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TRADITIONAL HOUSING & SETTLEMENT

SETTLEMENT IN CENTRAL AFGHANISTAN-
HAZA'RAJA'T A SOCIO-CULTURAL &
SPATIAL STUDY

**BY
SULTAN HUSEIN HESARI**

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Cover: **Fig. 1** Path towards fort
Sayed Sarwar's fort (qala'), Lulenj valley

Overleaf: **Fig. 2** scenery
Sayed Sarwar's fort (qala'), Lulenj valley

Traditional Housing & Settlement

Central Afghanistan- Haza'raja't

Traditional Housing &

Settlement in Central Afghanistan-Haza'raja't
A Socio-cultural & Spatial Study

Sultan Husein Hesari

In reminiscence of my companions during a local trip in the region, who were travelling towards unknown targets to cater in order to survive themselves and their families. But the wild harshness mountainous passes of *Narges* in the environs of *A'qzara't-e¹ Panjau*, in combination with an early coming winter, crashed down our carriage vehicle and astoundingly ended the life of 15 of them.

Though, they relieved themselves, but exceeded the burden of the authorities, who have not been trying or will not eradicate deprivation and tyranny from the feature of the people and the region.

They will long be remembered.

Sammendrag

Dette studie omhandler den traditionelle bolig og hvordan den kan forbedres ud fra et udviklingsperspektiv. Formålet med studiet er at fremme traditionelle boliger og bosættelsers langsomme forandringsproces, for at sikre at de, for det første, lever op til den udvikling der ellers foregår i samfundet, og for det andet, for at der tages hensyn til det massive behov der er for boligbyggerier.

Dette studie omhandler de mest basale teorier fra Rapoport's *house form and culture*, og delvis Alexanders teori, *a pattern language*. I den forbindelse har jeg valgt den traditionelle bolig i den centrale del af Afghanistan-Hazáraját som case study.

Igennem studiet har der været gjort en indsats at forstå hvad en specifik bolig form er, og hvilke fysiske dele og elementer den består af. Samtidig er det også blevet undersøgt i hvor høj grad betydningerne og de sociokulturelle faktorer har en betydning for husene og bebyggelserne.

En detaljeret vurdering af de påvirkninger disse faktorer, især fysisk kraft og sociokulturelle faktorer, har på boligformen er basale studieområder og en bred informationsbase for arkitektonisk design i dette forskningsstudie.

Konklusionen på dette studie er at enhver forandring der opstår indenfor den traditionelle boligs ramme skal referere til oprindelige traditionelle ressourcer for at skabe en bæredygtig og acceptabel bolig for majoriteten af beboerne. Det der er mangelfuldt eller direkte defekt i traditionelle boliger kan elimineres ved hjælp af moderne faciliteter og metoder. Det er selvfølgelig ikke længere tradition og derfor kaldes de for *post traditionelle boliger*. Formålet med den *post traditionelle bolig* er at kombinere traditionelle værdier og moderne faciliteter og metoder. Dette begreb, *post traditionel bolig*, vidner på den ene side om lokal identitet og på den anden side anvender den globale færdigheder og faciliteter.

Afghanistan is a country with a long and rich cultural tradition. Besides several splendid urban centers like *Qandahar*, *Herat*, *Ghazni*, *Kabul*, *Mazar-e Sharif* and others, the country side is rich of traditional villages and residential complexes within the individual cultural units. The homogeneity of local construction and tradition has produced architectural forms which are an optimized result, protecting against the often harsh climate and outside aggression. This long time equilibrium lost its balance latest with the invasion of the Soviet Army in 1979. Since then for more than 30 years the people of Afghanistan have suffered, their tradition has partly broken up, also in relation to their building tradition.

Sultan Hesari's thesis "*traditional Housing & Settlement in Central Afghanistan- Haz'araj'at, A Socio-cultural and Spatial Study*" is more than a normal study. Being aware of the rich cultural tradition and danger of loss, he has documented in meticulous field work of many rural settlements, clusters and houses, has recorded their settings, but more importantly, their spatial functions and their relation and distribution, resulting in a classification based on primarily formal aspects such as *the Naked Housing*, *the courtyard housing*, *the fort housing*, *the grotto housing* and finally *the portable housing*. Beyond this formal research he looks in to the traditional meaning of houses and their socio-cultural factors to result in a formal catalogue of suggestions for the revitalization of traditional house forms and functions.

It is historically speaking, the right moment to bring this book to the notice of the public, because there is hope for the Afghan people to find back to their identity and pride through a new re-identification with their traditional values. The settlements, houses and living tradition are definitely one important component for the recovery of a once lost identity.

Hopefully the 2013 and the important event of *Ghazni*, cultural capital of Islam, will assist to bring back what has been missed for long: Culture for Peace.

Foreword

Professor Michael Jansen

Director for Department of Urban History,
RWTH Aachen University Germany

Acknowledgement

Several years have been spent accomplishing this work. The study first began within a Ph.D. program in architecture and urbanism, and the final material in the form of writing my dissertation has been presented to Institute of Architecture and Design at Aalborg University in Denmark.

The present study is an individual piece of work, but encouragement, guidance and support from many individuals and institutions have made it possible to put together all pieces of my study into this final format. So, I owe a great debt of gratitude to all of them. I wish to express my cordial thanks to all contributing individuals and institutions, and I apologize to those, who are not mentioned in this brief. I acknowledge that I owe much more than that their names are mentioned here. Meanwhile I am to hold responsible for shortcomings and deficiencies of the study.

First I would like to thank Dr. Finn Kjaersdam, president of Aalborg University and Drs. Lise Busk Kofoed, head of Institute of Architecture and Design, who have made this study a reality due to their kind tokens of support.

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I owe a debt of gratitude to a number of authors and publishers as I have benefited directly and indirectly from the outcome of their research, particularly, their kind permission to let me reproduce their published materials.

All materials, including taking the photographs, execution of the drawings and arranging the layout have been collected and arranged by the author; otherwise each referenced in the Figure Credits.

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Sultan H. Hesari
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Introduction

Problems of study

More than 80 percent of the populace lives in informal or traditional houses in Afghanistan. This figure increases to almost 100 percent in Central Afghanistan-Haza'raja't.

This simple fact reveals the importance of this house type. Traditional houses have recently come to lack the needed mechanism for transformation and changes related to the ongoing developments that take place in the community.

To date however, a new situation prevails in the country, and houses for returning refugees are being built and detained demands for many years are among the most urgent needs.

Authorities are pressured into playing a role in this situation, but there is no well-suited knowledge in this field.

In this regard, many basic questions arise. Among them; should they recommend a modern approach as an appropriate alternative in severely contradicted situation of the area? Or could they let people continue using the old approaches? Or would authorities suggest a very new innovative way, combining traditional values and modern possibilities, and what potentials of the old approaches can become the basis of new ones?

These are among the basic queries, and in trying to find responses to them, the problem of traditional housing is expected to be discussed.

Other studies focusing on the problem

There are a number of studies, which each illuminates a part or parts of a wide field. One can not claim to solely solve the whole problem. Szabo as one of the more recent researchers acknowledges the lack of qualified studies to describe the rich and varied tradition of domestic architecture in Afghanistan (Szabo 1991:6).

He believes that general architecture surveys of Afghanistan have been published in various languages (Stanley and Samizay 1980; Karzev 1986; Habib 1987), but they have typically focussed on selective examples of Afghan architecture with limited information on their distribution, variation or cultural context.

The situation let Szabo and his co-editor Barfield to design their own research in order to provide a more comprehensive understanding and document all the known types of Afghan domestic architecture in a form that reveals both their architectural and ethnographic contexts. But their endeavour was restricted to accumulate the previously published materials into a new format and to add limited information to the poorly illustrated types of material.

The published surveys of houses have considerably been restricted and lack of generalization, because what we are so familiar with types of architecture or particularly house types primarily introduced by ethnographers and then were focused by architects and students for educational interests.

Scientific researches, especially researches tending to study and resolve the problems of built environments, i.e. houses and settlements, have no longer been recorded in the country. Perhaps, the first preliminary organised efforts have been carried out by mainly foreign professionals². The only recent available research (Azizi 1980) merely focuses on traditional crafts and (Najimi 1988) deals mostly with the preservation of the historical towns and urban development of Herat city of Afghanistan. Yet not only has there been no development studies utilised in order to resolve the problems and to put into order the urban environments. Not even a primary study and the recognition of the current status of house form of the area has been carried out. In local literature there is much talk of the magnificent and splendidly built up environment, which was demolished in the past, but most of them have not been registered.

Ethnographers, despite their gracious studies, do not tell us much concerning life styles and habitation that is of interest to this study (Mousavi 1997). Likewise Ferdinand (1959; 25) suffices merely to description of habitation and activities that take place as part of the daily routine in a hostelry.

Description of part of the physical elements and structure of grottoes and attributing these elements and structures to their related meanings, may very well be derived from interpretations carried out by French archaeologist teams in earlier time in the past (N., H., Dupree 1967).

It should be cleared that neither architects nor others including ethnographers and writers have significantly dealt with the whole or even a part of the topic of this study.

Objectives of study

As of the others, this study aims to solve a part of the major problem and to fulfill the need for more knowledge in the field, and to set up a strategy based on sustainable principles.

Due to traditional housing is a practical model, it is intended to be preserved and maintained by registering and providing a profound and better understanding of it; both in accordance with the house form and the meaning of the existing houses. However, my aim is for the existing housing to be pushed forward in order to continue its original viability.

The more significant and pressing objective of this study is to speed up the slow process of transformability and changeability of the traditional houses. This is, on one hand in order to become more adaptable to the other developments that take place in the community, and on the other hand, in order to respond to the bulk of needs for house building after more than two decades of instability in the country.

It is part of the objective to retrace the concept of formation of traditional housing as a process, which in practice is a dynamic process with a large number of explicitly stipulated and implicitly criteria that are taken into consideration. In this study, the interest is focused on the central part of this process; the development of traditional housing.

My aim is to examine this theory as a conceptual framework for policy making and contribute to solving the problem by providing the information base for architectural design and traditional housing.

Bringing out the existing problem of traditional housing figures as a technical standpoint on behalf of the local community based on sustainable solutions. But not taking cares of these problems not only the identity of domestic architecture being targeted, but it would be a serious challenge for both authorities and people to suffer of alien and inadaptable solutions.

Overleaf:
Fig. 3 *Field work*
Fula'di valley



CHAPTER 1

PROBLEM FORMULATION

PART ONE
CONCEPTUAL FRAMEWORK

Throughout the study, many concepts have been used as unavoidable parts of the study and they need to be clarified. Furthermore, in peculiar cases, the applied method is also so adhered to the study that it seems necessary to go through the method and identify it. The following, some of the concepts that are frequently used in the study are presented.

Tradition and change

Architecture is among that socio-cultural and physical phenomenon that not only connects the past and the present, but it binds the present and the future as well. This simple fact lets us observe that the evidence of the past and evidences that we build in the present could be seen in the future. In this regard, supporters and adherents to these two trends, the so-called traditionalists and modernists, have been encountered. Despite the obstinacy of traditionalists and their concrete ideas, the normal process of moving from the past towards the future takes place through the present. I am in no way siding with either of these two trends. What I look for is actually related to both tradition and modernism, so the outcome of each is equally important for this study. The study is unique in character. The study area depends on one hand on tradition, and on the other hand it needs to use modern possibilities and devices. I am going to find a way of stimulating the existing tradition and of the building capacity to evolve and accept changes and transformation.

What is tradition?

Tradition is defined in accordance with different visions. In the predominant definition, tradition closely relates to culture; or it directly assumes culture. On the basis of this definition, tradition is a set of insights, visions and behaviors of a society inherited from the past of an annihilated civilization.

At first glance we find out that tradition is a directed vision and a way of perception, which is based on action and interaction between people and it, is also governing their behaviors. Tradition commits to and obligates to achieving certain things, whereas it negates and prohibits others.

However tradition reveals the properties of being the function of the two other phenomena i.e. current civilization and the preceding one. On the basis of this interpretation the way of looking of Thais that is inherited from the past and particularly from Buddhism as part of the ancient civilization performs the tradition of Thailand. Similarly, the Afghan's tradition has been formed on the basis of many years of living with Islam.

Tradition contrary to the general conceive has not always opposed to modernism, but it is in some cases converted to a device of freedom of choice in accordance with modern possibilities, which by that man can employ it in a desired way. Tradition, e.g. in Denmark as an advanced industrial country, reveals such properties. It is so deeply rooted in the community that powerfully conducts the direction of modern trends and its manifestation i.e. technology. This tradition entails that the idea of for example building the only high rise flat in Copenhagen, the capital of the Denmark, in order to compete with the one that has recently built in the third largest Swedish city of Malmö, encounters general public reluctance and unwillingness because it opposes the Danish tradition of social equity. Japan is another pioneer in the modern convoy whose focus is on merging the traditional vision with modern phenomena. According to this way of looking, the traditional tea ceremony holds a particular meaning and the present possibilities adds a special pleasure and delight to this tradition.

As we see, nations have inescapably been connected to their pasts and traditions. It might develop the notion that tradition reveals different properties, which can be dimensionized from the past to the present along a continuum. The more a tradition has been untied from the past, the more has it accepted changes and transformation and vice versa, the more a tradition has remained in the past, the more has it been unchanged.

Dimensionizing the properties of a tradition as above might not attract consensus between the different parties, but we all agree to divide traditions into two types: admirable and undue tradition.

Modern trends currently prevail in all aspects of our lives, because it provides solutions to the excessive unlimited needs of our lives, and technology is thus a device for tackling these needs. The predominant criticism of the modern trend pertains that some of the solutions, in some cases, have been too voluminous and unsophisticated, so the outcome may be somehow irrelevant and inadaptable, whereas the traditional solution in a limited rate works better.

It seems to me that I have pointed out the common and segregated factors of the two trends. I very much hope to reach an alternative way of combining the two trends.

Sophisticated meanings and concepts may have been taken from tradition for granted and it may have been developed by modern technology in order to fulfill the ongoing and upcoming needs.

Reasons for domination and continuation of tradition

The reason why tradition is so deeply rooted in the society of Afghanistan and which mechanisms that preserve its entity and facilitate its continuation can be sought in many factors, of which the more important are traditional vision and behavior; realm and domestic environment; and the supporters of tradition.

Traditional vision

Traditional vision or insight predominantly forms two particular electuaries: **First**, past experiences of individuals or groups; **second**, interpretation of religious educations, vision and the way of looking at the peripheral phenomena, which has been gained by endeavors and steady experiences of individuals or groups. On the other side, the very simple interpretation and understanding of religious educations and arrangements constitute the framework of a tradition.

According to the above mentioned properties, the people's visions take forms of the whole life aspects such as individual affairs, social organization likewise regarding nature and super-nature, which determine the framework of behavior.

Traditional orders and acts are being extracted as the consequence of a precise recognition of phenomena, which are earned by having close and friendly contact with them; and steady experiencing by the way of missing and succession. The outcome has been very adaptable and responding to the needs regarding peoples' possibilities and strains.

Tradition has not only been amicable and accommodating in terms of encountering the nature, but it has also rendered very sophisticated and admirable solutions to many aspects of life.

Religious orders constitute parts of tradition. The focus therefore has been drawn towards religion by learning of it during childhood. Due to the fact that religious teachings solely suffice the basic and preliminary level, it is beyond the reach of the public to interpret and extract issues from it as they appear in the original text. A very simple interpretation, which is understandable for the general public has prevailed; and it has been transferred from one generation to the next. According to this pattern, positive behavior figures as a good deed that deserves spiritual rewards, whereas, the negative one, which is prohibited, counts as a sin.

Despite rich values, some shortcomings and deficiencies have also been seen in the existing tradition. Lack of change and slow transformation has been a major shortcoming to the tradition. The traditional vision of the common populace powerfully prevails on many aspects of life. All groups, including common people and the elite, are now practicing tradition in varied scales and they are guarding and preserving them by all means. Violation of tradition is

severely criticized in the community. This conservative reaction hinders change and development in accordance with the tradition. This fact is clearly confirmed by the linguistic usage of Dari (Farsi), e.g. if one wants to speak in a more formal or articulated manner than what is the norm in the community even though it may be in order to be better understood, he or she very soon stopped by ironic comments like "*Do not speak in pen language (formal)*". Reactions in this way are normal in any language, but in this case it is so strict that it becomes a barrier to the acceptance of change and development. A contrasting example to this behavior is found in e.g. Iranian Farsi, where the use of well-spoken language is always admired and encouraged. It is known fact that there has been a great difference between formal and informal linguistic usage of Dari.

Tradition in the community is so strong that even elite groups including educated and cultural persons as well as politicians have been unable to interfere with tradition. They instead conservatively preserve and guard the existing tradition. Politicians by dressing up traditional styles pretend to democracy and national sovereignty in order to strengthen the pedestal of their powers in the community. Similarly, intellectuals with a few exceptions confirm the current status. What makes it disastrous is that some artists, writers, and intellectuals preach and promote the current inconveniences of tradition in the name of folklore.

Realm and domestic traditional environment

Tradition in contrast to the global characteristic of modernism appears in the domestic and local level. In other words, varied traditions are somehow expressions of characteristics and identities that belong to these types of environments in terms of the developed schemata. According to Norberg Schulz (1980), we understand that human identity is to a high extend a function of places and things. This fact is confirmed by common linguistic usage. When a person wants to tell who he is, it is in fact usual to say: "I am a Dane"³ or "I am an Afghan". This means something much more concrete than to say: "I am an architect". This fact is now abundantly used in politics. In this regard, the people of Afghanistan are sacrificed in accordance with the image depicted of them by the politicians and mass media.

The existing tradition in Afghanistan is the yield of an instable and unsafe environment, because the country increasingly has encountered conflict and instability. This atmosphere has hindered the tradition to be evolved and developed. Nonetheless, there were some opportunities to practice changes, but the time was so short that it could never have been institutionalized. The existing tradition belonging mostly to the common populace has been the only winner. In this process, tradition has repeatedly become common conduct and transferred from one generation to the other over the time.

Due to the fact that the process of life normally has been run in accordance with tradition, it has become widespread and it is deeply rooted in the community.

How tradition can be changed?

Tradition can be divided into two categories; **one**, dynamic and adaptable tradition; and **two**, static and unchanged tradition. Tradition has to be evolved continuously, because phenomena pertaining to the tradition gradually changes. Tradition and culture that are unable to evolve and develop would become irrelevant. This fact is clearly seen in linguistic usage, if any language, e.g. Dari (Farsi) as a rich manifestation of the tradition and culture, is going to be viable, it has to mobilize in accordance with the ongoing and upcoming linguistic needs regarding e.g. the technological terms and so forth. If not it will turn into an ancient impractical language. This example also refers to traditional housing in general and the mystic and fascinating houses of Haza'raja't as well. Traditional housing of Haza'raja't has to be sustainable if it is going to fulfill the ongoing and upcoming needs.

Tradition is very cautious in relation to change. Acceptance of any changes firstly necessitates whether or not the change is adaptable in accordance with the basic order of tradition. Mechanisms of evolvement from an individual have to be initiated and then any shortcomings gradually have to be removed, and finally it has to be accepted by all groups in order to be used widely as a tradition. This process takes place very slowly over a long period of time. In this model there are some volunteers who must be willing to test the changes, otherwise nothing will ever happen.

In the study area, there have been two empirical modern building patterns, which could have not drawn any focus. Although one of the patterns posses some relevant and fruitful elements, they have both been rejected due to the apparent contradictions exist.

Another property interfering with acceptance of change is "time", the needed interval for experiencing by the way of missing and succession, which takes place in a long run with slow process. No doubt, all significant changes occur over a long time interval, whereas smaller changes need shorter periods of time. As pointed out, predomination of continual and steady atmosphere of insecurity and instability has had the effect that has been insufficient time for significant and fundamental changes, and the repetition of such conditions has caused tradition to be very cautious and resistant towards changes. However, this situation developed a status of self-reliance for tradition and traditional trends.

The existing tradition in some cases has been opposed to change and development, so there is no way left except to challenge it. This challenge against tradition of course is not meant to undermine the cultural, historical and identical heritage of the people. It is a kind of referring and resorting to the original source.

It employs the concept that any falsification and misinterpretation entered into tradition over a period of time has to be purified, then the traditional values depends upon the needs to be applied to modern tools and devices. This way of challenging once prevailed in the West when referring to the origin of tradition. Particularly the Hellenic mental and artistic tradition; Roman social tradition; and the religious reformation, the so-called fact of Christianity could establish the basis of grand changes to the Renaissance.

Post traditional housing

Contrary to the concept that encounters tradition with modernism according to their basic and philosophic contradictions, each are assumed to be a complementary part of a totality in this particular study. With this concept I stand on the stronghold of tradition because of the nature of the study, and I look towards modernism. This way of looking does not suffice it to tradition, it is of course beyond tradition and like Behsh (1993) I call it *post tradition* and similarly *post traditional housing*. The aim of post tradition is to combine traditional values with modern possibilities. According to this concept, post traditional housing on one hand reveals local and domestic identities, and on the other hand, it employs global skills and possibilities.

Typology

What is a house type?

The research is achieved on the basis of grounded theory, so it is necessary to practice and clarify the theory.

The purpose of the grounded theory method is to build faithful theory that illuminates the area of study.

Coding as a basic tool for grounded theory is composed of open, axial and selective coding presenting the operation with data taken from samples, broken down, conceptualized and put back together in new ways.

I used this procedure for proceeding typology and I griped the basic categories of *plan; interior design; construction and building materials; and exterior façade*, which I could get benefit of them throughout the entire of the study. The whole process is as follows:

For this piece of the study, we consider a model house type. We code any meaningful concepts by observing precisely and comprehensively the model, label them, and register the properties and dimensions obtaining each on the continuum axis.

At first glance, we observe a three dimensional volume (no matter the form), which covers an enclosed area containing the hostelry activities of a household's "shelter". We continue to examine the model in order to get in-depth recognition of it. We observe that the model consists of erected somehow perpendicular walls, an overlaid cover and situated on a setting. So walls, ceiling and setting are the three major elements or the general categories that constitute the outer face of our model house. Each of the above phenomena is broken down into categories and subcategories, which expresses different properties and locates along varied dimensional continuum.

Properties are the characteristic or attribution of a category, and the dimensions represent location of a property along a continuum.

The general category of walls includes categories of materials, construction and openings. The category of materials is divided into subcategories of substance, color and texture.

The subcategory of substance expresses the properties of triviality, simplicity and brilliance, which vary from simple to luxury along the dimensional continuum.

Similarly, the subcategory of color consists of the properties of natural and simple; and smooth and glossy, having different locations from simple to glossy along the dimensional continuum. Moreover, properties of being smooth and matted are attributed to the category of texture where its dimensional scale varies between proper and improper.

