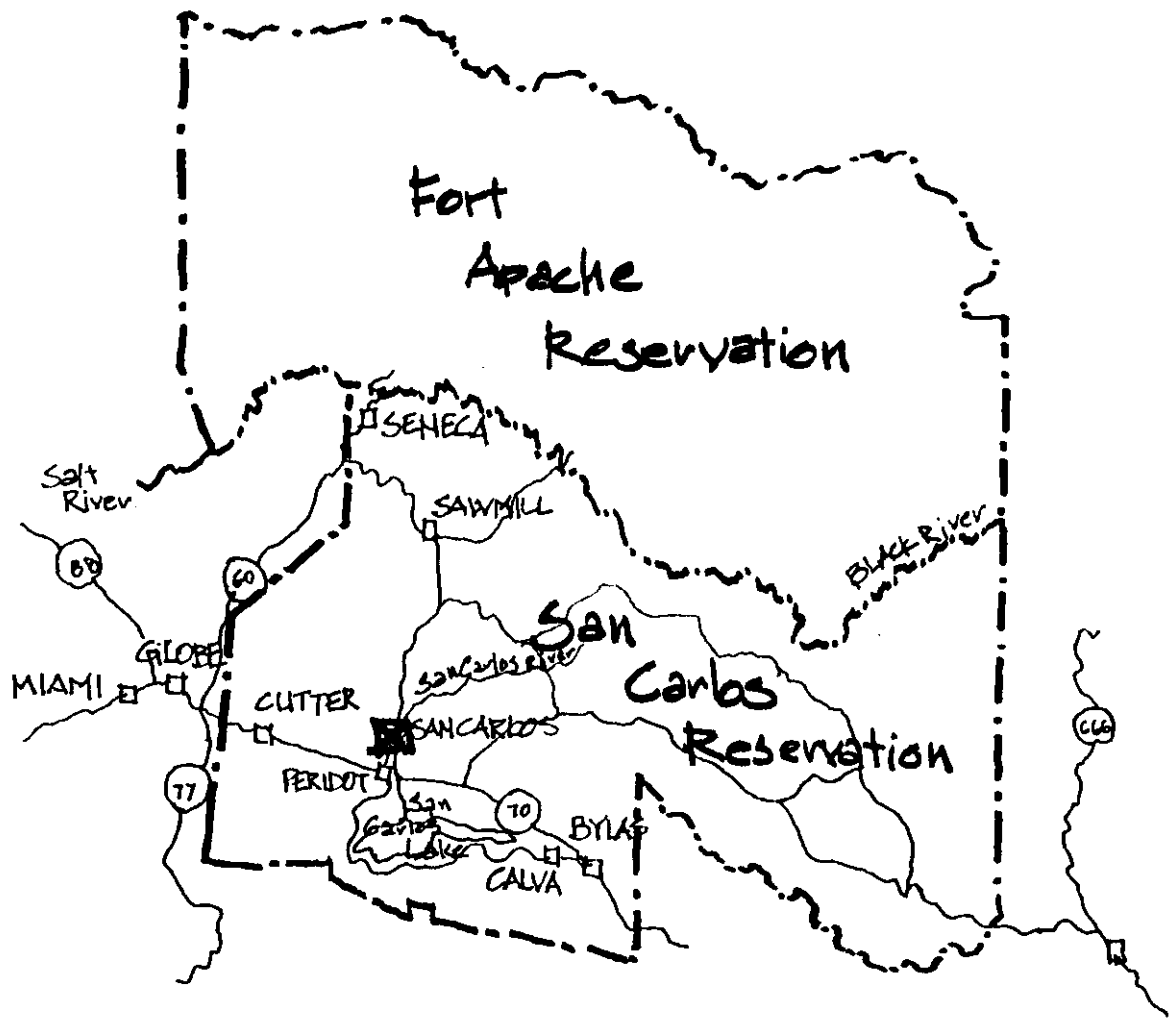
On May 13, 1983, a memorandum of understanding was issued by Michael Munninger of the Architectural Alliance Southwest of Phoenix, Arizona outlining the preliminary requirements for a project on the San Carlos Apache Indian Reservation in Arizona. The memorandum was addressed to Thomas Hodne Architects and Sun Roads Incorporated, the two other architects on the joint design team, Jerry Rambler of the San Carlos Indian Housing Authority and Nicholas Sachleben, staff architect for the Phoenix H.U.D. Office of Indian Programs. It was understood at that time that the design team would design a 180-unit housing project for the reservation on a site near the town of San Carlos. The units would be detached family rental units from two to five bedrooms. The team would also be required to design a master plan for the 350 acre site which was to include a high school, retail facilities, and more housing. (I was later told by Randy Swift of the S.C.I.H.A. that they hoped to be able to put approximately 400 total housing units on the site.)

With the exception of doing rental housing, these programmatic requirements became the basis of my own program for a thesis proposal. Because of the limited amount of time I could afford to spend at the reservation, I chose to use the preliminary site boundaries that had at that time been sketched as a given limitation.

The San Carlos Apache Reservation is a large reservation with a population of 4,000 in East Central Arizona one hour east of Phoenix. The copper mining town of Globe is on its western border. To the north it is bordered by the Fort Apache Reservation, a reservation of similar size. The town of San Carlos is approximately centered in the western half of the reservation. It is a small town of about 3,000 which originally served as quarters and administrative seat of the Bureau of Indian Affairs in the late nineteenth century. This is still its chief function today. It also has a trading post, a grade school, churches, a small hospital, and housing. The site is immediately to the northwest of San Carlos. It is a desert highland area characterized by gentle slopes with occasional sharp rises. There is a small air strip on its northern border. The site is presently used as a garbage dump.

In this project, many issues came together that I wanted to deal with in my thesis. First, the human element of the program required special attention and sensitivity. Reservation living presents a broad array of social conflicts that a designer must deal with in order to achieve success. The reservation provides a finite and homogeneous culture (distinct from this designer's). In most architectural design, the designer works within his own culture, and the cultural construct is often an issue that is not consciously dealt with in design. This program demands that such issues be given conscious attention, providing a valuable learning experience on the relationship between culture and architecture. Secondly, I wanted to do a design for a community for the variety of scales it would offer and for studying the relationship of the parts to the whole. It provided an opportunity to closely study expression of cultural identity, values, and social mechanisms in architecture, and expression of individualism or "familyism" at the domestic scale. Thirdly, I believed an unfamiliar design situation would provide the best learning experience with regard to design process. I was unfamiliar with the people, the climate, and the geography. Fourth, I believed that the low-cost nature of the project would give insight into what was most essential to architecture.





APPROACH

My approach to the design of the community was strongly influenced by two projects. The first project, designed by the late Hassan Fathy, was New Gourna in Egypt. Fathy used this project to describe his approach to low-cost design in his book "Housing for the Poor." This book demonstrates a very sensitive attitude towards culture, social structures, tradition, expression of materials and natural aesthetics. The second project was the winning entry for the Manila Housing Competition by Ian Athfield. This project demonstrated similar sensitivities, and Athfield regarded design in terms of a holistic system, making use of soft energy and the efficient use of all materials and by-products.

Before making commitments about the approach to the design, I intensely researched the culture, history, economy, social structure and architecture of the San Carlos reservation and the western Apache. Some of the most important findings are summarized in Appendix A. This research was aimed at getting an insight into the true nature of the Apache and to learn contemporary traditions with regard to history, influence of change, space use, values, aesthetics, etc. Being thus informed, I was prepared to make a reasonable proposal towards the most appropriate design and implementation of the community.

I proposed that the project should not be a finite design in the architectural tradition, but should remain a living and growing process, it's growth directly linked to the growth of families and extended families. I wished to provide a flexible system of building that would belong to the people because they would have direct involvement in siting, design and construction of buildings. The architecture would allow individual expression through design modification by the owner and by latitude of choice in cladding materials, size, systems, etc. Yet, by having a common prototype design to work from, there would be a consistency in the buildings amounting to an architectural expression of a cultural identity. I chose to use a low-level of technology appropriate to aided self-help housing. This affected the choice of materials and construction techniques. Primary building materials should be those indigenous to the reservation and suited to indigenous construction skills. The construction crew would be

drawn from the reservation and should include a permanent crew familiar with the basic construction techniques as well as someone capable of responsibly advising on design variation, balanced by a crew composed from the family and extended family to the extent that they wish to be involved. Building forms would then emerge as honest expressions of materials, space and efficient structure.

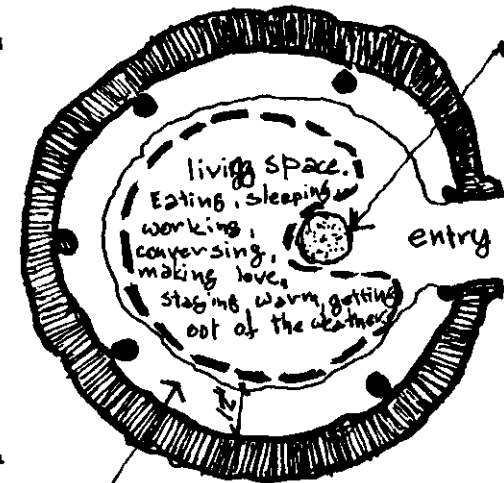
Because of communication problems brought about by my distance from the site, significant communication with the reservation residents was not feasible. I used readings and meetings with reservation officials as a representation of the needs and aspirations of the people. Because of this, I suggest that this work exists more as a front end proposal than a complete design. If used, it should become the center of a dialogue between the people and a design professional sensitive to its cause.

To concisely restate my approach to the architecture in other terms, I have proposed to set in motion a vernacular building process of high quality and low cost. The roots of this process already exist in the shacks and shanties of the Apache which have not met with aspirations of modernity, comfort and convenience. Rather than leaving the people with an architectural product which will deteriorate and be outgrown and outdated from the moment completed, I have attempted to help the people achieve the means of affecting their environment as immediate need unfolds in a way that can meet with precision Apache individual ideals.

Two questions have haunted me throughout the course of the project: Can an architect alien to the culture presume to actually suggest what directions that culture might take? Can the outsider snatch up an item about to be cast in the cultural rubbish heap and say "This is good, you should keep it"? In retrospect, I don't see my design work as cultural invention, but rather a re-thinking of architectural design of the Apache in terms of their own ideals. Are the present architectural directions consistent with the lives of the people? During the reservation period in the 1880's, the whole Apache economic system was disrupted. With permanent residence in one location, trends slowly swung from primitive housing forms to more permanent ones. The most readily available source for this permanent architecture was frame construction from the



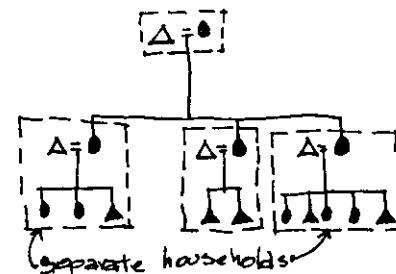
ion



Peripheral shelf - (earth) storage



Anglos. Self-built housing was of frame construction but was somewhat reinterpreted to satisfy Apache ideals. In recent years, these units have seldom achieved the level of technology and comfort that the people desired. H.U.D. has provided in recent years a means of achieving modernity and spaciousness. But H.U.D. is thoroughly tied into standard Anglo construction practices and can be inhibitive to fresh ideas towards meeting the needs of other cultures. It's not so much that the people want to discard parts of their culture so much as more basic needs and wants have priority. They would rather crowd into rental units on half acre lots to enjoy in-house plumbing and electricity, and suffer neighbors who are too close than to live in an extended rural family cluster in a substandard unit. I have tried to move Apache aided self-help architecture towards an Apache modernity, breaking the gestalt through which people link the Anglo culture to modernity.



