

# PLACES OF THE EARTH

a cultural center for Zimbabwe

Thesis submitted to the faculty of Virginia Polytechnic  
Institute and State University in partial fulfillment of the  
requirements for the degree of

MASTER OF ARCHITECTURE

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# PLACES OF THE EARTH

abstract

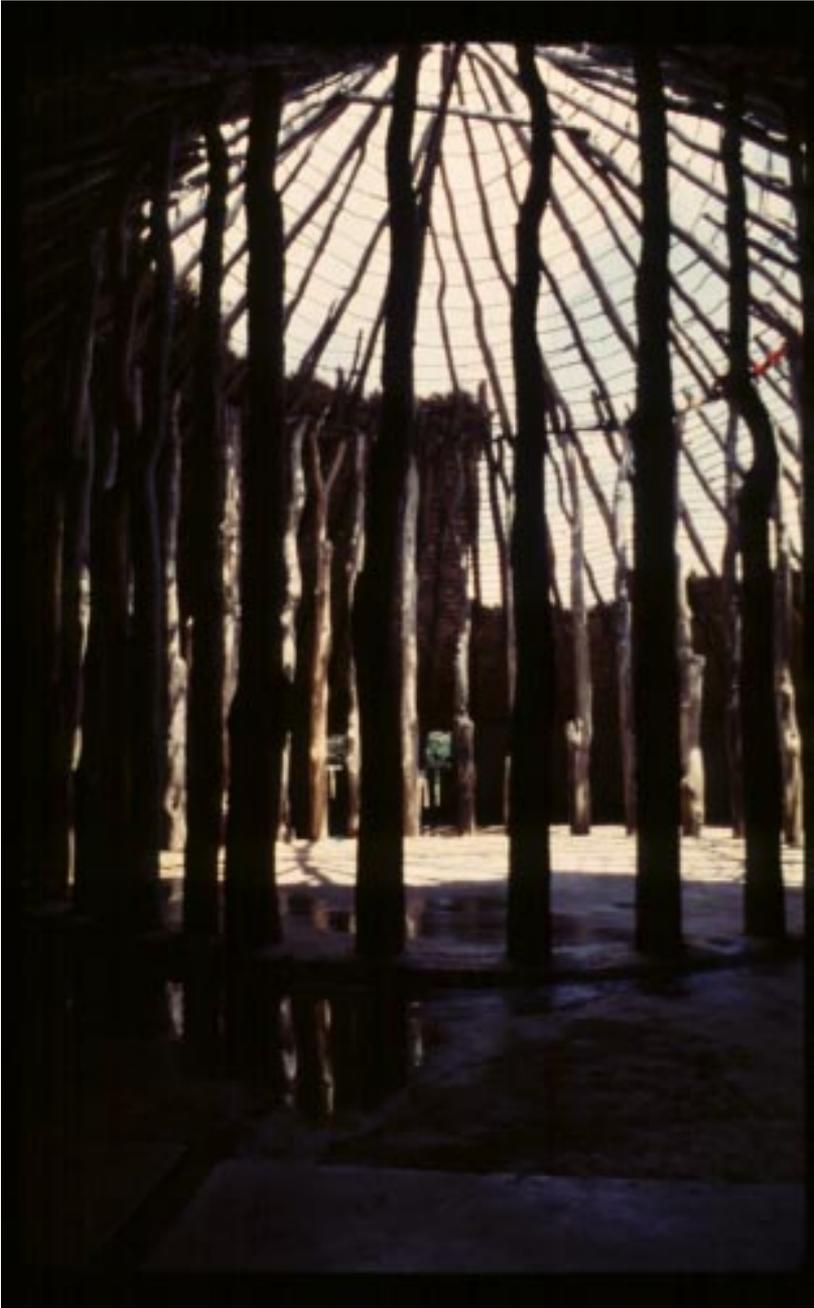
This thesis began with research in the rural areas of Zimbabwe, in southern Africa. I began with a little background knowledge and a great desire to learn. I took my research to the rural areas to try to understand the roots of traditional architecture and the why's of building methods in Zimbabwe. My thesis project grew out of a desire to give something back to the people that had so generously opened up an opportunity for me to learn about their culture and traditions.

My cultural center was an attempt to take the essential elements of traditional building, use the structural language of the homesteads and create a place that would become part of the site and culture of today's Zimbabwe.

*in loving memory of my father.*

**Michael Lyon Sterne**

to make something well we do not force it into being  
we merely allow what is already there to appear in our hands





# PLACES OF THE EARTH

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PRECEDENTS



The Great Zimbabwe, established between the 12th and 14th centuries, is a renowned archeological and architectural site. Zimbabwe means "palaces of stone."

THE GREAT ZIMBABWE was a settlement of Shona speaking peoples, ruled by a sacred leader and active between 1290 and 1450.

ENCLOSURE: The stone walls that weave around the site are a physical barrier; inside one feels secure, like a baby in a womb.

HIERARCHY: The palace is reached via long winding passages or stairways. The area is divided into five hierarchical platforms elevated according to importance of dwellers; the court, chief's area, guard's area, living quarters for important wives, lower platforms for young wives and followers.

**PITS:**

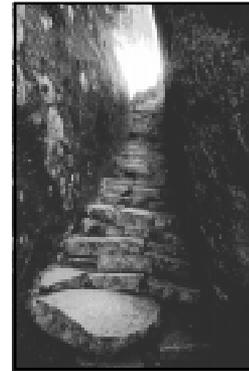
made from mix of clay and stone  
high walls surround you  
sunken, you feel protected

**HUTS:**

stratified layers of clay indicate passage of time  
temporary structures, built and rebuilt



**WALLS:**  
small narrow space  
inviting  
protective without  
closing you in

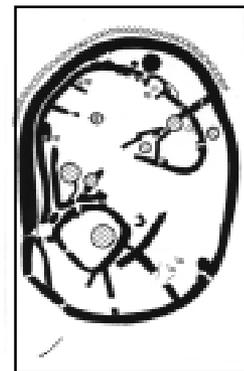


**PASSAGES:**  
cut into rocks  
snake up hill  
boulders tower  
above

**APPROACH:**  
many paths  
difficult to climb  
narrow  
threatening



**ENTRANCE:**  
rough stone  
regular courses  
opening draws you  
into the wall



**GREAT ENCLOSURE:**  
fetal  
calm, cool  
alone but not deserted  
hierarchically ordered



As I walked the kilometer through the bush to the place where "ancient pit structures" were supposed to be located, I was fascinated with the various colors and textures of the waist high indigenous plants and shrubbery. At the top of the hill I looked at all of Zimbabwe stretching below and surrounding me. I felt like an explorer searching for the stone pit structures, pulling aside intertwined branches and crawling under overturned trees. It was as if nothing had been touched since the 14th Century.



existing pit structures

whoever had last left this place, had not wanted it to be easily discovered again





From my first year in Architecture school, I always needed to feel a connection to the structures I created. I believed in myself as an architect when I discovered how to let my personality emerge both in my drawings and in a freer style of presentation.

Just as we cannot separate ourselves from our architecture, we cannot separate people from the buildings in which they live or structures from the site in which they exist.

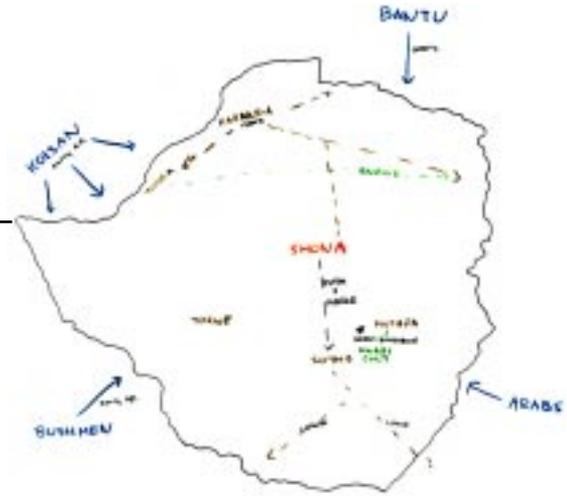
I went to Zimbabwe for two reasons. One, to do research on a level that was more experiential. I wanted to go out and experience a joint between elements to learn how it is put together. Two, to gain an understanding of the people, the culture and the WHY of building. It was not enough to learn how joints come together, I also wanted to understand how the touch of a person as he or she makes a joint changes and individualizes it. What made Zimbabwe a good outlet for my studies is its distinct cultural heritage.

With the background information I had on cultures of Zimbabwe, I tried to discover how technology, modernism and an objective eye could adapt the architectural language of the country and fit it into a modern day thesis project. Instead of trying to gain an overall understanding and produce definitive conclusions, I concentrated on making small discoveries and weaving the essential cultural elements together.

My project seeks to recognize the strengths of traditional building, restore an appreciation of local culture and preserve the beauty of Zimbabwean architecture.

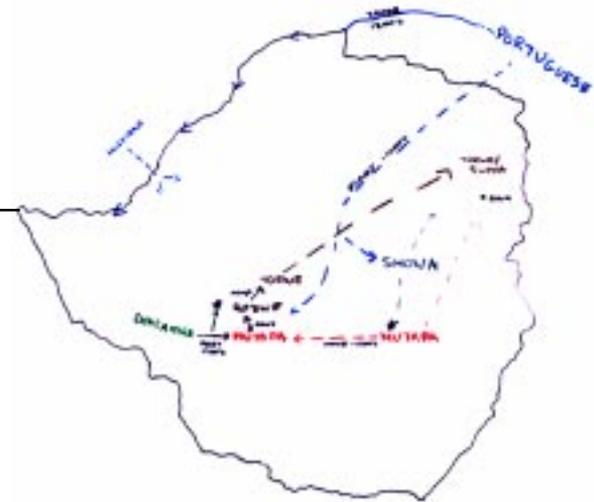
**CULTURAL DEVELOPMENTS PRE 14TH C.**

The Bantu tribes were the earliest settlers. The Shona people developed from a mix of Bantu, Bushman and Koisian, with some early Arab influence



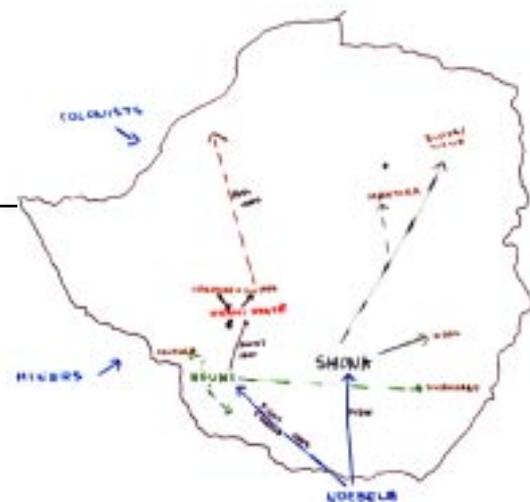
**CULTURAL DEVELOPMENTS 1400-1700's**

Bantu tribes were forming into more defined groups. Wars were a matter of survival of the fittest, but resulted in intermarriage. These interactions diversified and strengthened the tribe. Even the earliest tribes were cultural hybrids of a migratory civilization,



**CULTURAL DEVELOPMENTS 1800-1900's**

The colonial influence was the first destructive influence. It sought to destroy the roots of a successful, though underdeveloped culture. Forced rapid modernization of an African society by a Western model could only result in the disrruption of the natural process of development. Much of the culture that Africans had prided themselves on for centuries was ridiculed, suppressed and consequently lost.



Development in Africa has and will continue to follow very different patterns of settlement and development. What is sometimes seen as “underdevelopment” in Africa could be attributed to rapid and imposed industrialization of parts of the continent during the colonial period. While Europe industrialized for over a hundred years, Africa was forced to catch up in a few decades, trying to adapt to ways of life and technology that they were not familiar with.

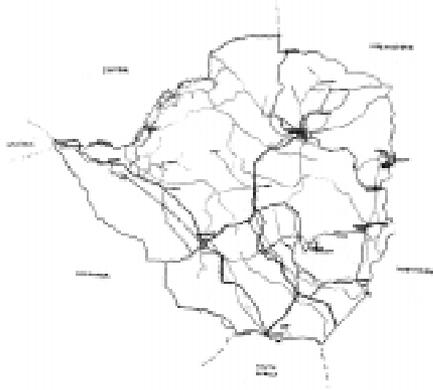
There was an influx of immigration in the United States at the turn of the century. Cities developed with pockets of cultures living next to but not necessarily merging each other. While areas of cities are no longer named for a cultural group, there are still small partially integrated pockets of culture; this is what makes America such a rich and constantly developing culture.

Areas such as South Africa and Zimbabwe, formerly Rhodesia, that have a history of political conflict due to tribal differences are rich in the diversity and strength of their cultures. Since the first influx of Bantu tribes in the early centuries AD, warring groups would conquer a tribe then absorb the women and children into their own tribe. Thus, a cross section of cultures developed, all similar in their roots yet each distinct in their ancestral heritage. A parallel could be made to building. While the patterns of settlement are quite similar throughout Zimbabwe, it is the structure of a hut and the layout of a homestead that is distinctive to each group. The pride with which individuals will distinguish themselves as being from a certain tribe, is reflected by how they will build a hut and arrange their homestead.

The pattern of development within a Zimbabwean homestead is very different from the American household. There is a natural progression that occurs in an extended family. A homestead grows and expands as the family members increase; for example, a headman will acquire a new wife, more children will be born or a son will reach adulthood and build his own adjacent homestead. The size of a hut does not indicate prestige. Similarly the amount of land given to a family depends on the families needs not on their wealth. Wealth is the number of cattle, wives and children a man has.

|   |  |
|---|--|
| <p><b>PATTERNS OF SETTLEMENT</b></p> <ul style="list-style-type: none"> <li>· Homesteads – Villages – Area – Region</li> </ul>  | <p><b>CULTURAL INFLUENCES</b></p> <ul style="list-style-type: none"> <li>· Hut – Family Unit – Homestead</li> </ul>  |
| <p><b>DEVELOPMENT OF REGIONS</b></p> <ul style="list-style-type: none"> <li>· Water</li> <li>· Vegetation</li> <li>· Agriculture</li> <li>· Kraals</li> <li>· Paths</li> <li>· Roads</li> <li>· Village Center</li> <li>· School</li> </ul> | <p><b>BUILDING STRUCTURE</b></p> <ul style="list-style-type: none"> <li>· Materials</li> <li>· Methods</li> <li>· Tradition</li> <li>· Ventilation</li> <li>· Shade</li> </ul> |
| <p><b>FUNCTION OF HOMESTEADS</b></p> <ul style="list-style-type: none"> <li>· Shelter</li> <li>· Storage</li> <li>· Meeting</li> <li>· Cooking</li> <li>· Enclosure</li> </ul>  | <p><b>INTERIORS</b></p> <ul style="list-style-type: none"> <li>· Storage</li> <li>· Shelter</li> <li>· Furniture</li> <li>· Privacy</li> </ul>                                 |
|   | <p><b>HUT GROUPINGS</b></p> <ul style="list-style-type: none"> <li>· Family Unit/Structure</li> <li>· Interaction</li> <li>· Culture</li> </ul>                                |





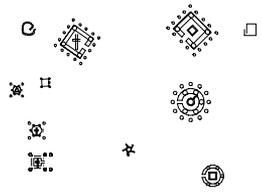
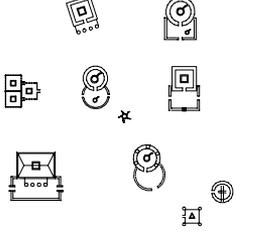
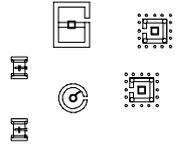
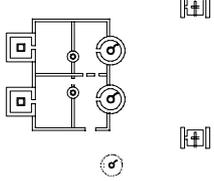
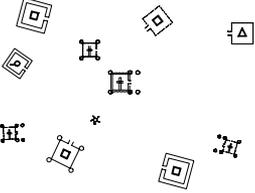
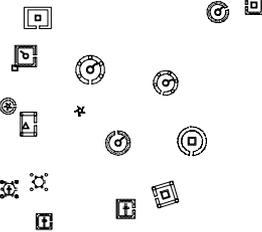
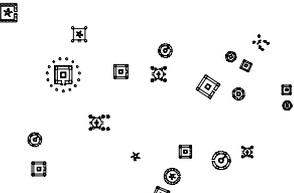
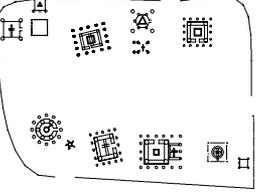
ZIMBABWE

I began my research in the rural areas of Zimbabwe, hoping to find the roots of traditional building in areas of the country less touched by modernization. In a sense, rural Africa is fortunately. Due to its isolation and lack of resources, change has been slow and much of the tradition remains. I began my studies looking at how environment, climate, materials and resources have influenced methods of building and created traditional elements. In trying to understand what makes a hut unique and why some traditional elements of building still exist today, I had to account for factors such as family, culture and personality.