However, construction is broken down into the subcategories of bearing wall and frame system. Each of these subcategories expresses the properties of singularity and compounded systems and they vary from stable to instable on the continuum.

Openings as the other category of walls consist of the subcategory of type. The type includes openings for going to and fro in like doors, openings for sun and air inlet like apertures and windows, and openings for extending inner functions to the outside like verandas and terraces.

Each of the mentioned subcategories have a specific and definite size of opening which in one place is small and restricted and in the other is large and wide depending on the situation of the house. It therefore ranges between the dimensional location of small and large.

The roof cover is another element of the outer face of a house. The element of cover or roof consists of type, material and construction. The category of type includes the subcategories of flat, gabled and dome roof. Each of these subcategories is either apparent and clear or hidden and latent, which demonstrates that the properties respond to either a logical and proper solution or the exact opposite. Thus, they occupy the amplitude from proper to improper. The category of building materials of the roof is composed of natural and traditional and industrial and improved materials. Natural and traditional building materials reveal the characteristics of the weakest and least resistant materials. Their scale on the continuum varies from short to long durability. Furthermore, the category of construction is divided into the subcategories of load bearing wall and framing with the properties of monolithic and resistant, poly-lithic and nondurable elements and range between nondurable to resistant on the dimensional continuum.

The other phenomenon of outer elements of our house model is the natural setting. The setting comprises two categories of type and material of the setting. The category of setting type is broken into the subcategories of flat and sloped. The category of setting material is divided into loose and hard grounds. The subcategories of flat and sloping setting types include the properties of stability and uselessness and they thus range from useless to stable along the dimensional continuum. However, in the subcategory of loose ground the properties are instability and hard ground as the properties of stability. Thus, they are allocated to the continuum where they range between instable and stable.

As we proceed, the exterior elements of our house model consist of various categories and subcategories, which each has separate properties and ranges differently along the dimensional continuum. We are going to call it *outer face* in arranging our data as a result of our observation from the outer elements of the house model. We refer to our model again and remember what we stated in our primary observation. We are observing a three dimensional volume that contains an enclosed area. Our sense of curiosity entails to ask ourselves what this enclosed area kept inside the house is for! Then we are going to open up to the inside of the model in order to find out, if there is more.

We continue our observation more deeply and precisely. At a glance, we find that the major area inside the model is divided into different smaller areas which all have floor and ceiling. Thus, the inner elements of our model include the general categories of area layout, inner walls, floor and ceiling. Each of the general categories, in turn, comprises other categories and subcategories,

which have separate properties and scales along the dimensional continuum.

The general category of area layout includes the categories of variety, dimensions and size of area. The category of variety of area consists of living and receiving guest; sleeping and relaxing; eating; cooking the meals; bathing; hygienic areas and so forth, and these areas reflect the properties of the public and private areas and range from low to high along the dimensional continuum. The category of size of area is comprised of the subcategories of limited and large areas, which have the properties of comfort and discomfort and ranges between the dimensions of high and poor.

Another general category concerning the inside content of our house model is inner walls. Inner walls can be divided into type of materials, color and texture. Type comprises both the category of walls adjacent to the outer area and the category of walls located on the inside of the areas. Walls adjacent to the outer area or the place for opening doors, apertures, windows and balconies and walls located on the inside of the areas for the opening of inner doors, decorated shelves and niches. Inner walls are either fairly anonymous or drawing attention to themselves, which has to do with the type of painting and texture of them. They are therefore divided into the properties and characteristics of pleasantness and unpleasantness and allocated to range from pleasant to unpleasant.

The category of building materials includes the subcategory of substance, color and texture. The subcategory of substance consists of industrial and natural materials. Industrial and natural objects appear as the properties of simplicity and gloriousness, and extend from simple to glorious on the continuum. The subcategory of color is comprised of natural and chemical color, and these properties represent the darkness and lightness of areas, and range between dark and light.

Flooring is another inner element of our house model. The general category of floor is made of the different types and materials.

The type is divided into the subcategories of flat and leveled and ranges between static and dynamic.

Ceiling is another inner element of our model. Due to the fact that a ceiling may also be comprised of the underneath cover; we suffice merely the issues pertaining to the ceiling.

The general category of ceiling includes type and building materials. The category of type comprises the subcategories of covered and uncovered ceiling. Simplicity and being adorned and decorative are the properties of this category and they are located in each end of the scale as it ranges between simple to decorative along the dimensional continuum.

The category of ceiling materials differentiates between simple elementary and developed materials and these properties are expressed as developed and undeveloped and they thus cover the range between high and poor.

As the data coming from our observation indicates that besides the *outer face* of our house model, there are elements kept inside, which we temporarily call *inner contents*. Inside elements of the model are also comprised of different and various categories, which have their own properties and locate along the dimensional continuum.

So for the outcome of our observation it is indicated that the *inside content* of our house model is composed of the features of area layout, inner walls, floor and ceiling, whereas outer walls, cover or roof and natural setting constitute the *outer face* of the house.

By continuously observing a house model's coding and conceptualizing it, we have obtained recognition of it, but it is not sufficient. We therefore continue at conceptualizing data by utilizing *selective coding*.

Conceptualization of data indicates that neither of the two general categories of *outer face* and *inside contents* of the house is comprehensive enough to involve all other subtypes and could also not be considered as the core categories. We therefore refer to *composed elements of type* or abbreviated *type* as the most suitable core category.

Moreover, our data indicates that there is a correlation between categories and subcategories. Accordingly, there is interaction between the outer face and inside contents of the house, and this relationship is extended into the elements of both categories.

By applying architects' interpretation, we can substitute the categories of *plan*; *interior design*; *building materials and techniques*; and *exterior façade* with those of the primary categories. The categories of *plan* and *interior design* evolve categories related to the *inside contents* of our house model, whereas *exterior façade* comprises most of the categories that existed in regard to the *outer face* of the house. Moreover, the category of *building materials and techniques* involves both the *outer face* and *inside contents*, and due to the common factors existing between them, we therefore bring it out as an individual category.

By gradual conceptualizing of data, we consequently come out to this result that the *composed elements of type* or shortly *type* is as the core category consisting of the categories of *plan*; *interior design*; *building materials and techniques*; and *exterior façade*. The categories involve different subcategories relating separate properties and specific dimensional locations identifying the elements and details of a house type.

Plan

The plan is the basic element of a house type. Plan is actually the arrangement and layout of the hostelry functions of a household together with its tools and other requirements of life. In this regard, three major categories should principally be considered.

One, variety of areas; **two**, dimension and size of areas; **three**, flow through areas. Variety of areas includes the categories of living, sleeping, eating, cooking, bathing, storing, working and so forth.

In other words, it is basic for a designer to understand what sort of activities take place in the area. Although the mentioned areas reflect the common needs of a household, the whole set of functions is not always allocated to a separate room on the plan. In some cases, not only the overall activities of a family together with its tools are placed in a room, but its animals also co-exist in it.

As such, moving the animals out of man's living area, distinguishing between areas of living, eating and sleeping from the polluted area of cooking the meal, the toilet, bathroom and hygienic installations with e.g. a water closet are among the most needed amenities. Moreover, the allocation of distinct areas for basic functions indicates the level of development that is taking place in different types of houses. In some cases, a room is used for all basic functions, whilst in other cases the areas are separately allocated to special functions. It can be stated that subcategories of varied areas of the plan reveals the properties of common and distinct functions. Obviously, common areas of multifunctional purposes implicate the simplicity and primitiveness of those areas, while distinct areas with a special function reflect comfort. The variation in type is set to be anywhere between the range from simple to brilliant in the continuum dimension. However it is important to specify the dimension and size of areas, because areas are either small and limited or large and open. Thus the category of area size and dimension carries two subcategories of limited and large areas. The property of a limited area is constrained, whereas larger areas are more comfortable, so it covers a range from low to high comfort.

Interior design

Interior design is another phenomenon of house types. Interior design is nothing more than some data of the *inner contents* of the house types regarding floor, ceiling and interior walls. Since the plan is the arrangement and the layout of different areas next to each other and attributing them to special functions, interior design, in turn, is the way in which identification of those areas are physically expressed.

Some areas are sensibly more glorious and decorated than others. Adornment and physical motifs appear in the ceiling, floor and walls. Erecting different floor levels entails a differentiation between functions, variety and dynamics of the areas. The way in which furniture is set up and the way in which the needed fixtures are arranged reflect the special life style of the dwellers. Different and decorated ceilings make the area more pleasant and dynamic. Though perpendicular walls on the plan are dividing different areas and bear the load of the ceiling, they are also the places of recessed and artistically crafted niches, which are at the same time functional. Moreover, walls are sometimes the best place for demonstrating symbolic and metaphoric motives. Interior design offers an opportunity for evaluating whether or not man's prestigious demands are considered.

Accordingly, each of the categories of formal and informal areas is either in the form of released or elaborately well-done areas.

Obviously, the subcategories of released areas are expressed as the properties of unanimated and lifeless. Oppositely, the developed areas emphasize to life-fully properties and locate from boring to pleasant along the dimensional continuum.

Construction and Building materials

Construction and building materials are two distinct elements and they are related to each other at the same time. Due to the fact that these two elements are dispersed either partially or widely over the *outer face* and *inner contents* of our house model, I consider them as independent parts that are integrated and related to each other. Construction is the ability to span an enclosed area, transmitting the load of the ceiling through the walls and into the ground. Construction is a system that covers the categories of masonry elements or framed construction system as a monolithic frame joining ceiling, beams, columns and foundation. The category of poly-lithic or the individual construction system demonstrates the properties of variability and instability, whilst the category of the associated body expresses the properties of firmness and strength. Both categories cover a scale from firm to instable along the dimensional continuum.

Building materials as a category comprises almost all elements and physical parts of the house type. Most building materials that are applied in houses are divided into three categories of type, color and texture. The category of type is composed of subcategories of materials found in the peripheral nature and industrially produced materials which reveal the properties of simplicity and brilliance and ranges between low and high.

Exterior façade

Exterior façade figures as the most important phenomenon of a house type. The exterior façade is actually the physical form or apparent feature of a house type, which can be divided into the categories of opening size of the exterior walls, way of setting a house on the ground and the type of covering or roof.

Exterior walls are the place of opening, which is divided in to two others categories of closed and open. Some exterior walls are fairly closed to the outside. They may not as closed as having only an entrance door. The closed exterior walls are broken down into two subcategories of common and defensive walls. The common exterior walls include those walls that do not entail any significant manifestations, while the closed defensive walls involve the demonstration of fortified defensive elements like massive thick walls with ramparts and towers. In this latter type, besides entrance doors, some openings in the form of archery holes can be found over the door and around the ramparts and towers. The subcategories of common and fortified walls entail the properties of looking inwards or being introvert and looking outwards or being extrovert and it ranges on a scale from less to more.

Some walls are very open. Besides openings like the entrance door, some windows and other apertures can also be found.

Moreover, part of the walls have been recessed into the building or extended to the outside, and as a result, an area between the inside and outside is created as a form of balcony or verandah. Wall openings are mainly intended for balconies. The size and dimension of the balcony is determining the extent of openness. The balcony sometimes occupies just a small part of a wall and in other instances it is allocated to a full part of a wall or two, three or even four sides of a house. Thus the category of openness is divided into two subcategories of limited and unlimited and they feature the property of extrovert ranging from low to high on the continuum.

The way in which a house is connected to the ground or natural setting is another general category of a house. A natural setting is dependent on the two categories of setting type and material. Type of setting is either flat plain or sloping, while the material of the ground is either loose or hard. The subcategories of flat and sloping settings reveal the properties of stability and instability. Thus they cover a range from stable to unstable. Furthermore, the subcategory of loose ground holds the properties of unstable and hard as the properties of firmness. Thus they range from stable to unstable along the dimensional continuum.

The other element of the house is the roof covering, which is divided into the roof type and materials. Roof type is either flat or in the form of a gable or dome ceiling. Thus roof type is composed of flat, gable and dome roofs. Each of these subcategories is either apparent and clear or latent and hidden, which express the properties of responding to either a logically proper solution or improper solution, which means that a range between proper and improper is covered on the scale.

What is typology?

So far we have succeeded in identifying the different house types, but it is the aim to find relations between the identification of a house type and the queries of what typology is, and to find out which role it can play in making the identification explicit and clear. As a consequence of our observations, we have discovered that not only a whole range of elements and parts like the categories of *plan; interior design; construction and building materials; and exterior façade* including their subcategories play a part in the form of a house type. Meanwhile, the more changes and differences that may occur, the larger is the number of different house types.

We therefore refer to the categories and subcategories from a general perception of a house type. We have determined that the categories of *plan; interior design; construction and building materials; and exterior façade* are the basic criteria in identifying a house type. It is indicated that a house type, in accordance with the before-mentioned common factors, entail a certain set of the mentioned criteria and that other types of houses entail other sets of criteria depending on which type of house it is.

Several types may be formed in accordance with a defined area of study as well.

Laying out the house model according to the main categories that are of significance and the subcategories of less importance indicates that differences sometimes are small and partial and sometimes large and significant. So basic and central differences cause the creation of main and distinct types, while small and partial differences entail the formation of a range of developments within the type in question.

As an example, the most important house types of Lebanon are comprised of the main and distinct type of the closed rectangular plan; the entrance hall; the liwan and its related courtyard; the central hall; and the combined houses (Ragette 1973). Similarly, the naked housing (*kaldiwal/ kuta*); the courtyard (*hawill*); the fort (*qal'a*); the grotto (*sum/ sumu*); and the portable house types of Central Afghanistan-Haza'raja't are also stratified on by the basis of clear and significant differences.

As we mentioned before conceptualizing the four categories of *plan*; *interior design*; *construction and building materials*; and *exterior façade* differentiates one type from the others.

If we for instance put two houses into two different sets of type on the basis of their varied plans, could the other categories proceed with this classification? The answer is negative, because the issue is rather complicated. Typology on the basis of the above mentioned categories does not take place simultaneously, but if one of the main categories like e.g. *exterior façade* is deemed significant, the other categories ought to proceed with it. Nonetheless, each of the categories of *plan*; *interior design*; *construction and building materials*; and *exterior façade* play a special role in distinguishing and differencing between the house types.

Exterior façade is the primary category and after that *plan and area layout* are the determinants, whereas *interior design*; and *construction and building materials* may differ very much even within the same type of housing.

Why types are different?

Although our model types reveal most properties of a basic type, they do not evolve all characteristics. Each type according to its location along the dimensional continuum, demonstrates the major properties. So there are differences and varieties among the different house types. Since human beings are the major consumers when it comes to house types, and since house types are being built on the natural ground, man and nature as the two important combined factors affect the formation and differences of the house types.

I assigned *Chapter three* for more detailed discussion regarding the influenced factors and house form.

Now I will briefly present the typology, which has been developed for the purpose of this study.

1. The Naked Housing
(*kaldiwa'l/ kuta*)



Fig. 392 *Qul khish-e Behsud*

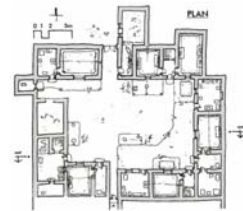


Exam. 2

2. The Courtyard Housing
(*hawili*)



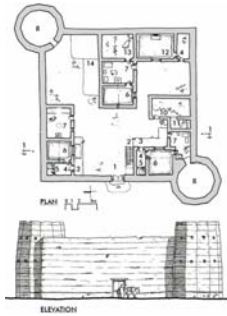
Fig. 158 from Exam. 20



Exam. 27

Presentation of the developed typology

Generally the whole range of houses in all over the study area is categorized in five different types of houses, which each delegates and represents a very specific and distinguished identity. The house types derived as the consequence of typology are including the naked housing (*kaldiwal/ kuta*) (Exam. 2, Fig. 392), the courtyard housing (*hawili*) (Exam. 27, Fig. 158), the fort housing (*qal'a*) (Exam. 35, Fig. 401), the grotto housing (*sum/ somuj*) (Fig. 298, 306) and the portable housing (*chapari/ ghizhdi*) (Exam. 66, Fig. 319) together with housing details and clusters. Each house type comprises vast subtypes, which appear from the poorest to the highest degree of sharing properties of the type. However, each type is evaluated along the criteria of *plan, construction and building materials; interior design; and exterior façade* for better understanding and profound recognition form of houses.



Exam. 35 Sohr'ab's fort



Fig. 401 Sangzard-e sarejangle

3. The Fort Housing
(*qal'a*)

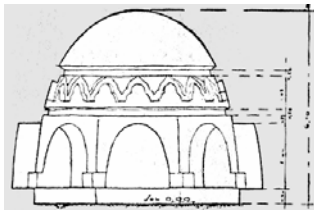
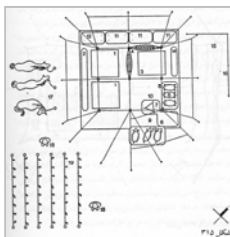


Fig. 298 section of a grottoe



Fig. 306 from Exam. 59

4. The Grotto Housing
(*sum/ sumuj*)



Exam. 66 a tent



Fig. 319 Inside of a hut

5. The Portable Housing
(*chapari/ ghizhd*)

PART TWO
THEORETICAL APPROACH

There has not been a unique previously tested theory available to base this study upon. In this regard my approach is peculiar and it is therefore in manifold, namely house form aspects and transmission of house form.

My approach is in the form of a general framework, which is simply derived from the basic pattern of the existing vernacular house form of Haza'raja't in Central Afghanistan; and it is a strategy for improvement and development of houses.

Theories on house form

The first part of my approach is initiated on the basis of folk or popular architecture and vernacular housing theories, and particularly on the hypothesis of Rapoport on house form and culture. Rapoport explicitly accepts that there is a link between behavior and form in the sense that an understanding of behavior patterns, including desires, motivations, and feelings is essential to the understanding of a built form, since a built form is the physical embodiment of these patterns (Rapoport 1969:16).

In understanding the many factors' effect on house form, Rapoport denies the influence of physical forces or any single causal factors. He conversely expresses that house form is the consequence of a whole range of socio-cultural factors seen in their broadest term. Form is in turn modified by climatic conditions (the physical environment which makes some things impossible and encourages others); and by methods of construction, material available, and the technology (the tools for achieving the desired environment) (p.47). According to this theory socio-cultural forces are primary and determinant; and the others are secondary or modifying. For further descriptions of socio-cultural forces, Rapoport applies the term of *genre de vie* and states that it includes all the cultural, spiritual, material, and social aspects, which affects the form⁴. He furthermore suggests that *genre de vie* is the sum of the concepts of culture, ethos, worldview and national character (p.48)⁵.

The way socio-cultural forces affect the form of house and settlement is of great importance. Respectively, Rapoport focuses on behaviors and activities take place in the house as components of socio-cultural forces like: basic needs; family; position of women; privacy; and social intercourse. He argues that the need to breathe, eat, sleep, sit and love still tell us very little in regard to built form as the culturally defined way in which these needs are handled.

The hypothesis of house form and culture has been partly criticized by other researchers. Among them Norberg Schulz who is uninterested in the way Rapoport divides architecture into two fields of folk and grand traditions: He contrarily believes that there are situations that require different solutions in order to satisfy man's physical and psychic needs (Norberg Schulz 1980:5). According to Daifalla (1998:33) however, Lawrence criticizes Rapoport for using general terms in the illustration of the importance of socio-cultural factors in understanding vernacular architecture.

Lawrence also points out that Rapoport relies on secondary sources; otherwise he cannot substantiate how vernacular buildings have been contracted according to these factors. He does not pay sufficient attention to the design and use of space and to which extent the changes in life style are reflected in housing design are the other points of Lawrence's criticism, which points to an important shortcoming in Rapoport's approach in relation to this study.

Vestbro is another critic of the socio-cultural aspect of Rapoport. He believes that socio-cultural factors have been discussed in a more or less isolated from the material base of the respective societies.

No doubt, along the study of Rapoport, one cannot ignore that a kind of latent bias exists that is tending him towards the so-called socio-cultural forces of house form. It seems to me that this bias stems from his standpoint that reveals the fact that Rapoport intends to express implicitly the meaning of objects which Norberg Schulz in contrast does very explicitly (1980), which is latent and powerful in expressing nonmaterial objects.

This vision would of course be unacceptable for Vestbro, who analyses socio-cultural forces of house form on the basis of materialistic modes of production (Vestbro 1975:14-15)

I draw attention to the two missing points in Rapoport's hypothesis. **First**, the methodological aspect in accordance with the way of selecting samples in the form of unrestricted time and place might have led Rapoport towards a specific need rather than general qualified samples; **second**, security does not hold a proper position in Rapoport's theory, whereas security and defense are undeniable issues in most fortified houses of Haza'raja't. However, security has been of great importance in Vestbro's study (1975:143-150).

Despite the critique, parts of the hypothesis of house form and culture is still unique. This theory unveils new horizons for studying

house form, and in particular studies that are related to the developing communities.

Most of the subsequent studies have directly used Rapoport's approach or they have somehow been influenced by it.

The five most influential forces on house form are derived from Rapoport's theory such as some basic needs; family; the position of women; privacy and social intercourse have been among the main general focal points of these studies. Vestbro adds overcrowding to these concepts.

Theories on transformation of house form

For this fold of my approach I am interested in utilizing Christopher Alexander's theory of pattern as a tool for generating architectural language, particularly *A Pattern Language* (1977). This theory allows us to propose hierarchically single parts and elements of our house by the process that takes place in the first fold of this approach as a model and strategy for the improvement and transformation of houses.

The idea behind *A Pattern Language* is that the totalities of a built environment assume a language, which can be broken down into several meaningful elements and parts, in order to form a pattern. In this regard, the first thing that becomes important is the composed elements and parts of a totality, and the second thing is the way in which the parts can be developed gradually in order to penetrate as deeply as possible into the nature of things in the environment. Alexander believes the theory of Pattern Language is, in essence, a process by which we gradually become conscious of our own pattern language and work to improve and solve problems.

Despite the criticism of pattern language, it is abundantly used in studies tending towards problem solving⁶.

Manzoor (1989) elaborately examined the theory of pattern language in order to develop patterns of Iranian vernacular architecture. According to this approach, Manzoor hierarchically breaks down the totalities of an arid and warm region of Iran into language patterns of *house*, *neighborhood* and *city centre*. He penetrates deeply into each pattern and describes the composed elements and parts of them as the form of context i.e. function, location, culture and time; frequent problems and alternative solutions; and conclusion.

Another approach pertaining to the transformation of house form is the study of Schwerdtfeger (1982). This study comparatively analyses three distinct and homogenous vernacular undeveloped urban areas to understand the mode of development and changes that take place over time, both in relation to each other and then in accordance with modern trends.

Schwerdtfeger does not explicitly state which basic criteria that let him compare the rate of changes taking place in each instance, but it is estimated that the most primitive example could possibly appear as undeveloped and form the base for measuring the rate of development.

Schwerdtfeger's study is certainly an intuitive approach, but it does not fulfill the scope of my approach.