PROCESS

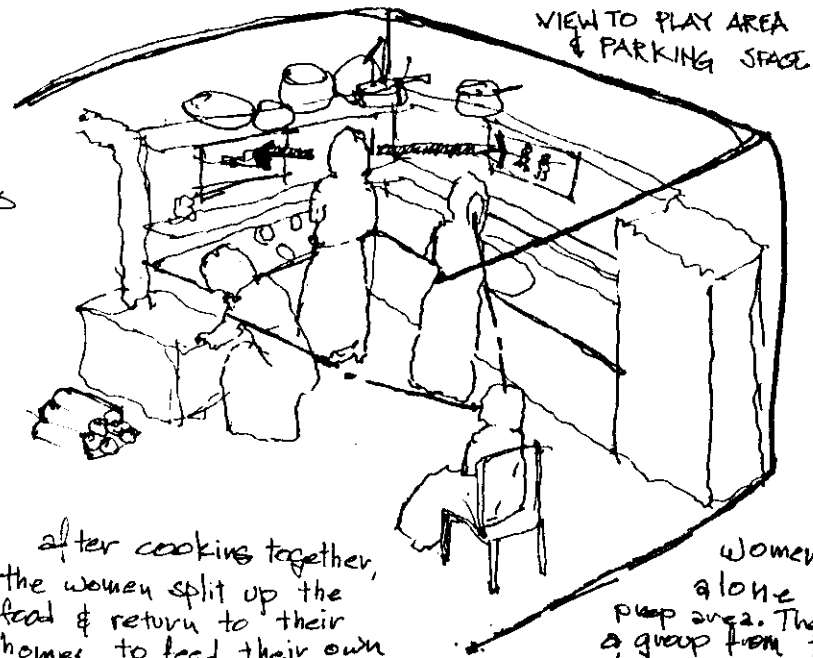
In the design process, the boundary between programming and design became very gray to non-existent. In the early stages of programming, I began to identify and graphically catalogue from my research and from projections of that research, behavioral patterns, the people most likely to be involved in those patterns, and positive environmental conditions for people carrying out that behavior. This graphic catalogue is contained in Appendix B.

I then began the arduous task of synthesizing those single user-activity-environmental constructs into larger complexes of user-task-environmental constructs until they became one interdependent system of spatial requirements encompassing the entire project. Bases for determining how these spaces relate to one another are:

- (1) contemporary tradition with respect to the influences of history and change;
- (2) functional and energy considerations;
- and (3) the proxemic rules of space use said to exist in the Western Apache culture by George Salem Esber, Junior in his doctoral thesis, 1977:

- "1. In the performance of daily routine activities, people seek social group interaction rather than aloneness.
2. Space is ordered in a series of stages that are situationally defined according to the convention that nearer areas are private relative to more distant spaces that are more public.
3. When persons come together for an event (excluding daily social visits), they proceed toward the locus of activity through a series of advances I call 'measured' as opposed to a direct approach."

These rules were important to the organization of the entire design. The meaning and design ramifications of these rules shall be discussed further in the design section of this book. With the spatial requirements thus synthesized, it became the task of the architecture to meet the performance requirements of the spaces.



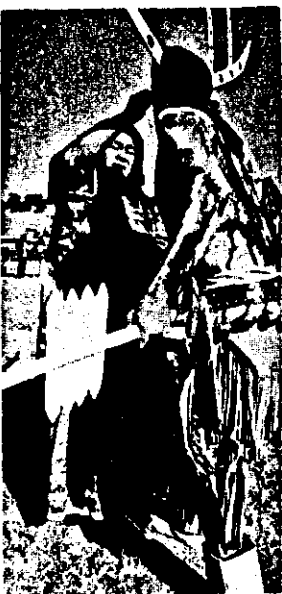
load stoves
often

after cooking together,
the women split up the
food & return to their
homes to feed their own
families.

ESBER

VIEW TO PLAY AREA
& PARKING SPACE

women are never
alone in the food
prep area. There is always
a group from the family
cluster, helping or sitting
nearby socializing.



DESIGN

It was my intent to eventually develop the area within the boundaries of the site to the maximum density commonly desirable to the Apache. This called for a mixture of dispersed units and unit clusters covering all the buildable areas of the site. Non-buildable areas include areas of over 20 percent slope, a reasonable width on either side of a dry run along the eastern part of the site and the area near a small cemetery on the southern tip of the site.

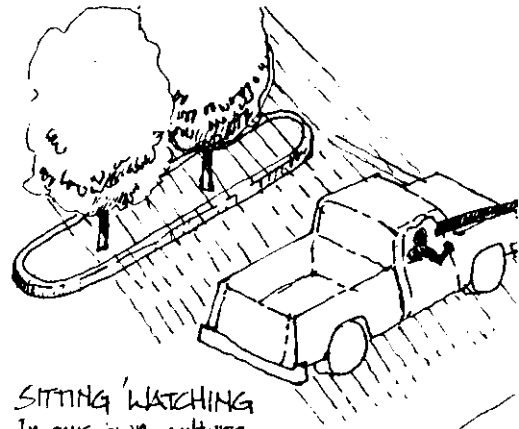
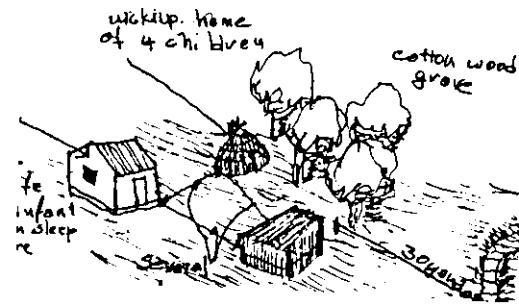
Esber's second rule of proxemics plays an important role in the design of the master plan. On the road entering the site from San Carlos, the point where the road turns the corner around a large land mass may be considered the entry to the site. The territory of the resident would be the most private territory. The area farthest from the residents towards the entrance, the retail area, would be most public, the school would be the second most public place. Retail, Educational and Residential spaces all have a territory clearly demarcated from the next stage of public/private space. The Apache residents would expect a person having business at the school to enter the site until he reached the territory of the school and to proceed no further. For such a person to enter the residential territory might be considered a breach of privacy, unless some special event merited it, and he might be regarded with suspicion. In the residential zone, the master plan provides primary roads with turnoffs to secondary roads. The secondary roads would be short hardpacked earth drives determined by the topography and the housing development at that point in time and space. My calculated maximum number of units for the site is 369. Further development should happen outside the boundaries of the site. A pedestrian path links the residences to the school, the retail area and San Carlos proper. In the residential area, there are playgrounds and recreation areas along the path.

The high school was designed to be a focal point of the community. As the largest public complex in San Carlos, it would have to perform other functions in addition to serving as an educational center for approximately 300 teenagers. And so it became a community high school which would serve as a badly needed night school for adults. It would provide a public library. It would provide recrea-

the communal life of the San Carlos Apache, it would appear to be the dance. The main rite still extant in the Apache culture is the Puberty rite. This dance celebrates the passage of an individual girl into womanhood and the continuation of the matrilineal line which is the basis for all Apache kin relationships. All persons are welcome to come to the dance which lasts several days. There is no set time and place for the dance. The family chooses a suitable area when the girl is ready. They usually look for a site near the girl's home first. The area next to the school might be chosen often because of the dense population nearby, the proper qualities of that space, and the adjacency of a large kitchen which would be used to the advantage of the hosts. Location of the dance at the school would ensure that the school is looked upon as public domain. Therefore, the school would become both a part of everyday life and of festive occasions. Education would be integrated with daily life through all age groups, which is within the traditional concept of what education should be.

The construction of a school on the reservation is a mixed blessing. Indians regard the white schools their children attend with some suspicion. After all, from the beginning, it has been the intent of the government to destroy the Indian culture through education. The view towards education in a facility on the reservation is bound to be more positive. The programs are apt to be more suitable to Apache learning behavior. The danger lies in that such a school may not be as well equipped to prepare a student to cope with life outside the reservation.

The school presented a difficult problem in that there is not much precedent for an Apache public architecture. From the concept of the Ramada, the simple linear roof on poles became the basic building in the school complex. Due to the warm climate, the school became an integration of spaces of various amounts of enclosure. The very simple buildings of the school came together in a delicate spatial relationship that is a balance between two concepts. The courtyard concept in desert architecture provides a pleasant protected outdoor space, and I began to work with the concept. But relative to Apache domestic architecture, it felt too dominant in use of space and too monumental in scale. So I balanced the courtyard concept with the loose



SITTING WATCHING
In our own culture, if students linger in the parking lot, we might suspect they were up to no good. If Apache youths & adults spend time sitting in their auto before entering the school, it might simply be observing Apache conv. the proper slow paced and measured a event. The parking lot should have a vic distance from the "life" of the next level.



cluster concept found in the siting of Apache structures. A court space is defined and semi-protected, but the space seems to leak out and merge with the desert on the west. Entry to the complex occurs in the tense space between two of the buildings. The entry is a space that is visible from both the entry to the site and the residential zone. It is intended to be an active and multifunctional gathering space. Following the measured approach documented by Esber, the parking space was developed with a strong visual relationship to the entry. This would allow a person arriving in a vehicle to sit and watch for a while people who had moved to the entrance and were socializing there. This visual relationship of parking to entry was seized upon to develop the two spaces as an amphitheatre where outdoor movies and live performances could be shown. From this focal entry point, there is a procession of spaces through the school which become less public, less controlled and less defined. Classrooms are in clusters corresponding to academic departments, each including its own resource area, enclosed class space of varying size and formality, outdoor covered space, outdoor space in the court and a faculty office. The library/administration building is the heart of the school and is given a special location and orientation. On the side of the complex nearest the residential zone is an awning covered arcade where artwork could be traded.

In the residential zone, housing would initially be loosely scattered to allow units to be added according to what might happen in the matrilineal extended family. This low density plan would be made feasible by making most utilities self-contained in the unit rather than have utility networks, and by not paving secondary roads. From this initial development, houses would be infilled as independent residences or as clusters corresponding to extended families. Clusters would share a communal parking area, and vegetable gardens would be conglomerated to maintain space between the parking area and the units. The maximum and minimum distance between units and between the units and the parking area are derived from other works and by observation. The site detail drawing shows initial construction as detailed roof plans and subsequent buildings in outline.

The unit design is provided as a prototype which can vary from unit to unit. It is based on data about the average Apache family. The unit is evolutive so

that it can grow with the family by adding sleeping spaces around the periphery of a living space without having to relocate. The building is expressed as additive volumes joined to the core living space.