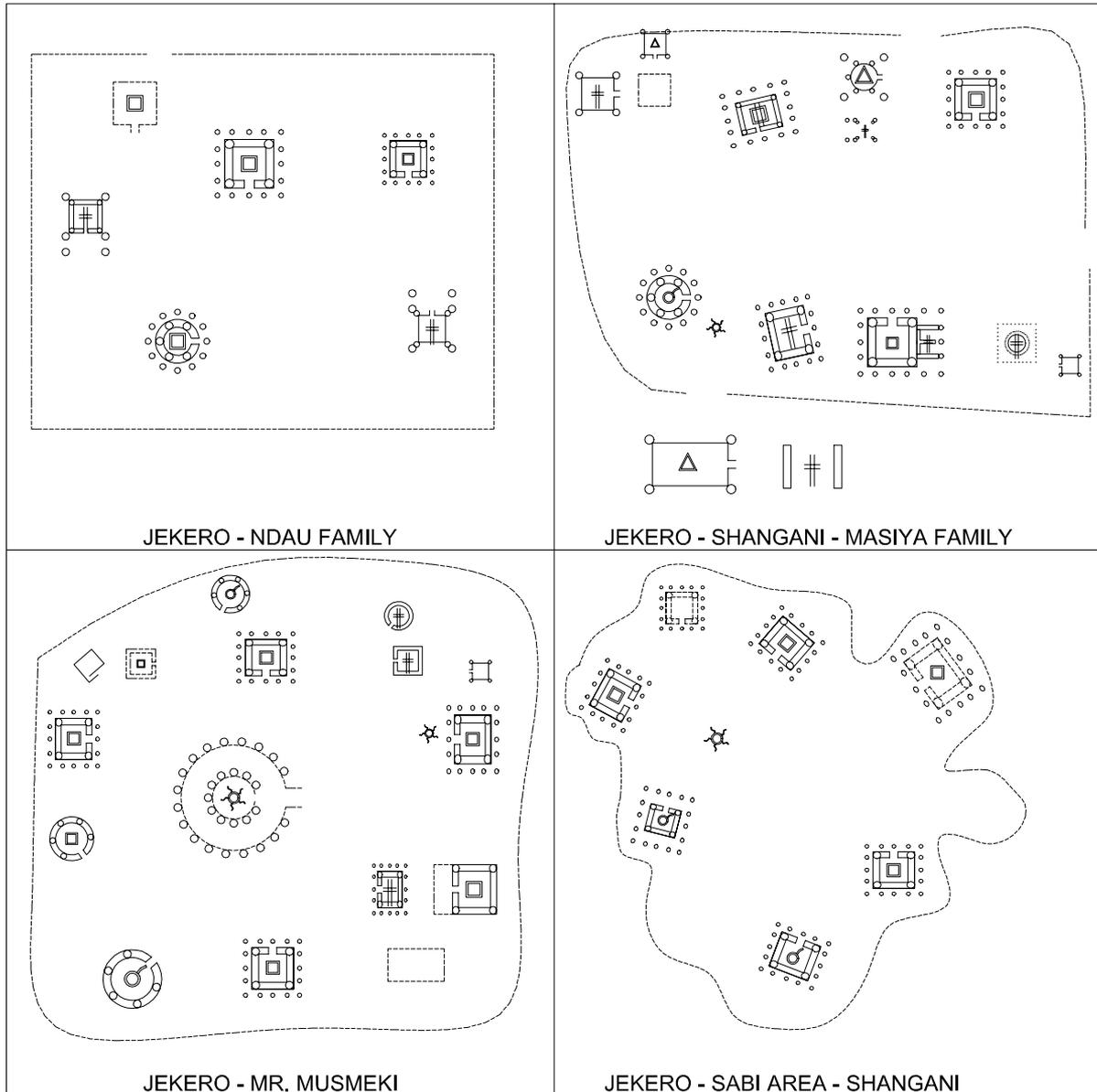
| HUT TYPE | POLE&DAGGHA                  | MUD BRICK          | REED/GRASS                 | POLE&THATCH                | NO ROOF               | UNFINISHED             | OLD HUT                       | OTHER                         |
|----------|------------------------------|--------------------|----------------------------|----------------------------|-----------------------|------------------------|-------------------------------|-------------------------------|
|          |                              |                    |                            |                            |                       |                        |                               |                               |
|          | POLE&DAGGHA COOKING HUT      | BRICK COOKING HUT  | REED/THATCH COOKING HUT    | POLE/THATCH BANZA          | OUTDOOR COOK AREA     | UNFINISHED COOKING HUT | OLD COOKING HUT               |                               |
|          | POLE&DAGGHA DAME             | BRICK DAME         | REED/THATCH DAME           | POLE/THATCH DAME           | OUTDOOR MEETING AREA  | UNFINISHED DAME        | OLD DAME                      | EXTERIOR POLE KITCHEN         |
|          | POLE&DAGGHA BEDROOM          | BRICK BEDROOM      | REED/THATCH BEDROOM        | POLE/THATCH BEDROOM        | EXTENDED ROOF BEDROOM | UNFINISHED BEDROOM     | OLD BEDROOM                   | EXTERIOR POLE BEDROOM         |
|          | POLE&DAGGHA GRANERY          | MUD GRANERY        | REED/THATCH GRANERY        |                            |                       | UNFINISHED BEDROOM     | OLD BEDROOM                   | COMPARTMENTED GRANERY         |
|          | POLE & DAGGHA RAISED GRANERY | MUD RAISED GRANERY | REED/THATCH RAISED GRANERY | POLE/THATCH RAISED STORAGE | UNROOFED RAISED HUT   | UNFINISHED RAISED HUT  | OLD RAISED HUT                | STILTED POLE/REED HUT         |
|          |                              |                    |                            |                            |                       |                        |                               |                               |
|          | POLE & DAGGHA SMALL STORAGE  | MUD SMALL STORAGE  | RAISED ANIMAL SHELTER      | BARN LIKE STRUCTURE        | OUTDOOR KRAAL         | DISH STAND             | SMALL INTERIOR RAISED GRANERY | BEEHIVE INTERIOR GRANERY      |
|          | POLE & DAGGHA TWO ROOM HUT   | MUD TWO ROOM HUT   | BATHING HUT                | KRAAL                      | GARDEN                | RAISED PLATFORM        |                               | MODERN HUT ASBESOS/METAL ROOF |

I chose seven areas of the country to study, looking both for patterns and for unique elements.  
 I began comparing the organization of the various homesteads to see if it would help me understand how people relate to each other and how they arrange the spaces in their environment.

|   |   |
|---|---|
|  <p><b>MACHAYA - MATEU</b></p>                                   |  <p><b>VENDA - TSHINONI - MULEYA 1</b></p>              |
|  <p><b>NDEBELE - MZOLO #6</b></p>                                |  <p><b>VENDA - DITE</b></p>                             |
|  <p><b>TONGA - VILLAGE 3</b></p>                               |  <p><b>CHISUKO - MWADIWA (traditional healer)</b></p> |
|  <p><b>CHIKafa - KORE KORE - GUMBO<br/>{SPIRIT MEDIUM}</b></p> |  <p><b>JEKERO - SHANGANI - MASIYA FAMILY</b></p>      |

"Musha" is the word for home, but it does not mean "house." It is a grouping of huts in a village plan that encompasses the extended family. The layout of a homestead provides great insight into the roots and personality of a family.

In Jekero, for example, many families had been exposed to modern building techniques since the 1970's. There were more square huts, organized in a linear formation. However the strong roots of the Shangani culture remain evident in the well built huts, the quality of their interior woven grainaries and in the organization of the headman's wives in a cluster of sleeping, cooking and storing huts.



The “Shangani weave” is a type of interior granary. Softened wood strips are woven into a beehive shape. This weave has the strength of wood, but is more durable and helps preserve grain by allowing air to pass through. This inner granary is elevated on a wood platform over the cooking area. Smoke from the fire keeps insects away from the grain stores. Another advantage of a self-contained granary is that stores can be protected with less durable outer walls and by children sleeping around the fire.



Mr. Masya’s family lived in this region before the war of independence. During the war people left their homelands and moved outside of the country, many to South Africa.



This man learned to build in the South African homelands. He is very thoughtful and careful in his orientation of the huts, placement of columns, and plan of a future homestead. He uses solid Mupane wood posts, infilled with unburnt bricks or daggha and plaster. He says the latter method is better because the wood is placed closer together, making the walls stronger. He has a neat compact thatching technique. When asked if he would rather have an asbestos roof, he said it is less work as it lasts longer without repair; but he likes the coolness and look of the thatch roof. He suggested building homes with cement material but in the style of a traditional hut.

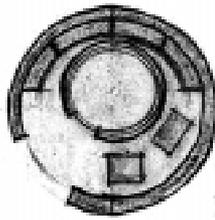


Mr. Masya’s ancestors have been in the Jekero area since the 1940’s (at least). He returned to his plot in 1984. He described his structures as very “typically” Shangani. His method of building was taught to him by his father and grandfather. While placement of the huts within the homestead is not carefully considered, direction of doorways and ventilation gaps are important for avoiding rain and wind.

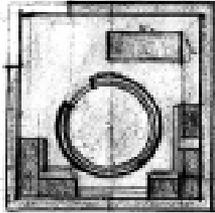
SHANGANI TRADITION: as the original compound expands some family members remain within, some travel next door while a few may move to other areas. Parents remain living with the last born son in their own homestead. The first son is often sent away to find his own homestead (or more recently to work in the towns or cities). In the past some families may have brewed beer and conjured up spirits to protect their homestead; but the Masiya’s are Christian, so they “just pray like everyone else” for protection.







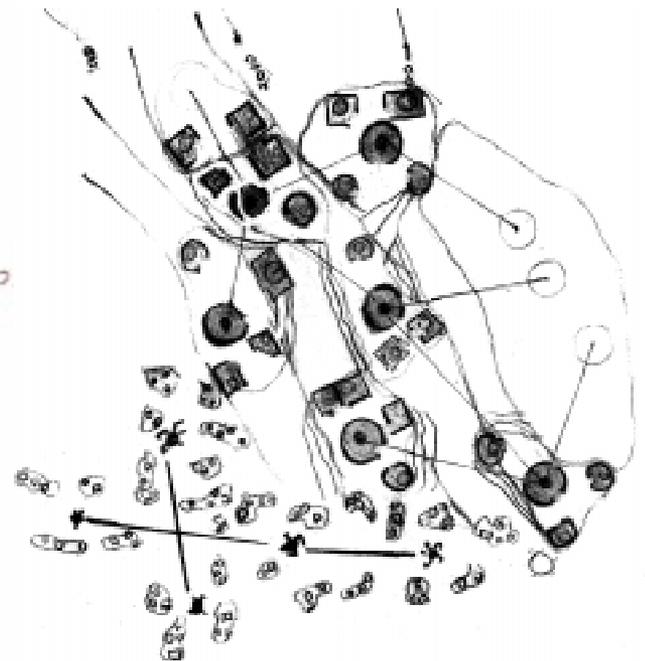
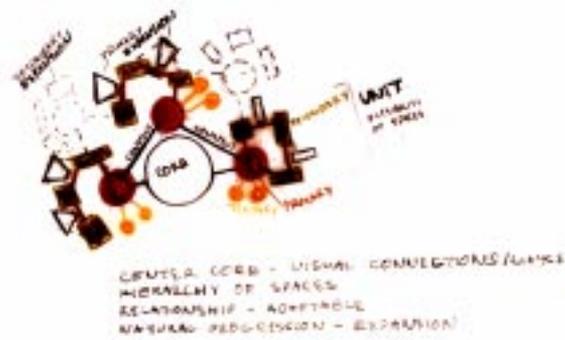
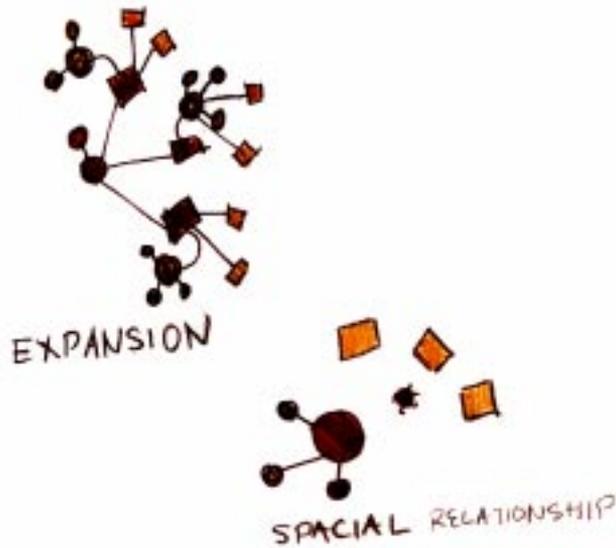
STORAGE BUILT  
 DISPLAY CASES  
 WORK TABLES  
 RECEPTION



**FORM:**  
 Shape can be a loose diagram,  
 or a hard line plan.

**FOCUS:**  
 While Westerners are concerned  
 with outward looking views,  
 the African homestead faces its  
 structures inward to focus on  
 the centralized family unit.

**PATHS/CONNECTIONS:**  
 How one traverses from one  
 place to the next establishes the  
 boundaries of public and private  
 space.  
 How places are connected  
 establishes a hierarchy between  
 structures and within the  
 homestead.





CULTURE

knowing a place is a matter of getting inside it  
maybe handing someone a camera, then getting down and looking at things from their perspective

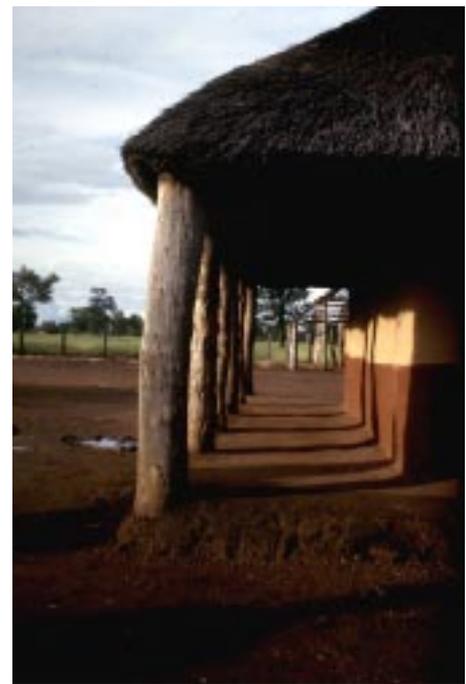


interior of kitchen hut; walls and storage are pounded earth, roof is thatch

Why are people so quick to get out of rural Africa and into the city; so quick to deny an association with village life?



I asked one man, a builder, how he compared modern materials, such as asbestos roofing, to the traditional thatch. A few of his friends laughed, unsure if I was curious or ridiculing their methods. The man replied carefully; modern roofing, he felt, was more durable, but thatch was more beautiful. But how he really felt could be seen in his eyes as he looked with pride at his newly constructed homestead.



How do we interact with our environment?

We can not disconnect people from places. We adapt our environment to make every place we inhabit feel like a home.



For a Zimbabwean, home is where the spirit of their ancestors are. Home is not a specific structure or plot of land, but a place where you are tied to the community.



as an outsider, reach for the culture subtly, as an architect touch the site softly.







rural area, Nyanga

We entered the spirit medium's homestead and were formally seated on a mat at a distance from the raised granary under which the community sat. In an official's home we were not asked to join the family until our purpose was assessed. After the usual greetings and formal introductions, I began my questioning with my favorite question.

Why did you come to this place?

"The spirit told us to," was the reply.

How?

"A spirit came to the medium and told him," they answered.

So which hut did you build first?

They pointed to the one behind the boy's head, "That one."

Why?

"Because the spirit told him too." A very talkative spirit, I thought!

Is the hut special in any way?

"Yes," they replied. "The hut is special because it is where the spirit enters the medium when it has something to say."

Is it built differently?

"Yes, it has a front and back door, so the medium can enter from this {the public} side, and leave from the other side to go to his dare."

Can I see this dare?

"No, No," they shook their heads firmly, "only those visiting with the spirit can go there."

My translator later told me that the place had been inhabited previously by another spiritual medium's family and these people probably just took over the land.

I liked the spirit story much better, I replied!



Spiritual Medium's homestead, Chikafa

I asked why there was new grass on one part of the roof; there was a gap in the thatch as if the people were still building. The man told me that someone had died in that hut, so they had put a gap in the thatch to let the dead man's spirit out.



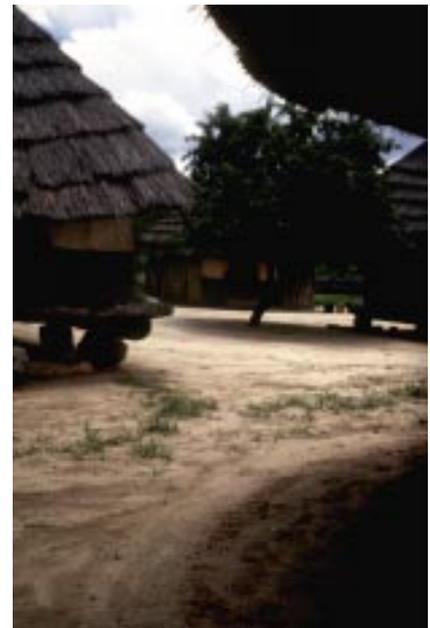
Shangani hut, Jekero

the huts are a primary element of the African home, it is the space AROUND the huts where living is done

When a homestead site is chosen, the first action is to clear the ground. Tradition is to have a witch doctor, sprinkle herbs around the edge of the site to protect it from bad spirits. According to old tradition, if there are markings on the ground the next day, a witch has come through and the site can not be used. Thus, the neater the earth is swept, the easier it is to catch a witch. Of course this method of ground treatment also allowed animal prints to be seen, and today is used to spot snakes, to help mothers keep an eye on small wandering children.

Whether the creatures of the night are mythical witches, dangerous beasts or modern thieves night time fears are universal. The tradition of sweeping the earth and sprinkling herbs is still used in the rural areas of Zimbabwe today. It is like the African version of an alarm system!

Thus the tradition of sweeping the earth serves a functional purpose, while the practice of sprinkling herbs on the ground remains out of tradition.



Nyanga homestead

"Somehow Hallie thrived...like one of those miraculous fruits that taps into an invisible vein of nature and bears radiant bushels of plums while the trees round it merely go on living."

Animal Dreams  
Barbara Kingsolver



Why are some elements lost through the process of modernization, while others remain long after their original function is forgotten?



thatch over metal disc roofing  
roadside dwelling, Masvingo-Chimanmani road

The southwestern area where the Shangani and Venda are the predominant cultures is considered "oppressively hot" according to climatic zoning. Outdoor platforms developed out of the need for a cool place to sleep on the hottest nights. These platforms are still used for sleeping, but have also become a traditional or stylistic element found in huts that are not used for sleeping.



platform  
Venda home, Dite



"When an architect forces on a material any form contrary to the nature of that material, the result is failure."

Frank Lloyd Wright

**MATERIALS**



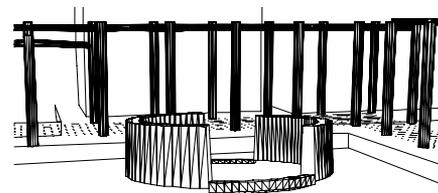
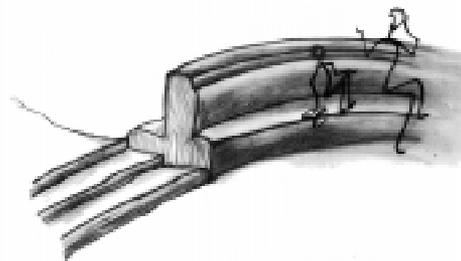
hand-made mud bricks, Mzolo



interior grainery, Chikafa



Venda washstand, Dite



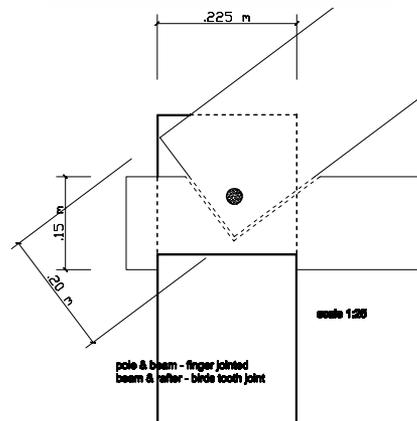
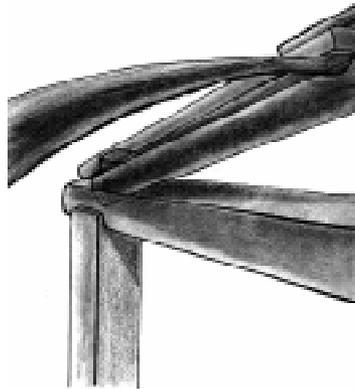
outdoor enclosed pit area - a central focus point



tree used as a dare, Chikafa



roof, Chikafa





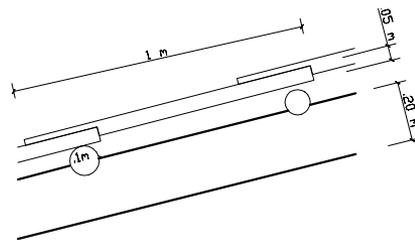
old and new thatch, Jekero



braiding thatch, Mzolo

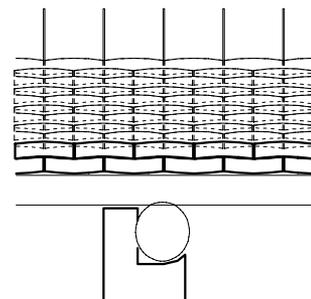


tying thatch, Machaya



scale 1:100

rafter & cross ties, bound together, pegged to floor

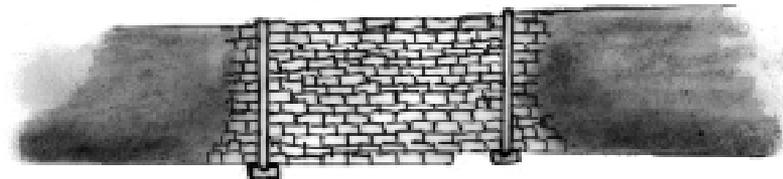


filling - front view; section; layering of elements

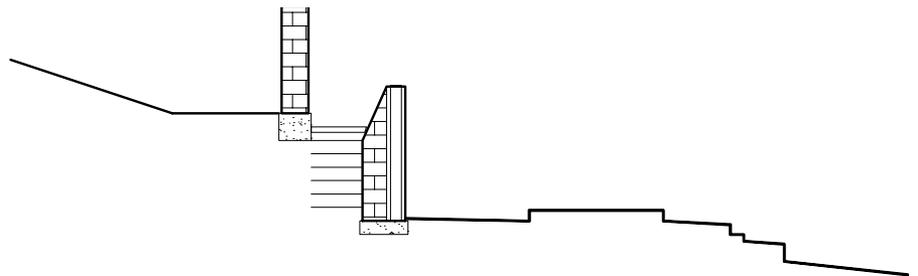


Ziwa Ruins, Nyanga

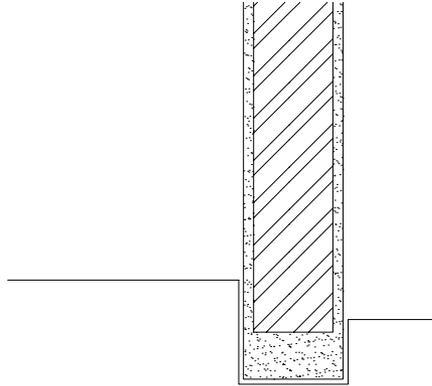
Stonework was laid according to how the broken pieces of limestone fit together. Originally, no mortar was used; wall strength came from thickness of wall, and progressive layering and overlapping of the stone.