PART THREE
METHOD OF STUDY

In the preceding part we talked about the approach relevant to the topic of our study and we are now able to discuss the method required for this approach. The previous approaches have normally been used two different methods: open referring to evidence and closed choice of context or case study.

Open referring to evidence takes place by different meanings and objectives. The common way is to refer to houses without any restriction of time and place. In this case referring to evidence mostly takes place in the mental environment of researcher rather to be within reach of public. Rapoport achieved this method, because of the holistic and anthropological nature of his study. Meanwhile he could not conceal the problems he confronted with, so he acknowledged that there had not been general accepted conceptual framework and also material was vast and not recorded in a uniform way. What questions even more the far out way of looking to evidence, perhaps is that investigators look for those evidence to fit best their special needs rather to choose general qualified evidence.

Sufficing the choice of a limited number of samples, which are not wide spread enough to delegate the whole group of houses may have been among the most criticisms subjected to this method.

In this research, contrary to the above, case study has been used as a suitable tool for referring to evidence, but it is not taken place haphazard. An innovative method of typology was well applied for the classification of Lebanese houses (Ragitte, 1974), which seems to be a more reliable approach. Typology is a well-known method, Norberg Schulz (1980) uses it to classify the status of landscape of Norway and Gitte Marling (1995) applies it to find out the types of houses exist in an urban environment in Denmark. I followed this way for typology and identification of houses in the case study of Hazarajat, and then the accumulated information has become a basic data for the proceeding the method initiated from house form of Rapoport.

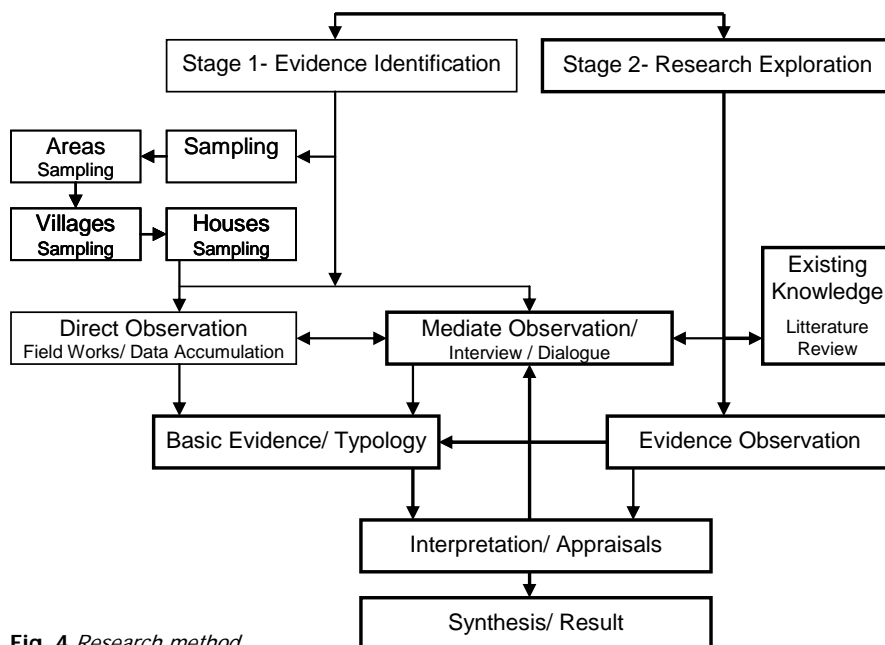


Fig. 4 Research method

My method is then the composed and mixture of three distinct practiced parts such as: using case study as a common method for choice of the context; achieving typology for identification of evidence; and exploration and developing of related concepts. The method adopted for proceeding with the study involves two major stages. Stage one includes the study of traditional housing, which we call it identification; and stage two involves the developing of houses or research exploration (Fig. 4).

Stage one: Identification of houses

The specific task is to refer evidence and select the required feature of houses by the method of typology, so that we can understand what it is meant by the house form in question.

In this study referring to evidence is not taken place haphazard, but it is carried out precisely and comprehensively to identify the physical and spatial form of houses.

As of the primary stage of the study typology is applied to recognize the existing house form by the basis of grounded theory as the result of direct observation (participatory) and mediate observation (interview and dialogue) of selected samples representing the whole group of houses in the area.

The grounded theory is a qualitative research that is inductively derived from the study of phenomenon it represents. That it is discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon (Strauss and Corban, 1990).

For carrying out typology I did not begin with a theory and then prove it, rather I began with an area of study and what is relevant to that area is allowed to emerge.

The purpose of the grounded theory method is to build theory that is faithful to and illuminates the area under study.

Coding as a basic tool of grounded theory composed of open, axial and selective coding presented the operation by which data are taken from samples, broken down, conceptualized and put back together in new way

The processes of gathering data by the basis of grounded theory and developing or conceptualizing of data constitute the major part of the research method, which is carried out by structured interviews and participatory observations.

The primary study is mostly prepared from existing technical literature in addition to interviews with local authorities. In this part the preparation of holistic information about the region such as geography, security, historical background, culture and social structure, traditions and beliefs as well as access to natural resources and facilities for building housing and shelters is considered.

Research on the ground has been carried out in to two phases including pre- and complementary research. The time spent on ground research and activities pertaining amounted to two distinct trips totalling five months, whilst, the whole research plan took much more time.

Although, the research on the ground applied in this existing research plan had considerable intricacy, it is a method which is currently well recognised.

The pre-research plan has not only taken place in order to obtain familiarity with the ground of the research, but it aimed to control and to evaluate the applicability of the research method as well. Pre-research took place in the first round trip in the *Bāmiyān* and *Yakaulang* districts. In this round, as it was assumed, some problems might arise in the application of the research method, especially in the preparation of the questionnaire plan concerning the selection of sample villages.

Fortunately, the eventual unknown problems were adjusted for the next round in complementary research and prepared a suitable platform for the accommodation of the objectives of the theoretical basis with subjective practical facts.

Complementary research actually constitutes the significant part of the research in question. In this process the research data gathered hierarchically throughout the districts (*woloswāli*), villages (*ābād*) and housing units. However, in order to identify and select the districts that qualified for research, consultation with the local authorities in *Bāmiyān* was called for.

Sampling

Being various types of housing, it is considered, the selected samples to be comprehensive enough to delegate the housing types of the region.

Data collection from all houses neither was possible, nor necessary. I therefore selected some samples to delegate the whole group of houses. The samples were not chosen haphazard or even randomly, but they were selected by the way of matching by bring out some criteria, in order to reduce the possible error. I think these criteria as the characteristic of larger group will affect what I observed; I can match the samples to the larger group on that characteristic.

In the deep and marginal geography of the district; factors such as high and low social economy; culture and the social structure of being land owner and systems of villeinage were among the major criteria considered in the selection of sample districts, whilst, historical antiquity and the lifestyle of living in grottoes or built-up areas were included in the secondary criteria.

The sample districts qualifying for research throughout the central region comprise *Bāmiyān*, *Yakaulang*, *Shebar*, *Shikhali*, *Lulerj*, *Turkman*, *Qulkhish-e behsud*, *Hesa-ye awal-e behsud*, *Hesa-ye dowum-e behsud* and *Panjau*.

Indirect data were taken from the other districts i.e. *Ghazni*, other parts of *Hesa-ye dowum-e behsud*, *Waras*, *La'lo sar-e jangle* and other districts of *Uruzgān* (Fig. 5).

The whole process of gathering data i.e. general information on the districts including their location and geography; their historical background and security; their social layers and structure; socio-economy; climate; and natural building materials, in addition to the recognition and selection of sample villages throughout the district, took place through direct interview with the local authorities. The gathered data were used in recognition of region and analysis sections, whilst, in the second part of the recognition and selection of sample villages, for some of the criteria considered, the authorities were requested to introduce the villages, which matched them.

The important criteria for the recognition and selection of sample villages throughout the districts include low and high livelihood; flat and inclined location setting; low and high social type; life pattern in grottoes, built-up area or non-sedentary; use of different building materials.

The criteria considered for the recognition and selection of housing units throughout village's dependant on the conditions and circumstances of the villages were steadily in change. The characteristics of low and high economy level, flat and inclined setting, living in a grotto or built-up area and the use of various building materials were the common criteria.

Data are primarily taken from any single samples. Then the data together with interviews, quotations and other notes are conceptualized into different pertaining categories and finally the core category is discovered.

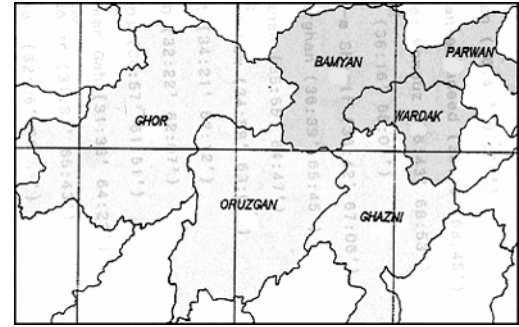


Fig. 5 Districts of data gathering

Observation

The whole process is done by the way of direct observation or participatory. In cases, whenever there was no possibility or being undue, mediate observation took place, which by that I relied on getting information through the observations of other people by asking them as interviews or free dialogues in the form of structured or non-structured questionnaires.

Findings of this stage of the study, which constitute the theoretical formulation of the reality under the investigation was previously published in local language.

It is to be noted that the observed samples amounted to hundreds, but some of them because of their resemblance to one another or the lack of necessary information were neglected or partly used.

Materials gathered from housing including lifestyle; type of tenure; the circumstances of the building techniques and materials; the skill of the builders, building age, the characteristics of the inhabitants, current traditions and beliefs, trends, difficulties, and needs, in addition to detailed and general sketches and photographs of housing. These data are used for the typology of housing and interpretation parts.

Two other complementary controlling methods used to enhance reliability of research method and minimising the possibly errors. These methods are restricted to the specific conditions of the ground research including observing qualified samples during passing through tight and controllable gorges and having a better understanding of unobserved areas and houses.

In this regard dialogues and interviews achieved either with dwellers or authorities.

Contact with people was in the form of free dialogue concerning the related issues rather than as a formal interview. Notes and memos were taken and then put them into the questionnaires. As well as selecting qualified samples according to the instructions of local authorities, numbers of new samples chosen along the route and some of the nonqualified samples were omitted. For instance, *Lakh'shán qal'a*, a worthy old fort, which is depicted on the 500 Afghans of President *Daud Khan's* currency and selected during passing through *Bolulah* gorge close to *Bámiyán*. In the research plan, the samples located in similar geography, because of their resemblance and inaccessibility were primarily omitted, while data and necessary materials were collected by means of interviews conducted with local experts in out of the area. It is expected that in this way we could accumulate the needed data.

Stage two: Research exploration

As a consequence of reviewing the available literature now I can express that there exist some basic view points relating the topic of the study. Although these view points are steadily criticized by other researchers, but they still figure out basic. I found some of the view points and methods relevant to the topic of the study. Meanwhile, I considered those critics as well. However I used

grounded theory, an appropriate method, which is not yet, applied so much for purpose of such topic research.

In this regard for more clarity, I will add the procedure of typology, which is developed by the basis of grounded theory under the title of conceptual framework.

Observing the hostelry activities of a household by a team of observers is a difficult task and it is unreliable, because if even a household let the observer to achieve such a research, no doubt the behaviours seem more formal and unrealistic.

Fortunately the study due to I as participated researcher, once have been part of the research community. So I had pre-recognition and I was familiar with most of the continuous and routine hostelry activities such as family sitting together; cooking and taking the meal; sleeping; and likewise other major activities, which took place within a longer period of time e.g. fest and ceremonies. In this research what I deeply observed was the physical responses or attribution of activities and behaviours in the form of areas and places. However variety of areas; application of articulated elements and techniques; and ingenious solutions mostly addressed my consideration.

Data of the first stage after converting into newly required language and fashion have been considered the basic material for this round of investigation. In this stage as of the past referring to evidence is taken place to examine and observe them in different contexts that the existing house form implicates to what specific and identified behaviors and what it means. So that we can understand what it is that affects the form taken by houses, and also what it is that so easily enable us to tell the area and culture to which a dwelling belongs.

Structure of the study

The structure of the study consists of an introduction, four chapters an epilogue and the final part of the study.

Introduction is actually an abstract in accordance with the problem existed in the study field and what contribution the study may have in solving the problem. The problem of the study is unique in character, so it needs some concepts related to the subjects to be clarified. In this regard, these concepts together with the study approach based by the well known tested theories and likewise the method of achieving the study are placed in *Chapter one*.

Chapter two is designated for the consequence of data derived of the evidence from my case study as of detailed and in-dept recognition of house types or typology.

House meaning and influencing factors are complementary in understanding the house form. Appraisal of the socio-cultural forces and physical factors affecting on house form takes place in *Chapter three*. So far the previous stages of the study have prepared a basic knowledge and illumination the possibilities and constrains in accordance with the retracing the process and reproducing of a house form to render the needed changes and



CHAPTER 2

HOUSE FORM/ TYPOLOGY

The purpose of this study is to enable us to understand, in physical terms, what a house form is and which elements and parts a house and settlement is consisting of.

In this regard, traditional housing of Haza'raja't in Central Afghanistan is used as a case study; and it has been endeavoured to systematically recognize the elements and parts of houses and settlements of the area.

For this purpose, I have carried out typology, which is a proper tool for revealing the type of houses and settlements.

On the basis of typology, the whole range of houses in the entire study area is divided into five different categories of housing types, which each represents a very specific and distinguished identity.

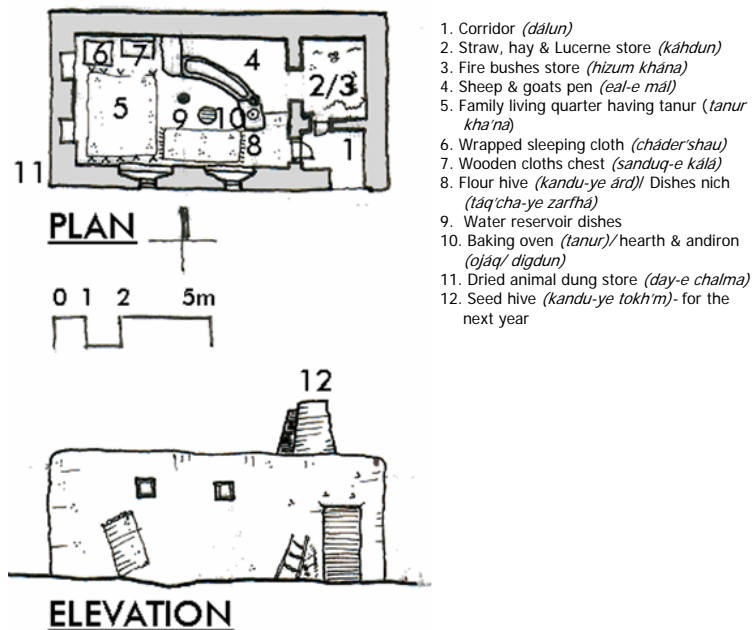
The house types derived as the consequence of using typology are as follows: *the naked housing (kaldiwal/ kutā)*, *the courtyard housing (hawili)*, *the fort housing (qal'a)*, *the grotto housing (sum/somuj)* and *the portable housing (chapari/ ghizhdi)* together with housing details and clusters. Each house type is comprised of a vast quantity of subtypes; from the poorest to the highest degree of sharing properties. Furthermore, each type is evaluated along the criteria of *plan, construction and building materials; interior design; and exterior façade* for better understanding and profound recognition of the form of the house.

Overleaf:

Fig. 7 *A naked housing (kaldiwa'i)*
Qul khisk-e Behsud



PART ONE
THE NAKED HOUSING
(kaldiw'al/ kuta)



Exam. 1- Mohammad's House
(*kaldiwāl/ kuta*)

1- Plan

The naked housing is the simplest and the most primitive shelter, in which humans and animals co-exist. This type of dwelling is a closed rectangle with thick walls, flat roof and no distinguishable form. There is not much of an opening, except a short and narrow gate (*dargah*), for both man and animal to go to and fro in, one or two small apertures (*kilkin*) for light and ventilation and a small smoke hole (*muri*) in the ceiling. Since, the dwelling stands alone on the ground with no enclosure; it is called 'naked' housing (*kaldiwāl*)⁷. Meanwhile, applying this definition somehow reveals the quality of housing as well.

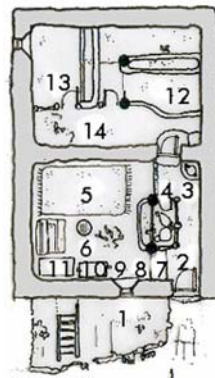
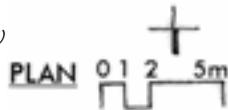
The dimensions and area of the dwelling, are on the one hand the function of climate restriction i.e. the minimising of the inside area to conserve warmth, and on the other hand, related to the width of the rectangle, which is steadily underpinned by the roof spanning of existing wooden logs.

The shorter length or the width of the rectangular area is chosen for spanning, which rarely exceeds 4,5m in length, and at the most covers an area of 35sqm. This area is a home for a five-person household together with their two sheep, a goat and a donkey (Exam. 1). The inner area of the dwelling is not more than 2,5m high, with reference to the restriction of heating the area. Regarding the co-existence of man and animal, the floor of the dwelling is built in different levels.



Fig. 8

1. Terrace (*sofa*)
2. Corridor (*dálun*)
3. Lambs pen (*eal-e baragu*)
4. Water reservoir dishes
5. Family living space having *tanur* (*tanur khāna*)
6. Baking oven (*tanur*)
7. Flour hive (*kandu-ye árd*)
8. Hearth (*ojáq/ dígdun*)
9. Dishes nich (*taq'cha-ye zarfha'*)
10. Wooden cloths chest (*sandug-e kála*)
11. Wrapped sleeping cloths (*chāder'shau*)
12. Sheep & goats pen (*eal-e mál*)
13. Donkeys stable (*tawila*)
14. Straw, hay & Lucerne store (*kāhdun*)
15. Fire bushes store (*dal-e buta*)
16. Dried animal dung store (*day-e chalma*)



Exam. 2- Sardar's House
(*kaldiwál/ kuta*)

The floor of the entry porch (*dálun*)⁷ or the area between the inside and the outside is a little lower than the floor of the living quarter. Shoes are deposited there along with the so-called *kafshekan*. The floor of the stable is located at the lowest level, because of the animals' droppings.

The family living area with a baking oven (*tanur*) in the middle constitutes the main focus of the hostelry activities of the family. *Tanur* has a significant importance in the Naked Housing (*kaldiwál/ kuta*). In *tanur* and in nearby hearth (*ujáq*), not only is bread baked and the meal cooked, but the major functions of sitting, eating and sleeping take place around *tanur* as well (Fig. 8). The primary *kaldiwál/ kuta* has a lack of hygienic installations, such as bathroom (*tash'náb*) and latrine (*mustaráhl kenáráb*). Whenever the outside weather is tolerable, bathing takes place by using an outdoor spring or any other type flowing water, whilst, in cold winter a corner of the stable is used for bathing. In some cases, the surroundings of the dwelling are used as an open latrine (*sahrá gash't*).

A more developed *kaldiwál* is seen in Exam. 2. However, the gate (*dargah*) for man and animals to go to and fro in is shared and by erecting a wall between the family living quarter and the stable, the two areas are separated. At the same time, the stable functions as a heating source and insulator at the back of the family living area.

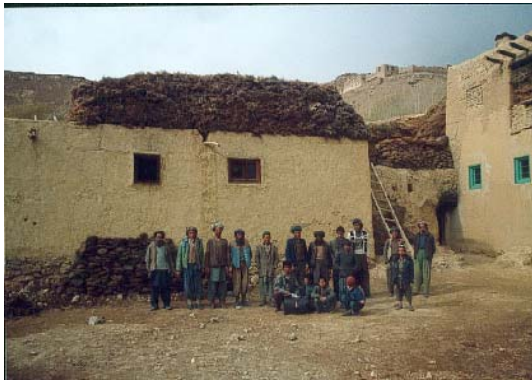
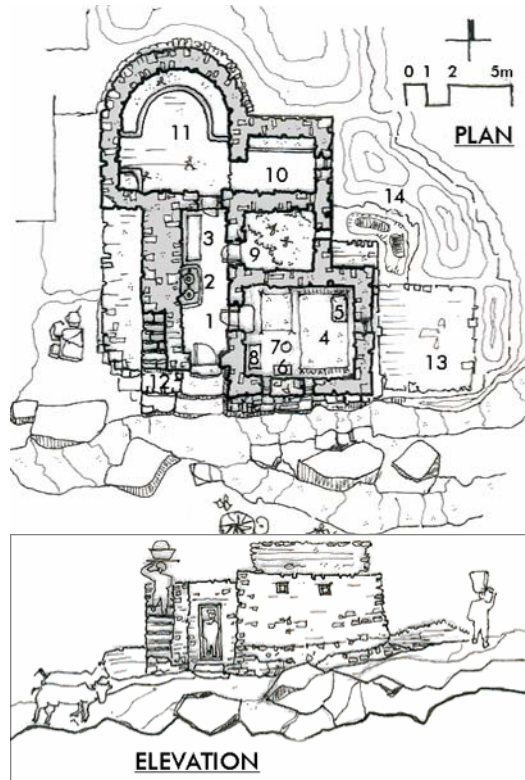


Fig. 9

**Exam. 3- Ali Jáhn's House
(*kaldiwál/ kuta*)**

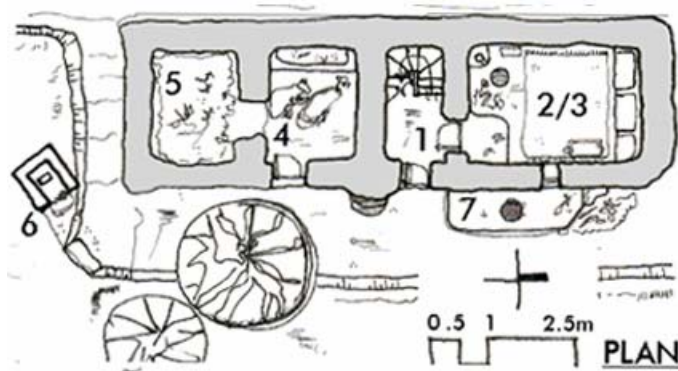
1. Corridor (*dá lun*)
2. Water reservoir dishes
3. Flour hive (*kandu-ye árd*)
4. Family living room having oven (*tanur khána*)
5. Wrapped sleeping cloth (*cháder'shau*)
6. Wooden cloths chest (*sanduq-e kálá*)
7. Baking oven (*tanur*)
8. Dishes nich (*táq'cha-ye zoru*)
9. Straw, hay & Lucerne store (*káhdun*)
10. Sheep & goats pen (*qutun-e mál*)
11. Donkeys stable (*tawila-ye ola'gh*) & Cows stal (*ághul-e gau*)
12. Dried animal dung store (*day-e chalma*)
13. Fire bushes store (*hizum khána*)
14. Open latrine (*mustaráh/ kenaráb*)



Respectively, the lambs' stable (*eal-e baragu*) is roomed in to the family living space and contributes further to the warmth of the family living area. The roof of *kaldiwál* has double functions: it covers the inner space and it is also utilised in the drying and stacking of cow-dung kneaded with straw (*chalma*) and thorny scrubs and bushes (*day-e buta*) (Fig. 9).