Timber is a resource available on the reservation. With expansion of the timber industry, the major building material for the reservation could be supplied. Heavy timber is fire resistant and durable. Used in a pole framing system, similar to those used by metal building manufacturers, the structure is efficient, simple, very easy to build and very flexible. It requires a minimum of site preparation and concrete for footings. Parts can be lapped, bolted and excess sawn off. The system used is a beam and subbeam system which is structurally most efficient. Plywood provides structural sheathing and interior finish at once. Hip forms are made by using trusses and leaning members onto those trusses. Carpentry, both frame and pole construction, is a process which most reservation residents have worked with. The simple, flexible nature of the pole frame structure makes owner modification of the prototype design possible. There would be latitude in the choice of wood or other cladding materials. Variation of cladding materials from unit to unit and even within the same unit would help give the buildings individual character. The range of weathered wood on the various additions to the unit would express the history of the unit, and add to the individual character of the building. Although adobe could not be used as a primary material because of the maintenance it requires, an adobe veneer wall option is offered for thermal purposes, and would be tied to the main structure of the unit. Spaces would be so arranged as to lag heat into the living space in the evening, and to lag heat into the sleeping spaces into the late evening and morning. Another option which would increase the utility of the mass wall would be the addition of glazing to a framework attached to the mass wall which would convert the wall into a low technology trombe wall capable of affecting direct gain during cool days, and convective cooling on hot days. This glazing could be in the form of windows joined together, some of which could be "found" from replacement projects or junkyards. The primary backup heating system is a wood stove in the kitchen. Coolant would be heated by circulating it around the outside of the stove. It would then

be piped through a thin floor slab on a metal deck in the central living space. The slab would radiate heat to the occupants. This heating system is most comfortable, and would work regardless of the high central ceiling, which would be an asset in hot weather. The heating system would work best when used with light furniture, such as canvas sling chairs, or when seated on the floor. If additional heat or cooling is required in the sleeping areas, it would be provided by window units. A space is provided for more conventional heating units if the owner desires. Besides the cooling properties of the trombe wall, cooling would be aided naturally by convection through the central oculus and by speeding the wind by putting larger openings on north walls than on the south. This would create a suction on the north side.

Water storage would be in an underground cistern filled by truck from the San Carlos water supply. For pressurization, water would be hand pumped from the cistern to smaller raised tanks daily. Water would be heated in a solar collector. Sewage would be collected in a septic tank. Cast off water would be used to water a garden.

One of the most important determinants of the spaces and their relationships was the communal quality of family life. According to Esber, Apaches wish not to be alone in the performance of daily tasks, and this is reflected in the generous flow of space, with opportunity for situational division. Another determinant of the size and nature of space was the ritual of formal visit and the "measured approach". Also affecting space and enclosure is the enjoyment of being outdoors in the shade in good weather but a high desire for privacy between households. The form results from a clear expression of the space and the integration of space and structure through an honest use of the materials.

The porch exists as a transitional space in the entry sequence; but also as a pre-stage to the addition of another room. It could be small and canvas covered or can be a veranda which fully surrounds the unit and be metal roofed. It is a shady place to sit and watch and a place for storage of items such as firewood.

The central living area is very spacious as it is an important space in the formal visit. It must accommodate a group larger than the family who would initially wish to sit at distance from one another.

The formal nature of the use of the space led to the formal quality of the space. When rolling partitions and screens are down, the quality of the space and light, with its high vaulted ceiling and single skylight, is similar to that of the wicki-up, the kiva, and the hogan. The space is central to all the spaces. Circulation through the space is undefined and generous. When partitions are up, the central space retains its definition through a peripheral row of columns and variation of ceiling height.

Following the nature of the movement of guests from the living area to the kitchen/dining area, the area takes on a relatively informal quality. Cooking and dining areas are undifferentiated in the Apache culture. The space is large to accommodate the group of women in the extended family who would be working there. Since the women often cook for the entire family cluster, split up the food and return home, storage space would be provided for large cooking vessels. Through horizontal strip windows, and sliding glass doors, there is ample visual access to areas where the children will play and to the parking area as well as ample light. The wood stove serves as a cooking area as well as being a symbol of hearth. To maximize available counter space, the refrigerator would be two under-counter units. Contact between women in the kitchen and people in the living area must be maintained. It is possible, however, to situationally close the kitchen/dining area to the living space.

Although the Apache who can afford it adds small bedrooms accretionally to the living unit, their function is to provide privacy for sleeping and dressing and they are generally unused space in the daytime. It is not considered normal for an Apache to seek privacy from his family in his room during the waking hours. Therefore, instead of permanent bedrooms, sleeping spaces at the periphery of the central living space are given privacy during sleeping hours by rolling wooden shutters. During the waking hours and warmer days, the shutters would be opened, and the sleeping spaces would become a kind of veranda about the central living area. In such a space, removed from but open to the center of communal activity, the individual could be engaged in tasks requiring some privacy for concentration, such as homework, yet still have contact with the rest of the family. The ceiling slopes down to six foot bringing the space down to an



It is traditionally considered disrespectful for

men who move into a Geta to avoid contact with his mother in law. For his ego, privacy,

intimate scale and bringing the form down to a more human scale. So that the building may become more open and airy in the summertime, fully insulated hinged wall panels can open up almost 50% of the wall area. Reed screens rolled in front of the openings allow a view out and ventilation while contributing to privacy. Clothing would be stored on a shelf and in free standing wardrobes. Although beds could be accommodated in the spaces, sleeping mats would contribute to the maximum flexibility of the space.

The bath functions were designed as fixture centers arranged along a passage to the outdoors. A laundry work center is located under roof on a small porch to the rear of the building where the problems of heat and messiness can be minimized. It is located near an outdoor space where clothes would be hung to dry.

This space would be used as a work-yard and as a play area for the very young children. It is defined by the unit, the storage building and the ramada.

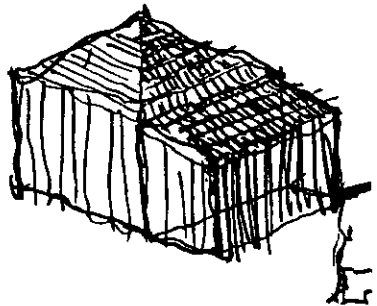
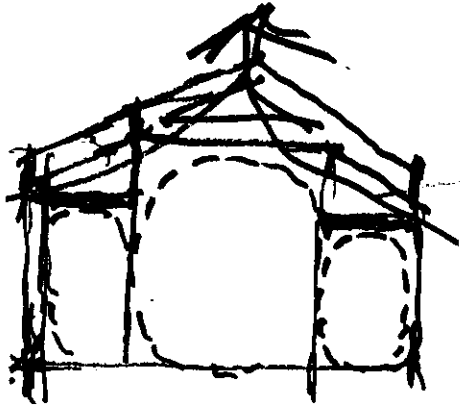
The Apache people must make use of all material goods that come their way. What appears to be junk might serve a useful purpose in the future. Therefore, a long-term-storage unit is provided. It is elongated and serves to define the back edge of the work/play yard. One side is totally openable, and it is only four feet deep to avoid getting objects buried in the back of a deep building.

Space is provided to build a ramada, the traditional outdoor shade structure used as a summer living space.

To further illustrate the use and nature of space and procession through space, I have chosen to describe a visit using typical behavior patterns through fictitious characters.

Buddy Roper hadn't seen his second cousin Emma for a long time it seemed as the truck crept through San Carlos. Buddy worked as a cowboy on occasion and lived in Bylas on the other side of the reservation. Today he had no work. It was a beautiful day, and he decided to visit Emma. As his truck rounded the outcropping, the shops of his cousin's community came into view. As he drove the road between the shops on either side of the road towards the grove of cottonwoods just beyond them, he noticed the small pairs and groups of people sitting beneath trees watching and talking, friends and relatives

who had chanced to meet on a trip to the convenience store and had gossip to catch up on. Just past the shops, the road turned sharply left, and he was looking towards the community high school. School was out for the summer, but there were a few cars in the parking lot. The Apache Club, a group of students who perform mock Gans dances, was rehearsing in the entrance. A very critical group of small children had gathered and was sitting on the steps watching. As it was a warm day, there were many children using the pool. Having passed the school, Buddy followed the road to the right and drove north into the residential zone. It was early summer, and most of the houses were hidden from his view by the thick growths of vegetation surrounding them. Once in a while, he would catch a glimpse of a metal roof or a wooden wall through an opening in the bear grass. He found the drive on which Emma's was located. The truck bounced over the hard packed earth a few hundred feet past several homes. Then, through a wall of six foot bear grass, he could just see the unique mixture of wood shingles, clapboard and shiplap that could only be Emma's house, and he smiled. He pulled the truck into the parking space in the shade of a cottonwood and shut off the engine. At first he saw no one at the house from his place about sixty feet away. Then, near the house, he saw Emma straighten up, rising out of the corn patch. She moved to the next hill to pick a few ears. Although he couldn't see her eyes, Buddy could tell that she had glanced in his direction and noticed him as she moved, but she didn't change her pace as she slowly moved from one clump of corn stalks to the next, carefully choosing ripe ears and easing them into a bag. Buddy sat watching from behind the shield of his sunglasses. Occasionally, a delicate breeze passed through the truck. Emma finished her work and carried her bag indoors. She emerged again from the house and slowly moved down the path through the garden to the truck. Buddy now stirred from his position and left the truck to stand beneath the cottonwood. Emma met him, stood before him a second, and without expression or ceremony asked him to come in. Without a word from either, she led and he followed up the path to her home. She entered and walked across the living area to a chair facing the entrance. He squeezed through the door as if working against some rubbery substance



filling the room and slipped into a chair next to the door. They sat for a while. Wooden shutters closed the space off from the other spaces of the house. A light but steady airflow was moving through the space. The room would have been dark except for the single skylight high overhead, from which light gently fell on those two in the bottom of that space like dust, and clung softly to their faces. It was quiet - not just without sound, but the space was quiet, the light was quiet. It was cool, peaceful.

"Have you been healthy?" She broke the silence. There was a pause.

"I got sick a while back, but I'm okay now." a pause.

"How is your mother?" Pause.

"She's okay." Pause.

The dialogue continued in a measured manner as if in tempo with some great, slow-swinging pendulum.

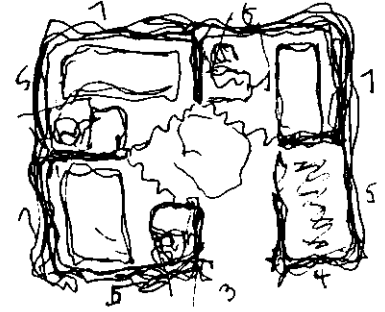
"Have you eaten?" Emma finally asked.

Buddy gave the proper response, "No". Emma moved to the kitchen and began preparing the corn. She rolled up the reed curtain between the kitchen and living space so she and Buddy could continue to speak and see each other. The conversation continued as before with a little more expression. At last the food was prepared, and Buddy was invited to sit at the heavy wooden table and eat. As he did so, Emma sat in a chair at the other end of the kitchen husking corn. After finishing the meal, he made the light hearted accusation that Emma was trying to fatten him. She smiled and removed the dishes, then sat with him at the table. They joked and talked freely for a while discussing happenings on the reservation. Then Emma's husband and two oldest sons returned from the copper mines. They entered from the back through the bath space and cleaned for dinner. Emma returned to her kitchen work and placed their food on the table. The men moved to the table, nodding an acknowledgement towards Buddy, and ate their meals as Emma sat in the background.

The sun was beginning to go down and the younger children began to filter into the house returning from their day of neighborhood play. The two youngest boys rough-housed in the living area, but were disregarded by the adults. With the meal finished there was more light conversation, and then the men retired to the porch. Buddy's oldest third cousin was showing him his new rifle. Emma and the children ate. Then she and her daughters cleaned up the kitchen. Emma came to the porch

to ask Buddy to stay the night. She said he could sleep on the porch. He agreed to stay. The family began to prepare for sleep. They all retired behind and pulled down the wooden push up shutters. The heat collected in the adobe walls during the day began to come through and radiate to the sleeping spaces during the rapidly cooling night.

Emma could tell that the next day would be hot even early in the morning, so after everyone had risen, she and her eldest daughter opened all the wall panels and screens. After enjoying another meal, Buddy and Emma sat talking casually in the living space. Emma's daughter, Ima Jean, sat on a blanket near an opening in the wall reading in the bright light. Occasionally she would make a contribution to the conversation and then again submerge herself in her reading. The features of her face were lost against the bright square of desert horizon. Light pierced into the house from every side, melting into a soft wash as it reached the center of the house. The children were playing in the Ramada and side yard, but occasionally took a quick run through the center of the house. Buddy said that it was time he returned to Bylas. Emma bid him a fond adieu and wished him well.