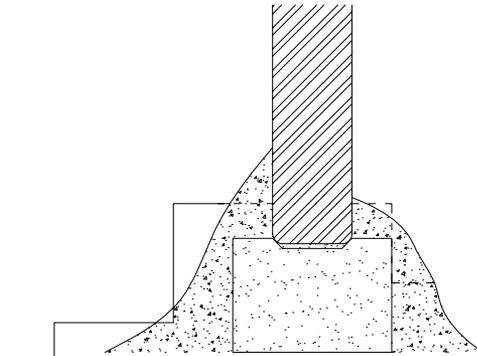
stone and mud wall, entry structure



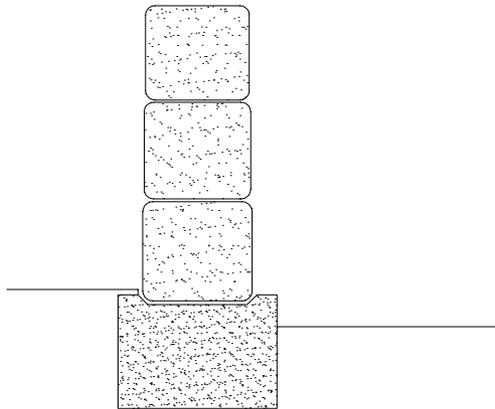
central space - level changes



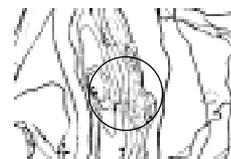
traditional building materials - wood pole & daggha (mixture of clay, water & ); mud brick; stick & reed; stone & mud mortar;



pole set onto dip in stone, set 50cm into ground;  
reinforced with small stones to filter rain away from wood into ground



stone wall - a bigger stone at bottom provides foundation support and protects rest of wall from erosion



TRADITION



thatching detail



roofing structure



Interior grainery - pole & daggha

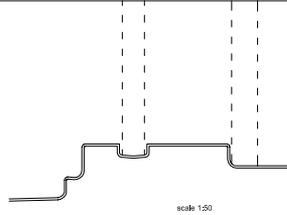


a platform of pole & thatch lifts the structure off the ground for protection from rains, termites and animals

GROUND TREATMENT

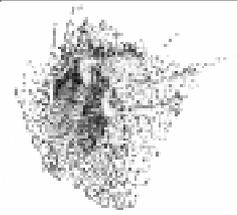


Clearing of Earth delegates homestead boundary; an entrance onto "private" space



scale 1:50

a stoep functions in three ways; it raises structure off ground it marks entrance into structure it provides outside sitting place in shade

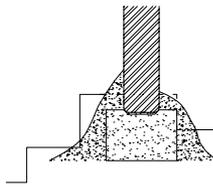


differentiation of the land - a pattern is created where ground is cleared that, in language of Zimbabwe, would be a ground floor plan

WALLS - FOUNDATION



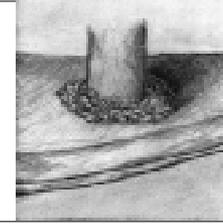
foundation



pole set onto dip in stone, 50cm into ground; reinforced with small stones to filter rain from wood into ground



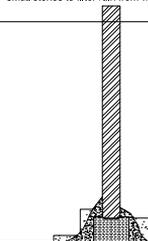
stone wall - a bigger stone at bottom provides foundational support & protects wall from erosion



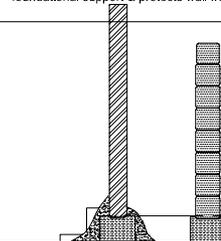
WALLS - MATERIALS



traditional building materials - examples



traditional building materials - wood pole & daggha (mixture of clay, water); mud brick; stick & reed; stone & mud mortar



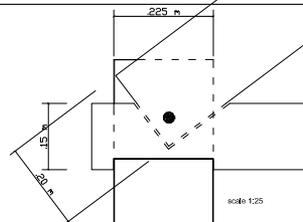
cut stone laid out according to best fit of pieces creating a horizontally oriented pattern



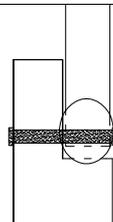
CONNECTIONS



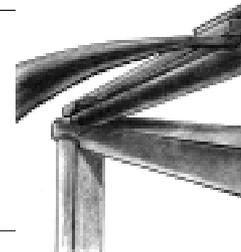
connections



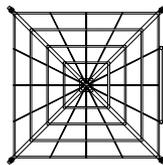
pole & beam - finger jointed beam & rafter - birds tooth joint



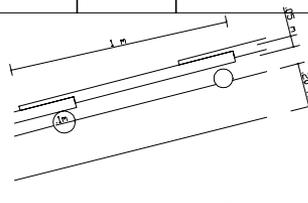
peg or nail holds 2 elements together



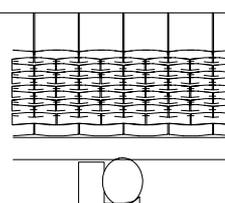
ROOFING



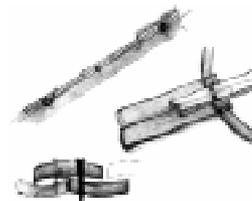
roof plan



rafter & cross ties, bound together, pegged to tiles

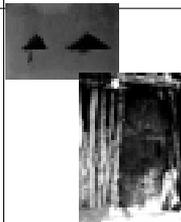


tiling - front view; section; layering of elements

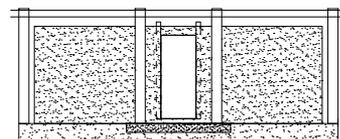


overhang - sketch

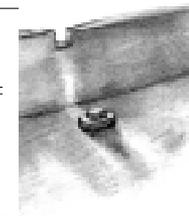
OPENINGS



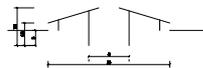
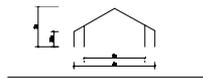
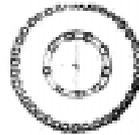
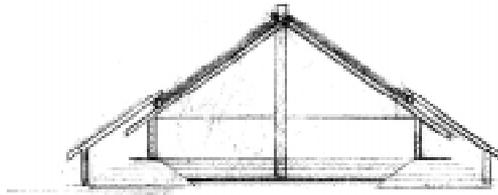
openings - a gap in the mud, a removal of a stone or an open doorway provides ventilation and light



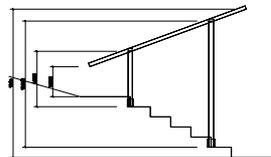
doorways - human scale openings



light entering through a gap - sketch



**Section through church (top)**  
 perspective drawing

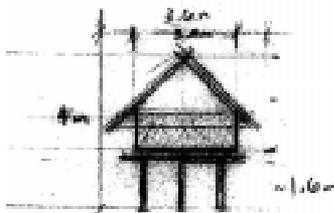
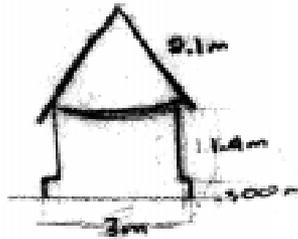


**Section through church (bottom)**  
 perspective drawing

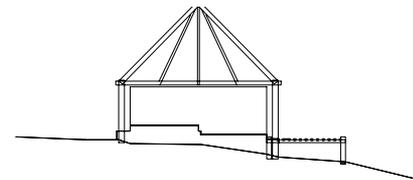
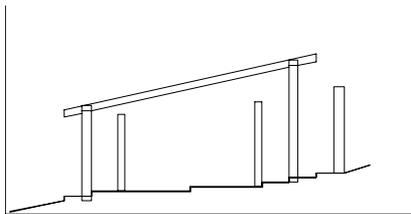
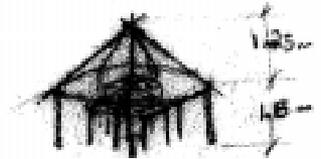
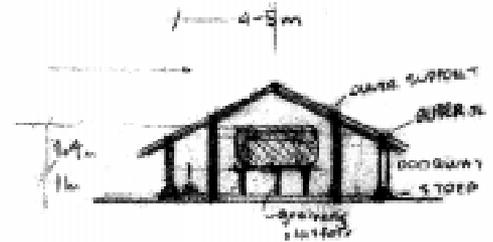
MR. MUSMEKI'S CHURCH: made out of traditional wood and mud, it was the largest structure that I saw

|           |  |
|-----------|--|
| materials | wood posts, mud brick infill, clay plaster, thatch, plinth |
| height    | 7.7 meters   |
| diameter  | 16 meters  |
| wall:roof | 1:2  |

## PROPORTION



UPSTAIRS HUT  
1.6m platform



### GENERAL:

proportion varies according to region, ground condition, climate and hut diameter

similarities exist within an area, the limitation of materials influences design & construction

|                   |                     |
|-------------------|---------------------|
| diameter          | 3-4.5 meters        |
| diameter : height | 2:1, 3:2, varied    |
|                   | 4:3 raised huts     |
| wall : roof       | 1:1.5 drier regions |
|                   | 1:2 wetter regions  |
| stoops            | .300-.500 meters    |
| doorway           | 1.8-2.0 meters      |

INTERIOR GRAINERY; varies according to region and available materials; Shangani was most intricate

|             |  |
|-------------|--|
| materials   | Mupane wood supports, river reeds for thatch |
| inner grain | Mbarrio purling - woven about .2-.300 m.     |
| height      | 2.75 meters                                  |
| diameter    | 2 meters                                     |
| wall:roof   | 1.5:1.25                                     |



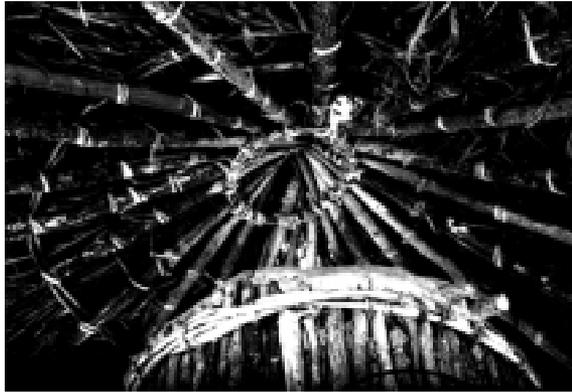
path leading to a dare, Chicafa



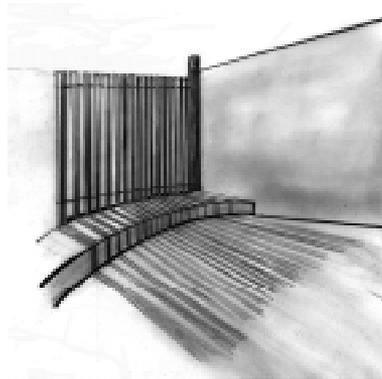
entrance to a homestead, Mzolo



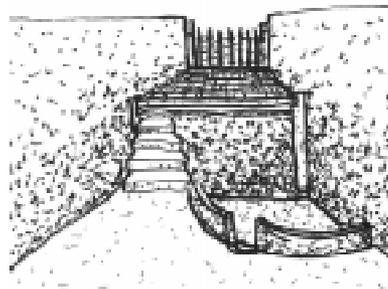
Mbare, township streets



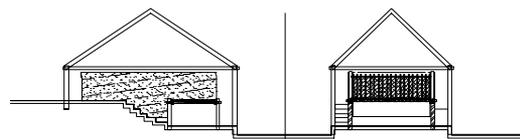
roofing pattern, Chisuko



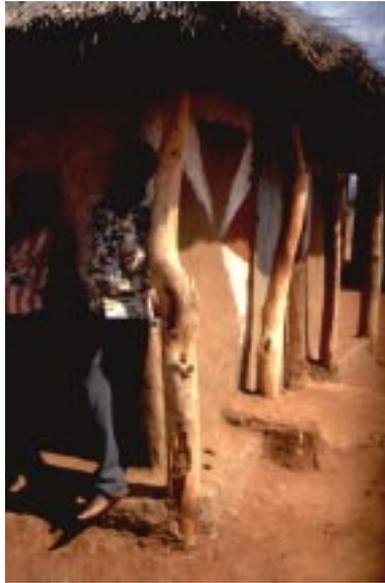
light through bamboo wall, Creative Space



reading/play area, Creative Space



rectangular platform hut - platform construction  
side elevation; back elevation



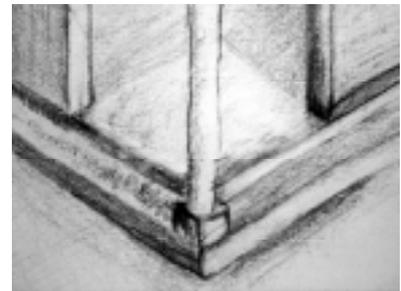
roof overhang, Mzolo



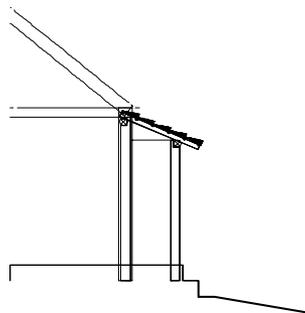
resting stoep, Binga



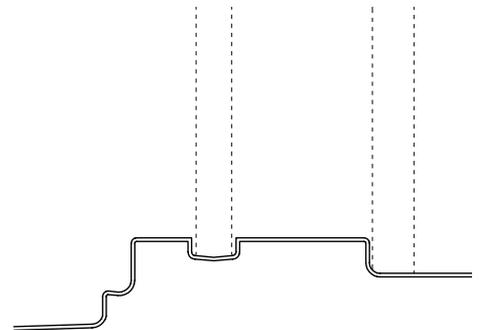
sketch, Machaya



stoep sketch, exhibit area



circular structure - roof extension detail

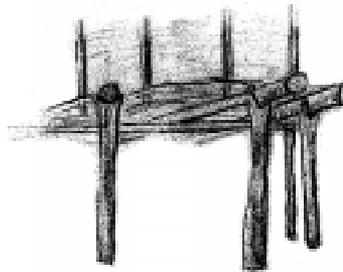


a stoep functions in three ways:  
 It raises the structure off the ground (preventing rain decay)  
 It marks entrance into a structure  
 It provides a sitting place in the shade outside of the hut

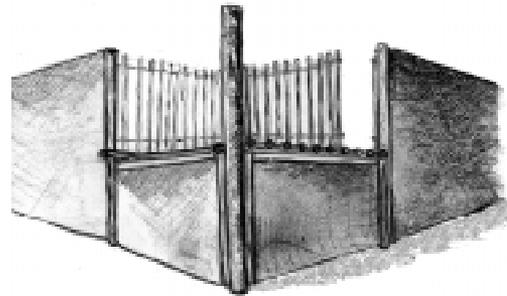
gathering/  
 resting/  
 places



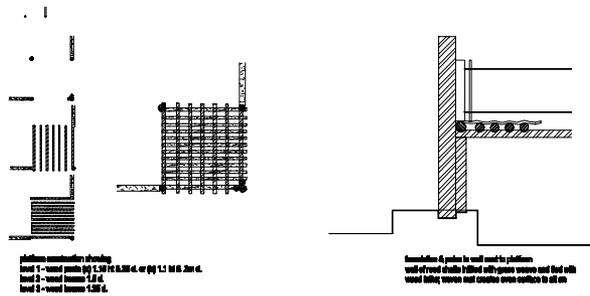
Interior weave, Chicafa



platform construction, sketch



platform, Creative Space

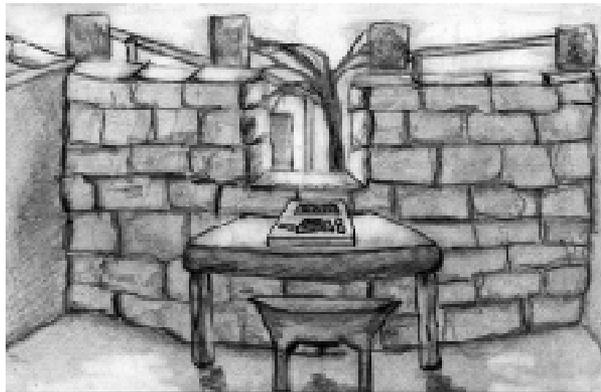




a memory is left, an experience is taken away



Man explaining his building method.  
Roadside dwelling, Masvingo-Chimanimani road.



The telling of stories through language and vocal intonation can not be replaced by the written word. The preservation of history and culture can be made permanent through modern recording devices, without losing a sense of tradition.

as an outsider, reach for the culture subtly, as an architect touch the site softly

stepping onto a homestead can be a subtle movement from grass to cleared ground  
entering a structure should be as fluid a movement as entering a homestead  
not an abrupt crossing of a line  
but a barely discernible passage from one part of the earth to the next

SITE

Why Africa? It is difficult to explain the beauty and power of Africa. There is something so special about the rural areas of that continent that keeps drawing people back. There is an intensity about the land, whether it is the contrast between the low green veld and the expansive blue sky; the coolness of the damp red earth and the heat of a constant, yellow sun; or the stench of rotting mealie husks in the township of Mbare and the clean fresh scent of the earth after the rains. There is an untouched beauty about places where human existence and structures seem to emerge from the earth and then blend back into it. The huts dot the landscape like thick, short trees scattered naturally by human development.

Why the site? What makes the existing site so striking is the abundance of flowers and shrubs that literally attack you as you make your way from the road to the historic pit structures; the view from the mountain top that allows you to see all the way to Mozambique on a clear day; and the sense of history and timelessness that surrounds the 10th Century pit structures.





adaptation to ground - Lake Mutirikwe

The struggle between man and nature is reflected in the tension between structure and site. While life in the bush is always a struggle, there appears to be a mutual agreement that develops; structures are never taken from the earth, merely borrowed as needed, and returned for use by the next generation.



adaptation to ground - Road to Chimanimani



ground treatment - Mbare Township

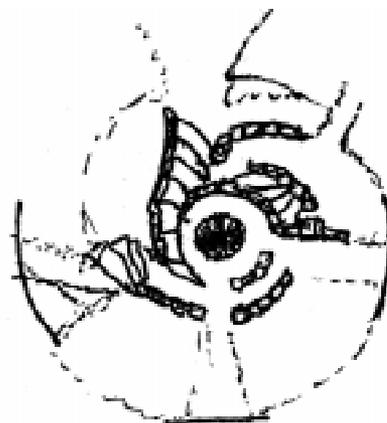
Why do some people take such care with their environment, while others leave it to be trashed?  
If it is not a matter of economics, perhaps it is culture, or just personality.



ground treatment - Venda, Dite Area



A hut is a purely functional structure.  
It is the space around the hut that allows freedom of movement and social interaction.



In Africa, a border is not necessarily created with a structural line.  
A boundary can be indicated by a subtle differentiation in the treatment of the ground.

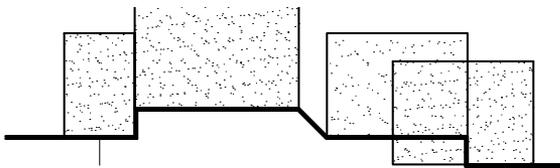
architecture is not forced; it forms from the natural rises and falls of the landscape



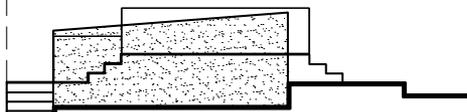
----- SITE



----- PLACEMENT



----- BUILDING LEVELS





old to new, Venda, Dite Area

Most builders spend a lot of time and money moving and replacing earth, adding or depleting vegetation, forcing a structure onto a place.