Obviously, the heavy bulk of burden on the roof causes the wooden timbers using for the spanning of the roof to bend. A strong wooden timber is therefore laid under the roof joist running in the opposite direction. Then two other wooden pillars transmit the load down onto the ground.

The position of the wooden supporting pillars does not disturb the interior functions, but also functions as a good divider between living and entrance (*dá lun*) space. Although, Exam. 3 is an older *kaldiwál* and its predominant building material is stone, which is taken from the surroundings nearby. The building does not seem much more refined, but the *tanur khána* of the family living area is anyhow separated from the animal stable. However, the animals go to and fro through another gate, which is separated from the family quarters. An animal stable, with 15 sheep and goats and two ploughing cows, seems to be more important than the family living area. *Tanur khána* of 20sqm is the common living area of the seven persons of the household including both parents and thier young son and daughter.



1. Corridor with stairs (*dálun & rah-e zina*)
2. Family living room having oven (*tanur khána*)
3. Family living room for spring use (*bahár neshin*)/ storage (*qash'qal khána*)
4. Sheep & goats pen (*qutun-e máf*)
5. Straw, hay & Lucerne store (*káhdun*)/ Fire bushes (*butá*)/ Dried animal dung (*chalma*) store room
6. Latrine (*mustaráh/ kenáráb*)
7. Spring use baking oven (*tanur-e bahári*)

Exm.4- Sakhidád's House
(*kaldiwál/ kuta*)

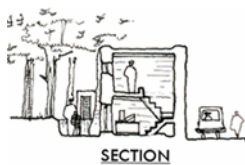


Fig. 10 from Exam. 4

Recently, *kaldiwál/ kuta*, depending on the various local influencing factors, have accepted significant changes. In some cases (Exam. 4), the peasant, contrary to the other fellows, has ignored the warmth coming from the animals co-existing with him. Having hygienic installations such as a latrine (*kenáráb*), elevating the house from the ground level, and adding an extra living room without a local heating system, called a room for spring use (*bahár neshin*), diversify the naked housing types.

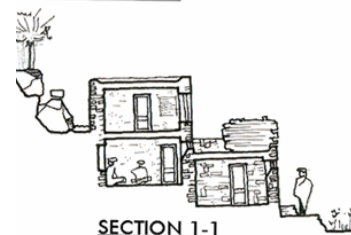
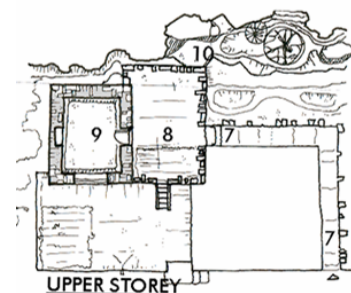
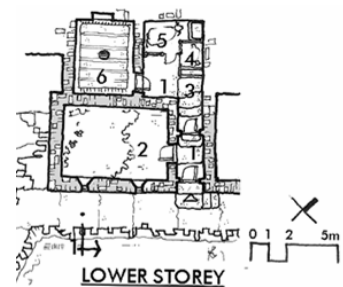
Although, spring used living rooms (*bahár neshin*) cannot hold the same rank as *tanur khána*, the allocation of this room for the young daughter and other children makes the family more comfortable. In exceptional instances, *bahár neshin* is used as a storeroom (Fig. 10).

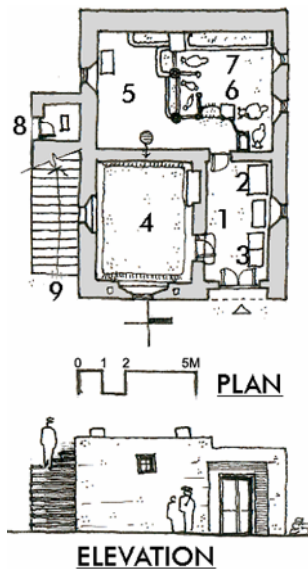
Exam. 5 is another instance of the importance of being *bahár neshin* adjacent to *tanur khána*. Of course, the difference is that the house built over the steep hillside and the dwelling areas are spread out in such a style that the lower storey prepares a functional veranda for the upper one.

Common *tanur khána* is used as the common daily function area of the family with a married son. *Bahár neshin* in the upper storey is allocated to the married son as his sleeping accommodation, and eventually, for guests as well.

Exam. 5- Sultan Ali Jawádi's House
(*kaldiwál/ kuta*)

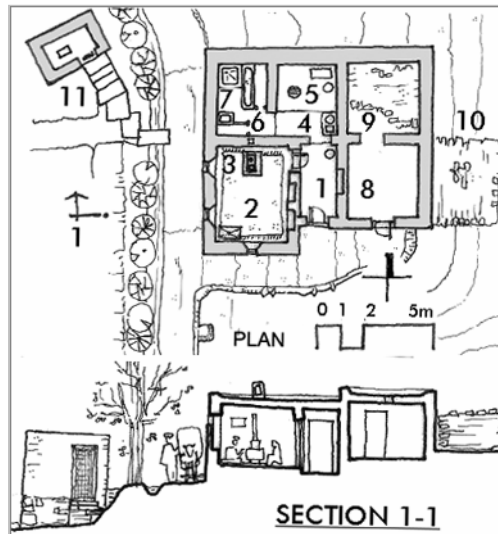
1. Corridor (*dálun*)
2. Straw, hay & Lucerne store (*káhdun*)
3. Stairs (*rah-e zina*)
4. Sheep pen (*qutun-e máf*)
5. Cows stall (*ághul-e gau*)
6. Family living room having oven (*tanur khána*)
7. Towards upper storey
8. Dried animal dung store (*day-e chalma*)
9. Spring use guest room (*mehmán khána-e bahári*)





Exam. 7- Masjidi's House
(*kaldiwál/ kuta*)

1. Corridor (*dálun*)
2. Flour hive (*kandu-ye árd*)
3. Straw, hay & Lucerne hive (*kandu-ye aláí*)
4. Family living room having under floor heating tunnels (*táwa khána*)
5. Fire place room (*átesh khána*)
6. Sheep & goats pen (*qutun-e máí*)
7. Cows stall (*ághul-e gau*)
8. Latrine (*mustaráh/ kenáráb*)
9. Fire bushes stack (*day-e buta*)



Exam. 6- Nesár Ahmad's House
(*kaldiwál/ kuta*)

1. Corridor (*dálun*)
2. Family living room
3. Local stove having cooking & boiling water means (*charí*)
4. Water reservoir dishes
5. Room having baking oven (*tanur khána*)
6. Sheep pen (*qutun-e máí*)
7. Bath corner (*tash'na'b*)
8. Store room (*qash'gal khána*)
9. Straw, hay & Lucerne store (*káhdun*)
10. Fire bushes store (*day-e buta*)
11. Dried animal dung stack (*day-e chalma*) on the roof
12. Latrine (*mustaráh/ kenáráb*)

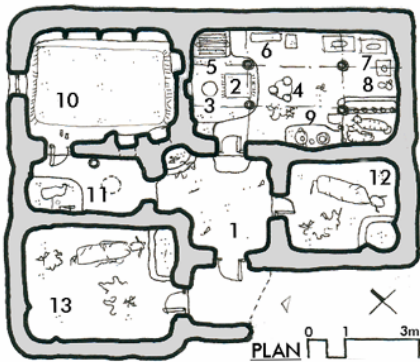
In some *kaldiwáls*, *tanur khána* has lost its importance as a major functional area. In **Exam. 6** *tanur khána* functions as an area for baking bread and cooking the meal. Moreover, when guests are visiting, it is used as a bedroom for the young daughters and the mother of the family.

Conversely, *bahár neshin* which is warmed by a local heating stove (*charí*), having cooking and boiling water, is attracted the major activity of the family. Having hygienic installations, i.e. a bathroom (*tash'náb*), in a corner of the stable and a latrine (*kenáráb*) enhances the comfort of the dwelling. Moreover, having a fodder straw room (*káhdun*) and a store for spare tools also diversifies many more areas of the dwelling.

Equipping the family living quarter with under floor heating tunnels (*táwa khána*) among the collection of *kaldiwál* areas indicates a considerable development in improving the quality of life-style.

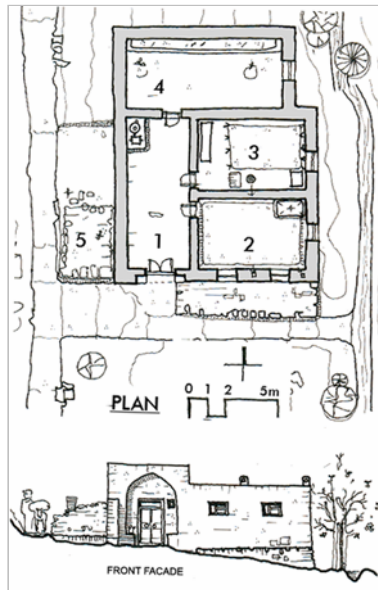
Exam. 7 is an interesting instance of a *táwa khána* having under floor heating tunnels in contrast to the other simple and common areas of a *kaldiwál*.

The *táwa khána* is remarkably refined and it has to be without smoke and other common types of pollution existing in *kaldiwáls*. The room has a bright green painted closet (*almári*) with embroidered overhang curtain and suitable apertures for light and ventilation.



1. Corridor (*dá lun*)
2. Fire place room (*átesh khána*)
3. Baking oven (*tanur*)
4. Hearth (*ojáq/ dígdun*)
5. Wrapped sleeping cloth (*cháder'shau*)
6. Dishes shelf (*almári-ye zoruf*)
7. Flour hive (*kandú-ye árd*)
8. Lambs pen (*eal-e baragu*)
9. Water reservoir dishes
10. Family living room having under floor heating tunnels (*táwa khána*)
11. Churn butter corner (*ja'y-e mash'k zadun*)
12. Cows stall (*ághul-e gau*)/ Sheep pen (*qutun-e mál*)
13. Donkeys stable (*tawila*)

Exam. 8- Ayub Sayed Mirzá's House (*kaldiwál/ kuta*)



1. Corridor (*dá lun*)
2. Family-1 living room having under floor heating tunnels (*táwa khána*)
3. Family-2 living room having fire place room (*átesh khána*)
4. Sheep & goats pen (*qutun-e mál*)
5. Fire bushes store (*hizum khána*)/ Straw, hay & Lucerne store (*káhdun*)/ Dried animal dung store (*day-e chalma*)

Exam. 9- Mohammad Ashraf's House (*kaldiwál/ kuta*)



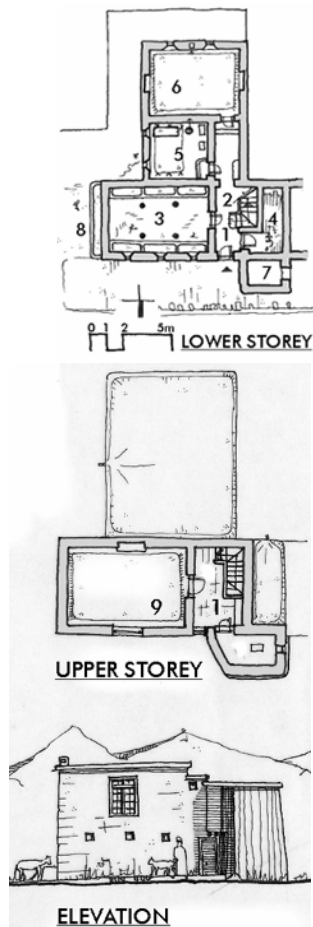
Fig. 11 from Exam. 8

The heat of the smoke coming out from the *tanur* and directed through under floor trenches during the daily baking of bread is the source of warmth *táwa khána*.

Exam. 8 is another instance of a *táwa khána* with a separate room with a fireplace (*átesh khána*). This instance is a pattern of the separation of man living and animals' quarters. The only indication of co-habitation is the quarter of the new-born lambs' stable (*eal-e baragu*) in the corner of *átesh khána*, because animals are in need of extra care and warmth (**Fig. 11**), whilst the cow stall (*ághul-e gau*), donkey stable (*tawila-ye ulágh*) and sheep pen (*eal-e mál*), in addition to the family living area are laid out separately around a central hall.

The relation between these two supplementary and dependent areas of *táwa khána* and *átesh khána* are very different. According to **Example 9**, these two spaces accommodate a considerable number of functions for the two families living together in a dwelling. *Tanur* of *tanur khána* belonging to the first family is used by both families; the heat coming out of the *tanur* warms the *táwa khána* of the second family, which serves the guests of both families.

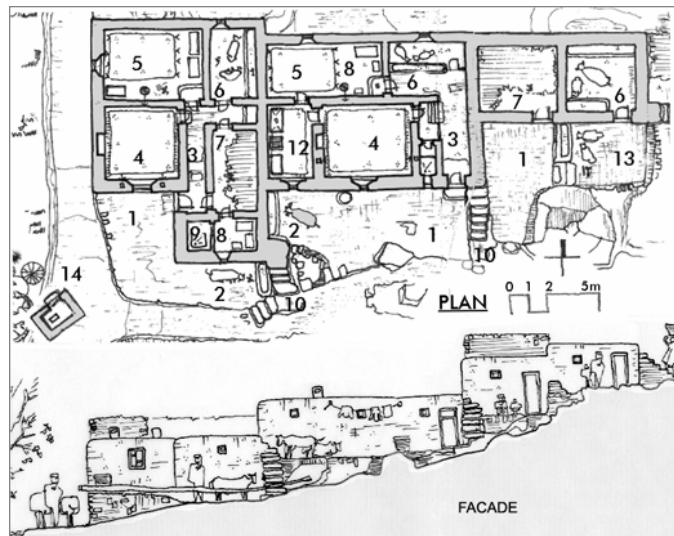
In **Exam. 10 and 11**, the two *kaldiwáls* are organically situated on the hillside and attached to each other in a complicated fashion.



1. Corridor (*dálun*)
2. Stairs (*râh-e zîna*)
3. Sheep & goats pen (*qutun-e mâl*)
4. Straw, hay & Lucerne store (*kâhdun/ alâf khâna*)
5. Fireplace room & kitchen (*âtesh khâna*)
6. Family living room having under floor heating tunnels (*tâwa khâna*)
7. Latrine waste pit
8. Spring use animals stall (*âkhur-e bahâri*)
9. Spring use guest room-upper storey (*bâlâ khâna*)
10. Latrine (*mustarâh/ kenâráb*)

Exam. 12- Mohd. Musá's House
(*kaldiwâl/ kuta*)

2- Construction and Building Materials



1. Terrace (*sofâ*)
2. Cows stall for spring use (*âkhur-e bahaâri*)
3. Corridor (*dálun*)
4. Guest room having under floor heating tunnels
5. (*tâwa khâna*)
6. Family living room having fire place (*âtesh khâna*)
7. Sheep & goats pen (*qutun-e mâl*)
8. Straw, hay & Lucerne store (*kâhdun*)
9. Food articles store room (*tahwil khâna*)
10. Bathroom (*tash'nâb*)
11. Stairs
12. Fire bushes stack (*day-e buta*)/ Animal dried
13. dung stack (*day-e châlma*)
14. Cloak room/ sleeping & wearing cloths store
15. (*pas khâna*)
16. Spring use animal stall (*âkhur-e bahâri*)
17. Common latrine (*mustarâh/ kenâráb*)

Exam. 10 & 11- Mohammad Nabi & Shaikh Sultan's House (*kaldiwâl/ kuta*)

Another interesting and improved instance of *kaldiwâl* is seen in **Exam. 12**. This *kaldiwâl* is built in two stories and comprises a 25sqm *tâwa khâna*, an *âtesh khâna* of 16sqm, a spacious sheep and goats stable (*eal-e mâl*), a fodder storeroom and a well-ordered spring used room (*bahâr neshin*) with large and painted windows (*urs*) in the upper storey, which is occupied by the two families' parents and their married sons (**Fig. 12**).

Since a *kaldiwâl* with a rectangular plan and a flat roof outlines a simple dwelling, the construction is not surprisingly uncomplicated. Fundamentally, the construction of a *kaldiwâl* comprises load-bearing walls, which are spanned by wooden timbers. The total pertaining loads of the roof are transmitted to the thick load-bearing walls through the wooden logs, and then these loads are spread out into the ground.

The use of timber for the spanning of flat roofs in Hazârajât dates from before recordings had been made. This system was used at least up to the period, when the spices of poplar trees (*chenâr/ spidâr*) were planted in the region. This spice of the tree is compatible with the local climate and it can bear a normal load of around 500kg/sqm in a limited span.



Fig. 12 from Exam. 10&11

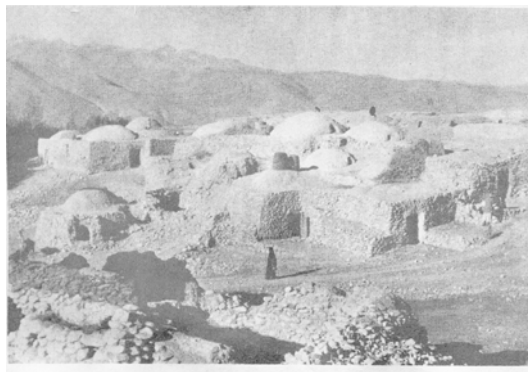


Fig. 13 Old type houses having domed ceiling

In the past, roof spanning was very difficult. At that time, the squared or rectangular areas were spanned with domed roofs. Since a domed roof made of earth-constructed materials could not withstand the extreme snowy and moist climate of the region, the old domed roof system very soon gave way to flat roofs spanned by wooden logs. According to calculations, not much indication of domed roof type housing is left in Hazáraját, except the remainders of some domed roof types in central Hazáraját, or in the environs of *Day zangj* and around the border of *Day zangj* and *Behsud* (Fig.13).

The foundation (*táhdau*)⁸ is the first step to a dwelling. In addition, the foundation of a *kaldiwál*, transfers loads from the roof through bearing walls and spread them out into the earth. In fact, it is the joint between the earth-constructed wall that is vulnerable to moisture and frost and moisturised earth. Generally, the soil strength in the region (except in abnormal cases) is high because the strength of the mixtures of sand and gravel are higher than the loam.

Mostly, sand and loam are found in the forms of soil mixtures of gravel, grand sand, gravel loam, loam sand and mud soil.

The foundations of most *kaldiwáls* are not wider than the walls. A trench that is 50 cm deep and 1.00m wide is dug, and then the foundation is laid down.

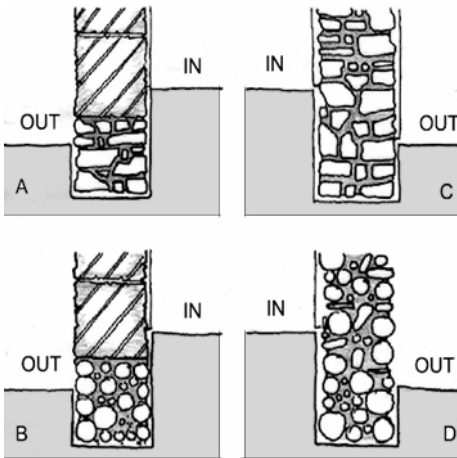


Fig. 14 Foundation types



Fig.15 from Exam. 12



Fig. 16 from Exam. 2

Sometimes, in cases when the soil consists of rock; the foundation is simply laid out on the ground. Generally, the width of the walls is around 75 cm, whilst it sometimes reaches up to 150 cm.

With regard to the diversity of soil in the region and by applying different constructional materials, various foundations have been built. The most significant foundations are categorised into the two following groups:

First, a foundation of pre-stressed mud walls (*pakh'sa*) or earth-constructed walls are made of crushed stone with mud mortar joints (Fig. 14 A). In some regions when there is no crushed stone, stone rubble is used for laying down the foundations (Fig. 14 B). Sometimes stone-made foundations are not so high as to prevent the penetration of moisture from heavy snow and rain from coming into the building. In this case, the walls are coated with thatched plaster (*kāhgai*).

Second, Walls and foundation of some *kaldiwáls* are uniformly built of crushed or rubble stone with mud mortar joint. There is no clear isolation between the foundation and the wall (Fig. 14 C & D).

Walls in a flat roof system having a bearing wall are very important and constitute one of the significant components of the system. In this system the overall loads of the roof are delivered directly to the surrounding walls by means of wooden logs (*timber*) and then these walls transmit the load to the ground.



Fig. 18 from Exam. 8

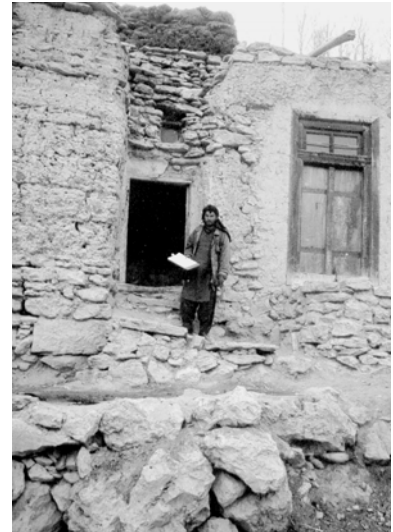
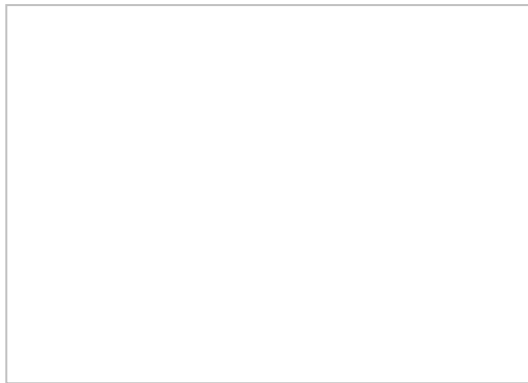


Fig. 17 from Exam. 5

Walls are therefore built thicker and stronger than is usual. The thickness of these walls depending on the climate, geography and date of built varies from 50cm to 1.00m.

Obviously, the above-mentioned thickness is not just because of constructional needs, but also to prevent against the penetration of extreme cold air into the building.

Walls are not very diverse. According to the samples taken, there are two types of mud and stone constructed walls. Mud constructed walls include pre-stressed mud walls (*pakh'sa*) and other common types. The thickness of mud-constructed walls is normally between 50- 75cm, which it is a good insulator in accordance with the extreme differences between temperature of $-30C^{\circ}$ outdoor and at least $15C^{\circ}$ indoor.