Conclusion

CONCLUSION: TOWARDS A HUMAN ARCHITECTURE

"Culture" is a name given to an analytical construct made up of those values, ideas and institutions of a distinct group of people which is the framework which gives order to every aspect of life. It embraces the value system through which decisions are made in the conception of architecture or any artifact. Architecture is the most obvious material expression of culture.

While living in one culture and working in another, I have gained a kind of parallax view of the cultural construct. I have furthered my knowledge of what characteristics carry across the human race, how distinct groups of people vary from one another, and how the individual is expressed within the matrix of society. I have extended the depth of my sensitivity towards human issues, and have taken a major step towards a human architecture.

Product - drawings and photos

AIR STRIP

64 UNITS

PRIMARY ROADS

60 UNITS

16 UNITS

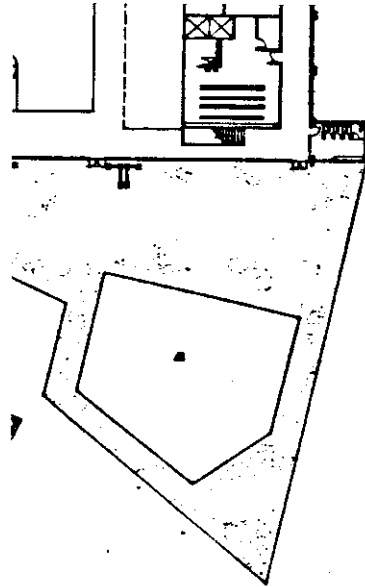
126 UNITS

FEDERAL HIGHWAY PATH

LEGEND

1. Library
2. A.V. Room
3. Office
4. Seminar
5. Mechanical
6. Theatre
7. Music Room
8. Practice Room
9. Arts
10. Resource Center
11. Laboratory
12. Classroom
13. Gymnasium
14. Industrial Arts
15. Kitchen
16. Cafeteria
17. Pool
18. Greenhouse
19. Drafting Room
20. Home Economics
21. Administration Reception and Waiting
22. Conference
23. Study Lounge

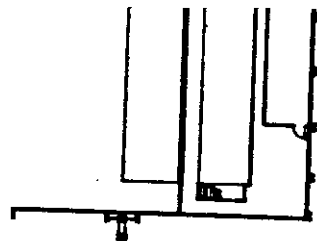
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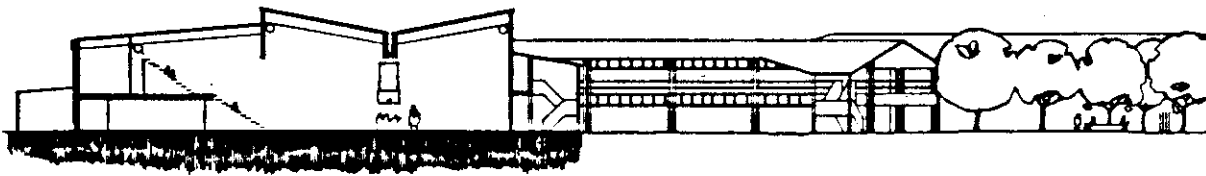


LEGEND

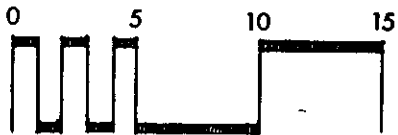
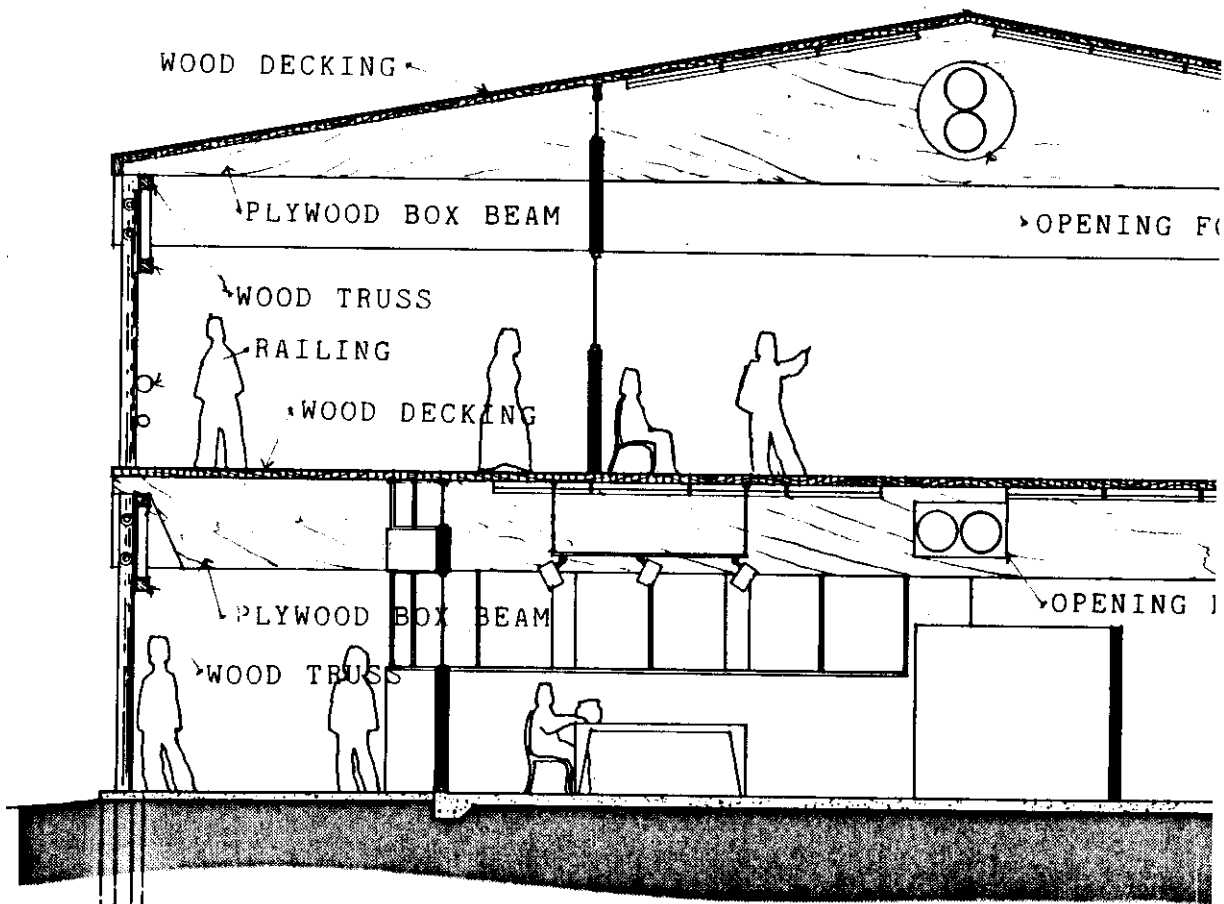
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20

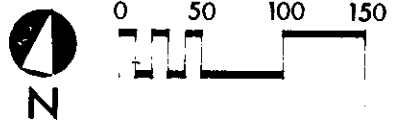
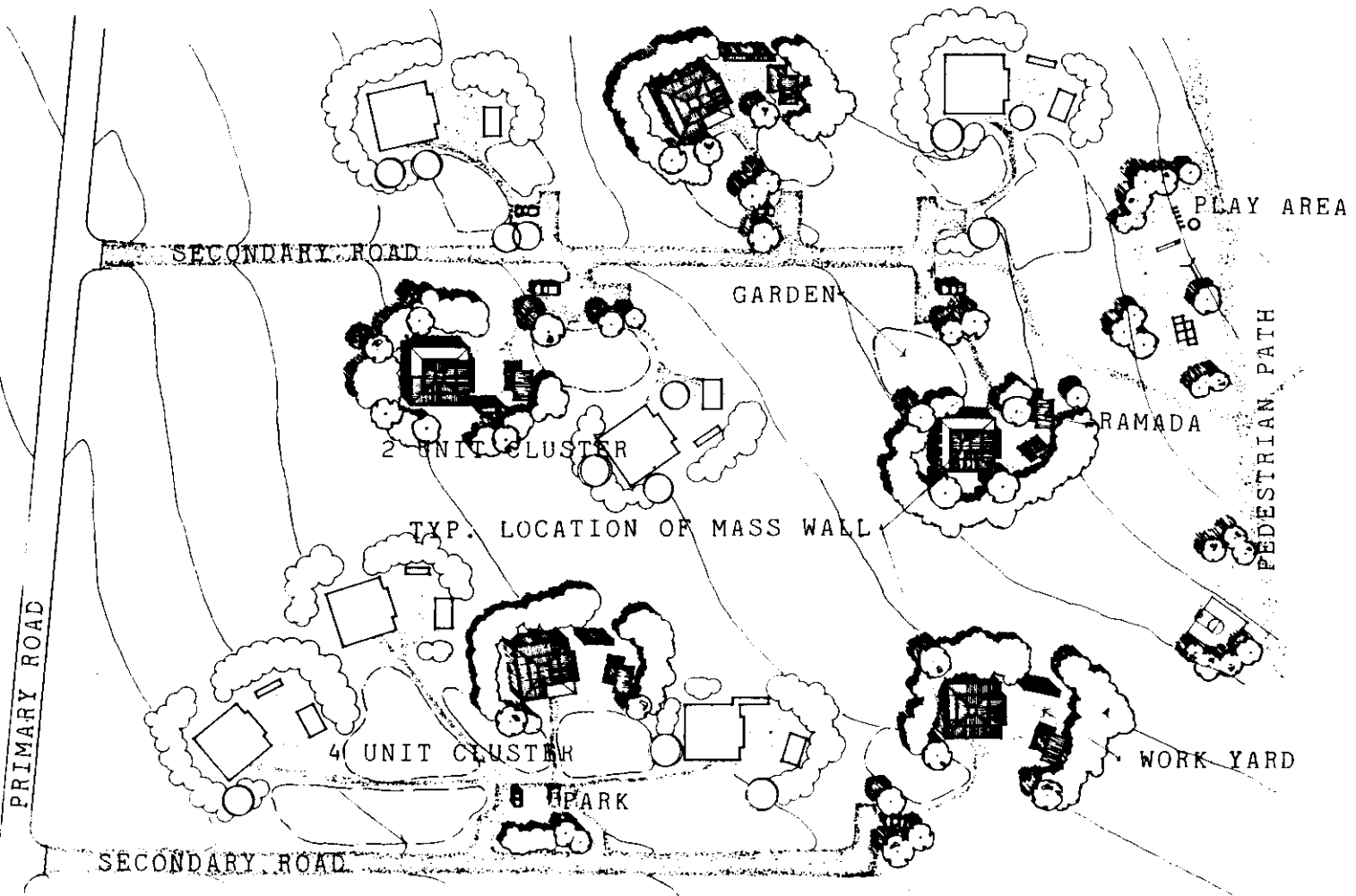