Is this really necessary?

The structures should just occur to the site, just as the right stroke appears on the painter's canvas; merely as a fluid conclusion to the arm's movement.



sometimes it is hard to explain WHY we choose a place  
perhaps we see a piece of ourselves in a tree  
or hear our soul calling in the soft tones of the breeze



in architecture, we study form and structure, planes and the spaces in between  
but what about the art of making?  
a building eventually goes back to the earth from which it came  
it is knowledge and an understanding of the process that remains

APPLICATION





My biggest questions regarding my research and my project were :

How does one recognize culture in the way people build and tap into it to create "culturally appropriate" architecture?

I wanted my work to remain true to "pure" Zimbabwean culture, but questioned whether there can be pure culture or design. Africans have always been a hybrid of migrating tribes. There is no "Zimbabwean" tribe, but numerous cultural groups, speaking many dialects. So, how could I expect myself to create a pure "Zimbabwean Design"?

How could I incorporate the best elements of the old and the new?

The best I could do is take the essential elements of a culture (instead of the stereotypical symbols) and use them as a method of discovery in developing a project. I chose to use the LANGUAGE of Zimbabwe architecture: use of available materials; the methods of joining and building; spatial patterns of the homestead; patterns of development and growth; and relationships between family and community.

Can we separate who we are from the way we design and build?

Our design is influenced by the sights sounds and smells that surround us, our education, and our personal tastes.

How can a designer influence the architecture of a place without destroying the culture?

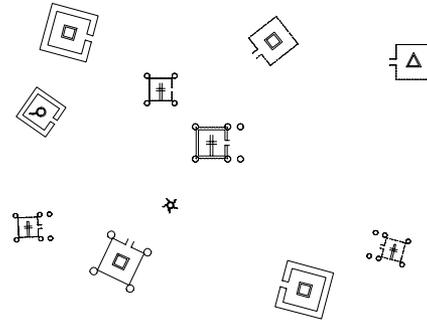
I chose to use elements that were evident in a range of homesteads, from the very traditional to the more modern: entrance; proportion; sheltered outdoor living; room for expansion; adaptability to land; consideration for the site; preservation of family and permanence of culture.

I wanted to leave the site intact, to appreciate its natural beauty. I struggled to find a middle of the road approach. To build without compromising the site, become involved without losing myself and use tradition without cheapening it.

All the cultural groups influenced my project on some level. I based the plan of my cultural center on typical Tonga villages.

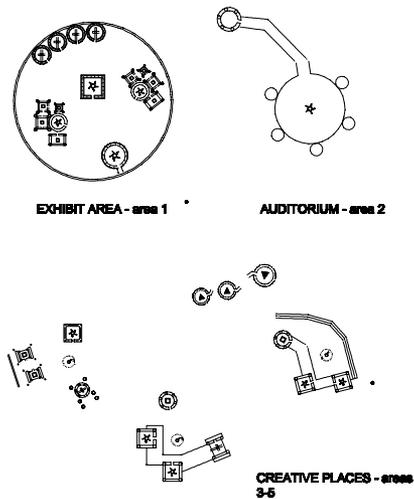
important elements of a Tonga homestead:  
grouping of huts for one family unit (wife and children)  
organization of huts according to relationship to head man  
uses of the central space  
defined foci of dare (meeting place)  
line of site from center to all areas of homestead

mini units interacting inside a larger unit



**TONGA - VILLAGE 3**

a growing "homestead" centered around a meeting place, consisting of adaptable, naturally occurring mini groups (each with their own function)



Troutbeck is a small town located among the tall peaks of the Nyanga mountains. The area is popular as a cool & beautiful retreat from the African heat. There is frequent rainfall, bracing winds and hot midday sunshine. The site is located on a hilltop with elevation ranging from 2060m at the entrance to 1860m at the perimeter. On a clear day, the view from the peak looks all the way to the Mozambique mountains. Obviously this place was an advantageous site for the early 16th century Shona people.

I chose the site not only for its beauty, but also for the ancient pit structures scattered around the hilltops. These pits were 16th century kraals (animal pits), dug into the ground about 2 meters, and reinforced with stone in a manner similar to the construction of the Great Zimbabwe.

Located near water that was dammed and streamed over the hill, surrounded by forests that provided building and cooking materials, and set in a clearing that provided a natural look out point in all directions. It was, and still is, an ideal place for a protected kraal.

The terrain is hilly, sloping steeply in the main site area yet also flattening out into tables; A variety of indigenous plants such as widdringtonia, cycad and tree fern grow tall and wild; The colors of yellow hypericum, red hot poker and white cosmos come alive in the hot sunshine. Local trees good for building are wattle trees inside the pits, are masasa (hard), mutiti, and gum trees. There are Wattle trees around the pit areas grown large from the natural fertilizers on the pit floor. Perhaps these were originally meeting trees (Dare's). Stone typical to the area is dalamite, a grey stone that turns reddish as it decomposes, and granite which can be split easily. Using indigenous, locally found materials is not only cost effective, it is also appropriate for a project based on the traditional.

Occasionally a fog rolls in and covers the site with a blanket of mysticism. Whether it is the presence of ancestral roots or a sense of history related to the ancient pits, when you are on site there is a strong connection to the past.

#### CREATIVE SPACES

Comfortable places to learn and create. Similar to a traditional village; spaces can expand and the number of structures can multiply or decrease as artists and teachers move in and out of the community. The idea is to have an amorphous community that is a mixture of new and old.

Temporary structures that could be built individually, then passed on while still useful, or reused as material for new structures. More permanent structures that can be adapted to a variety of activities.

#### EXHIBITION SPACES

Crafts should be regarded as something more than tourist trinkets. If displayed with care, a piece can become an art object that tells about past cultures.

#### MARKERS

From the road, a single curve marking the highest point on the hill top, is the only indication that landscape is giving way to a cleared area. Once within the boundaries of the site, a small cylindrical posts is a clear marker for the next area.

#### AUDITORIUM

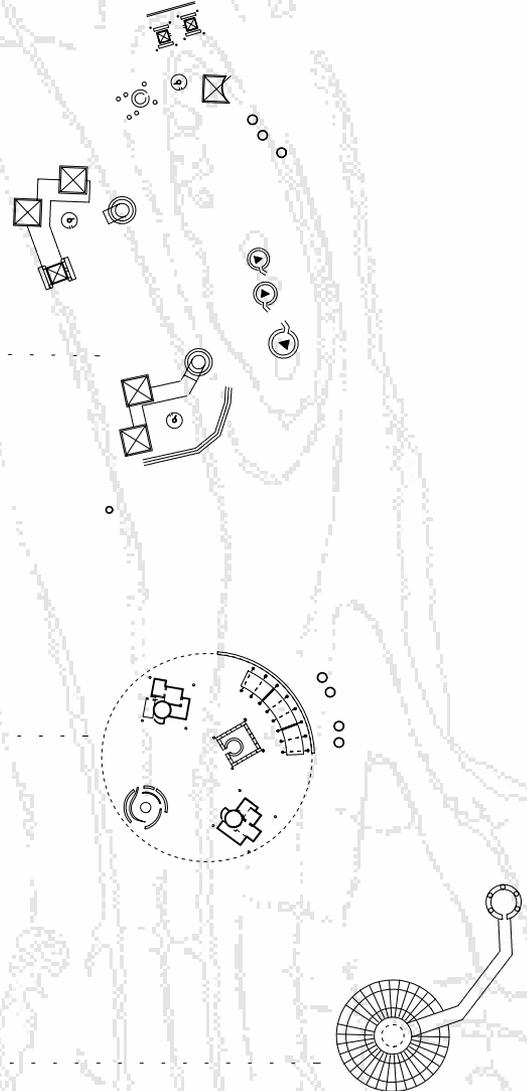
Stories can be told through movement and expression. Songs and dances are not only entertainment, but also tell the history of a people and explain relationships between tribes and families. A mere clap of the hands can welcome a stranger or thank someone for their hospitality.

#### BENCHES & VIEWS

Stone half moon benches could provide solace to contemplate the landscape. Groups of rough wood stump stools along a long path provide a resting place or a flexible arrangement for casual conversation.

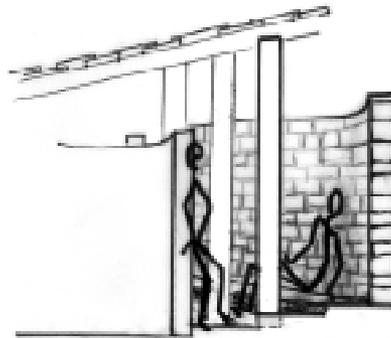
#### TOILETS

Toilets, simple mud & stone outhouses, are set into a sharp rise. Seen only as a round shape in the hill, they are connected to the site by a path.



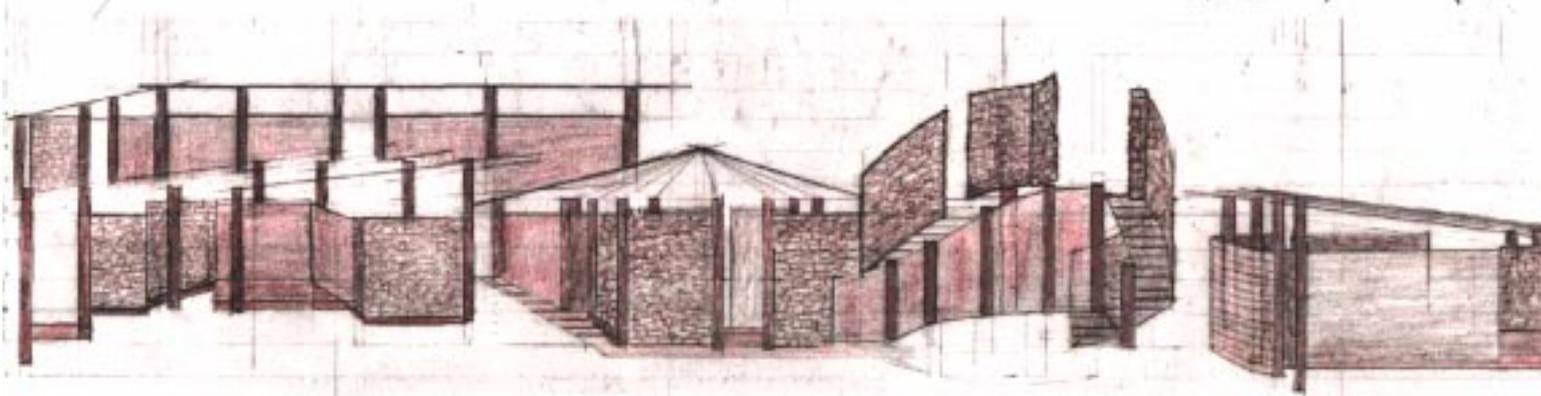
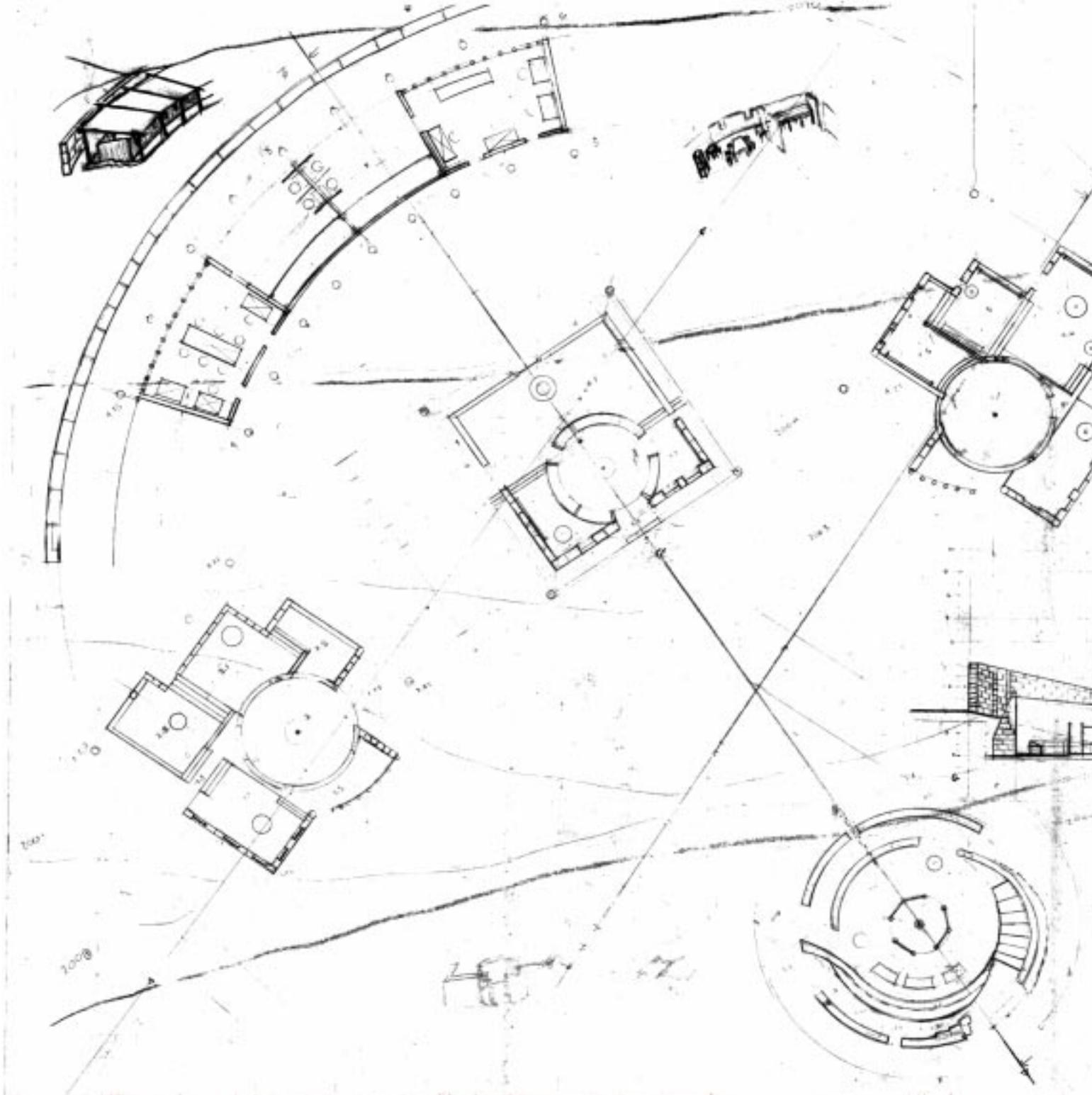


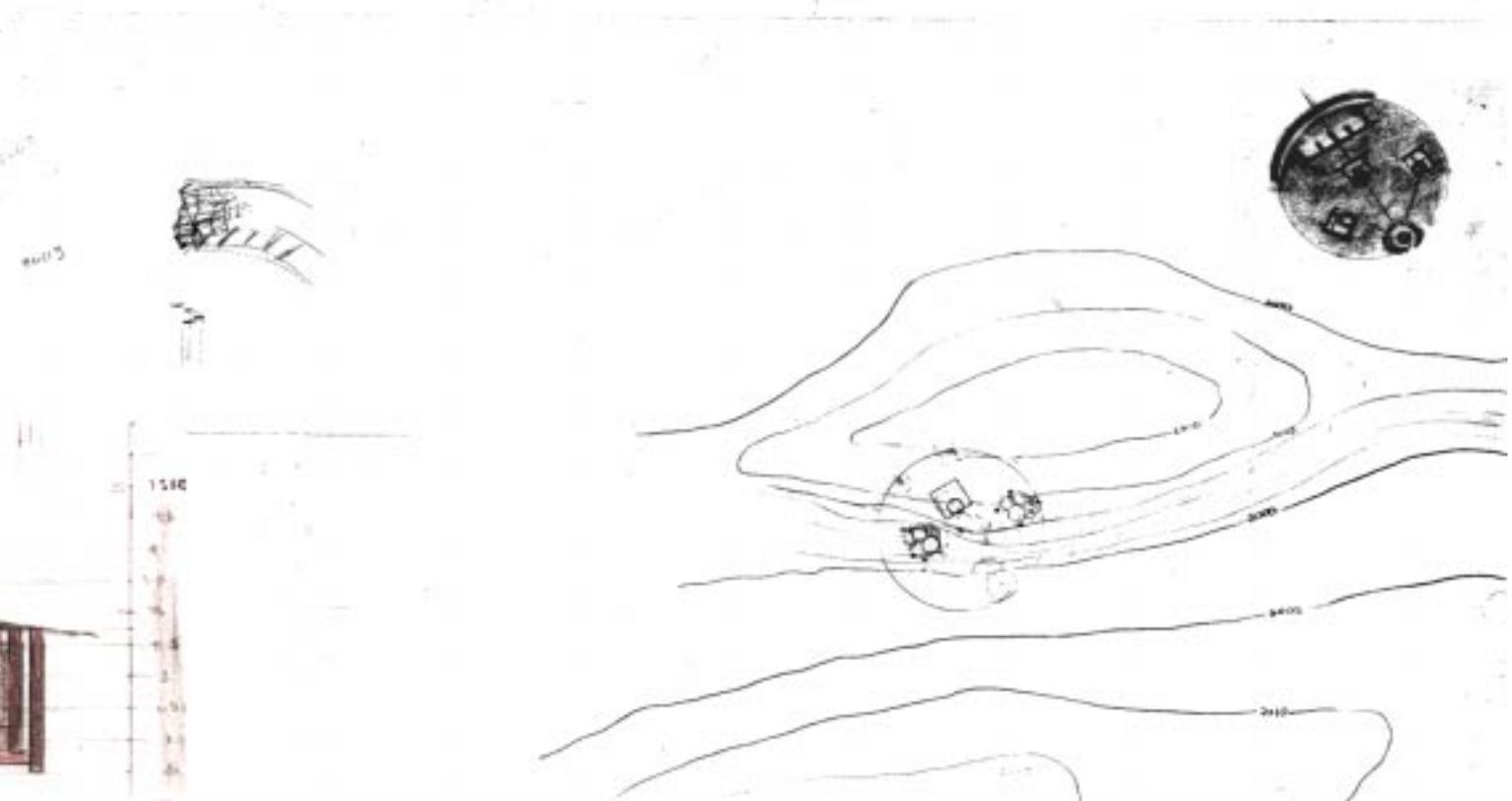
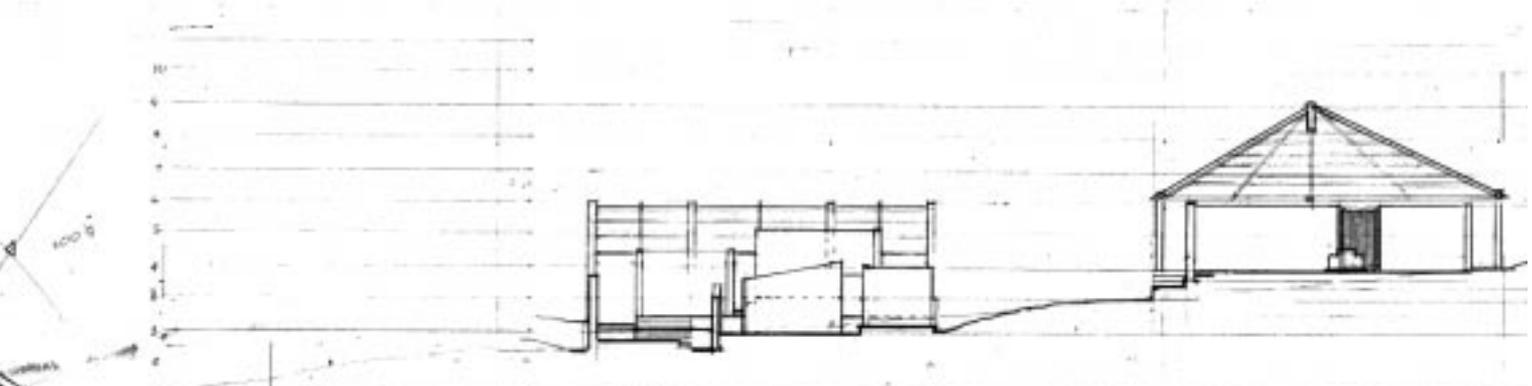
a place to look, learn, share knowledge and create a link between history and today

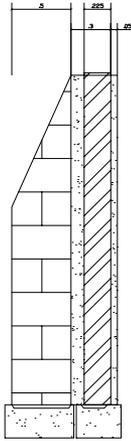


What became important was not to create a permanent dwelling but a permanence of spirit, so that whoever returned to this place would know that something special had occurred there.