Finishing of the interior and exterior walls is coated with mud and chaff plaster (*kahgail*) (Fig. 15). However, in some buildings, only finishing of the interior has been coated with mud and chaff plaster and there is no exterior coating (Fig. 16).

According to the samples, small parcels of crushed and stone rubble in the mixture of mud-constructed walls there have been seen (Fig. 17, 18). Since the high quality of mud walls (*pakh'sa*) is applied in the courtyard and fort housing, further discussion is therefore directed to the pertaining chapters.



Fig. 19 from Exam. 3



Fig. 20 from Exam. 6

Stone constructed walls are practically located to the second rank. The material applied is frequently taken from the periphery of the building. There are some regions that have no access to mud materials and the acquisition of these materials from outside the region encompass many difficulties, so extra inputs, preferably the existing undressed stone with mud mortar joints, are applied for walling.

Most of the stones quarried from nearby mountains are very hard and not flexible to dress. They are therefore not appropriate materials for walling. Moreover, stone is highly conductive of cold and warmth. These are the reasons why stone has not yet developed as a building material and stonewalls have not been as attractive in mountainous Hazáraját, as they are in other areas.

Stonewalls are mostly from 50cm to 1.00m thick (Fig. 19). The interior and exterior finishing of stone walls are coated with thatch plaster (*káhgai*), in order to decrease the amount of conductivity of stonewalling and also for purposes of decoration. In this case, even the foundation is hidden by thatch plaster (Fig. 20). The exterior façade of building is being coated, just as in the case of mud plaster and chaff (*káhgai*). A kind of local natural mud, which produces a white colour, is being used for interior finishing, in order making the living space (Fig. 30) brighter and more enjoyable.

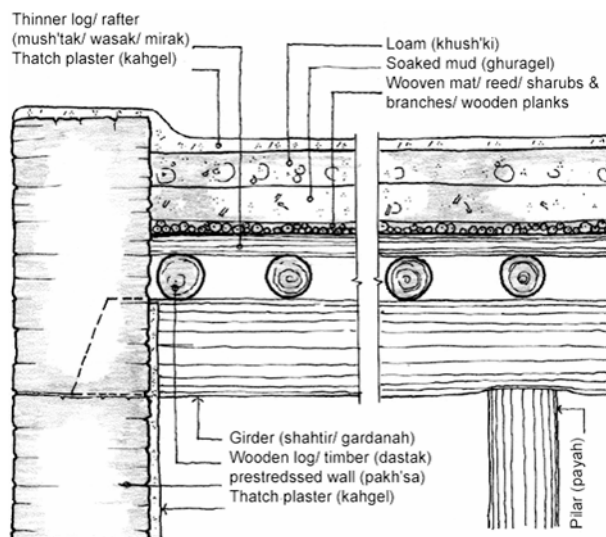


Fig. 22 Ceiling details

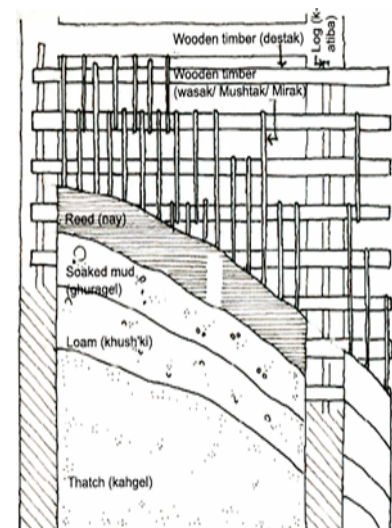
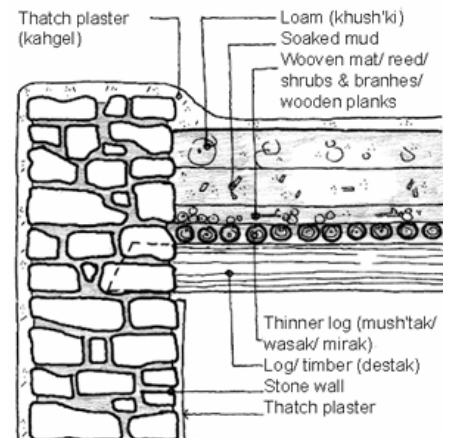


Fig. 21 Ceiling details

The ceiling is the most important component of a *kaldiwál* having a flat roof and bearing walls. This ceiling, besides spanning the area underneath, has several functions. It is used for stacking dried cow dung (*day-e chalma*), for stacking firewood and bushes (*day-e hizum & buta*) and for stacking animal fodder (*day-e aláñ*). The ceiling, besides carrying the heavy and massive dead load of spanning, endures the considerable live load of about 500kg/sqm.

The elements of a ceiling comprise round wooden log rafters (*timber*)⁹ of poplar (*chenár/ spidár*) tree with diameters varying from 15cm to 30cm (*dastak*) laid down with ca. 50cm intervals, then branches of poplar tree laid down in the opposite direction (*mushtak/ wasak/ mirak*), and shrubs of poplar (*push'tak*) or shrubs of local willow (*dager*) are spread out.

In some districts, pieces of woven mat are laid down directly after the rafters. The woven mat is no longer used, because it lacks the necessary strength and very soon decays. More often, reed¹⁰ and sometimes wood planks are used in conjunction. Afterwards, 15cm of soaked mud (*ghoragail*) is laid down, then 15cm of loam equivalent to the above, is spread out, in order to adjust the steep surface of rainfall needed and to insulate the roof. Eventually, a thick layer of mud with chaff (*káhgail*) constitutes the elements of the ceiling (Fig. 21, 22).

Generally, the thickness of the elements of the ceiling reaches up to approximately 30cm.



Fig. 24 from Exam. 5

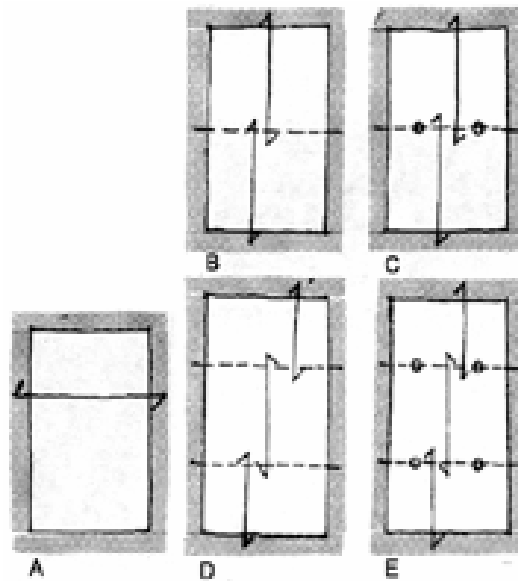


Fig. 23 Spanning types

Moreover, ca. 2- 3cm layer of mud with chaff coating (*kāhgai*) is over each year. The ceiling conductivity is the same as that of the mud-constructed walls. It seems that more than a 30cm ceiling thickness is needed in order to prevent penetration the cold from outside. No doubt, stacking fire wood and bushes on the roof is ingenious, and the aim is to isolate the roof in the same manner as the walls. Moreover, heavy snow over the roof seems to insulate the roof during the winter, and not let the outside cold penetrate the interior of the building, but it should be mentioned that wet snow might damage mud-constructed buildings.

Principally, the shortest distance of an area used for spanning, it is meant to be as cheap as possible. The focus is therefore directed towards shortening the spanning.

Local builders have come to the following interesting conclusions. The spanning of many buildings having access to the appropriate wooden log (*timber*) is carried out over the shorter span of a rectangular area, which should not exceed 4,5m (Fig. 23A).

Sometimes, 4,5m long span seems non-economic so that a strong girder (*pul/ gardana*) is therefore laid down over the width of the area to divide the roof into two shorter spans, so that narrow rafters can span it. If the ceiling load is great, then a pillar (*pāya*) stands under the girder (Fig. 23B, C).

In some cases (Fig.23D) instead of one girder, two strong girders are used for this purpose.

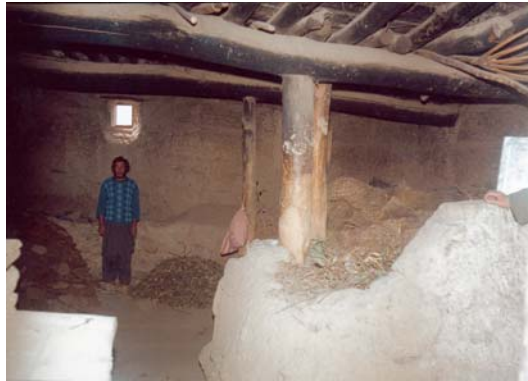


Fig. 25 from Exam. 60



Fig. 26 from Exam. 8

Sometimes as in Fig. 23E, two supporting pillars use girders under them. In most *táwa khánas* two strong girders lie transversely on the shorter length of the roof and divide the roof into three parts. Then seven wooden log rafters (*destak/ mush'tak*) span one part and 21 rafters span the overall roof surface (Fig. 24, 25).

Interior design is one of the disputable aspects of naked (*kaldiwál/ kuta*) housing, because a rectangular naked house is like a cell, in which all the needed living functions of a household with its animals and tools take place. Man's living quarters are elevated to a level a little higher than the entrance floor. This small area is the place for all the activities of a family. The baking oven (*tanur*) and hearth (*ujáq*) as a place for baking bread and preparing the meal is the focal area. The pre-made baking oven is sunken at about the middle of the room and the hearth for cooking is placed in a corner. In some cases, the baking oven is elevated a little (Fig. 26).

The other functions of the family, such as sitting and sleeping are not allocated distinct area in the *kaldiwál*. The only indication is a set of wrapped mattresses and blankets (*rakht-e khau*) in a corner. However, pieces of felt woven from e.g. goats' wool (*gelim/ namad*) are spread around the baking oven (*tanur*), and thus indicates the family living quarters.

3- Interior Design



Fig. 27 from Exam. 2



Fig. 28 from Exam. 8

The service facilities such as the cereal silos (*kandu*), which are elaborately made of mud and goats' hair (*kurk*) occupy a corner of the family living quarters, whilst, water reservoirs, together with the necessary dishes, are situated on a platform in another corner.

Although, some posts and pillars built inside the room are for constructional purposes, they are also used to separate various functions of interior design. In Fig. 27, two supporting pillars separate the two areas of the newborn lambs' corner (*qutun-e baragu*), which is located in a corner of the entrance porch (*dálan*) the family living quarter (*tanur khána*). However, one-meter high clinging niches are built between the two pillars, which indicate the pillars are loose and free. In Fig. 28, the pillars are loose and free at the same time. In fact, four pillars divide the family living area from the baking oven into two compartments of the living quarters around the *tanur*, service areas, the newborn lambs' corner and the other activities of the *tanur khána*.

The inside walls and ceiling of the family living quarter of *tanur khána*, are mostly rough and rugged and full of smoke, which is expelled into the living space.

There are some niches having different heights recessed into the walls for holding dishes and decorative elements.

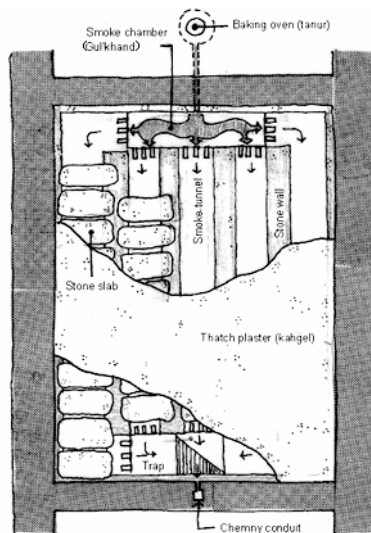
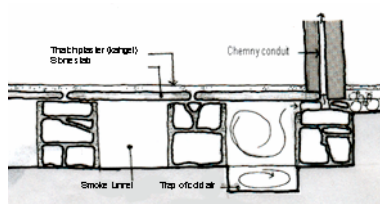


Fig. 29 *Tawakhána*



Fig. 30 from Exam. 8

In the design of *tanur khána*, not much attention has been given to hygienic needs in terms of orientation, lighting and ventilation. Nevertheless, two small apertures are opened in order to meet such requirements. Small apertures in the interior façade have acceptably been widened in order to let a much greater amount of incoming light while keeping out the glare from the sun, whilst in the family living area, there is a local under floor heating system (*táwa khána*), which has under floor channels for conducting heat and smoke such as *tanur*. This is a pleasurable and healthy solution. Moreover, *táwa khána* also functions as a guest room, and it is therefore more adorned than the other areas i.e. *átesh khána* (Fig. 29).

According to domestic styles of architecture, the interior design of a *táwa khána* is based on forms, dictated by function. One rarely finds sharp and straight lines with right angles. Indications of man's hand can be found in all of the interior design (Fig. 30). The interior façade of *táwa khána* is indeed the major area, highlighting the dwellers' artistic needs. The organic and ornamented recessed forms of niches in different heights, sizes and types make the area very dynamic and active. Painting the walls with local materials, having an aperture from the west and another sun-oriented aperture from the south has significantly changed the quality of the area with respect to sanitary and other amenities.



Fig. 31 from Exam. 7



Fig.32 from Exam. 5

Some *táwa khána* are of the best quality, which indicate they belong to well-qualified types of housing i.e. the fort housing (*qal'a*).

Simplicity and fluency of the form are the common characteristics of a *kaldiwál*, which can be seen in the *táwa khána* of Fig. 31. On the other hand, some elements of more advanced types of architecture can clearly be seen. In this instance internally widened apertures and painted shelves (*almári*) cover the whole side of the walls. The wooden niche (*rañ*) for hanging cloths has been inset into the wall. Woodcarving and specific painting have been seen unprecedented among the other details in the oldest *kaldiwáls*.

Rooms having no permanent source of heating like *bahár neshin*, in comparison to the other types of *tanur khána* and *táwa khána* have not occupied a considerable position. This type of housing is utilised just for one season and has a temporary function. The *Bahár neshin* room is just for sitting and sleeping. Many disputable indications have not been seen in its interior design, but manifestations of improved apertures and shelves (*almári*) have appeared (Fig. 32).

In Fig.33, although the *bahár neshin* room is not tantamount to *tanur khána*, this area besides functioning as a room for sleeping is used for storage as well. Sleeping materials, such as mattresses, blankets and pillows, are wrapped (*rakht-e khau*) in a piece of cloth (*cháder shau*) and laid in a corner.



Fig. 33 from Exam. 4



Fig. 34 from Exam. 7

In most houses, there are many small and/or large niches recessed in the side of the interior walls, over which sometimes embroidered curtains are hung. Very interesting embroidered curtains are also used for covering walls, where e.g. clothing is hung. According to the studies, dwellers of the *kaldiwál*, keep animals more or less dependant on the level of their livelihood. The predominant types of livestock primarily comprise a few goats and sheep, which provide the family with food such as milk and other milk products. However, a donkey facilitates transportation purposes. Oxe for ploughing are rarely been found among these animals, because poor peasants work for landlords and not for themselves. They have no land for cultivation and they rent the necessary ploughing oxen in order to plough their small pieces of land. Nevertheless, a small number of dwellers have just one cow, which together with the neighbouring cow can be used for the ploughing of both their own and their neighbour's cultivated lands. As a consequence, animal stables, either in the separate or in the coexisting styles of habitation, divided into two small compartments for 5 to 15 goats and sheep, one donkey and one cow depending on the family income. Any of the divided compartments may be separated by a manger and wooden fence 1.50m high, or the woven branches of local willow trees. The mangers and partitions are mostly built of mud-constructed materials and the presence of man's hand can be seen all around the occupied areas (Fig. 34).



Fig. 37 from Exam. 5



Fig. 35 from Exam. 8



Fig. 36 from Exam. 3



Fig. 38 from Exam. 5

4- Exterior Facade

The principle exterior design of a building is the manifestation of its interior area. The nature of the naked housing (*kaldiwál/ kuta*) is based on fulfilling the primary needs of its dwellers and is not of very high quality. The materials utilised are taken from the surroundings of the building and therefore, apart from a few exceptions, the buildings have no distinguished form and their exterior design is not very significant and clear (Fig. 35).

Accordingly, not much attention has been paid to man's ambition and interests. A minimal human scale has been observed in the design of the buildings. *Kaldiwál* is more friendly and harmonious with nature as opposed to the other types of housing. It is more organic in form.

The setting of the building and connection of the building to nature is elaborately taken care of. In Fig. 36, the stone-constructed building seems greatly in harmony with the rock bed. However, in Fig. 37, despite the upper part of the building being made of different materials, the building joins the ground by using the same material.

Since, *kaldiwáls* are mostly situated on the sloping sides of mountains or hillsides, the techniques of utilising this slope in the land are therefore elaborately developed in the region (Fig. 38). In these cases the habitations are located in such a form that the roof of the lower building creates a terrace for the upper one.



Fig. 39 from Exam. 10&11



Fig. 41 from Exam. 12



Fig. 40 from Exam. 12



Fig.42 from Exam. 5

Generally, the buildings, situated on the hillside, are associated with a sort of play with attached cubical forms.

In cases where there is no abrupt slope, the differences between each level are not critical. All parts of the building are situated unchangeably, in one level, as a form of elevated terrace around the building.

When the terrace is located on the sun-oriented side of the building, it doubles its function during the winter (Fig .39). Built terraces facilitate lowering the roof of the building.

Despite no consideration being taken in regard to the artistic and magnificence of the *kaldiwál/ kuta*, in some cases, i.e. in Fig.40, the building is built in two floors, and it is seen as more prominent and symphonic. Larger apertures exist in the upper floor, though; the apertures in the lower floor are still small. Fig.41 testifies this claim. The reason why the apertures of the lower floor are small is the feeling of insecurity that prevail in the region. This style is mostly seen in the exterior design of *Kaldiwál/ kuta*. It can be concluded, that this characteristic is an indigenous solution to the exterior design in the region. Moreover, the exterior design of the housing varies considerably from other similar types, because slight ceiling projection causes the buildings to be diverse. The shade or snow shelter over the larger aperture, seen on the simple and flat façade of the building in Fig. 42 is a critical element.



Fig. 43 from Exam. 5



Fig. 44 from Exam. 1



Fig. 46 from Exam. 9



Fig. 45 from Exam. 7

The texture of the exterior design of *kaldiwál/ kuta* is the function of building materials. Most of the materials applied in *kaldiwál/ kuta* are rough. Perhaps the roughest texture of the exterior façade of a *kaldiwál/ kuta* can be found in the type that is built of undressed crushed stone without bonding (*angáñ*) (Fig. 46).

The facades built of mud with rubble or crushed stone seem a little coarse (Fig. 42). The surface of the pre-stressed (*pakh'sa*) wall is softened, due to the fact that its material is taken from nearby natural surroundings. Moreover, the horizontal regular bonds of the wall, which come about as the outcome of mud laid over each other, and the grainy surface of mud appears more rhythmic and well applied (Fig. 43).

In most cases, besides factors of climate, the façade consisting of a stone constructed wall is coated with thatch plaster, in order to hide the roughness and irregularity of the wall.

Consequently, the harsh facades have gradually been improved and they are now more tolerable and decorated (Exam. 1, 6, 7, 9, 10 & Fig. 44).

The naked housing (*kaldiwál/ kuta*) is not far away from artistic and splendid purposes. In some cases, the housing is considerably adorned and well painted. Furthermore, the entrances (*dargah*) of some *kaldiwál* reveal the identities of their interiors and are very interesting (Fig. 45, 46).



Fig. 47 from Exam. 7



Fig. 48 *Sur'khak-e erggin.*



Fig.49 from Exam. 6

The flight of stairs, in both the cases of constructions of constant stone and the wooden portable ladder, is an active element in the exterior façade of the *kaldiwál/ kuta* housing. The stairs in the exterior design facilitate access via the roof; stacking brushwood as firewood, dried cow dung and animal fodder, all of which indicate the extension of outdoor functions up to the roof. Stacking the afore-mentioned materials on the roof appears to have put a hat on the building (Fig. 47, 48,49).

Overleaf:

Fig. 50 *Chaman Baqa'l's courtyard (hawil)*
Panjau



PART TWO
THE COURTYARD HOUSING
(hawili)

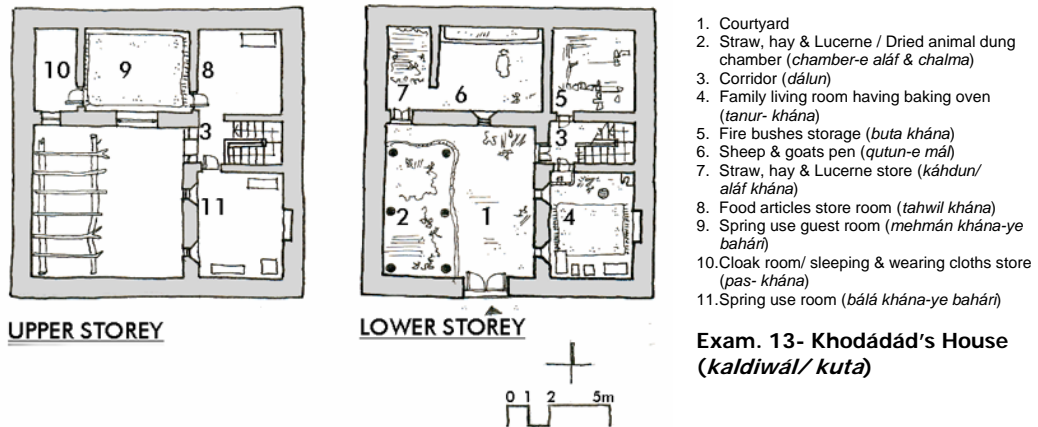
1- Plan

The courtyard housing (*hawili*) is more elaborate than the naked housing (*kaldiwál/ kuta*). Incorporating and gathering around an enclosed area a collection of many dispersed rooms of one or several families with their animals and other necessary tools and equipment form the courtyard housing.

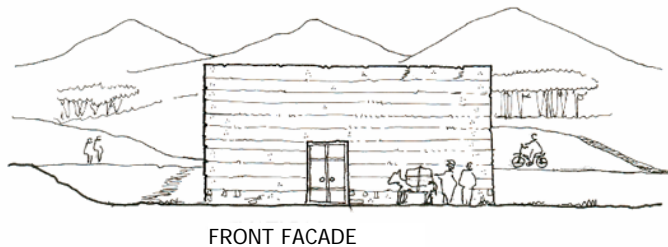
The enclosed built up area is sometimes formed by erecting a wall (*ehátah*) around or on one or two sides of the yard. In some cases, built up areas have no contact with the surrounding sidewalls and they are completely freestanding, whilst in other cases, built upon areas are surrounded by all four sidewalls. In order to prepare the central courtyard, or by releasing one sidewall, another type of housing called ear-dropped housing (*gush'wára-ye*) is created.