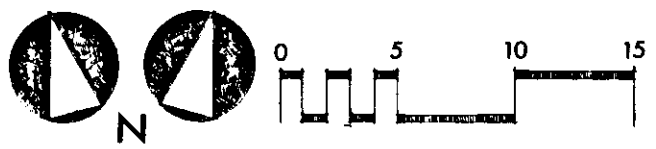
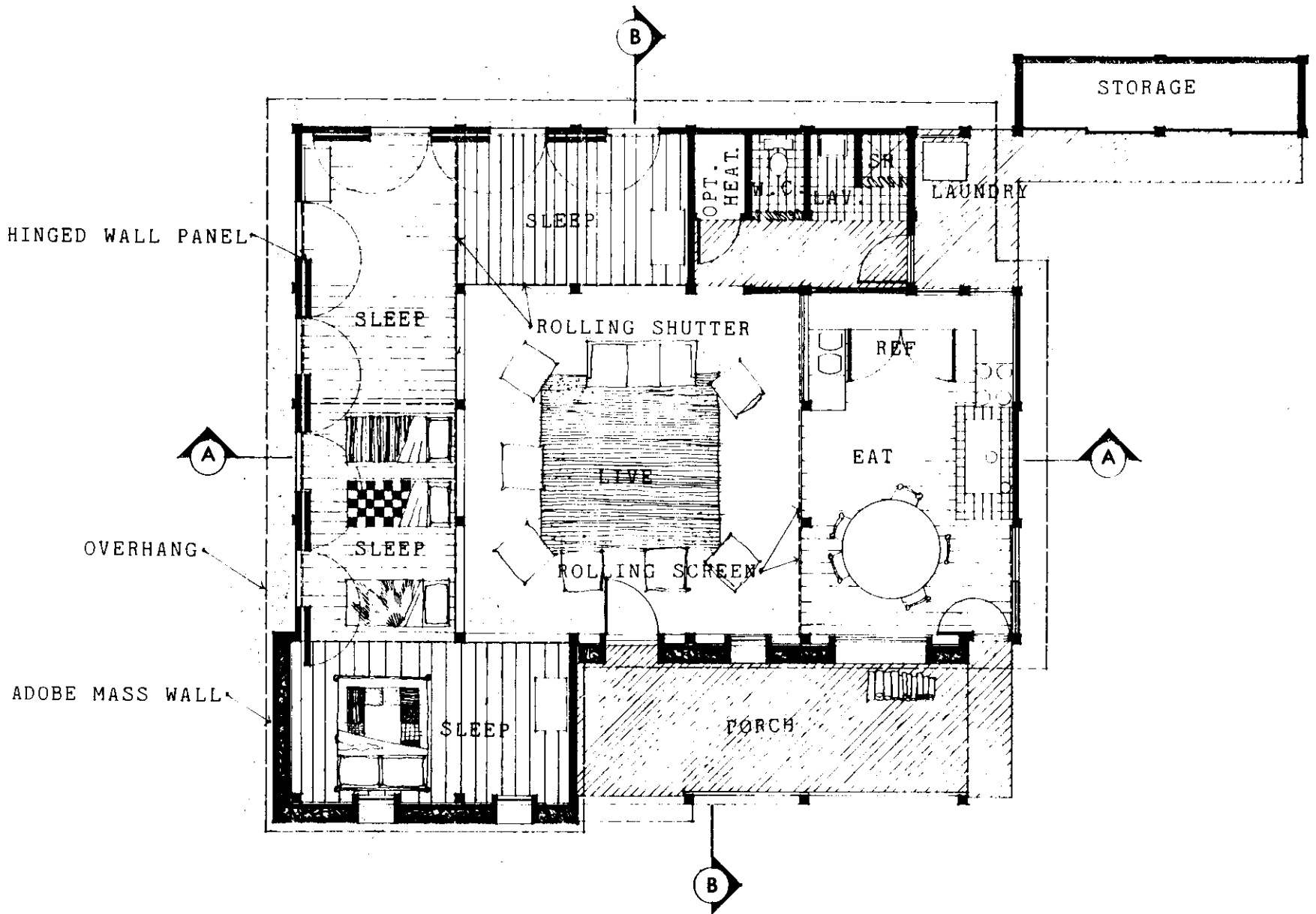


SITE DEVELOPMENT DETAIL



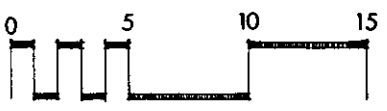
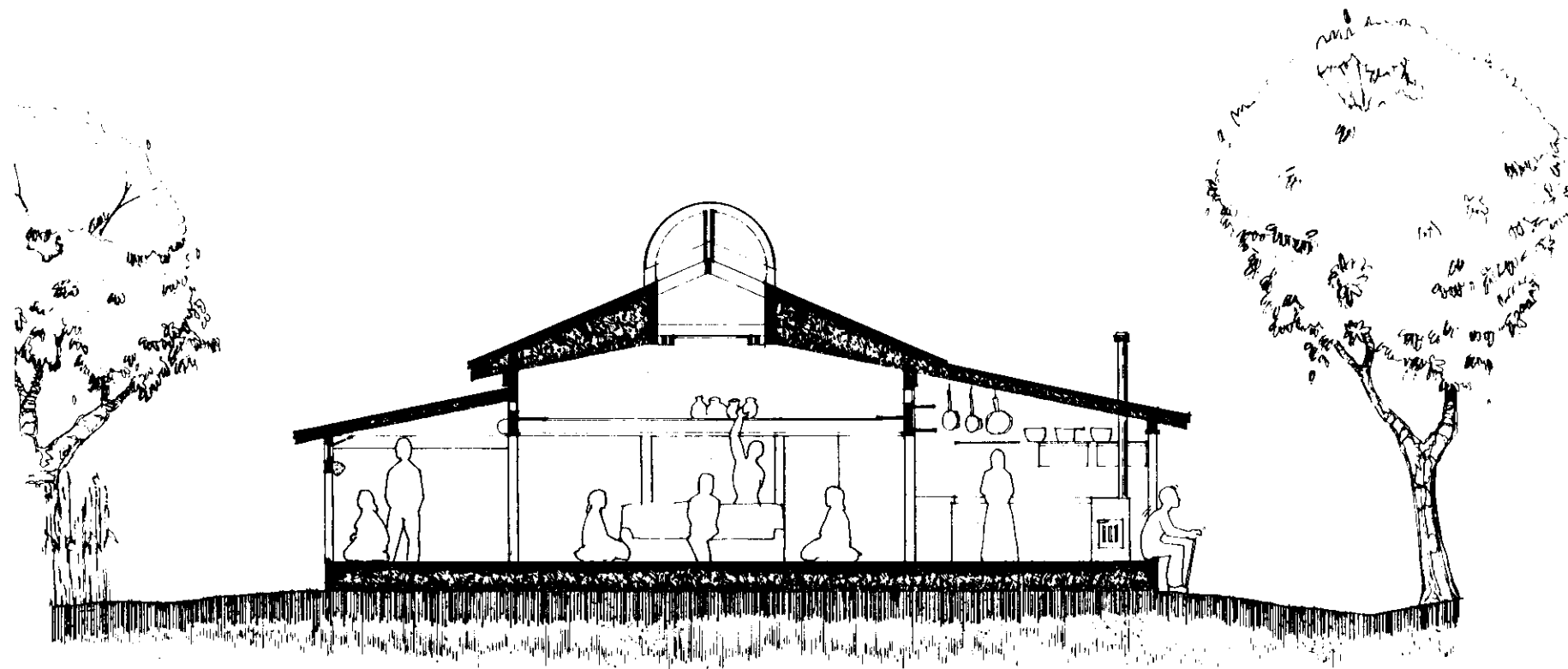