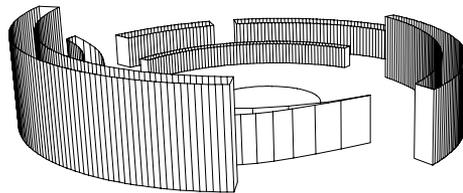
## EXHIBIT SPACES



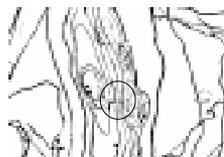


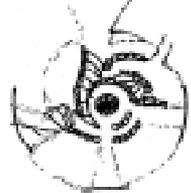
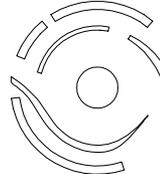
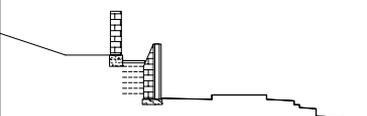
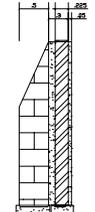
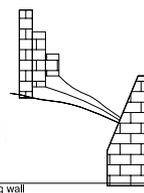
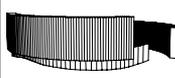
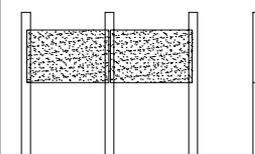
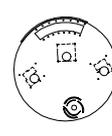


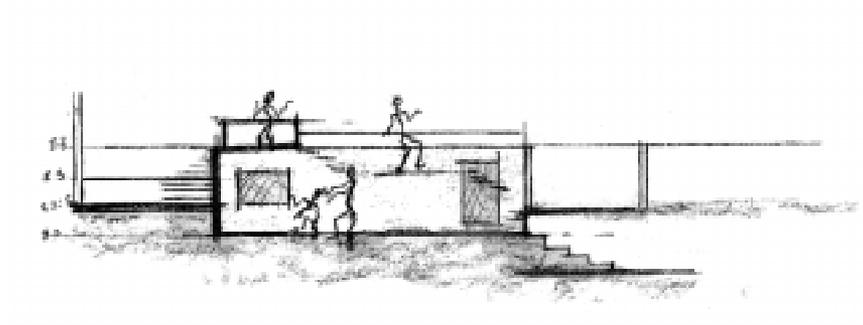
cross section - wall materials and thicknesses  
outer 50 cm stone wall, acting as retaining wall, backed by 30  
cm. mud wall reinforced with 22.5 cm. pole, every 2.5 m.



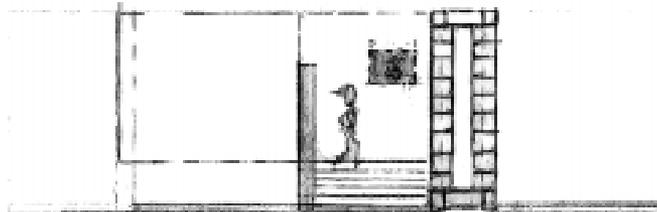
view from above



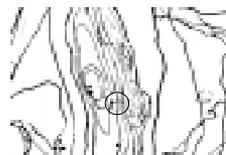
|  |   |  |   |   |
|--|---|--|---|---|
| <p>TRADITION</p>   | <p>a very small unit</p>  <p>ONDAMBO CI<br/>various types of animal tracks</p>  |  <p>Great Zimbabwe - entry walls</p>   |  <p>Great Zimbabwe - Great Enclosure - plan</p>                     |  <p>Great Zimbabwe - stone work</p>   |
| <p>DIAGRAM</p>   |    | <p>In art we are told there is no such thing as a solid line, only gradations of greys; In architecture we represent three dimensionality with line, hierarchy with line weight, and distance with line type; In Africa a boundary is not created by a structural line, but with a subtle differentiation in the treatment of the ground</p> |   | <p>enclosed in a circle of stone, one feels protected<br/>open to an expanse of sky, one retains a connection to nature</p>                                     |
| <p>CENTRAL AREA</p>  | <p>sketch</p>    |  |   | <p>Amorphous - state of matter in which it is without regular or definite shape</p>   |
| <p>WALLS/LEVELS</p>  |   |    |    |   |
| <p>ENTRANCE</p>  |    | <p>cross section - wall materials and thicknesses<br/>outer 50 cm stone wall, acting as retaining wall, backed by 30 cm mud wall reinforced with 22.5 cm pole, every 2.5 m.</p>  | <p>wood post with mud brick infill; reinforced with crushed stone<br/>clay plaster finishes the outer wall, inner wall remains unfinished brick</p> | <p>retaining wall</p>   |
| <p>DISPLAY</p>   |    | <p>the site is not clearly defined<br/>entrance is a subtle differentiation between natural earth and a structure emerging from a cleared area</p>   |    | <p>a marker indicates entry onto the site</p>   |
|  |  <p>central space - information board<br/>wood posts with wedge cut in,<br/>wood or cork board to slide into wedges from above</p> |  <p>view from above</p>   |  <p>view from below</p>  |  <p>Inner walls protect the inside,<br/>outer walls discourage an enemy</p> |

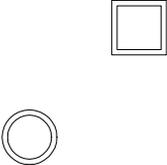
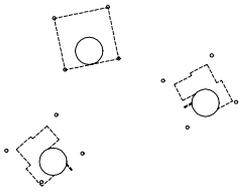
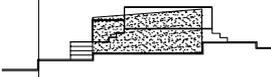
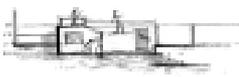
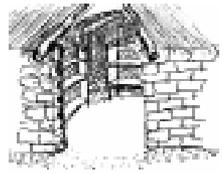
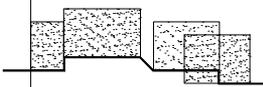
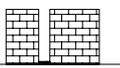
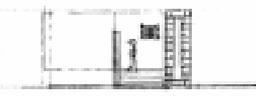
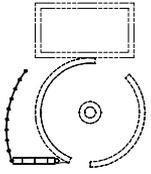
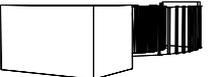
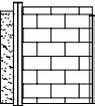
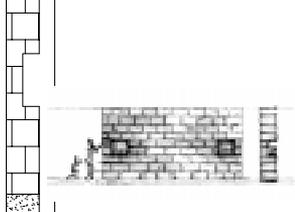
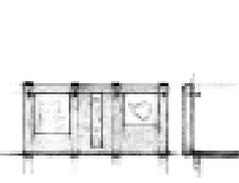
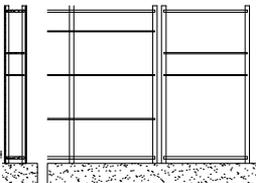
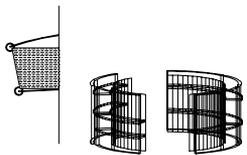
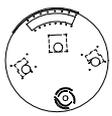
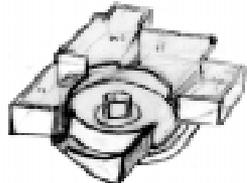


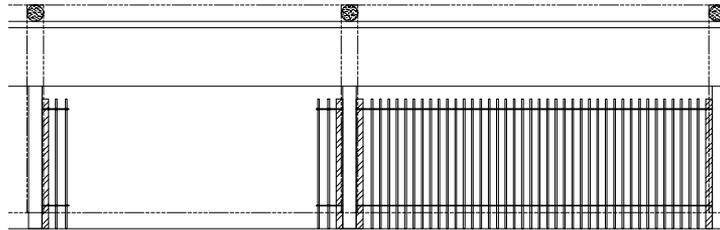
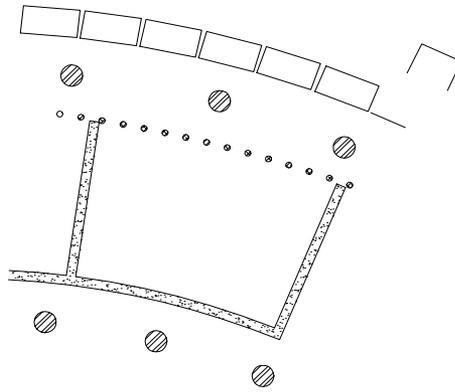
varying level of the floor and inner wall heights  
creates a path around the exhibit, orientation back  
to central space is provided by view over low walls



varying levels of display areas provides  
a visual and physical hierarchy



|  |   |  |  |   |
|--|---|--|--|---|
| <p>TRADITION</p>   |     |      |   |      |
| <p>DIAGRAM</p>   |    |     |   |    |
| <p>CENTRAL AREAS/PLATFORMS</p>   |    |     |    |    |
| <p>WALLS/LEVELS</p>  |   |    |   |   |
| <p>ENTRANCE</p>  |  |   | <p>The strength of the african hut lies in its combination of materials, the resistance and endurance of stone, the stability of wood poles and the mass of clay brick will form a structure that is both a product of and compliment to its environment. Thus, part of the building (the stone) will remain through the centuries, while the rest returns to the earth from which it was built.</p>  |  |
| <p>DISPLAY</p>   |  |   |    |  |
|  |  |  |  |   |
|  | <p>main exhibit spaces<br/>central &amp; connection spaces</p>                      | <p>typical exhibition space - N, S, E, W elevations</p>                              |  | <p>EXHIBITION SPACES<br/>DISPLAY AREAS</p>  |



entrance - a break in the bamboo wall



TRADITION



cleared earth signifies entry into a homestead



roof overhang - shaded space beneath - Ndebele

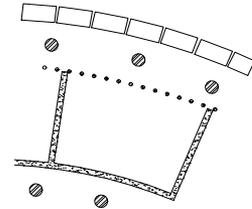
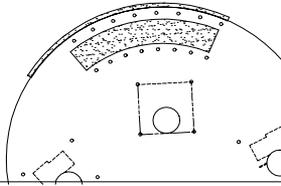


oral tradition - stories of yore are passed down from one's elders

DIAGRAM

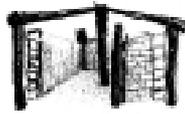


relationship to site

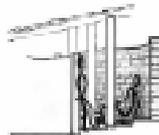


stone wall completes site; wooden posts mark boundary; walls enclose and divide interior spaces

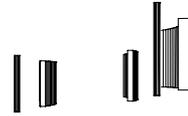
CENTRAL AREAS/PLATFORMS



elevated location and use of stone and mud plaster keep office and storage spaces dry and cool

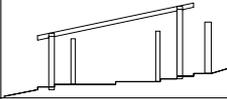


overhang - interstitial space between wall and building

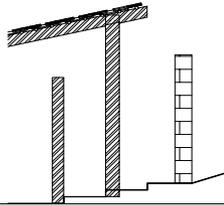


an interactive place can be made between outer walls

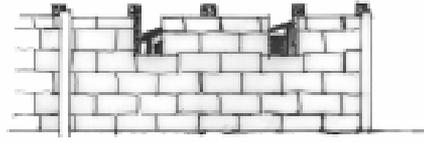
WALLS/LEVELS



section/proportion



overhang - strength of materials in walls and columns create structural tension in building

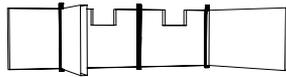


openings in the walls provide visual connection to exhibits

ENTRANCE



entrance - a break in the bamboo wall



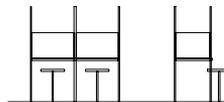
office spaces - a place for research & exchange of ideas



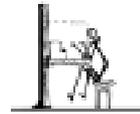
office spaces, requires gathering around a large work table is conducive to interaction

DISPLAY

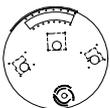
the history of Zimbabwe is both remembered and learned through the oral tradition; memories exchanged on nights in the bush, gathered closely around an open fire



recording station - a place where stories are told



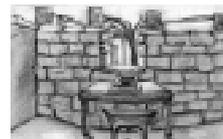
places for storytelling and listening



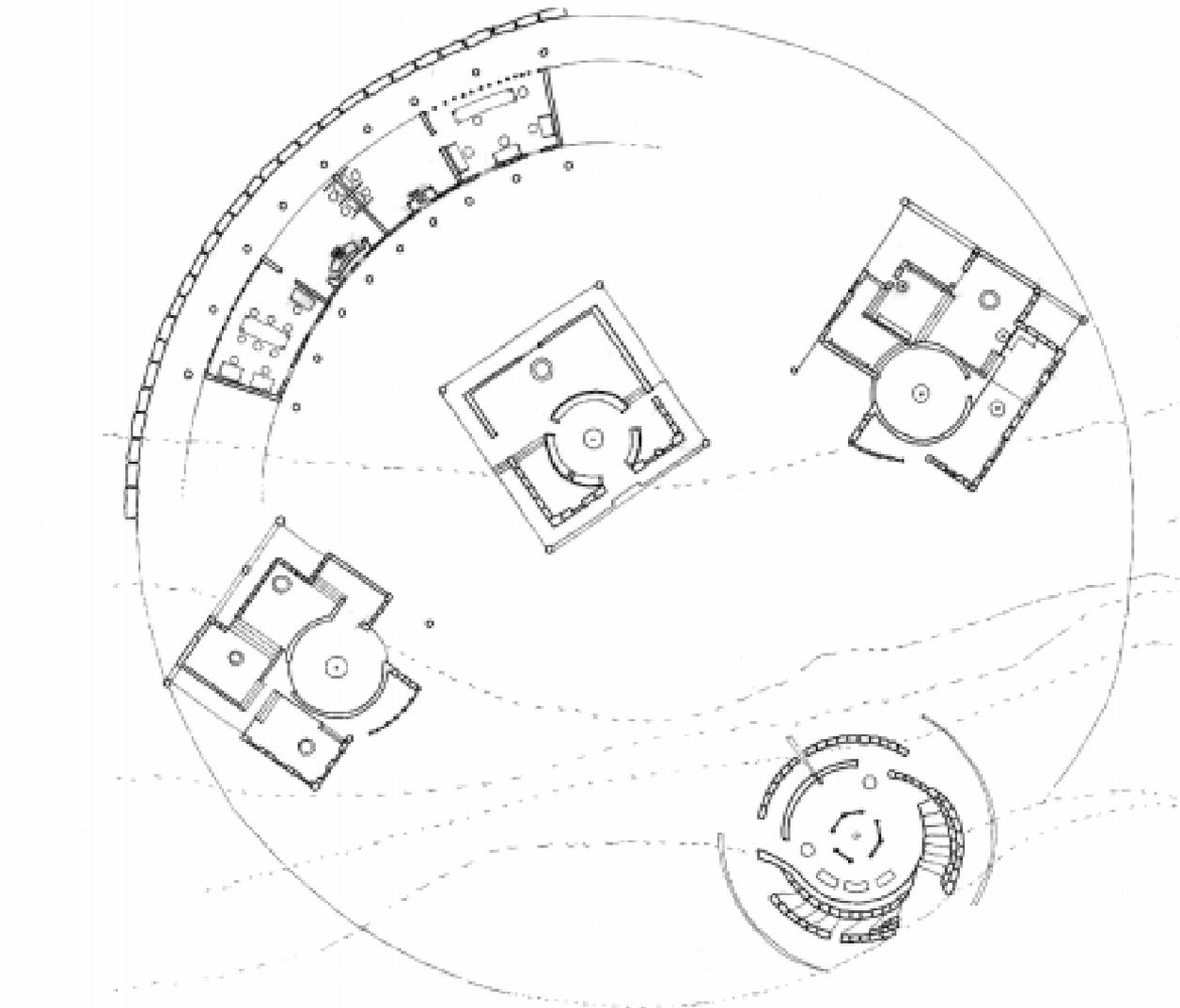
curves - arc & wall



telling of stories through oral tradition

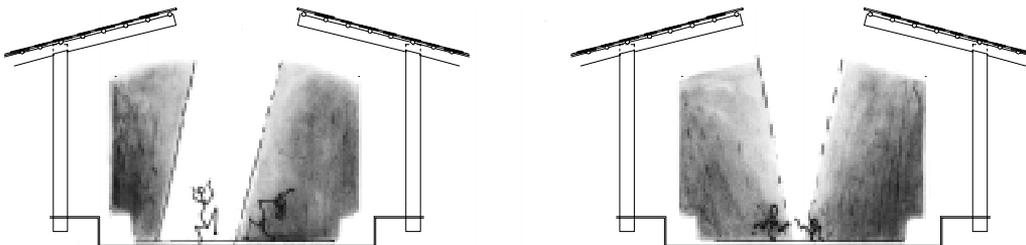








a place where the spirit possesses you

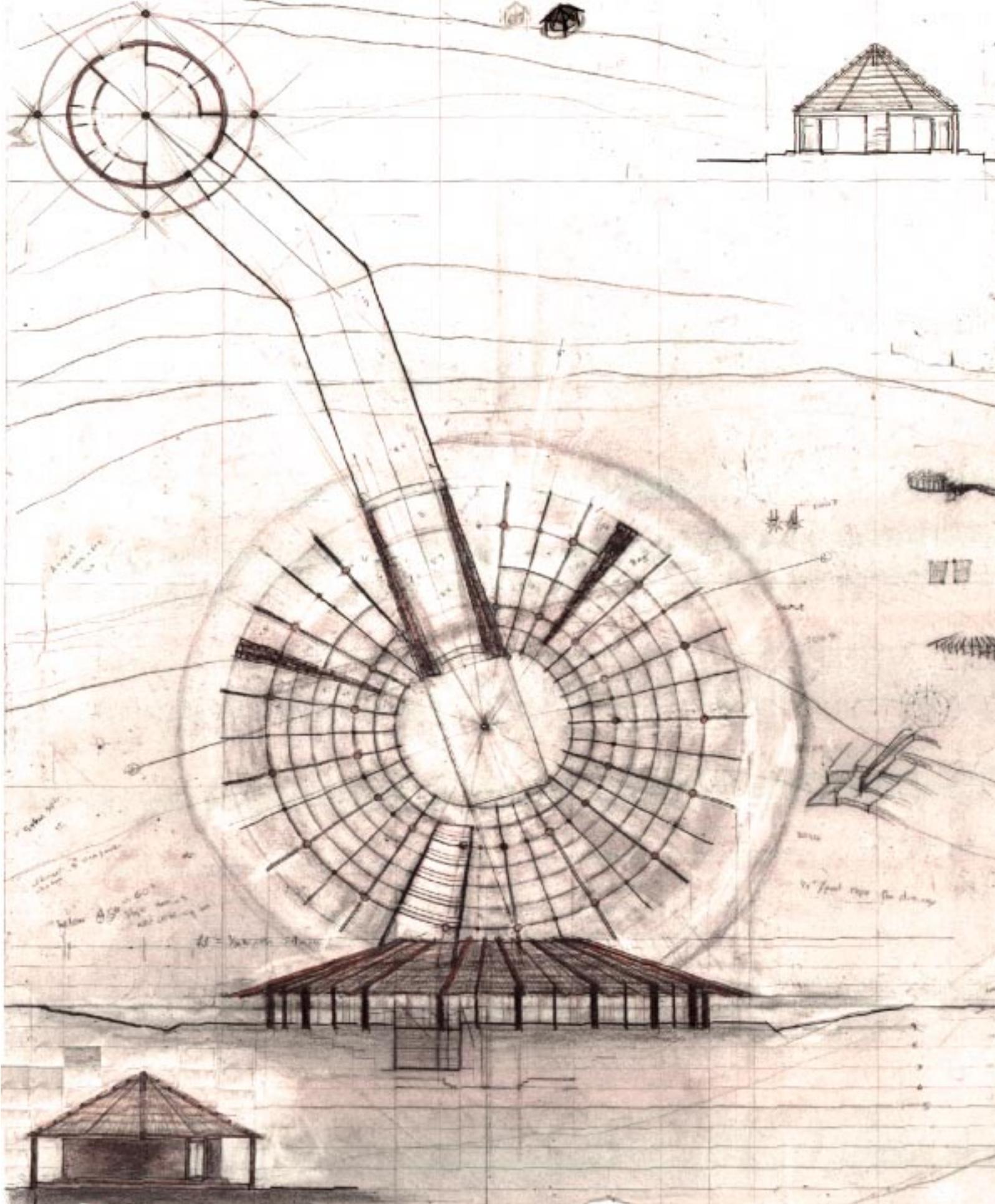


dancers emerge from the shaded area below, inside they are washed in a flood of sunlight from the opening above