Courtyard Housing Surrounded on Two Sides

Exam. 13 is one of the courtyard housing cases, which is enclosed on two sides by built upon areas of a height equivalent of two stories. Respectively, the two other sidewalls are also at a height equivalent to the built-up area, in order to prepare a rigid geometrical and cubical form with sides of about 14m. The height of the sidewalls does not only fulfil the necessary functions, but it involves blinding the spatial orientation as well. The idea of the local builder is to create a stable and rigid geometrical form is reasonable, because the house is located in a gorge, which is



Exam. 13- Khodádád's House (kaldiwál/ kuta)



surrounded by high mountains and situated in the proximity of a large and splendid fort.

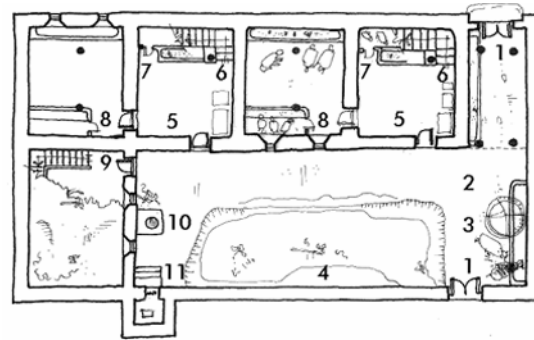
The courtyard housing is facing inwards and it does not have many openings on the outside. In the above example, the enclosed rectangular form of the building has just one opening, namely the entrance door of the building. All the living areas are turned towards the inner courtyard, in order to obtain the much-needed light and ventilation.

Although, human living areas have been released from complete co-existence with animal stables, and these areas are more or less distinct from one another, co-habitation is nonetheless inevitable. In many cases, animals go to and fro from the entrance, as does man. Both man and animal use a shared courtyard and the animal stables are located in the proximity of the human living area in the last resort.

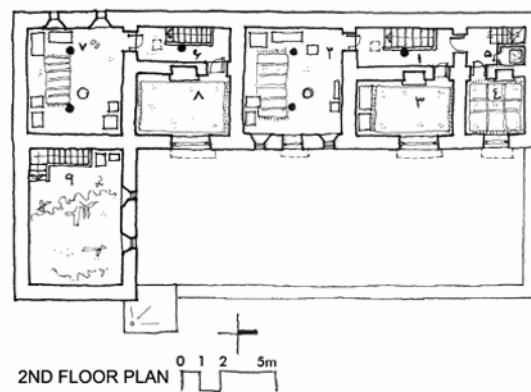
In the above example, the courtyard functions also generally, embrace that group of activities, which are non-existent in the naked housing or take place in surrounding areas or on top of the roof. In one corner of the courtyard, a temporary shelter with wooden pillars and purlin cross-struts is elevated from the courtyard level ground, where it serves a purpose for some sort of activities such as sitting in an open space and stacking firewood.

The areas and the diversity of the areas in the courtyard housing depend on the style of livelihood and changes in local conditions. In minimal instances, the living area includes a 20sqm room with a baking oven (*tanur khána*) as a living quarter and a kitchen consisting of a room for the animal quarter, fire brushwood (*butá*) and fodder (*aláñ*), a storeroom and stairs in the lower story. In the upper story, however, there is only one (*bahár neshin*) room for use in the spring equivalent to the lower *tanur khána* for the family living room and another 20sqm area with a room to accommodate outer garments from, for example, guests, mattresses, airing cupboard to dry clothes and multi-functional closets. This collection of areas is allocated to a family of 7 members with 5 goats, one sheep and a donkey. More or less all of the courtyard dwellings have flat roofs with timbers spanning them. The width of the inside area does not exceed 4,5m, because of the restriction of the length of timbers in the region.

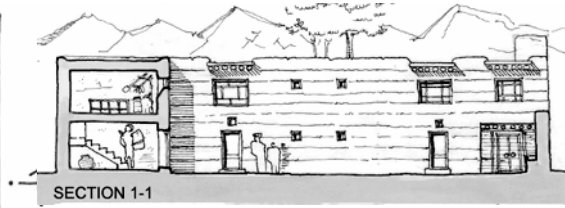
Although, not many critical changes in the dimensions of the apertures of the baking oven room (*tanur khána*) have occurred, the apertures of other areas have been adjusted a little and the aperture of the guest room for spring use (*bahár neshin-e mehmán*) has been developed and re-formed as in the nearby rural areas.



PLAN



2ND FLOOR PLAN



1. Entrance
2. Courtyard
3. Spring use stall (*ákhur-e bahán*)
4. Fire wood & animal dried dung store (*hizum & chalma khána*)
5. Corridor (*dá lun*)
6. Stairs (*râh-e zina*)
7. Lambs pen (*eal-e baragu*)
8. Cows stall (*âghul-e gau*)
9. Straw, hay & Lucerne store (*kâhdun/ alâf khána*)
10. Spring use baking oven (*tanur-e bahâri*)
11. Latrine (*mustarâh/ kenâráb*)
12. Family living room having fire place (*âtesh khána*)
13. Spring use room (*bahâr neshin*)
14. Spring use guest room (*mehmân khána-ye bahâri*)
15. Bathroom (*tash'nâb*)
16. Stairs (*râh-e zina*)

Exam. 14- Shaikh Báqer's House (hawili)

Exam. 14 is another type of courtyard housing enclosed by two sides. These two sides are surrounded by built-up areas comprising two floors, and the other two remaining sides are fenced in by sidewalls equivalent to one floor's height. This extent of height causes the building to not be completely hidden and the front façade could be exposed. Moreover, the windows of the upper story are oriented towards the greenery of the surrounding landscape.

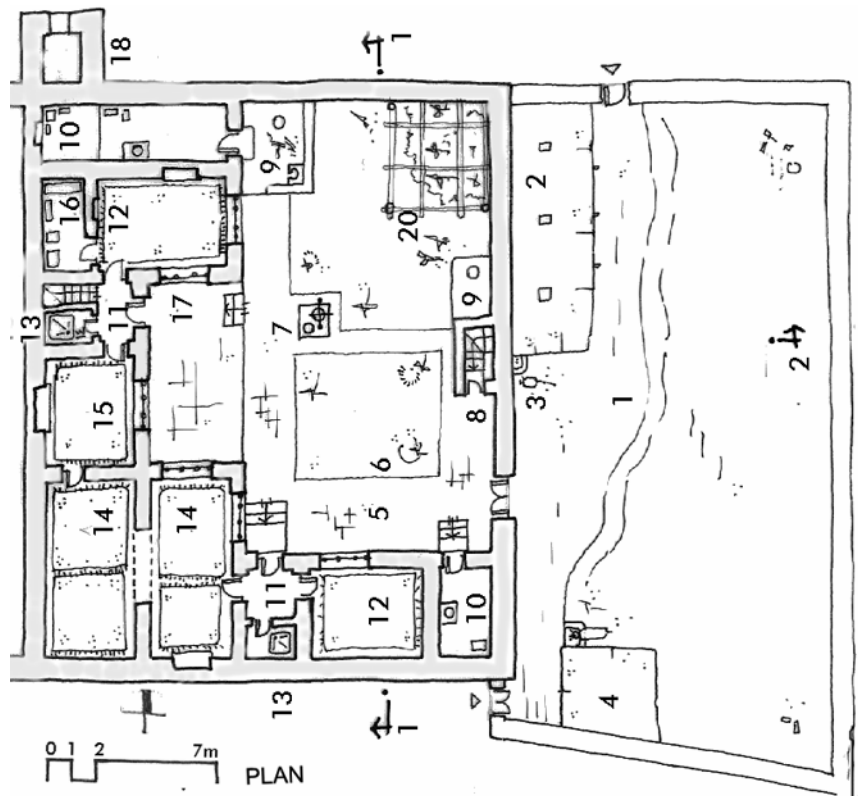
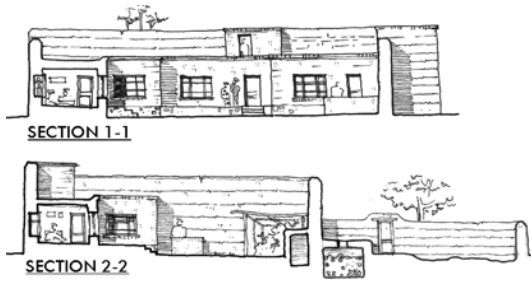
The house is rectangular: 25m long and 11m wide. The overall area occupies more than half of the entire lot developed in two stories, and is as such situated along the length of the courtyard in order to prepare a well-dimensioned courtyard.

The courtyard of the dwelling is for the common use of families and beasts. The manger for the spring use of the animals (*ákhur-e bahâri*) is located in the sun-sheltered side of the courtyard (Fig. 51), whilst the baking oven for use in spring (*tanur bahâri*) is adjacent to the latrine (*mostarâh*) banished to the opposite side of the courtyard.

The other main functions of the housing including an area for couples - like a 20sqm corridor (*dá lun*) leading to a staircase, a stable (*tawila*) equivalent to this, a lower story, a room having a baking oven (*tanur khána*) and a room for use in the spring (*bahâr neshin*) for guests.



Fig. 51 from Exam. 14



1. Outer court
2. Potato cellar store (*tahkawi*)
3. Spring use stall (*ákhur-e bahári*)
4. Cows stall (*ághul-e gau*)/Straw, hay & Lucerne store (*káhdun*)
5. Inner court
6. Vegetables planted plot (*curd-e sabzi*)
7. Water well (*cháh-e áb*)
8. Potato cellar entrance
9. Spring use baking oven (*tanur-e bahári*)
10. Fire place room & kitchen (*átesh khána*)
11. Corridor (*dá lun*)
12. Family living room having under floor heating tunnels (*táwa khána*)
13. Bathroom (*tash'náb*)
14. Spring use guest room (*mehmán khána-ye bahári*)
15. Spring use room (*bahár neshin*)
16. Cloak room/ sleeping & wearing cloths store (*pas khána*)
17. Terrace (*sofa*)
18. Latrine waste pit
19. Stairs (*ráh-e zina*)
20. Latrine (*mustaráh/ kenaráb*)
21. Fire wood stack (*day-e hizum*)

Exam. 15- Mohammad Aslam's House (*hawili*)

Another animal stable, and firewood and bushes, dried cow dung and a storeroom for fodder (*aláf khána*) are located in the width of the courtyard of two stories.

Most of the windows are oriented towards the courtyard, the exception being that the aperture of the baking oven room (*tanur khána*) opens to the rear side of the building.

Exam. 15 indicates improved courtyard housing, enclosed on two sides. Meanwhile, all four surrounding walls are raised to be higher than the area that has been built upon. The surrounding walls are going to hide the inner contents of the building.

At the same time, this greater height forms a kind of parapet wall around the roof for the privacy of the wives of the family in order for them to operate at ease there and use the latrine (**Fig. 52**).

Having two courtyards alongside each other is the distinct specification of the building. The first courtyard is allocated to the family living functions, whilst the second one is for extended activities such as the animal stable (*tawila*) and underground potato storage (*the most common cultivation yield of the region*). Since the dwellers own a few beasts, the milch cow for producing milk and dairy products, a calf etc. as the requirements of the family are kept outside of the family living area.

Most built up areas are located on the north-facing side.



Fig. 52 from Exam. 15



Fig. 54 from Exam. 15



Fig. 53 from Exam. 15



Fig. 55 from Exam. 15

The recess on the northern side is there to lengthen the built areas facing the sun, and also to create a terrace in front of the built area for sitting outside.

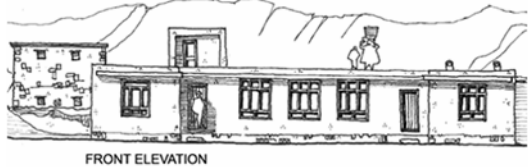
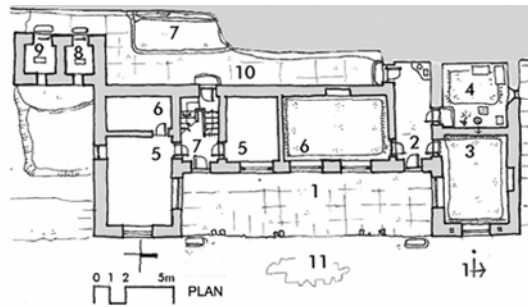
The other areas include a room with a baking oven in order to bake bread and cook the meals and a floor hive (*kandu-ye árd*) situated in a corner of the room. Dishes and other kitchen utensils are partly kept on shelves, partly hung on the wall and partly kept on the floor.

In this instance, to the contrary, the oven room for baking (*átesh khána*) is not used for the family living area. There is a room having local underfloor heating tunnels (*táwa khána*) with a cloakroom (*pas khána*). Both *átesh khána* and *táwa khána* form a complete dwelling unit, and this arrangement depends on the family of the older brother, whose family are five members. However, equivalent to this, an *átesh khána* and another *táwa khána* on the opposite side belongs to the youngest brother, whose family are seven members. Moreover, in the family living complex there are two other rooms for use in the spring (*bahár neshin*) as well.

A well, a concreted and paved pit for drinking water, is located in the middle of the courtyard (Fig. 53, 54). There are two baking trenched ovens for use in the spring (*tanur-e bahári*); there are moreover stacks of fire brushwood located in different parts of the courtyard (Fig. 55). Access in the underground tomato storage takes place from the courtyard as well.

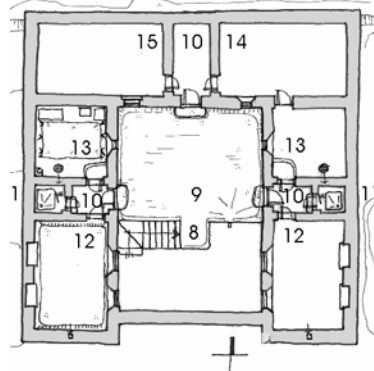
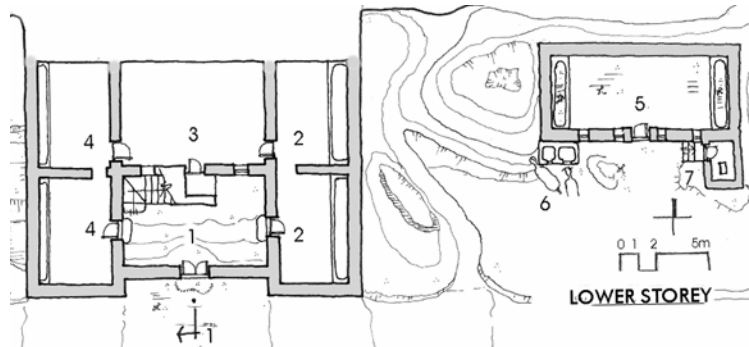


Fig. 56 from Exam. 17



1. Terrace (sofa)
2. Corridor (dálun)
3. Family living room having under floor heating tunnels (táwa khána)
4. Fire place room & kitchen (átesh khána)
5. Spring use room (bahár neshin) for family-2
6. Spring use guest room (mehmán khána-ye bahár)
7. Spring use stall (ákhur-e bahár)
8. Latrine (mustaráh/ kenáráb)
9. Straw, hay & Lucerne store (káhdun/ aláf khána)
10. Backyard (hawili-ye paslu)
11. Fire bushes store (hizum khána)/ Straw, hay & Lucerne store (káhdun)/ Animal dried dung store (day-e chalma)

Exam. 17- Ali Reza's House (hawil)



1. Courtyard
2. Cows stall (ághul-e gau)
3. Straw, hay & Lucerne store (káhdun)/ dried animal dung (chalma) & fire bushes (hizum) store
4. Sheep & goats pen (qutun-e máh)
5. Horses stable (tawila-e asb)
6. Horses spring use stable (ákhur-e bahár)
7. Latrine (mustaráh/ kenáráb)
8. Stairs (ráh-e zina)
9. Roof terrace (takh't bám)
10. Corridor (dálun)
11. Bathroom (tash'náb)
12. Family living room having under floor heating tunnels (táwa khána)
13. Fire place room & kitchen (átesh khána)
14. Food articles store room (tahwil khána)
15. Spring use guest room (mehmán khána-ye bahár)

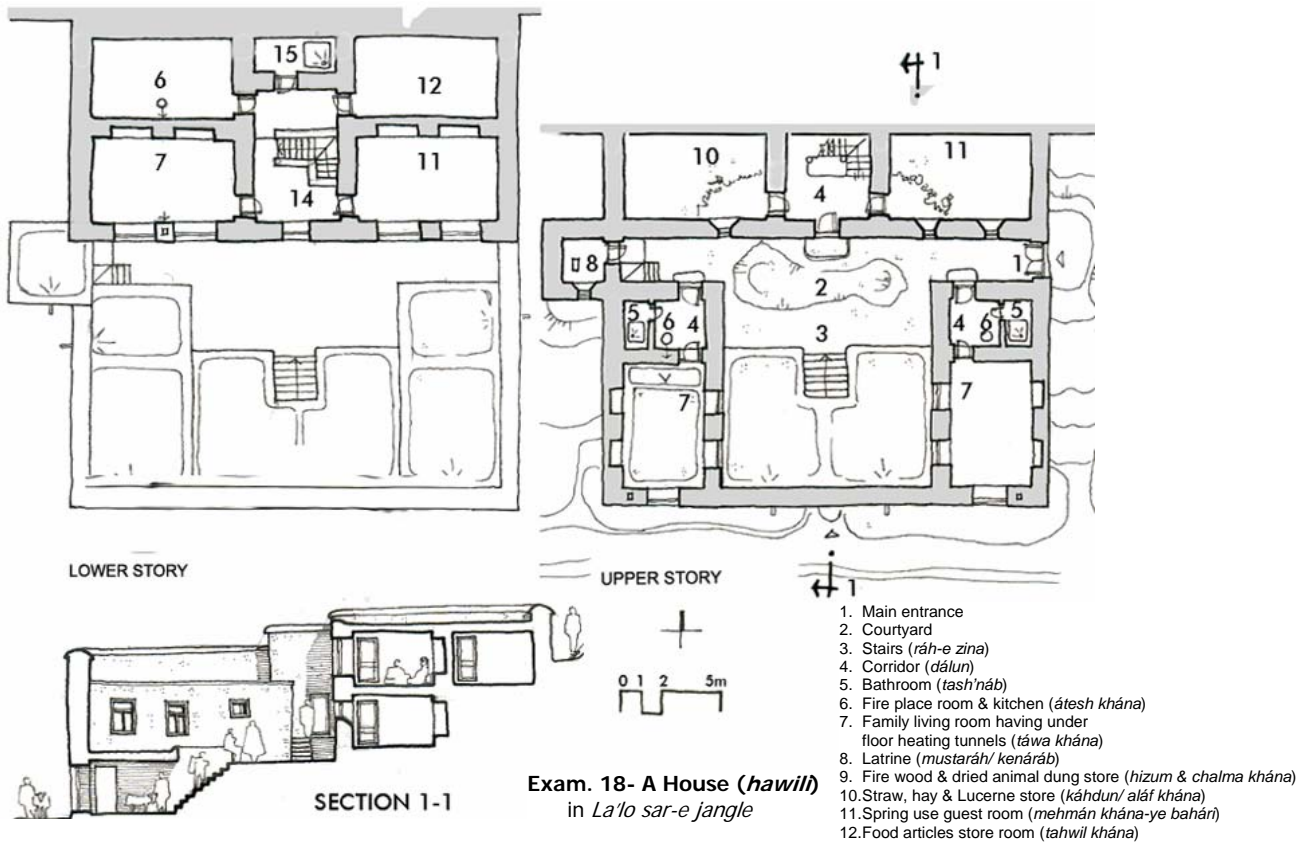
Exam. 16- Chaman-e Baqál's House (hawil)

The house is of considerably high quality compared to the other types. The facades oriented towards the courtyard are extremely well dressed. However, the inside area is also fully adorned. The houses have hygienic installations such as a water-well (*cháh-e áb*), bathroom (*teshnáb*) and latrine (*mostaráh/ kenáráb*).

Courtyard Housing Surrounded on Three Sides

In numbers of houses, three sides of the courtyard are occupied by built up areas, whilst the remaining side is enclosed by a wall that forms a small courtyard between areas built upon. This type is the newest design demanded by the dwellers and called 'ear-dropped' (*gushwára-ye*).

Exam. 16 is an instance of *gushwára-ye* housing. As the house has been built sloppily, the lower story is allocated as animal stables (*tawila*), fodder (*káhdun*), firebrush and a dried cow dung (*buta and tapak*) storeroom, whilst the upper story belongs to the family living areas. The family living area is of a better quality. The two wings comprise typical areas such as a corridor, a baking oven room (*átesh khána*), a room having underfloor heating tunnels (*táwa khána*) and a warmed bathroom. However, two large rooms for use in spring (*bahár neshin*) are located in the middle of the built-upon areas. The horses' stable and the latrine are removed and have been built separately adjacent to the building.



Exam. 18- A House (*hawil*)
in La'lo sar-e jangle

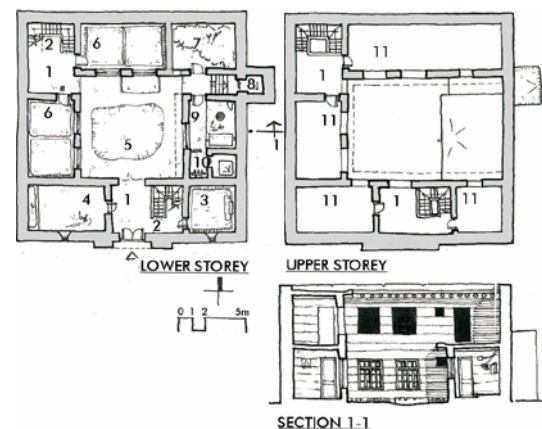
In Exam. 17 and 18, the wings of *gushwára-ye* housing are a little stretched out, and the main reason is to obtain the benefit of the sunshine. In this instance, a considerable change has taken place, windows facing the sun are unprecedentedly widened. Generally, this house imitates the suburban housing patterns of Kabul city in accordance with the climate differences (Fig. 56).

Central Courtyard Housing

The central courtyard is another type of housing. In this type of housing it is common that several families live together. The built up areas are gathered in such a manner, as to form a central cell or courtyard out of them.

In Exam. 19, the family living areas have been re-sited from the enclosure of the usual areas in order to match the compatible climate. The building is designed as in the form of the room used in spring (*bahár neshin*) with large windows in two stories. The entrance façade of the building is designed as strictly distinct. It comprises a small guest room on the lower story and a large one on the upper storey.

Sanitary installations and service areas like a kitchen (*kár khána/ matbakh*), having a bath in the corner, and latrine banished to the northern side, facilitate the lives of the dwellers.