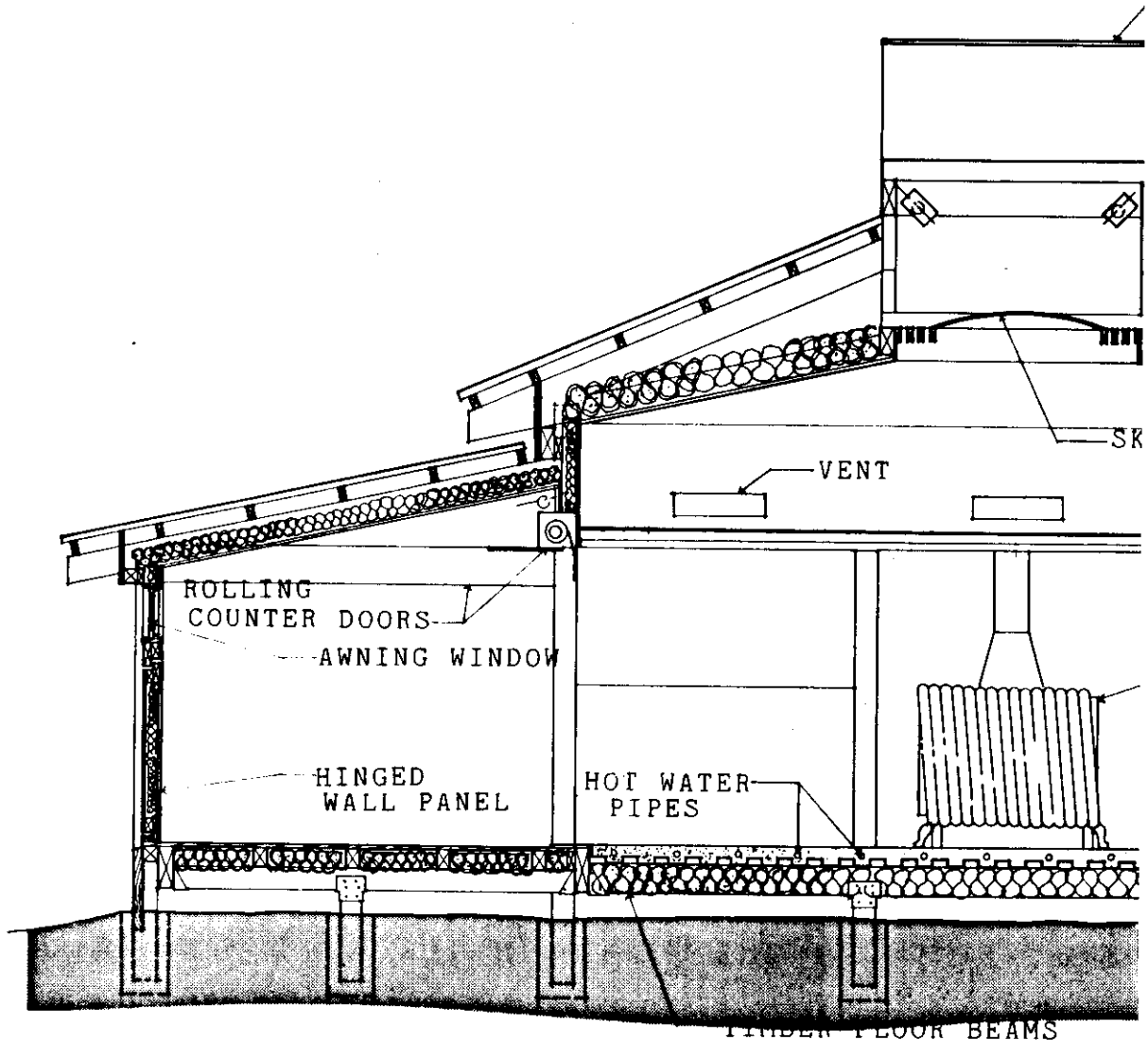
PROTOTYPE UNIT PLAN



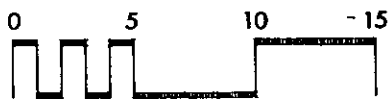
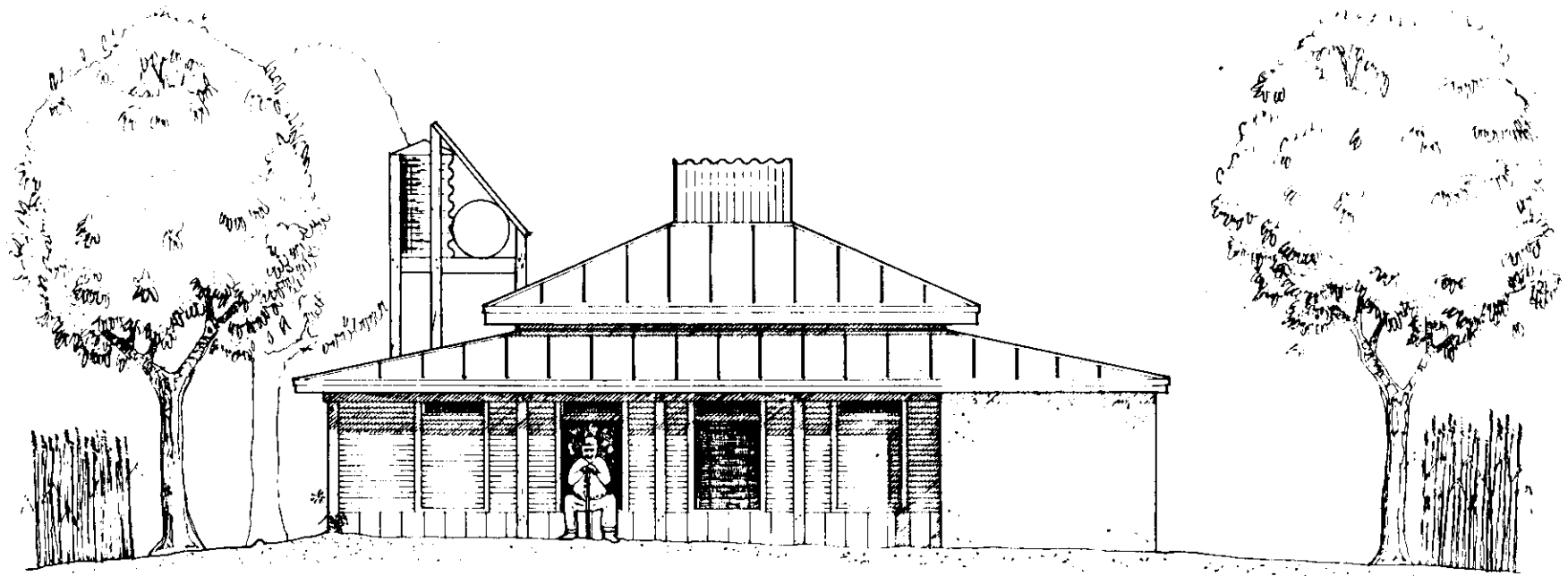