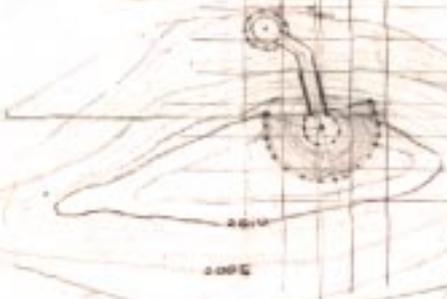
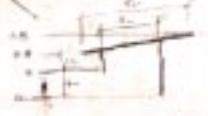
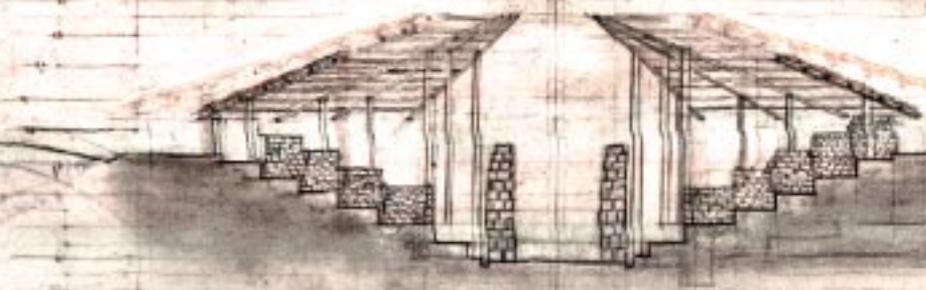
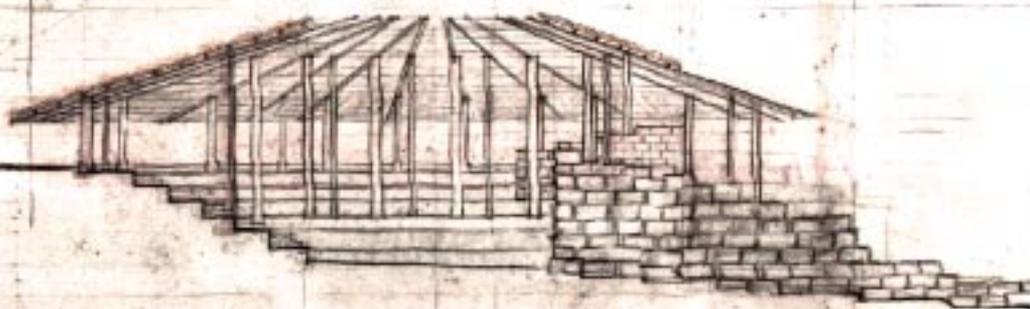
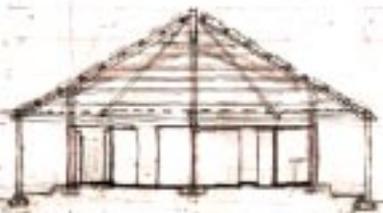


gathering place, Chikafa

# AUDITORIUM



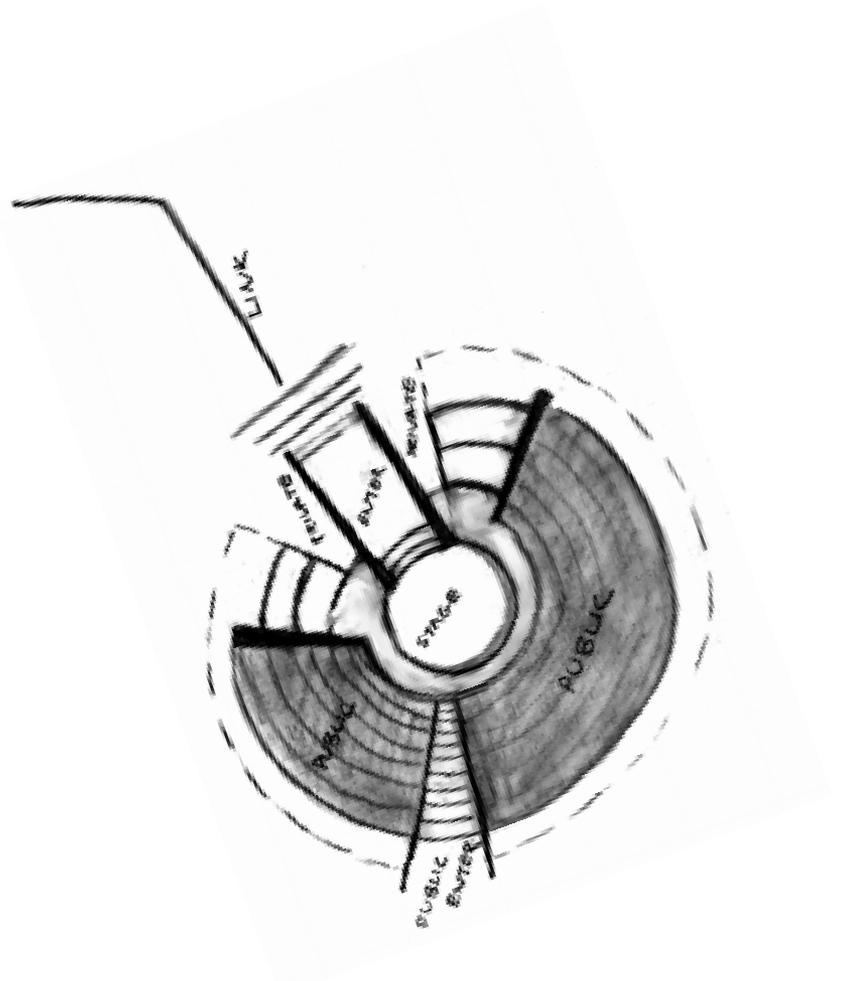
July 1922  
10' 10' 10'  
8' 10' 10'



500'



pt & hat



TRADITION



Zwi ruins - platforms create a hierarchy of spaces  
stonework follows pattern distinctive of 17th c.  
inhabitants

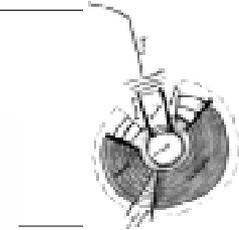
large circular church - Shangani

Site - existing pits - exterior

Site - existing pits - interior looking into tunnel

DIAGRAM

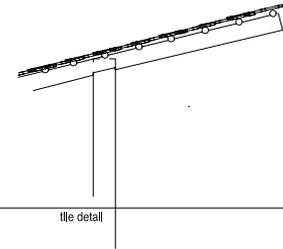
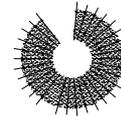
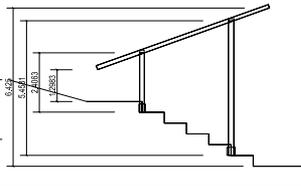
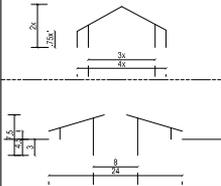
LETS JUST MAKE SOMETHING MOTHER NATURE  
WANTS TO HOLD IN HER HANDS



a hill is a natural vantage point;  
removing part of the hill creates a protected, enclosed pit

pit & hat

CENTRAL AREAS/PLATFORMS



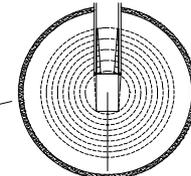
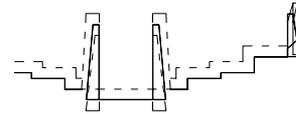
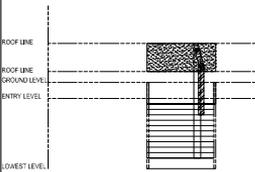
proportion:  
traditional Shangani church (top)  
project auditorium (bottom)

roof line

an array of wood posts  
break in the center to reveal the sky

tile detail

WALLS/LEVELS

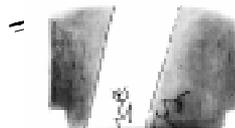
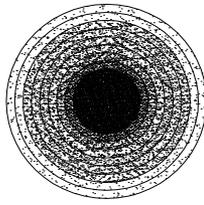


public entrance to auditorium

retaining wall

drainage

ENTRANCE

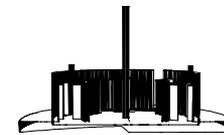
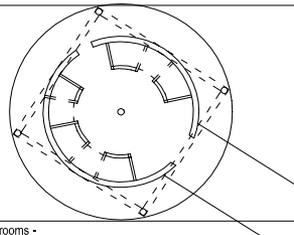
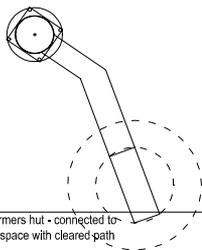


central space - a focus and a connection to all levels

THIS IS WHERE THE SPIRIT POSSESSES  
YOU

in center they are washed in a flood of sunlight

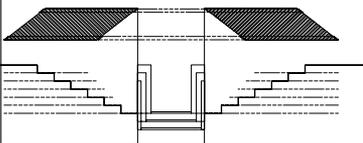
DISPLAY



performers hut - connected to  
main space with cleared path

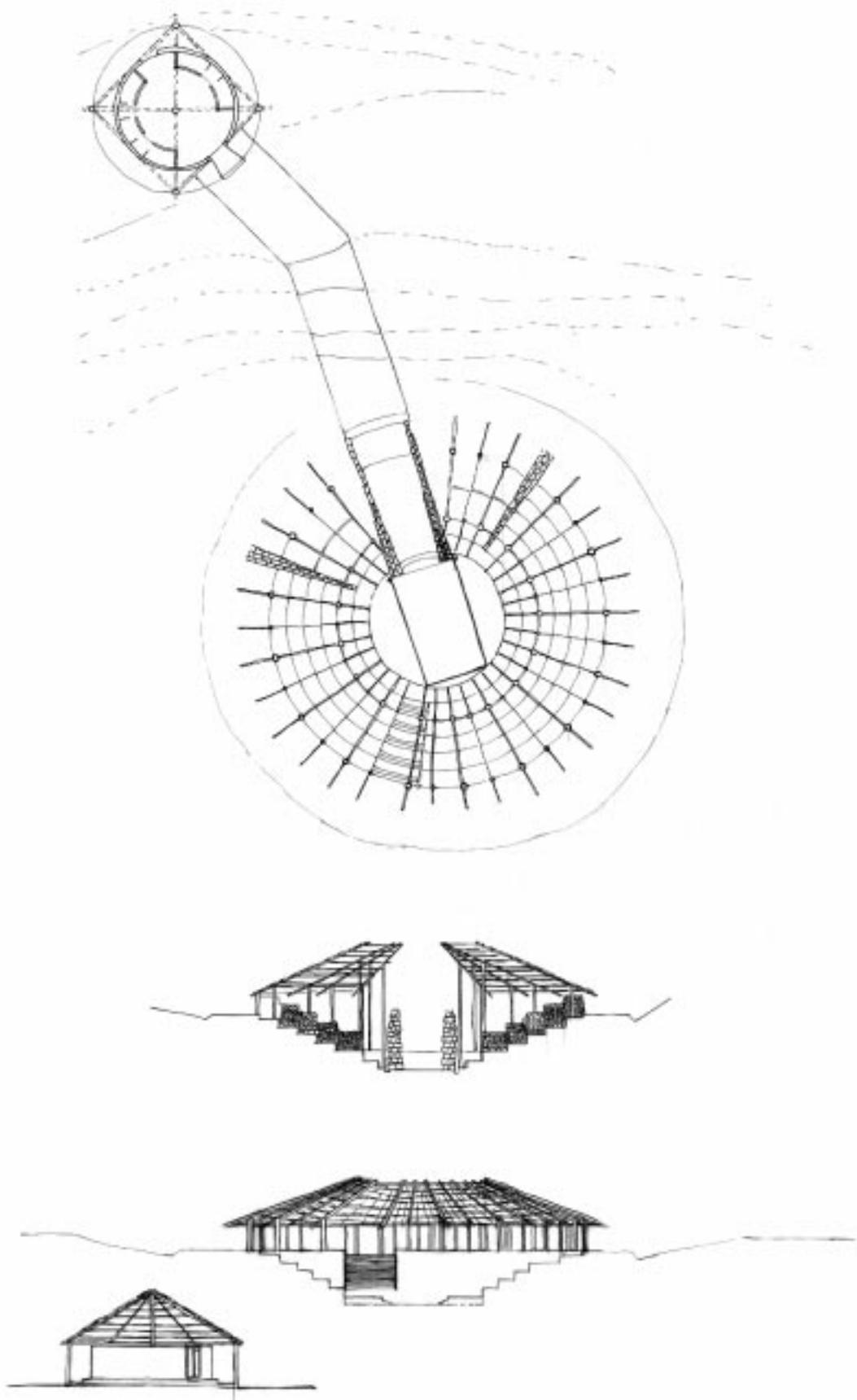
changing rooms -  
separated by 1.75 m, high mud walls

small hut - interior perspective



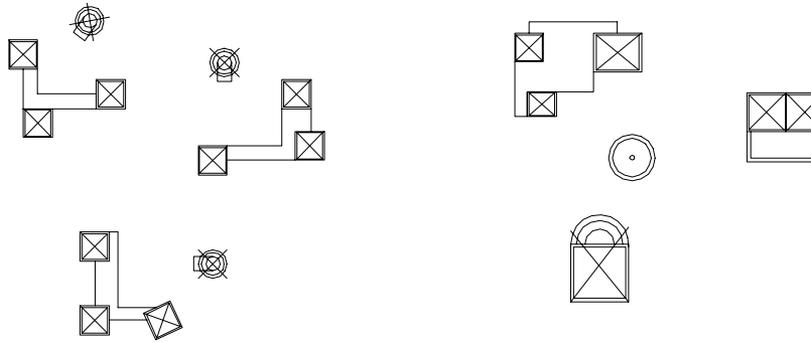
performers entrance



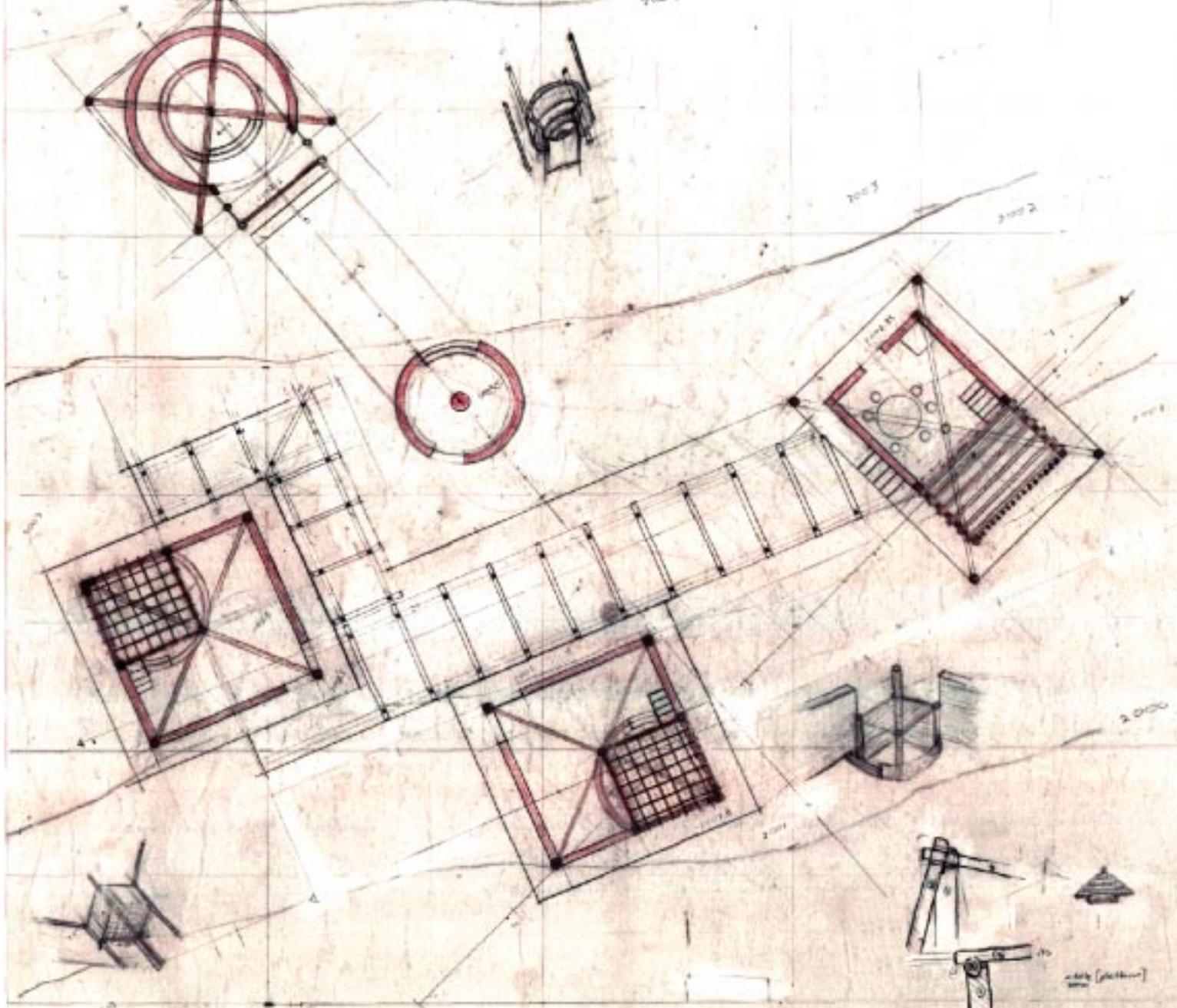




if one starts with a basic premise  
allowing it to instinctively develop according to the parameters of the situation  
allowing the idea to flow from the context into a cohesive whole  
the idea will not feel forced  
forcing ideas confuses a concept  
rigidly holding to a rule deminishes the power of one's instinctive reasoning  
a good idea will remain strong even with modification



## CREATIVE SPACES

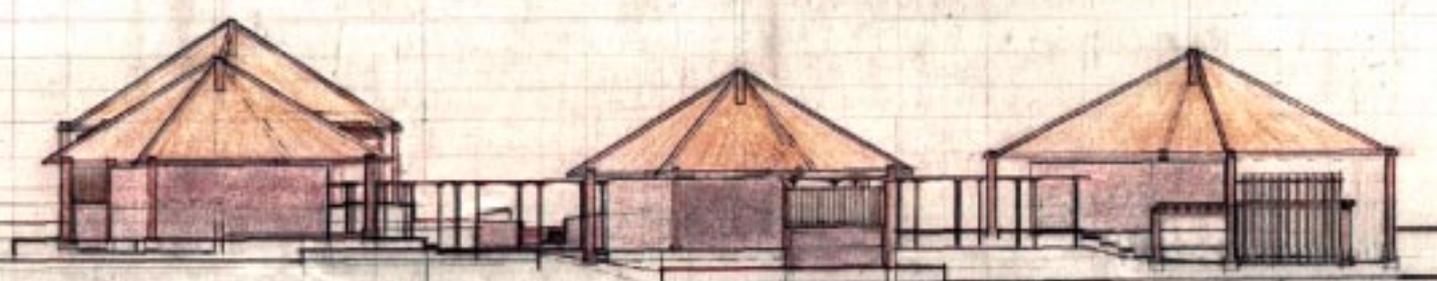
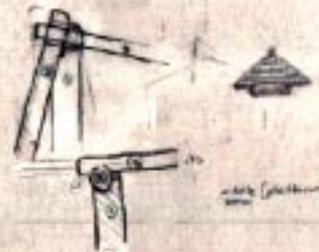