Exam.19- Háji Mohammad
Hussain's House (*hawil*)

**Exam. 20- Háji Haqáni's House
(hawil)**

1. Entry Corridor (*dá lun*)
2. Stairs (*râh-e zina*)
3. Fire wood store
4. Family living room having under floor heating tunnels (*tâwa khâna*)- for senior family
5. Courtyard
6. Spring use baking oven (*tanur*) & hearth (*ojâq/ digdun*)
7. Fire place room & kitchen (*âtesh khâna*)
8. Corridor (*dá lun*)
9. Spring use family living room (*bahâr neshin*)
10. Fire wood store (*hizum khâna*)
11. Straw, hay & Lucerne store (*kâhdun/ alâf khâna*)
12. Sheep & goats pen (*qutun-e mâl*)
13. Cows stall (*âghul-e gau*)
14. Latrine (*mustarâh/ kenâráb*)
15. Hens coop (*orda-ye murghu*)
16. Cloak room/ sleeping & wearing cloths store (*pas khâna*)

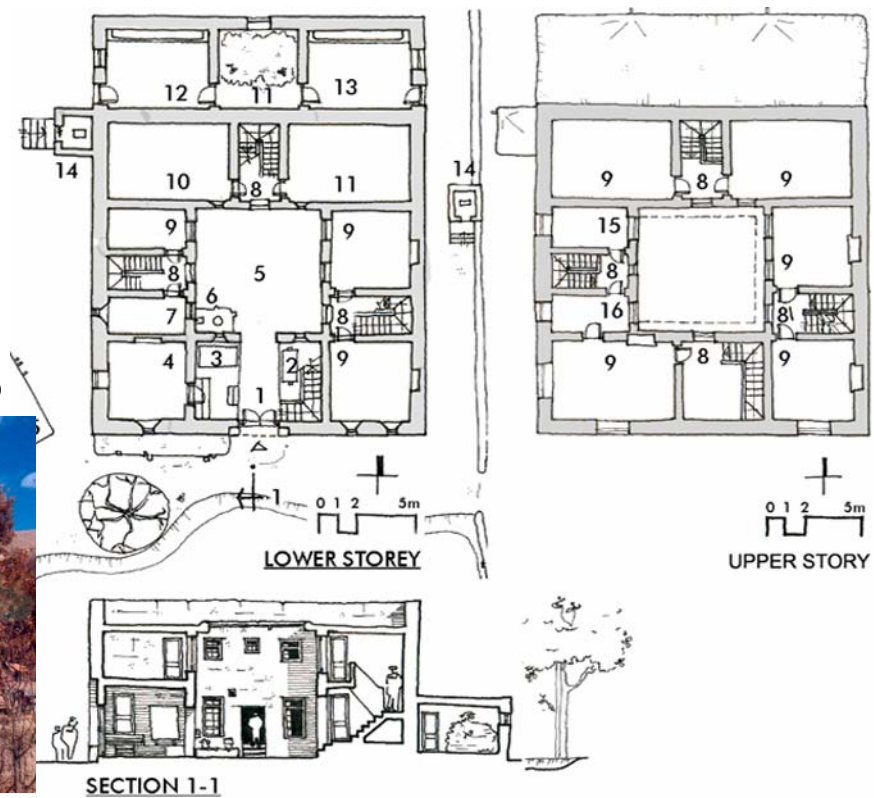


Fig. 57 from Exam. 20

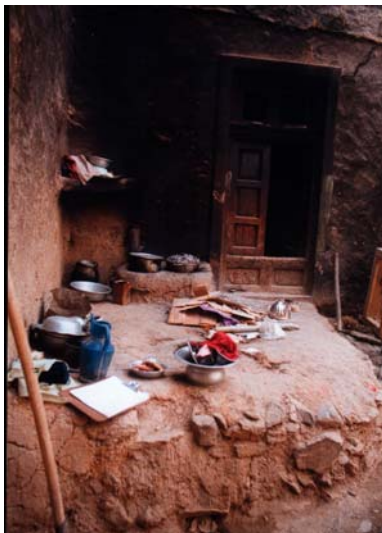


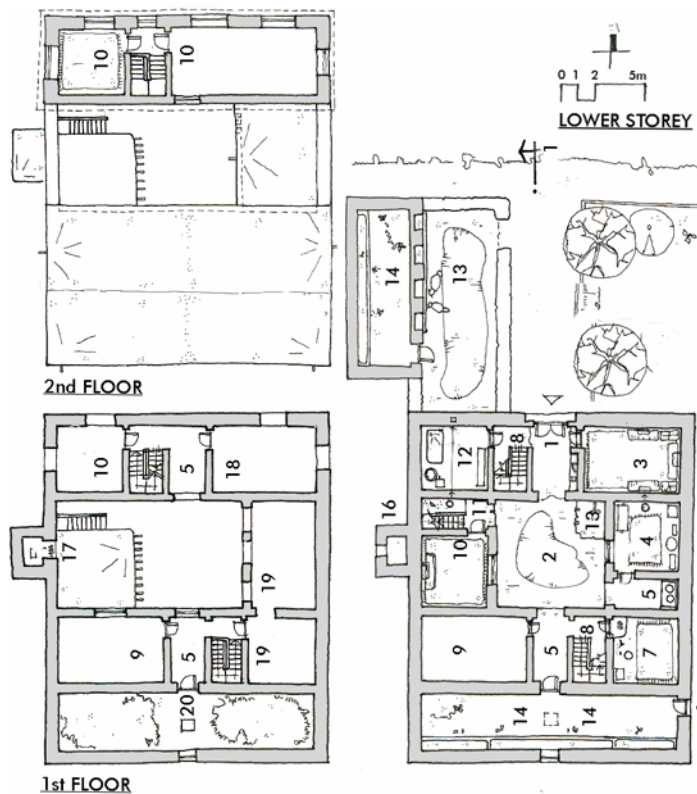
Fig. 58 from Exam. 20

The building has a central closed courtyard and a distinct cubical form of 17x 17m sides. However, the height of the sidewall is composed of 14 layers (*each 60cm thick*) made of pre-stressed mud (*pakh'sa*). The dimensions of the central courtyard are 8x 8m. Moreover, the entrance porch is built in such a fashion that it looks very distinguished, entailing clear and inviting lines.

A clear difference entailing contradictions in the functions of the housing is seen in Exam. 20, Notwithstanding of its primary principles of courtyard housing, some of the activities such as latrine (*kenâráb*), stable (*tawila*), hen coop (*urda-ye murghul morghánchah*), shelter from the sun, sitting terrace (*sofâ*), washing-line, and piles of firewood and brushes (*day-e hezum/ buta*) have been extended to the outside of the courtyard (Fig. 57, 58).

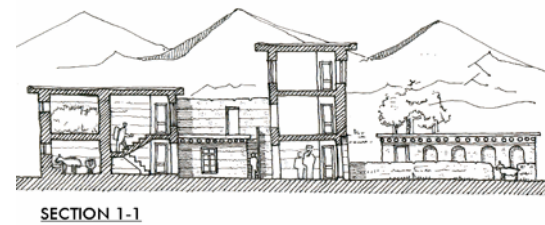
In the above instance however, the buildings have outwards facing windows, and even though the buildings are stable and in compliance with a pure geometrical forms, the principle of a closed and introvert concept is damaged.

The guest room in a permanent housing system is of apparent higher quality than the other areas. The walls are well painted with adorned shelves (*almârî*) and large wooden windows. The ceiling is also covered with a sort of cloth finishing.



Exam. 21- Hajji Ghulam Reza's House (Hawili)

1. Entry corridor (*Daalun*)
2. Court yard (*Roi -e hawili*)
3. Senior family living room
4. Fire place room & kitchen (*Aattesh khaana*)
5. Corridor (*Daalun*)
6. Flour hive (*Kandu -e aard*)
7. Baking oven room (*Tanur khaana*)
8. Stairs (*Raah -e zina*)
9. Food articles store room (*Tahwil khaana*)
10. Spring use family living room (*Bahaar neshin*)
11. Bath fire place (*Tanur -e tash'naab*)
12. Bath room (*Tash'naab*)
13. Spring use hearth (*Ojjaag / digdun -e bahaari*)
14. Live stocks stable (*Tawila*)
15. Spring use Stable (*Bahaar band*)



One of the main reasons for building central courtyard housing is the restriction of building lots in the region. Of course, it should be mentioned, that the aspects of the splendour of the housing also has been taken into consideration. Exam. 21 confirms this claim. The housing makes up a living area for three families of some 17 members together, with their guests in a 17x 17m ground floor in two, and partly, in three stories lead off from a small central courtyard of 8x 8m.

It seems that the arrangement of such areas, causes the third floor to accept unprecedented changes (Fig. 59), bearing in mind that the central courtyard housing is not only aimed at its main principle of being introvert and having more privacy and rejecting having contact with the outside, but also because of the scarcity of land.

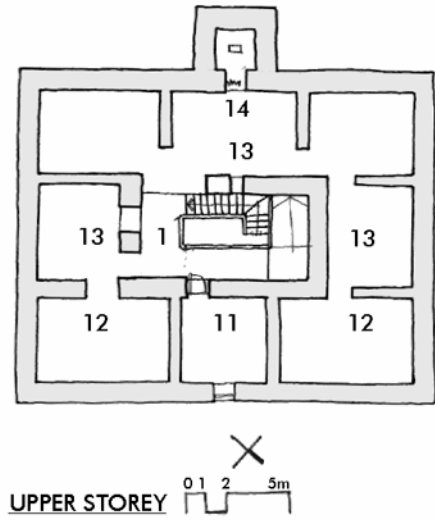
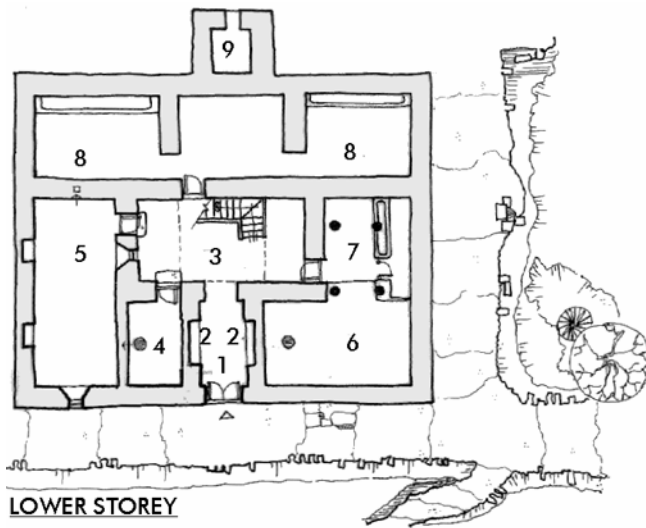
The large windows and white-washed outer façade of the building are not only in contradistinction to the introverted inward-oriented principles. On the contrary, these buildings rely on their splendour, in order to be more distinct and distinguished. Special attention is paid to the bathroom (*tash'náb*). The bathroom is to be warmed by a local heating system (*táwa khána*), which relies on conducting the smoke and heat from the adjacent baking oven (*tanur*).

Meanwhile, the required warm water is supplied by a small water reservoir installed in the beginning of the tunnel (*gul khand*).

The latrine is built adjacent to the northern side of the building and is accessible through the roof on the first floor.



Fig. 59 from Exam. 21



1. Corridor (*Da'lun*)
2. Fire bushes store (*Ja'i -ye buta*)
3. Court yard (*Roy -e hawili*)
4. Fire place room & kitchen (*A'tesh kha'na*)
5. Senior family living room with under roof heating tunnels (*Ta'wa kha'na*)

6. Family -2 living room with baking oven (*Tanur kha'na*)
7. Sheep & goats pen (*Qotun -e ma'l*)
8. Cows stall & donkeys stable (*A'ghul-e gau & tawila-ye ola'gh*)
9. Latrine waste pit
10. Spring use guest room (*Mehma'n kha'na*)
11. Fire bushes store (*Hizum kha'na*)
12. Straw, hay & lucerne store (*Ala'f kha'na*)
13. Latrine (*Kena'ra'b*)

Exam. 22- Hussain Bakh'sh's House (hawili)

1. Corridor (*dá'lun*)
2. Family living room having under floor heating tunnels (*tá'wa khána*)
3. Fire bushes store (*hizum khána*)
4. Sheep & goats pen (*qutun-e má'l*)
5. Cows stall (*á'ghul-e gau*)
6. Straw, hay & Lucerne store (*káhdun/alá'f khána*)
7. Spring use room (*bahár neshin*)

Exam. 23- Hussain & Ebrahim's House (Hawili)

Closed Central Courtyard Housing

Some of the housing of Hazarajat obtains benefits from the two types of the naked housing (*kaldiwál/ kuta*) and the courtyard housing (*hawili*).

Depending on the arrangement of the interior design, common and co-existing areas of family and beasts, this type of housing descends to the lowest level of *kaldiwál/ kuta*, whilst the splendid and distinguished exterior design of the housing indicates that the building belongs to the higher quality types.

The interior design is based on a common fire room (*á'tesh khána*) with a stable (*qotun-e má'l*) adjacent to the family living room, which has local underfloor heating tunnels (*tá'wa khána*). These facilities occupy half of the area of 14m long and 12m wide, in addition to a stable situated in the second half of the lower story. However, a 15sqm room for use in the spring (*bahár neshin*) is located in the upper story (Exam. 22) next to the other areas such as that for brushwood bushes (*buta khána*), dried cow-dung (*tapak*) and fodder (*alá'f*) storage. This area belongs to a family of 7 members.

Since there is a small opening in the middle of the building, in order to give just enough room for the staircase to provide access to the upper levels, the building is named 'closed central courtyard housing.

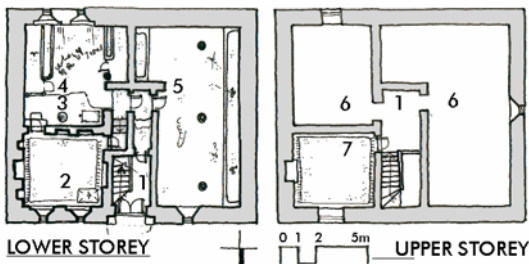
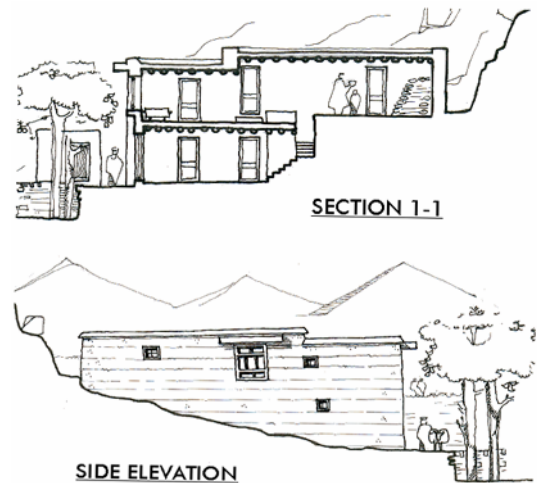
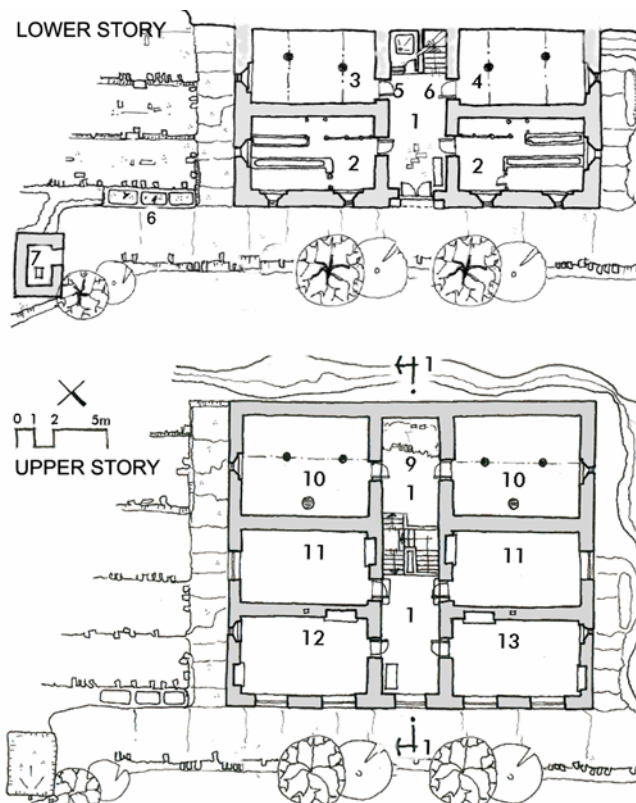


Fig. 60 from Exam. 23



1. Corridor (*dálun*)
2. Sheep & goats pen (*qutun-e mál*)
3. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
4. Fire bushes & animal dried dung store (*buta & chalma khána*)
5. Bathroom (*tash'náb*)
6. Stairs (*ráh-e zina*)
7. Spring use stall (*Aakhor-e baha'ri*)
8. Latrine (*Kena'ra'b*)
9. Fire bushes store (*hizum khána*)
10. Fire place room & kitchen (*átesh khána*) & food articles store room (*tahwil khána*)
11. Family -1 & 2 living room having under floor heating tunnels (*táwa khána*)
12. Spring use guest room (*mehmán khána-ye bahár*)
13. Spring use family living room (*bahár neshin*)

Exam. 24- Háji Náder's House (*hawilí*)

Perhaps, the reason why the central courtyard is closed in this fashion could be the scarcity of land, which prevails in the region. Another instance of the closed central courtyard housing is **Exam. 23**, which has a perfectly stable and distinguished form with an area of about 20x 16m distributed over two floors. This provides a living area for two closely related families of 12 members (**Fig. 60**). This house has hygienic service i.e. latrine (*mostaráh/ kenaráb*) allocated at the rear part, which makes it accessible from the upper floor.

Exam. 24 is an interesting instance of this housing type. It is a marked and stable form, situated on land of a hilly character. Since, the central courtyard of the housing is enclosed, the inside areas are therefore oriented to the outside of the building in three sides with large windows. The interior areas are well ordered. If we consider, the corridor to be an axis in the middle, then the two sides are exactly symmetric (**Fig. 61**). One part of the symmetrical area includes an animal stable (*tawila*) together with a fodder storeroom (*aláf khána*) and brushwood with dried cow dung storeroom (*buta/ tapak/ chalma khána*), in addition to a bathroom (*tash'náb*) in the lower story. In the meantime, the main family living area with the fire-room (*átesh khána*), and the underfloor heating-tunnels room (*táwa khána*) and the room for spring use (*bahár neshin*) are situated in the upper storey. The arrangement of these areas is the same as described above, and it is a new trend in the building of housing in Hazaráját.



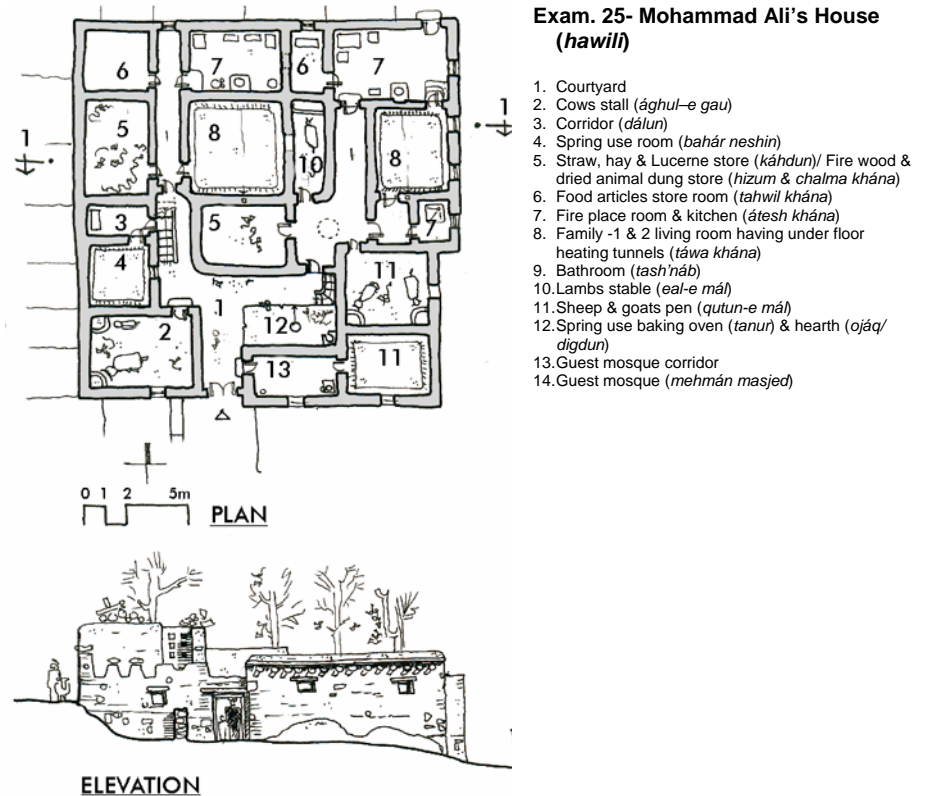
Fig. 61 from *Exam. 24*



Fig. 62 from Exam. 24



Fig. 63 from Exam. 25



In this new style, efforts have been made to separate the family living areas from the animal stables by elevating the building while bearing the importance of the aspects of hygiene in mind.

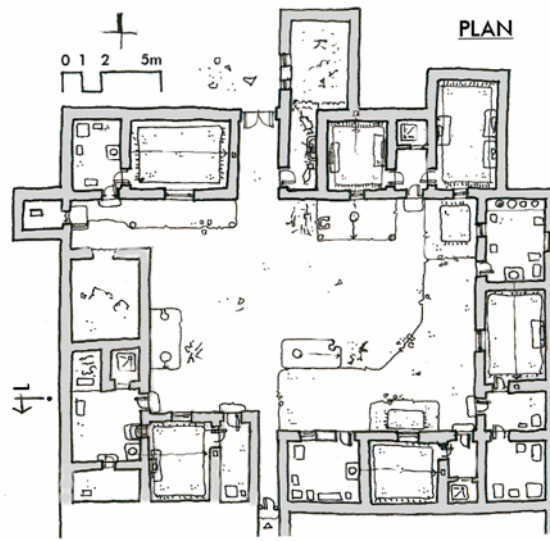
Moreover, appropriate building materials are applied to the house, and the rooms are very pleasurable and have enough light. In this instance, the smaller apertures of the lower stories indicate the inner functions, (*which are allocated to stable and store-room*), whilst the larger windows of the upper story show the functions of the family living areas.

The features of the family living areas depend on the type of activities that take place in them. The size of the apertures of the fire-room (*átesh khána*), for instance, are reduced in order to control inside heating. Being no higher than the ground level, these larger windows along the hillside reflect the feeling of insecurity that exists in the region.