UNIT SECTION A



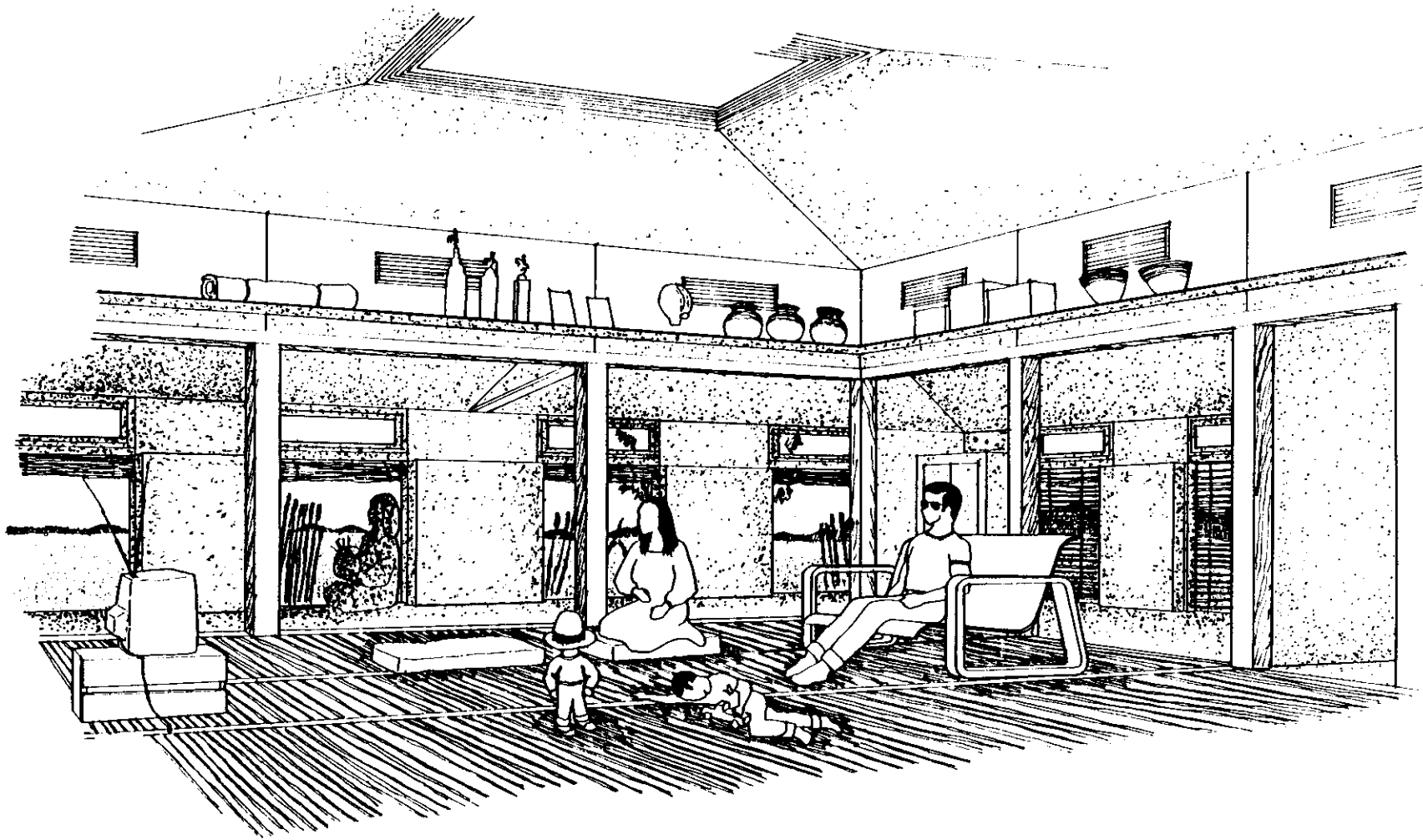






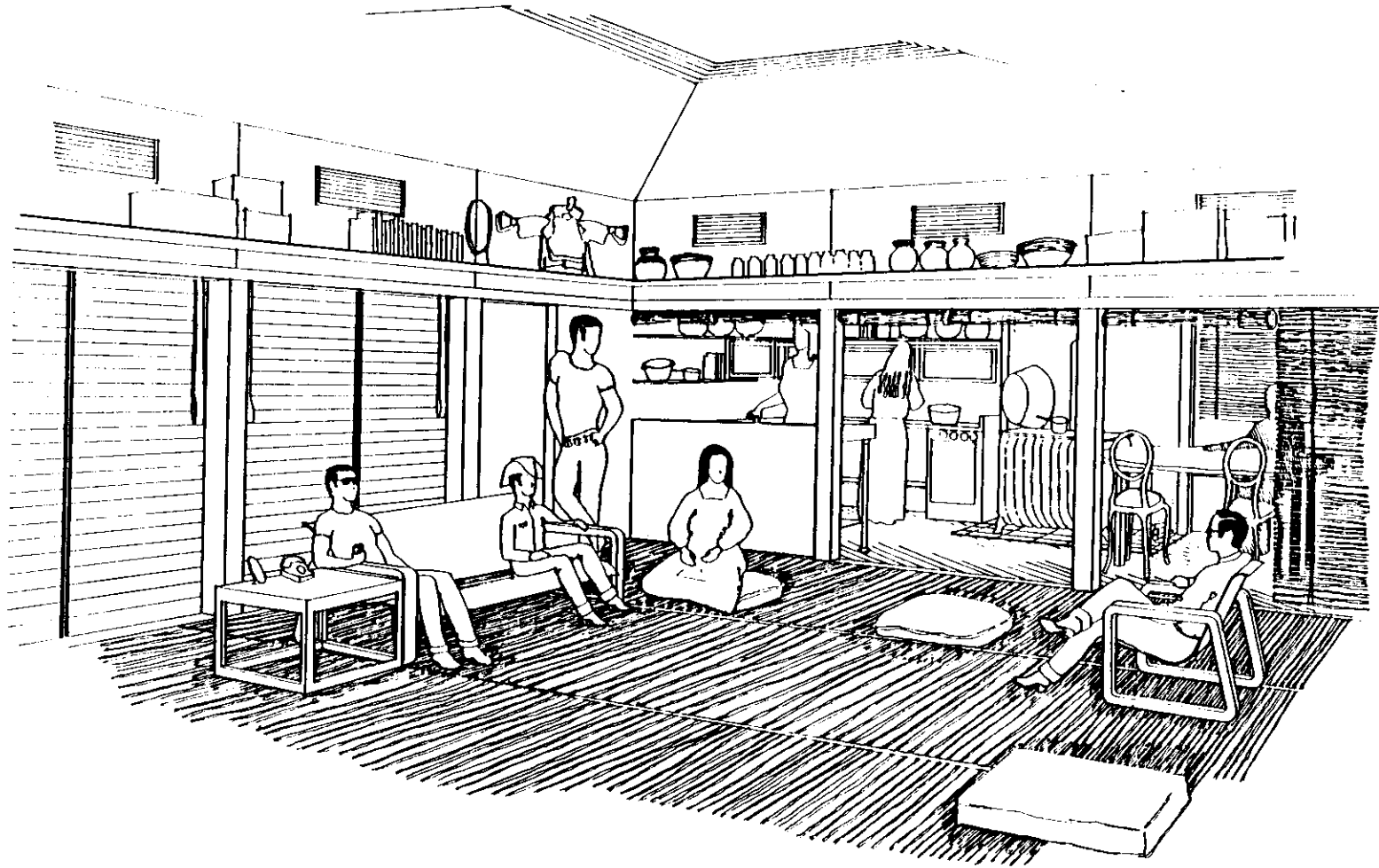
UNIT WEST ELEVATION





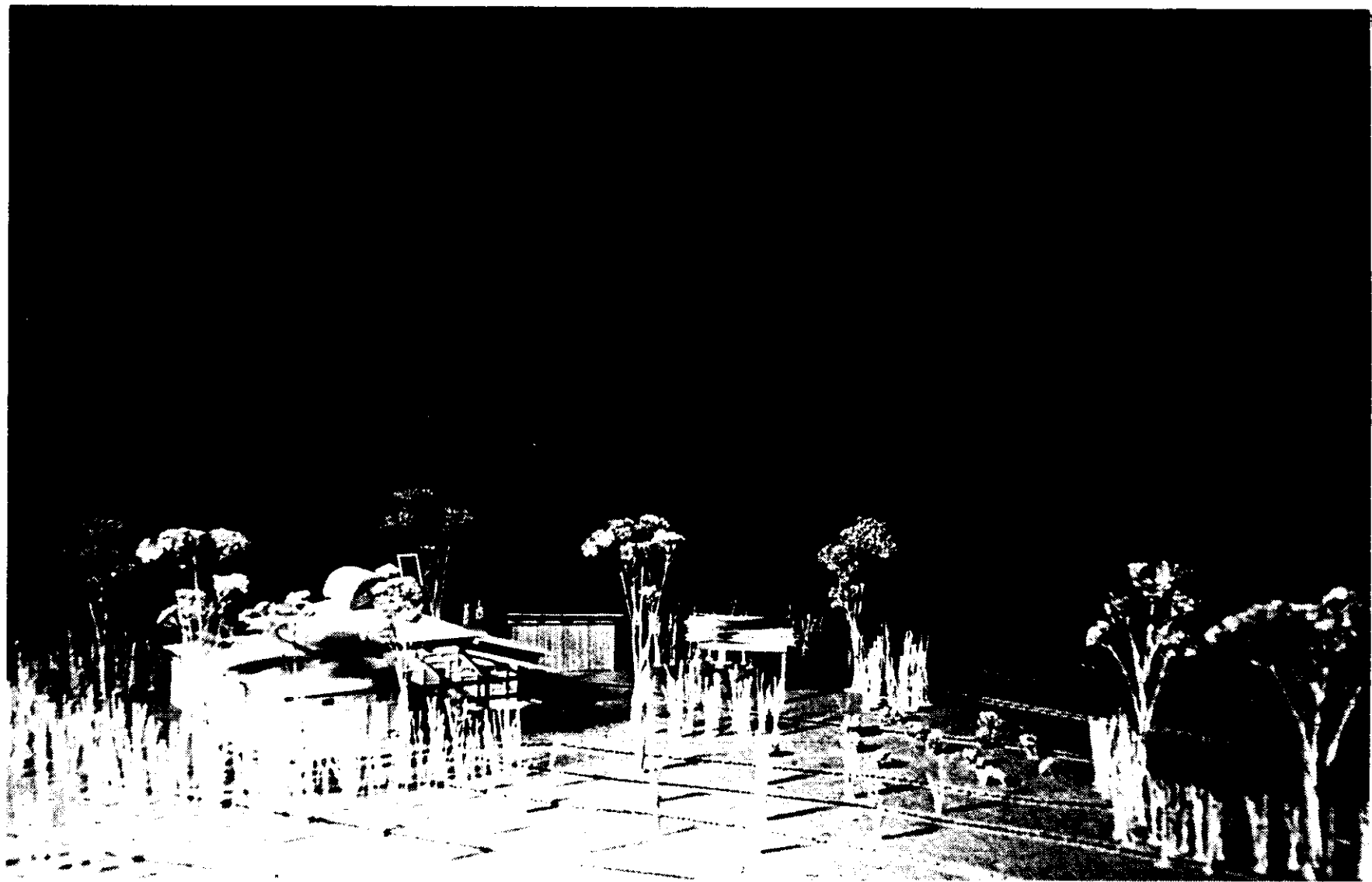
UNIT PERSPECTIVE





UNIT PERSPECTIVE





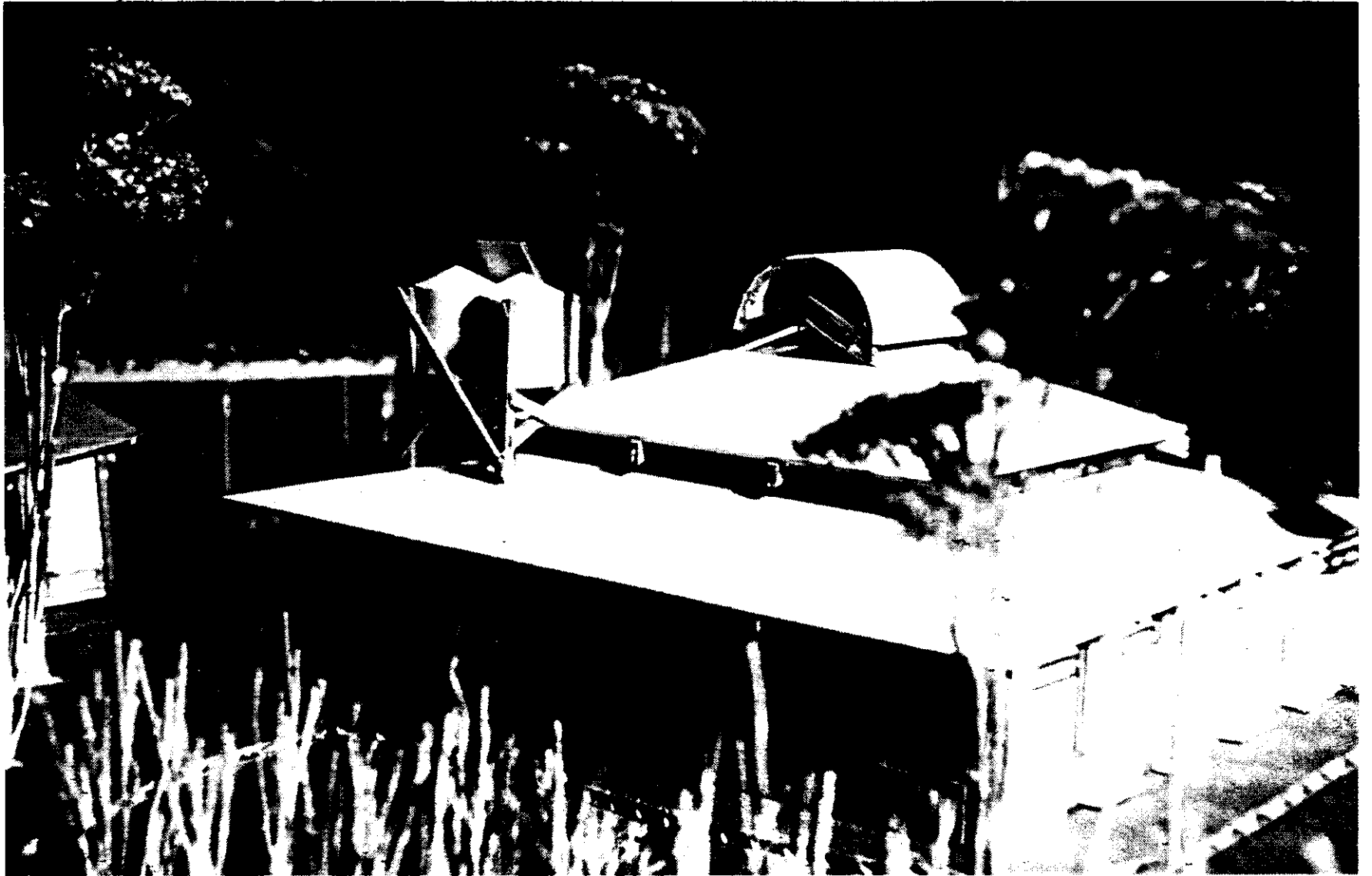
UNIT MODEL





UNIT MODEL





UNIT MODEL

Appendix A - research and analysis

Pre-reservation period Apache Architecture

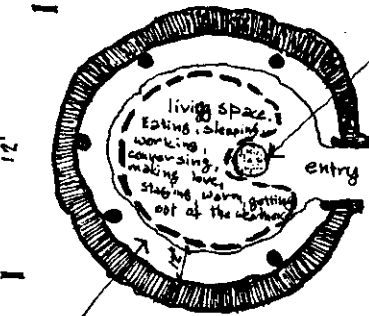
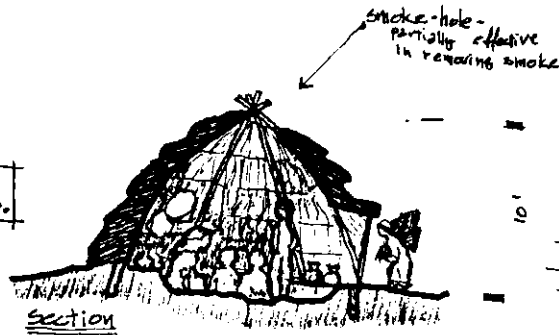
- Primitive
- non-permanent
- multiplicative

A. Basic Structures.

1. Wickiup



Wickiup or Gona.
(occupied in 1960)

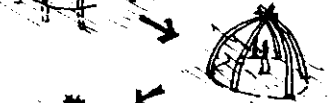


Plan

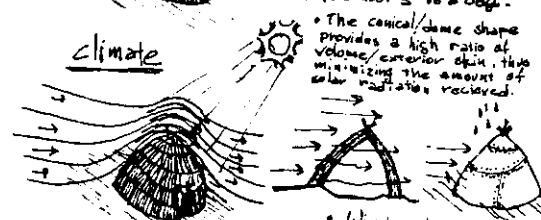
flexible poles of juniper or cedar poles buried a few inches. Work was done by the women. In more recent times men help.

Construction

The tops were lashed together.



climate



The conical/dome shape speeds winds over its surface, thus taking more heat away from the wickiup surface.

Wind and water could penetrate the walls to some degree. Canvas could be placed over the wickiup when desirable to keep out wind and rain.

- East.
- source of all good things
- first morning light - wakened residents
- away from predominant winds

The light that walls did not let in much heat to the interior. The overlaid bundles were partially effective in shedding water.

Social-Economic-Cultural

Within their ancestral territories Apache groups moved many times. A wickiup could be abandoned or burned if not material loss. The wickiup was predominant in the 1930s because the area considered themselves free.

Although the architecture is an excellent model of desert architecture, social, cultural and economic factors are dominant over climatic ones in Apache architecture.

Pre-reservation Period Apache Architecture

2. Ramada (shade)

Climate



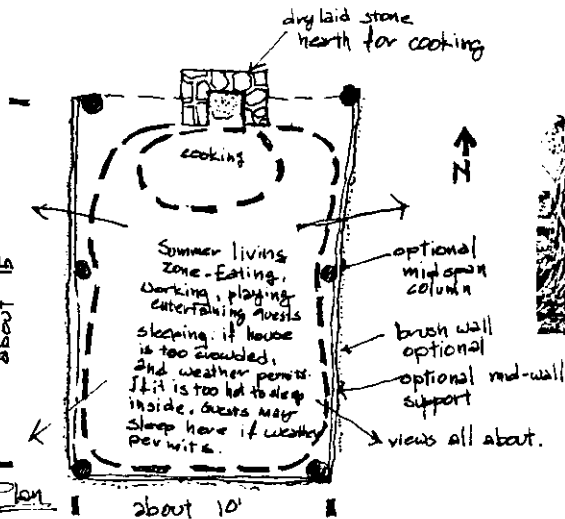
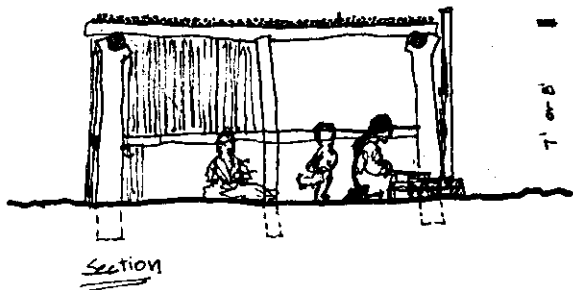
- w/out walls. Protection from solar radiation. allows breeze to pass through.



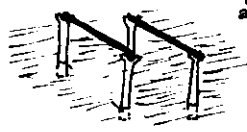
- w/ with walls. breaks strong winds. Partial additional solar protection for low sun.

Social, cultural, economic

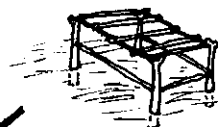
- The Ramada is not believed to be a traditional Apache structure, but is believed to be a Puebloan structure which ~~was~~ was adopted by the Apache perhaps via the Navajo in the past several hundred years.



Construction



- forked timbers buried a few inches carrying stringers.



- stringers carrying beams. Mid-rail support attached to uprights.