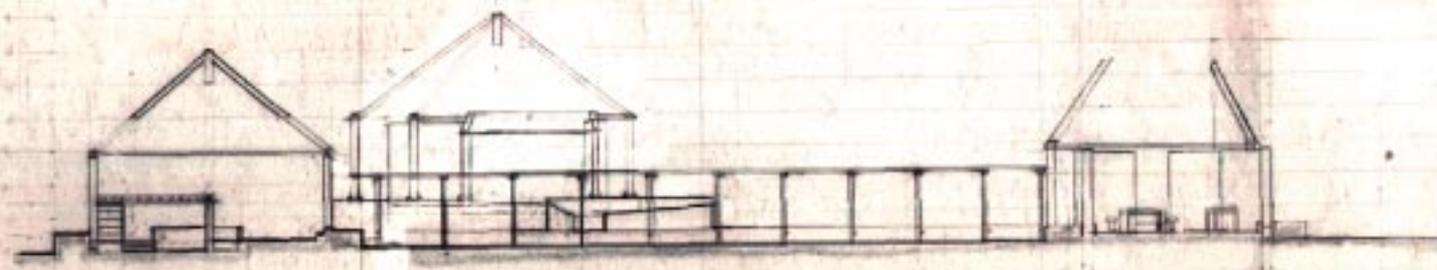
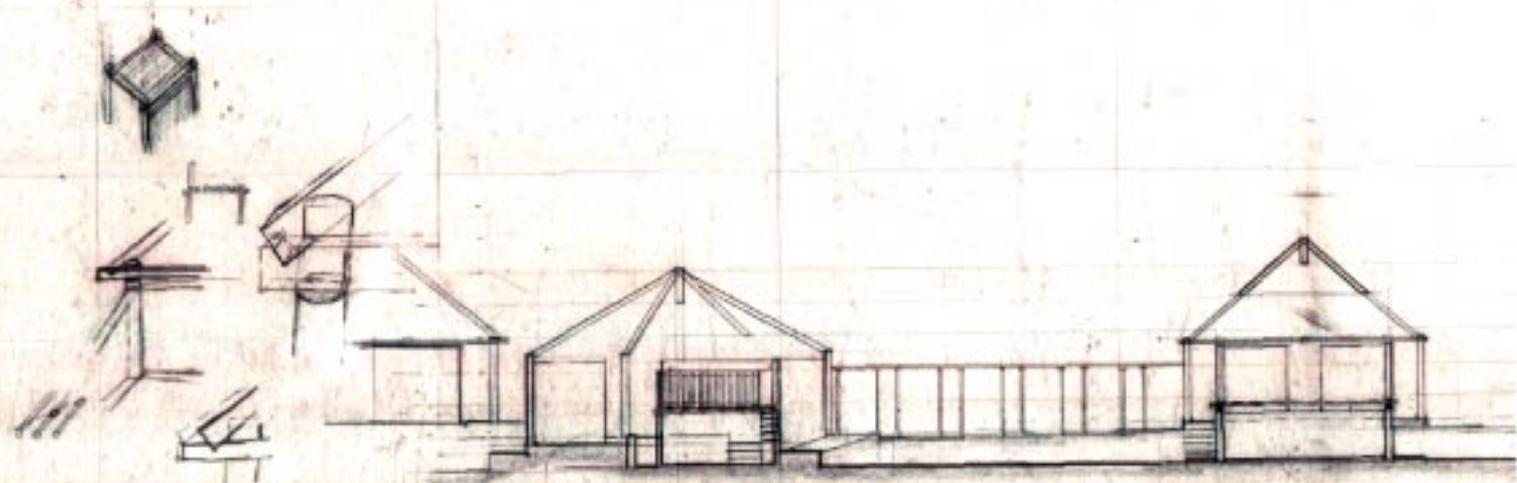
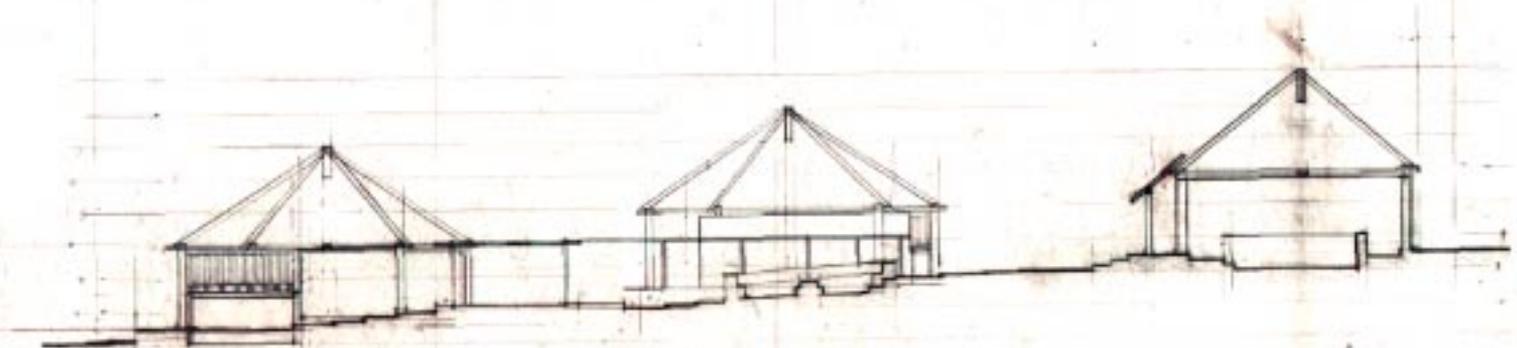
width 2,50  
height 2,10

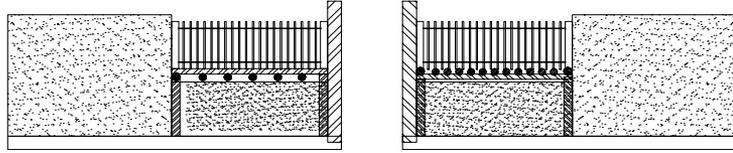
10 cm in 1:20 scale  
for (small) platform height  
max. 100 cm 45 cm 10-2 steps

1.45  
1.15m  
0.5m  
1.4

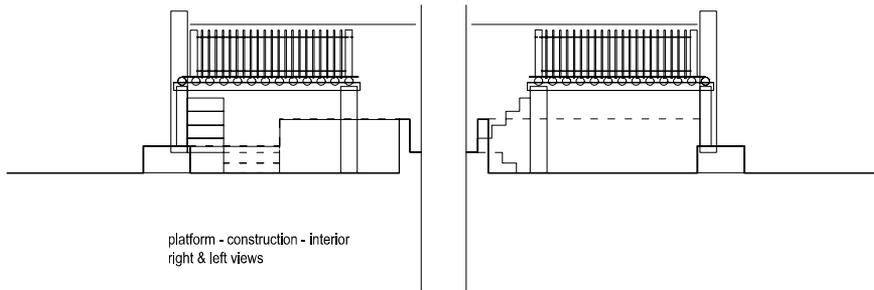
max. cell  
1.80 m, 2.00 m  
well is 2 m



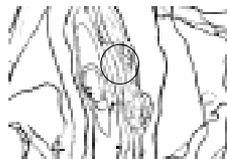


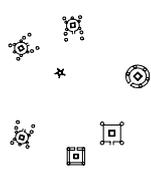
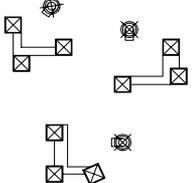
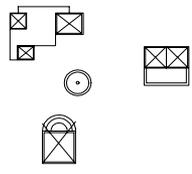
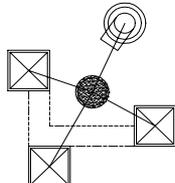
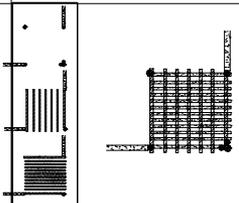
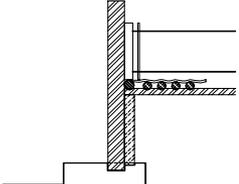
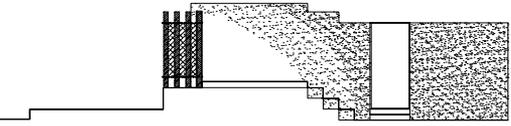
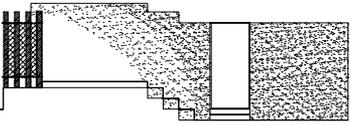
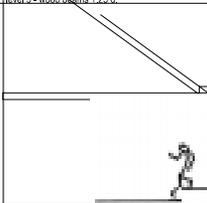
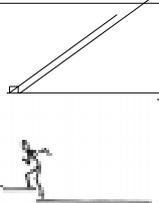
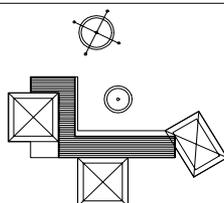
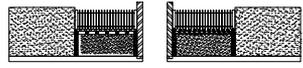
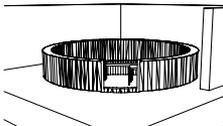
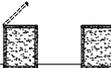
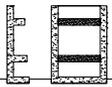
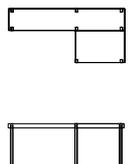
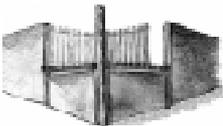
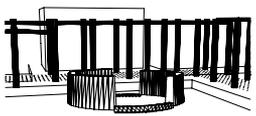


platform - construction - exterior  
side 1 & side 2 views

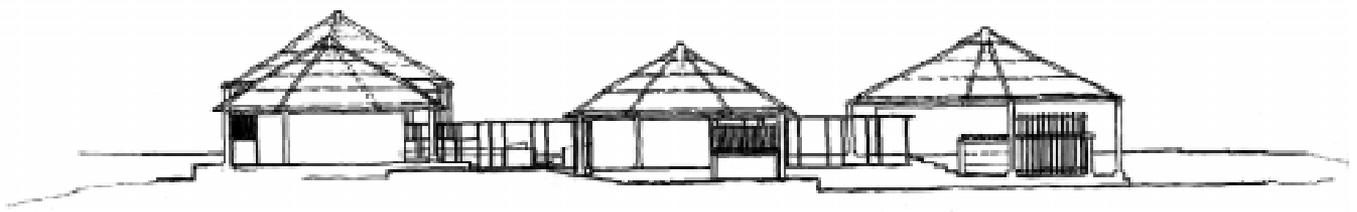
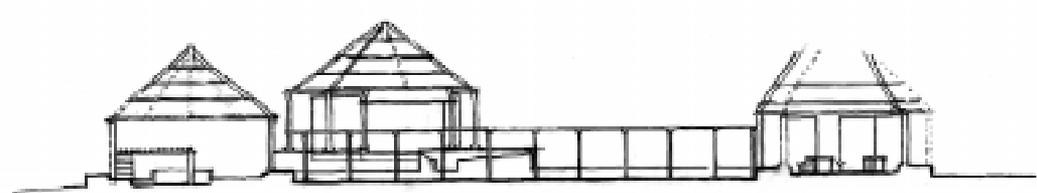
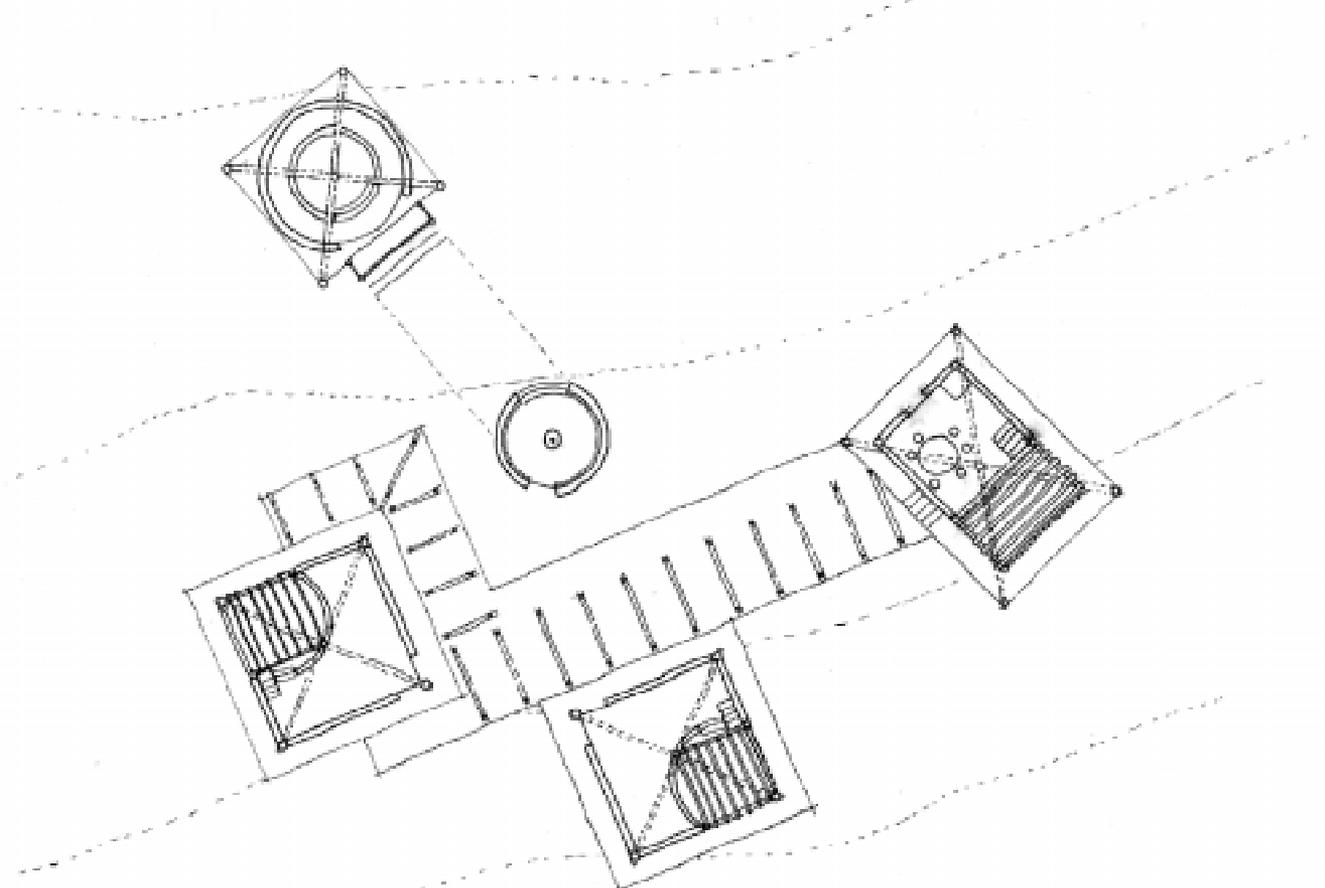


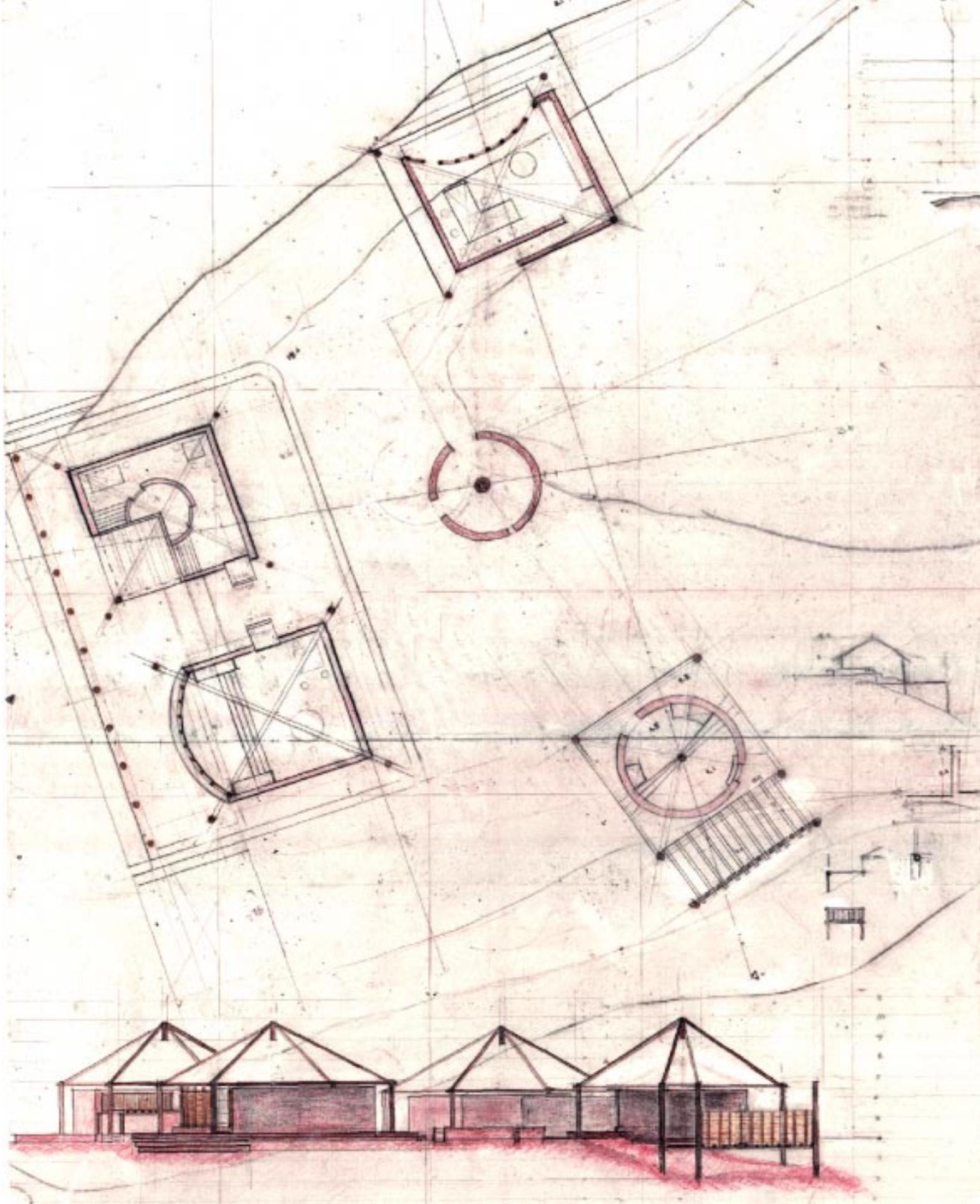
platform - construction - interior  
right & left views

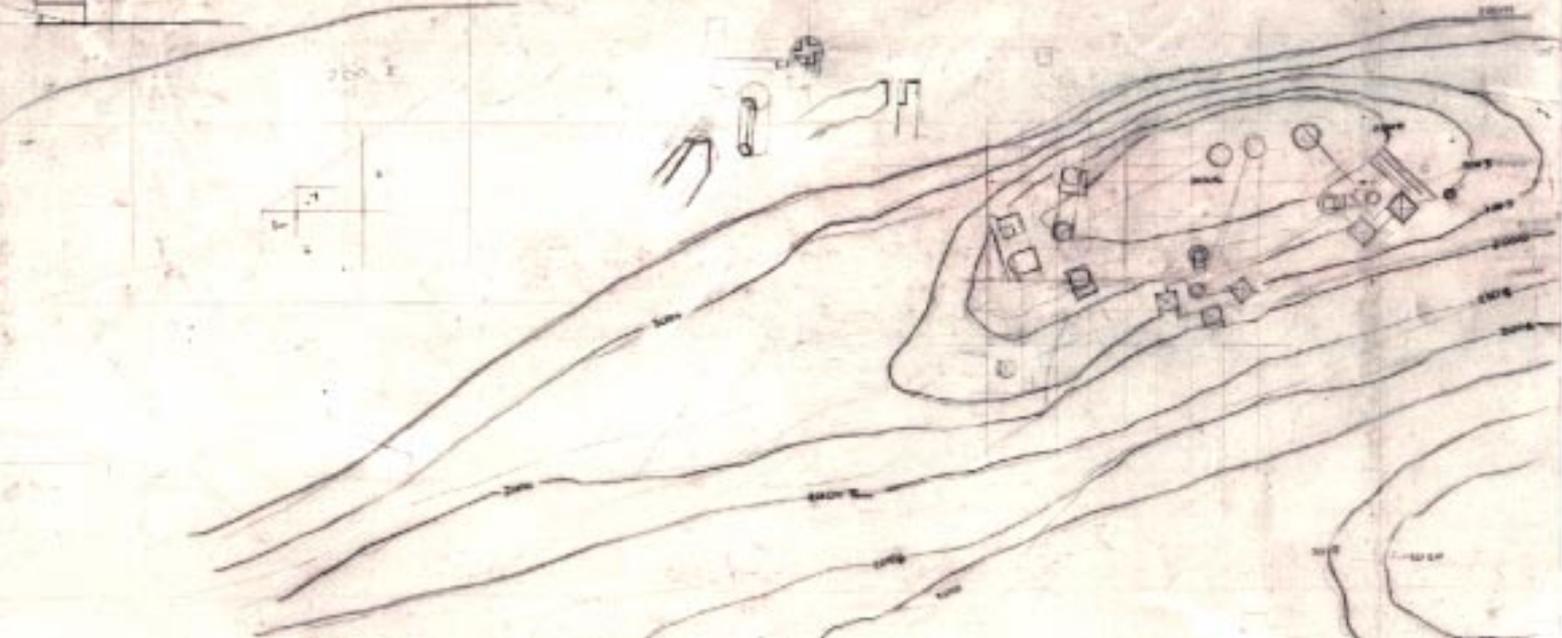
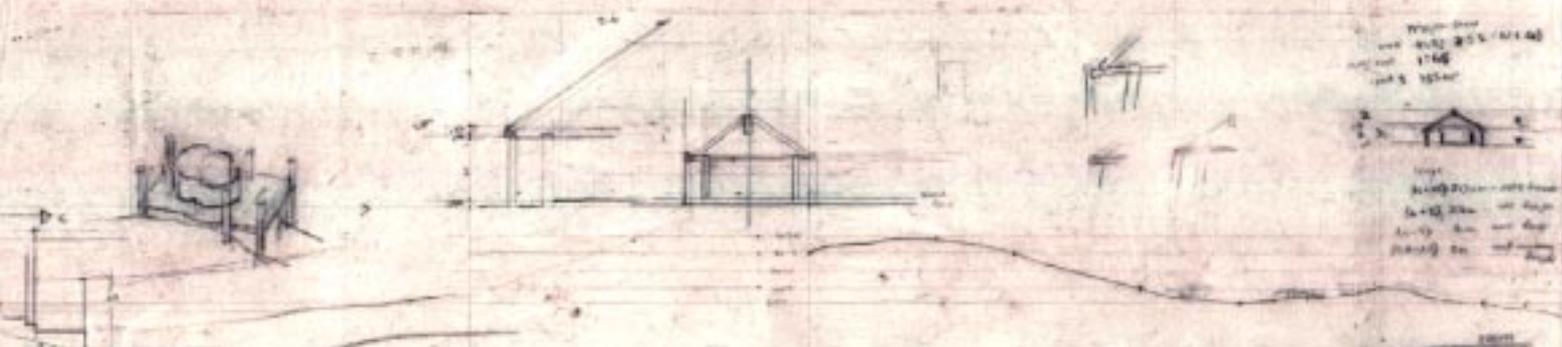
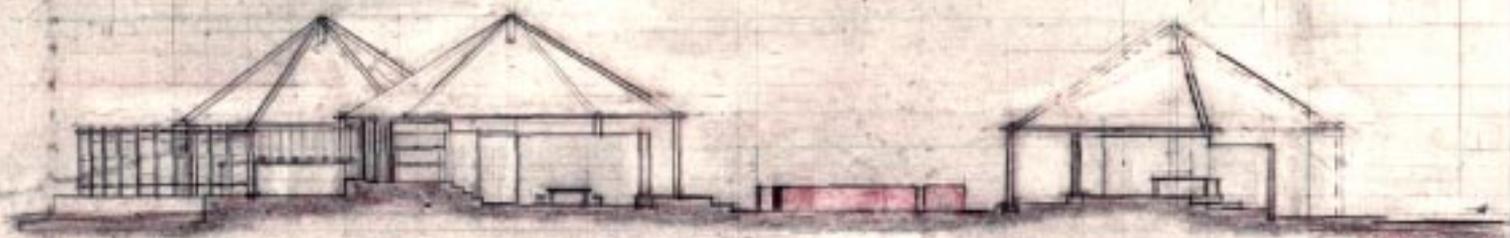
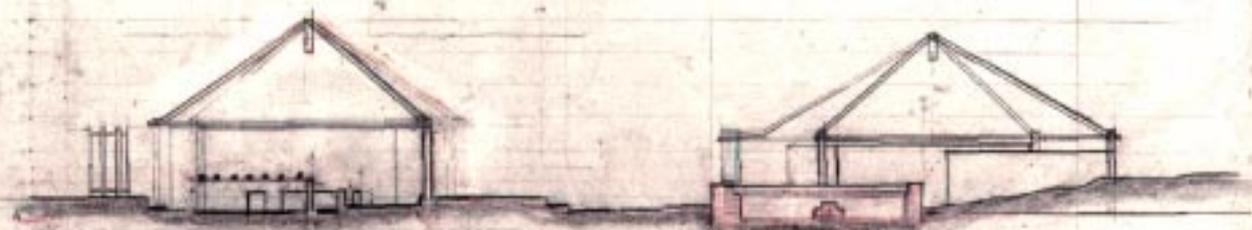
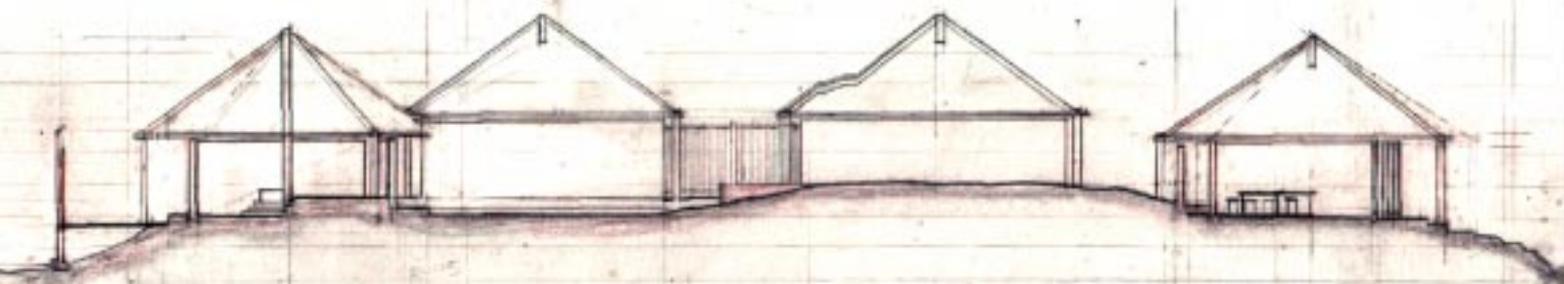


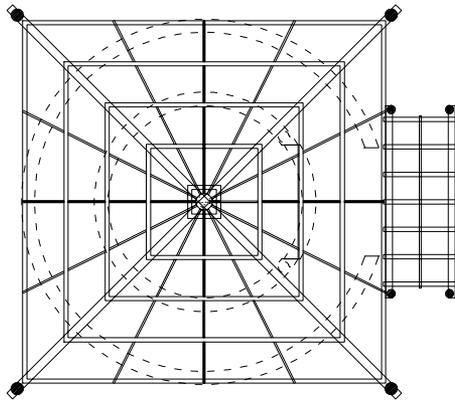
|                         |  |   |   |   |
|-------------------------|--|---|---|---|
| TRADITION               |                |      |      |     |
| DIAGRAM                 |               |    |     |    |
| CENTRAL AREAS/PLATFORMS |               |    |     |    |
| WALLS/LEVELS            |              |   |    |    |
| CENTRAL SPACES/PLATFORM |             |  |  |   |
| DISPLAY                 |             |  |   |  |
|                         |             |  |   |   |
|                         | platform - typical - raising a hut on stilts protects the poles & daggha from insects and rain | platforms - cozy reading & talking places   | outdoor enclosed pit area - a central focus point                                     |   |



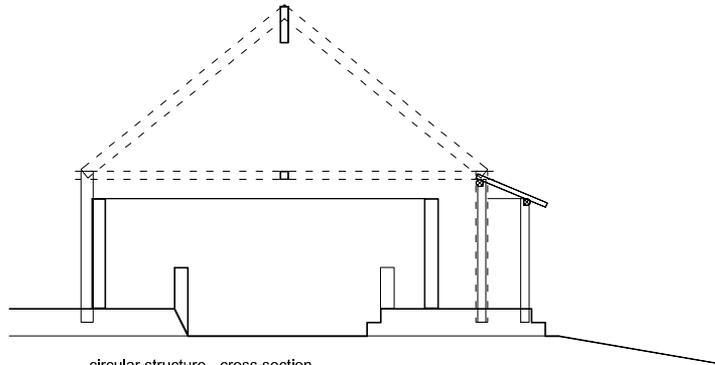








circular structure - roofing pattern



circular structure - cross section



TRADITION



the beauty of an African hut lies in the simple use of naturally occurring materials  
Tonga Hut - Binga

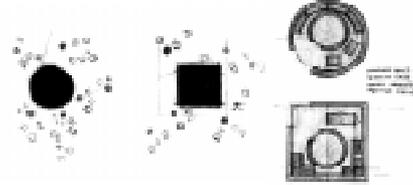


while most will see a traditional dwelling as just a hut



variation of these simple forms can create a sculptural form that has the quality of a work of art

DIAGRAM



connection of shape and form can be a loose diagram

or a hard line plan



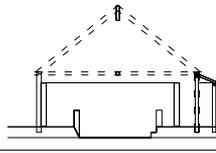
westerners are concerned with outward views; the african homestead faces its structures inward to focus on the centralized family unit



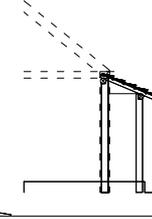
CIRCLE STRUCTURES



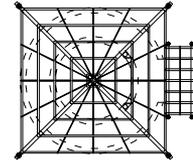
precedence



circular structure - cross section

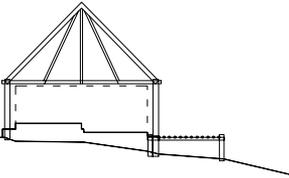


circular structure - roof extension detail

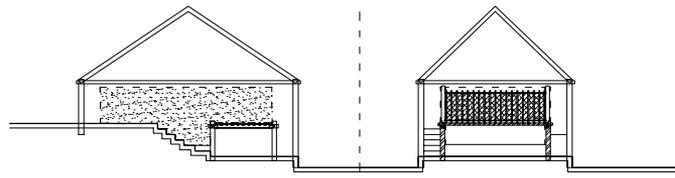


circular structure - roofing pattern

CENTRAL AREA/ PLATFORMS

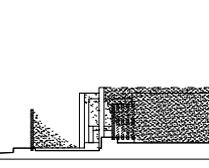


circle structure deck descending with slope of land

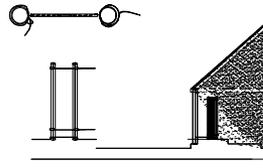


rectangular platform hut - platform construction side elevation; back elevation

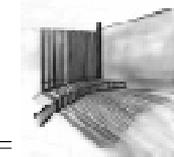
WALLS/SCREENS



bamboo wall provides shading and visual barrier between outdoor platform and area outside of building boundary

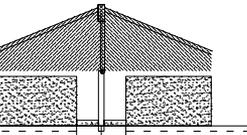


a wall of bamboo poles with grass mat woven in between creates a subtle curve; positioning of walls under thatch overhang protects walls from sun

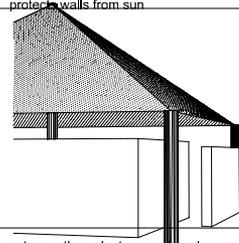


light filtering through woven walls creates a play of light across stoep & floor

ENTRANCE



corner entryway



entrance through staggered mud walls



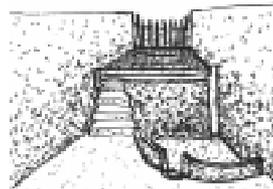
entrance can be as simple as a break in the bamboo & matting



mud can be sculptural

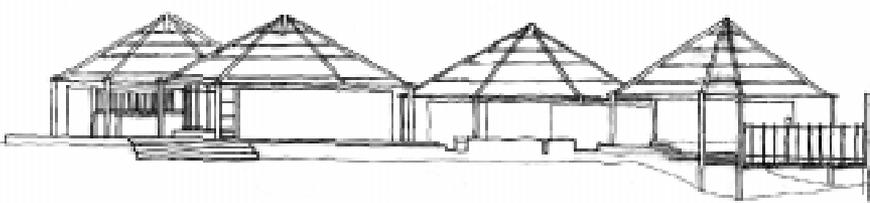
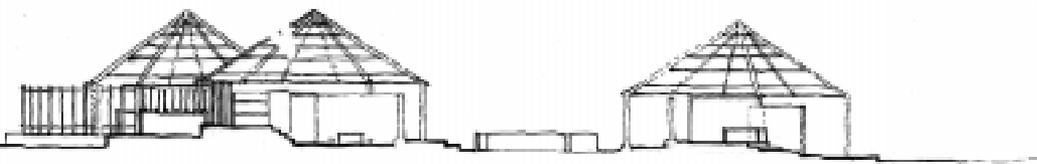
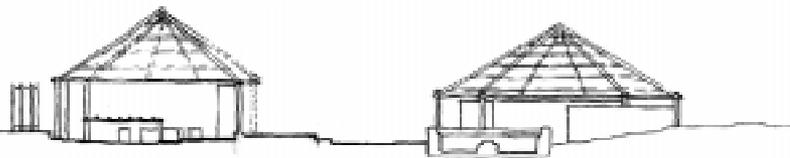
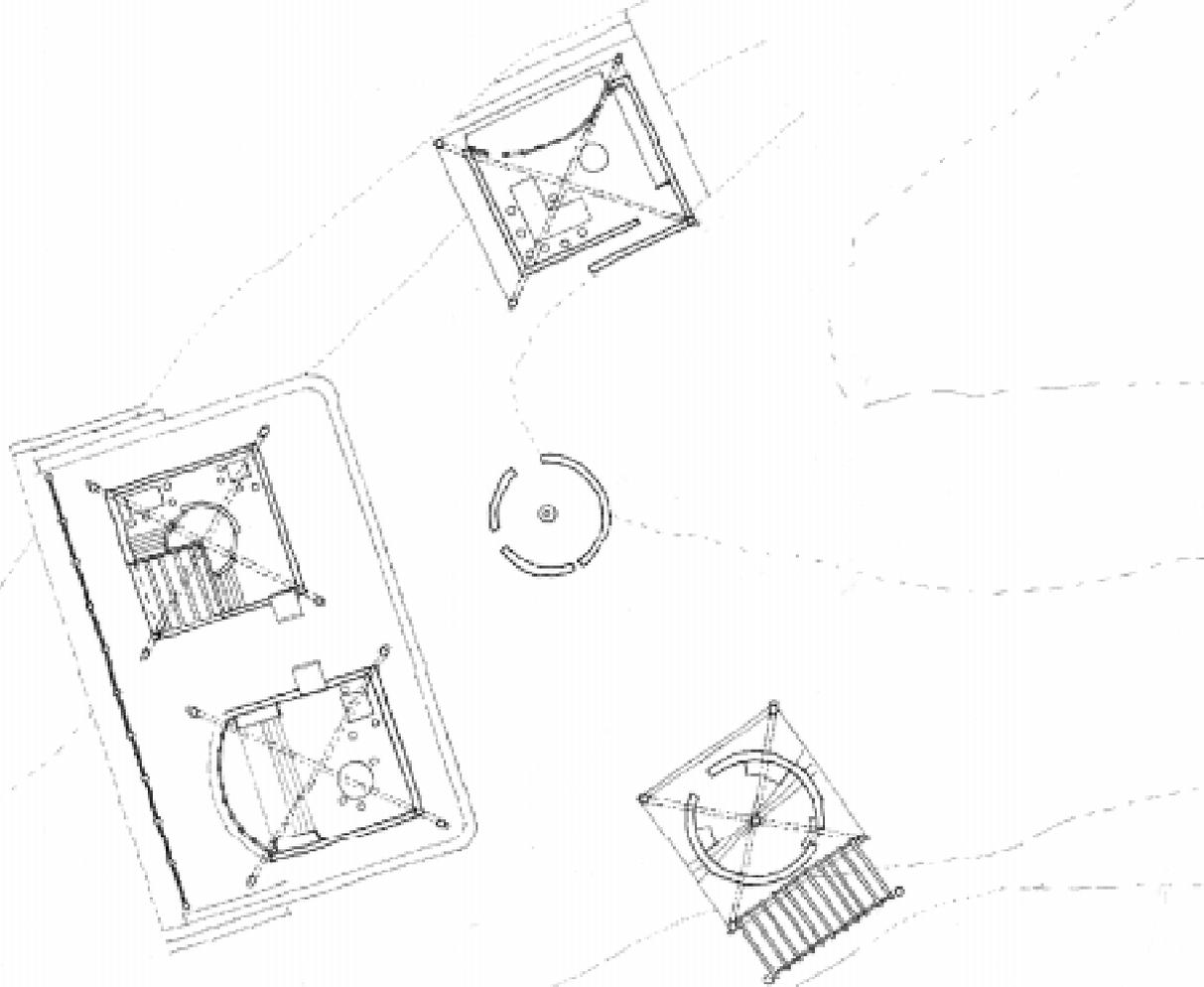


a steep inside a curved wall provides a bright, cozy talking place



rectangular platform hut - interior perspective









a photograph must be designed as carefully as a building  
and created with as much consideration as an oil painting

people talk about the objective eye of the camera  
i do not see how a photograph can be objective  
from the moment i place the viewfinder to my eye i lose myself in the world of the camera  
the image found is forever printed on my mind  
i can no more separate myself from these images then i can separate my presence from my history  
my photography and my architecture are about understanding the essential, observing the existing  
and merely allowing what is allready there to appear in form



















# PLACES OF THE EARTH

All photographs and text by Christie S. Sterne

## sources

- 1 Alexander, Christopher. 1977. *A Pattern of Language, towns, buildings, construction*. New York: Oxford University Press.
- 2 Bourdillon, M.F.C. *The Shona Peoples, an ethnography of the contemporary Shona with special reference to their religion*. Zimbabwe: Mambo Press.
- 3 Denyer, Susan. 1978. *African Traditional Architecture*. London: Heinemann Educational Books, Ltd.
- 4 Du Toit, Friedrich. 1982 *Musha: The Shona Concept of Home*. Zimbabwe: Zimbabwe Publishing House.
- 5 Frescura, Franco. 1981. *Rural Shelter in Southern Africa: a survey of the architecture, house forms, and construction methods of the black peoples of southern Africa*. Johannesburg: Raven Press.
- 6 Garlake, Peter S. 1973. *Great Zimbabwe*. London: Thames and Hudson.
- 7 Huffman, Thomas N. 1996. *Snakes & Crocodiles: Power and Symbolism in Ancient Zimbabwe*. Johannesburg: Witzwatersrand University Press.

## PLACES OF THE EARTH

### acknowledgments

Thanks to my mother for her unquestioning faith in me, and my sister for her stress relief tactics and hours of advice.

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# PLACES OF THE EARTH

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vita

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