- beargrass mat
- beargrass walls optional

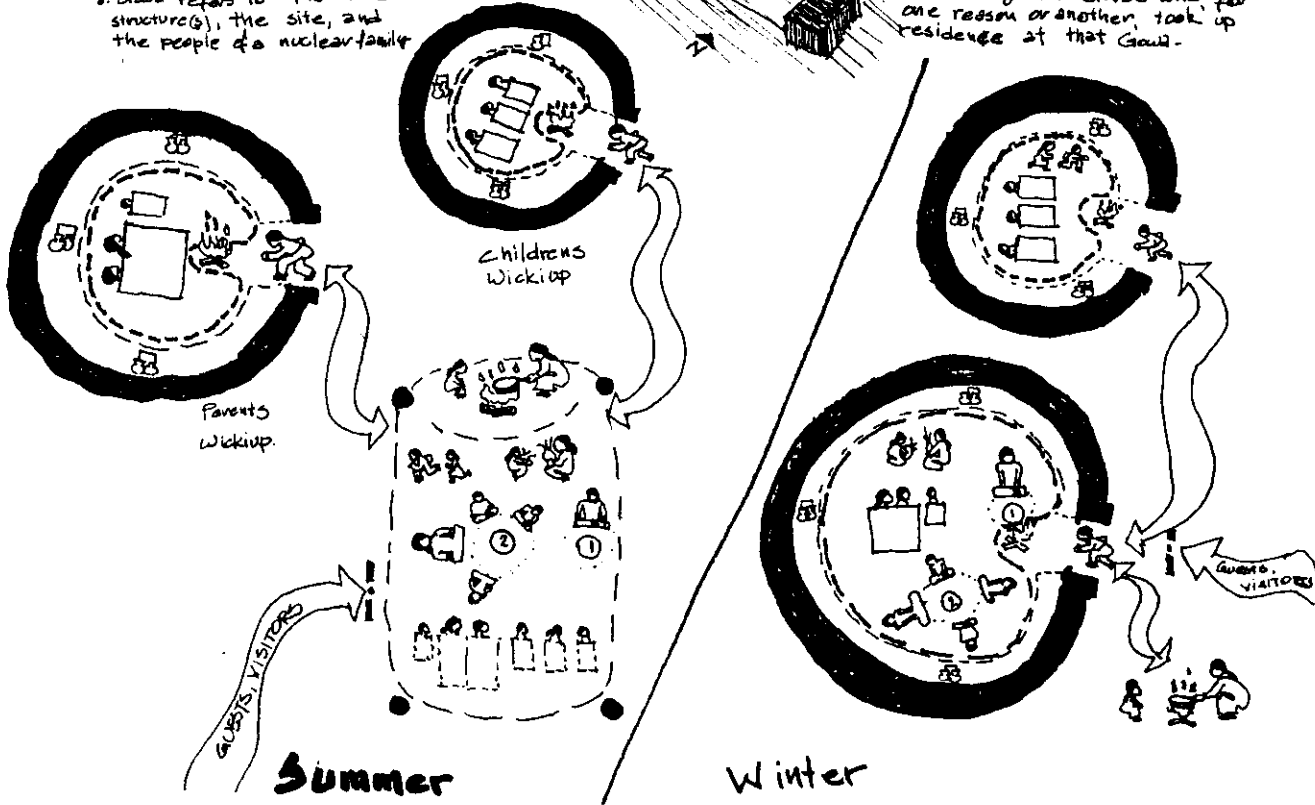
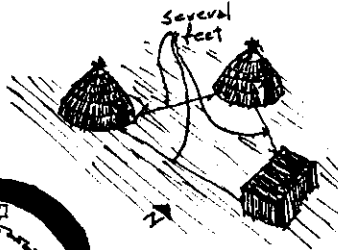


Pre-reservation Period Apache Architecture

B. Structures of the nuclear family household (Gawa)

• "Gawa" refers to the house structure(s), the site, and the people of a nuclear family

• Most households had at least two structures — a wickiup and a Ranado. Many also had one or more additional wickiups. Often this was a result of the family outgrowing one wickiup and building a second for the children as shown. However, this was not a cleave or obligatory pattern and additional wickiups may belong to relatives who for one reason or another, took up residence at that Gawa.



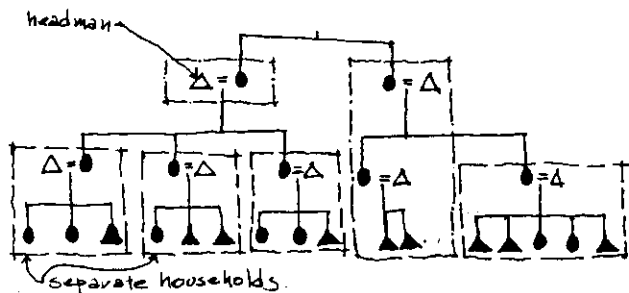
Summer

Winter

Prereservation Period Apache Architecture

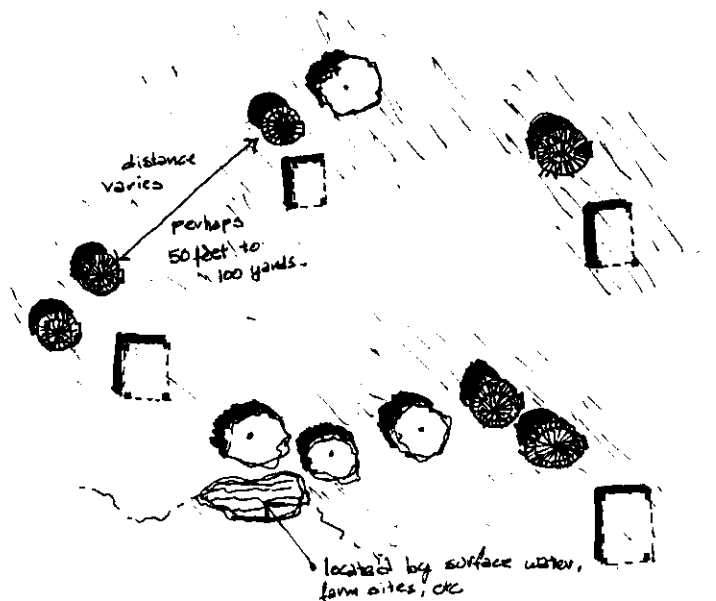
C. Matrilineal extended family (Gota)

- The Gota was the recognized basic unit of Apache society in pre-reservation times. The nuclear family was of minor importance.



Family Cluster Diagram

- The family cluster was identified not by a territory but by its core (matrilineal) clan.
- Men married into the Gota. Originally, they were required to do whatever his wife's parents asked of him. His incentive, as he gained experience and authority, he could rise to headman of the family cluster.
- The headman made decisions for the cluster on forming food gathering expeditions, and when to move camp, discuss prospective marriages and settle disputes between family clusters in a local group. They lectured to their family cluster early in the morning.



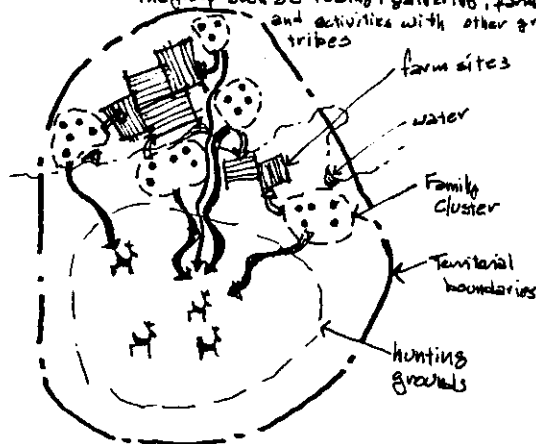
Hypothetical Site Plan of the Gota

- The women of this unit were usually working together, farming, gathering, caring for children, etc.
- Of course, the children of this unit would be most likely to play with each other.

Pre-Reservation Period Apache Architecture

D. Local Groups

- composed of two to six family clusters, and 35 to 200 people
- a chief, chosen from the headmen for his expertise in settling disputes, is in charge of decisions that affect the group such as raiding, gathering, farming, and activities with other groups, tribes

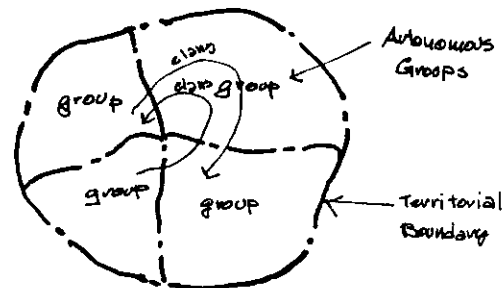


Hypothetical Site plan

- The local group was the most important social unit in pre-reservation Apache land in terms of organization, economy, and government.

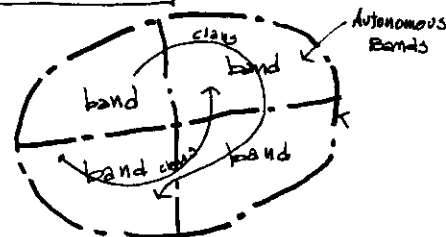
E. Bands

- These local units shared territorial boundaries and linguistic similarities, nothing else.



- band sizes - 50 to 750 people

F. Subtribal Groups



- composed of two to four bands.
- bands shared
- There were five bands - Cibecoe, San Carlos, White Mountain, Northern & Southern Tonto. Considered themselves quite distinct from one another.

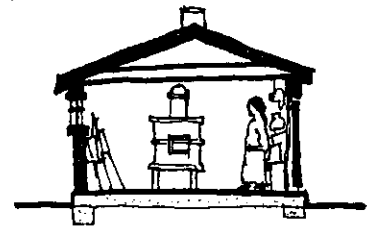
Post-reservation Apache Housing.

Comparison: Wicketup and one room frame house

Hypothesis: That the 1rm. frame house is a direct structural replacement of the wicketup, retaining many concepts, but responding to changing economy, more permanent settlement, and begrudging response to government attempts to absorb Apaches into white society.

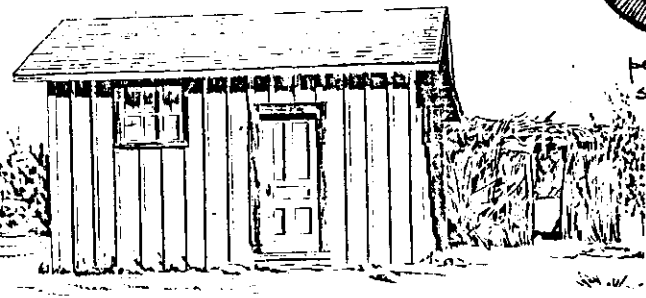
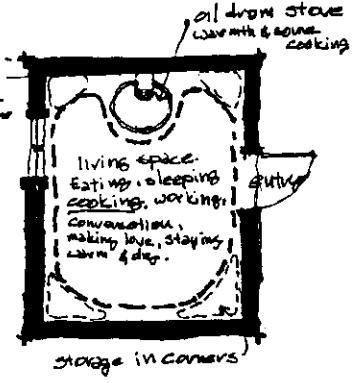
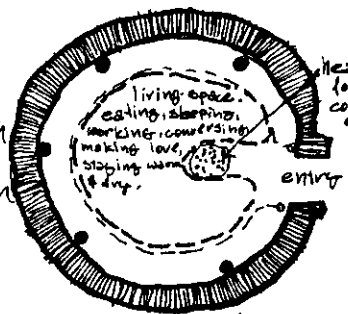
A. Basic Structures

1. House
2. Ramada (same as previous)
3. Wicketup (rare - same as previous)



Houses.

• the majority of the families to be housed by this project presently live in one or two room shacks of frame construction built by the inhabitants or by carpenters under the direction of the inhabitant.



peripheral shelf-storage

similar use with ramada.

• almost all houses have ramadas.