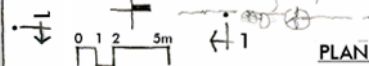
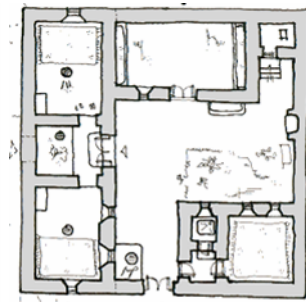
Although the inner areas are sufficient to fulfil almost all the family's manifold requirements, there are still activities that need to take place outside the building. Respectively, (1) hygienic services like the latrine, and (2) shelter from the sun. For both the family and its animals are among the functions, which are carried out outside of the building (Fig. 62).

Exam. 27 H. Mohammad Náser's House (hawili)

1. Courtyard
2. Fire place room & kitchen (*átesh khána*) & fire wood store (*kár khána*)
3. Family living room having under floor heating tunnels (*táwa khána*)
4. Terrace (*sofa*)
5. Latrine (*mustaráh/ kenáráb*)
6. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
7. Bathroom (*tash'náb*)
8. Cloak room/ sleeping & wearing cloths store (*pas khána*)
9. Corridor (*dárun*)
10. Spring use baking oven (*tanur*) & hearth (*ojáq/ digdun*)
11. Food articles store room (*tahwil khána*)
12. Spring use family living room (*bahár neshin*)
13. Guest room having under floor heating tunnels (*táwa khána*)
14. Sheep & goats pen (*qutun-e má*)



SECTION 1-1



1. Courtyard
2. Corridor (*dárun*)
3. Kitchen (*matbakh/ kár khána*)
4. Family 1 & 2 Family living room having under floor heating tunnels (*táwa khána*)
5. Sheep & goats pen (*qutun-e má*)
6. Latrine (*mustaráh/ kenáráb*)
7. Bathroom (*tash'náb*)
8. Fire bushes & animal dried dung store (*buta & chalma khána*)
9. Spring use baking oven (*tanur-e bahán*)
10. Spring use guest room (*mehmán khána-ye bahán*)

Exam. 26- Mohammad Báqer's House (hawil)

Irregular Central Courtyard Housing

Built up areas of a group of housing are not regularly arranged in accordance with the inner court, in order to provide a pure geometrical form is called irregular central courtyard housing.

In Exam. 25 and 26, the courtyards are unclear and have no distinct geometry. This fact not only gives rise to some disturbance and dissonance, but brings up an architectural style based on domestic principles.

One of the reasons for the irregularity shown in the courtyard is that the built up areas have been built with no prediction durin the course of time. In Exam. 25, the main area of housing for two families, including the fire-room (*átesh khána*), the room having local underfloor heating tunnels (*táwa khána*) and other dependant areas, have been built first. Thereafter the adjacent areas such as a mosque for the guests, as the complementary needs have been built (Fig. 63).

A small number of dwellings have an irregular central courtyard. The outer forms of these buildings are also irregular (Exam. 27). The building is rather large and it includes the needed basic areas of four families and two guest rooms in addition (Fig. 64).

Typically the required areas include a lobby, which opens to a *táwa khána*. In some cases, a bathroom (*tash'náb*) is also located in the lobby. Furthermore, a fire-room (*átesh khána*) having access from outside opens to the *táwa khána* too.



Fig. 64 from Exam. 27

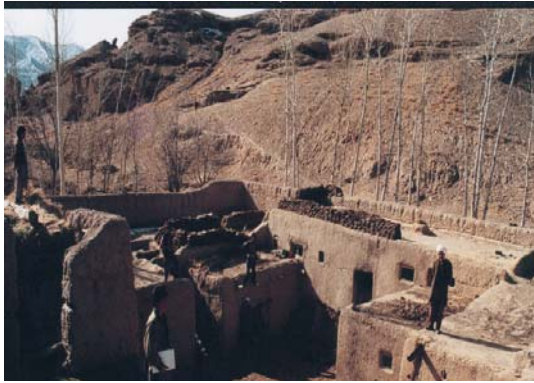
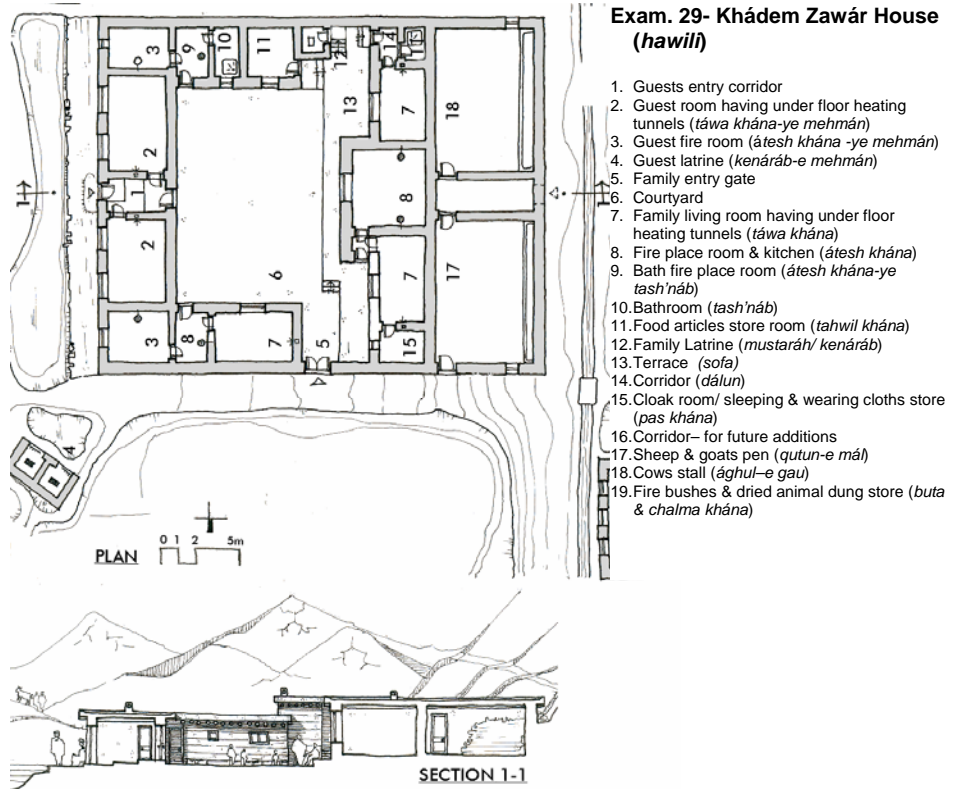


Fig. 65 from Exam. 28

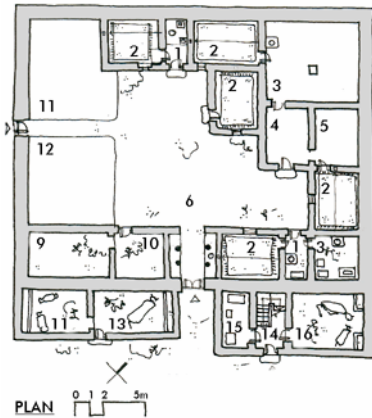


Fig. 66 from Exam. 29



Exam. 29- Khádem Zawár House (hawili)

1. Guests entry corridor
2. Guest room having under floor heating tunnels (*táwa khána-ye mehmán*)
3. Guest fire room (*átesh khána -ye mehmán*)
4. Guest latrine (*kenáráb-e mehmán*)
5. Family entry gate
6. Courtyard
7. Family living room having under floor heating tunnels (*táwa khána*)
8. Fire place room & kitchen (*átesh khána*)
9. Bath fire place room (*átesh khána-ye tash'náb*)
10. Bathroom (*tash'náb*)
11. Food articles store room (*tahwil khána*)
12. Family Latrine (*mustaráh/ kenáráb*)
13. Terrace (*sofa*)
14. Corridor (*dárun*)
15. Cloak room/ sleeping & wearing cloths store (*pas khána*)
16. Corridor- for future additions
17. Sheep & goats pen (*gutun-e mál*)
18. Cows stall (*ághul-e gau*)
19. Fire bushes & dried animal dung store (*buta & chalma khána*)



1. Corridor having fire place (*dárun átesh khána*)
2. Family living room having under floor heating tunnels (*táwa khána*)
3. Fire place room & kitchen (*átesh khána*)
4. Corridor (*dárun*)
5. Food articles store room (*tahwil khána*)
6. Courtyard
7. Seeds hive (*kandu-e tukh'm*)
8. Spring use baking oven (*tanur-e bahán*)
9. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
10. Fire bushes & animal dried dung store (*buta & chalma khána*)
11. Sheep & goats pen (*gutun-e mál*)
12. Cows' stall (*ághul-e gau*)
13. Horses & donkeys stable (*Tawila*)
14. Corridor stairs of guest room (*ráh zina-e dárun*)
15. Guest room storage (*tahwil khána-e mehmán khána*)
16. Guests' horses & donkeys stable
17. Spring use guest room- upper storey
18. Guests' basin (*ábriz-e mehmán khána*)

Exam. 28- Náder-e Khazanadar's House (hawili)

The inhabitants have a few beasts: the only stable exists in the compound is a donkey stable. Donkey is used to fetch water from the nearby river. Access to water is the greatest problem for the inhabitants.

Exam. 28 belongs to the housing types with irregular courtyard. This building has a regular exterior form with pure geometry. With the stable around the side of the entrance and guest facilities occupying two floors, the form has gradually been extended by these additional surplus areas, which has caused the irregularity of the exterior to take shape (Fig. 65).

Although the building gets the benefit of the local underfloor heating tunnels (*táwa khána*), a sort of makeshift stove (*chari*) is resorted to in urgent cases.

In Exam. 29, the plan of the family living area is a perfect square and extended animal quarters along the northern side entails that it is being stretched towards a rectangular form (Fig. 66).

At a glance, the central courtyard seems somehow irregular. Changes in the height of built up areas around the courtyard make the building more dynamic and fascinating. Sacrifices to afford guest facilities are especially high. The allocation of about half of the family living area to the services of guests, indicates the importance of this area. The larger windows of the guest rooms, oriented towards the outside of the building, certainly confirm the security sense prevalent in the region.

**Exam. 30- Easá-ye
Khazanadár's House
(hawili)**

1. Guest entry corridor
2. Stairs
3. Spring use guest room (*mehmán khána-e bahárí*)- lower storey
4. Spring use guest room (*mehmán khána-e bahárí*)- upper storey
5. Cloak room/ sleeping & wearing cloths store (*pas khána*)
6. Straw, hay & Lucerne store (*káhdun/ aláf khána*)- upper storey
7. Straw, hay & Lucerne store (*káhdun/ aláf khána*)- lower storey
8. Courtyard
9. Orchard/ planted vegetables plots (*bágh'cha & curd-e sabzi*)
10. Water well (*cháh-e áb*)
11. Family entry gate
12. Spring use stall (*ákhur-e bahárí*)
13. Sheep & goats pen (*qutun-e mál*)
14. Terrace (*sofá*)
15. Corridor (*dárun*)
16. Family living room having under floor heating tunnels (*táwa khána*)
17. Fire place room & kitchen (*átesh khána*)
18. Bathroom (*tash'náb*)
19. Spring use family living room (*bahár neshin*)
20. Backyard (*hawili-e paslu*)
21. Spring use baking oven (*tanur-e bahárí*)
22. Latrine (*mustaráh/ kenáráb*)

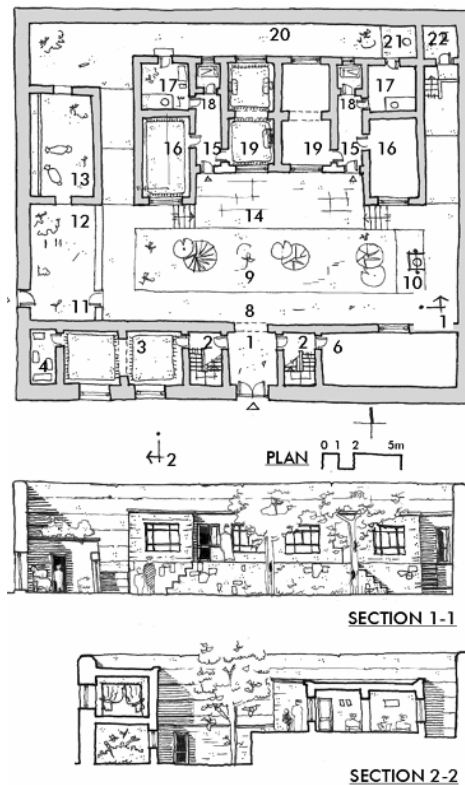


Fig. 67 from Exam. 30



Fig. 68 from Exam. 30

The bathroom (*tash'náb*) is served by the local heating system and is situated in the middle of the *átesh khána* and *táwa khána*. In other words, the bathroom is located at the warmest position of the underfloor tunnels (*gul khána*). There is a latrine inside the courtyard, and another guest latrine is located outside the building. The fodder storeroom is situated outside as well.

Un-surrounded Courtyard Housing

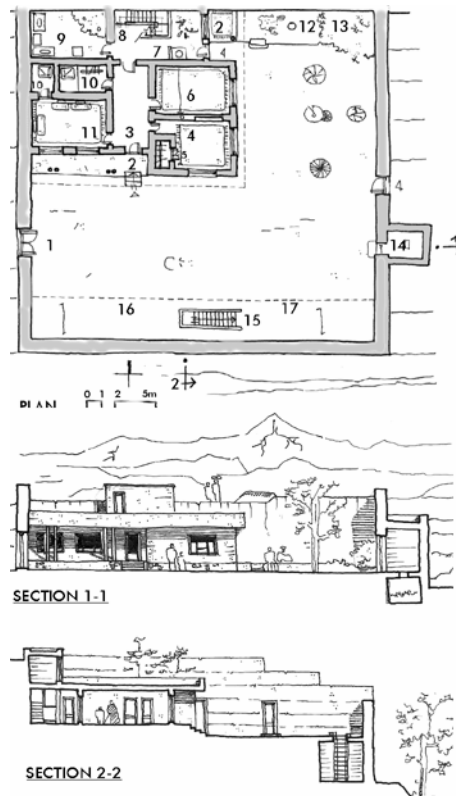
Un-surrounded courtyard is the name of the type of courtyard, of which the courtyard walls are separate from the built up areas, or the inhabited built up areas are free-standing in the middle of the courtyard. This type of housing is mostly borrowed from urban patterns and designed to match the local conditions. The house has a predominant central hall. When the building is a little elevated from the ground level, it is called the *bungalow (kuti)* type.

In addition to the major built up living area in the middle, the courtyard is surrounded on two more sides by secondary or complementary areas (Exam. 30).

The inhabited built up area is, for the first time, open on four sides, and it is therefore possible to have a window on all sides. The setting of the building is a little elevated from the ground level, because of the sloppy character of the plot. In addition, it keeps the building higher than the frost line (Fig. 67, 68).



Fig. 69 from Exam. 31



Exam. 31- Eng. Azizulláh's House (*hawilí*)

1. Courtyard
2. Terrace (*sofa*)
3. Corridor (*dálun*)
4. Spring use family living room (*bahár neshin*)
5. Cloak room/ sleeping & wearing cloths store (*pas khána*)
6. Family living room having under floor heating tunnels (*táwa khána*)
7. Fire place room & kitchen (*átesh khána*)
8. Stairs (*râh-e zina*)
9. Food articles store room (*tahwil khána*)
10. Bathroom (*tash'náb*)
11. Spring use guest room (*mehmán khána-ye bahári*)
12. Spring use baking oven (*tanur-e bahári*)
13. Fire bushes store (*hizum khána*)
14. Latrine (*mustaráh/ kenáráb*)
15. Stairs (*râh-e zina*)- towards basement
16. Fire bushes & dried animal dung store (*buta & chalma khána*)
17. Straw, hay & Lucerne store (*káhdun/ aláf khána*)

Major areas of the housing are comprised of an *átesh khána*, a *táwa khána* and a *bahár neshin*. However, it has a complete hygienic service i.e. water well in the middle of the front yard, *mostaráh* in the corner of the backyard and a *tashnáb* in the corner of the corridor. Because the animal quarters are moved into the interior of the courtyard, they are completely separated from the family living area.

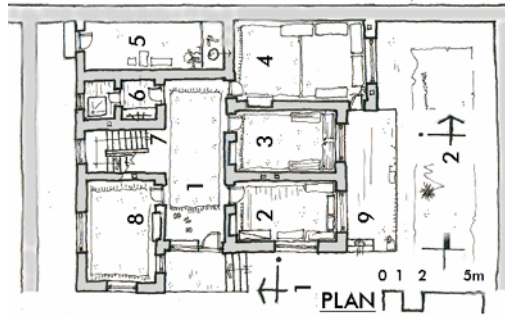
The guest area is also separate from the main living area and located at the beginning of the entrance to the upper story. Drastic changes to the domestic architecture including the design, the arrangement of areas and building materials applied have been seen in Exam. 31. It seems that the inspiration for the building is taken from an urban area e.g. Kabul city and put it into the courtyard in *Marghistán* of *Yakaulang*. Of course, efforts have been made to accommodate the design to the new environment, particularly with the local heating system.

Principally, the house with regard to the characteristic of the hillside requires to be built stepped, which has not been the case here however. Instead a large amount of excavation has taken place, in order to prepare the necessary flat plain of 27x 25m along the steep hillside (Fig. 69).

Exam. 32 is an interesting example of housing having a central hall. The design has been taken from a similar type found in a room with local under floor heating tunnels (*táwa khána*) among the

Exam. 32- Dalir's House (*hawill*)

1. Living hall
2. Spring use guest room (*mehmán khána-ye bahár*)
3. Children bed room for spring use (*bahár neshin*)
4. Parents bed room having under floor heating tunnels (*táwa khána*)
5. Fire place room & kitchen (*átesh khána*)
6. Bathroom (*tash'náb*)
7. Stairs (*ráh-e zina*)
8. Spring use married son bed room
9. Terrace (*sofa*)



SECTION 1-1



SECTION 2-2



Fig. 70 from Exam. 32

other areas, indicating the accommodation and interchangeability of the two patterns.

The building is of a high quality; the interior areas are very pleasant, bright and adorned. Having large windows affords more brightness to the area. The exterior façades are also a delight. The building utilises appropriate hygienic services such as a well for drinking water (*cháh-e áb*), a latrine (*mostarah/ kenáráb*) and a bathroom (*tash'náb*) (Fig. 70).

The construction and building materials of courtyard housing are much improved in comparison to other types. Nevertheless, its construction is composed of a local bearing wall system, with the entire existing load on the roof transferred to the sidewalls and then conducted to the ground.

The foundation (*tahdáb*) of the buildings joins mud-constructed buildings to the ground besides transferring the load of the roof to the ground.

The width of the foundations is mostly equal to the overlying wall. Depending on the bearing capacities of the soil, it sinks from 50cm to 1.00m into the soil and the same length comes out of the ground. Sometimes, the width of the foundation has been made much broader than the overlying wall, there are some exceptions, such as when the material of the walls is made of mud brick.

2- Construction and Building Materials



Fig. 73 *Surkh'qul-e Bamiyan*



Fig. 71 *Bamiyan*



Fig. 74 *from Exam. 29*



Fig. 72 *from Exam. 15*



Fig. 75 *from Exam. 29*



Fig. 76 *from Exam. 25*

Since the thickness of a mud brick wall rarely exceeds more than 50 cm, the foundation is built a little wider than the wall (Fig. 71). Some of the unimportant and non-bearing walls are without stone foundations (Fig. 72), whilst the others have strong stone bases (Fig. 73).

Considering this fact, most of the housing has been built on the hillside. The siting of the buildings is therefore of special importance. When the slope of the ground's top point is slight, the foundation is of minimum height. At a lower point however, considering the length of the building; the height of the foundation has to be considerably greater. Sometimes, the height of the foundation is impractically high. In this case, the height of the foundation of the building decreases in harmony with regard to the ground slope. In some cases, the height is repeatedly disturbed as the building has to be protected against the moist soil (Fig. 74, 75).

In respect of the natural possibilities and special local capabilities the foundation materials change from region to region. In some regions where there is no access to crushed stone, or applying such stone is more difficult or requires extra cost, easier accessed rubble stone - more easily accessible - is preferred (Fig. 76). Most of the foundation materials are of crushed stone, which are used together with mud mortar (Fig. 77).



Fig. 78 from Exam. 29



Fig. 77 from Exam. 29



Fig. 80 from Exam. 30



Fig. 79 from Exam. 30

In consideration of the aspects of splendour, sometimes, the outer face joints of the crushed stone of the foundations are filled by cement plaster (*angáñ*). In Fig. 78, only the living area of the older brother is jointed. The jointing of the foundation indicates the eligibility of a house. This characteristic is restricted to housing, which is influenced by urban types. Jointing takes place by means of the current and by means of various urban methods.

Other instances of jointing are seen in Fig. 79, 80. The outer joints of the stone parcels are simply jointed with cement plaster, which is called simple jointing. In this method, the jointing is a little recessed from the stone surface. A much clearer instance of jointing is seen in Fig. 81, which besides having knobby jointing has the recessed joint painted black and white.

The exterior walls are thicker than they normally are, and they differ from 75cm to 1.00m. The thickness of interior walls also varies from 50cm in mud brick wall of the Exam. 32 up to 80cm in mud pre-stressed (*pakh'sa*) as in Exam. 24.

As discussed in the naked housing (*kaldiwál/ kuta*) section, the thickness of the wall in a load bearing system not only serves constructional needs, but also the influences of the extreme climate of the region. The walls of the housing do not vary much. According to the conditions, they comprise mud pre-stressed (*pakh'sa*) and mud brick walls, which are coated by thatch of a sort of local mud and straw mixed plaster. This looks completely different than with the original building materials.

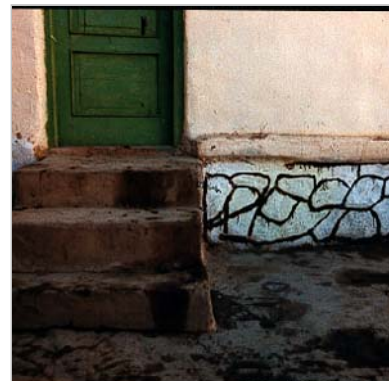


Fig. 81 from Exam. 15



Fig. 82 from Exam. 13



Fig. 87 from Exam. 17

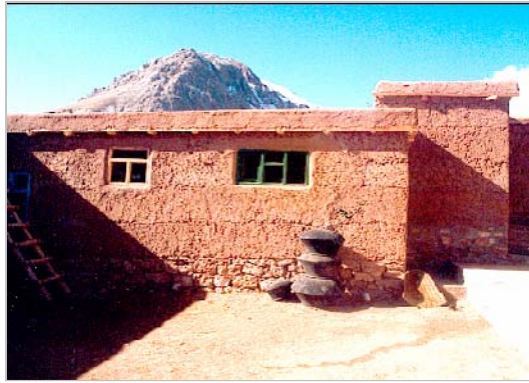


Fig. 83 from Exam. 29



Fig. 84 from Exam. 24



Fig. 88 Ewaz Karbala-yi, Fuládi



Fig. 85 from Exam. 29

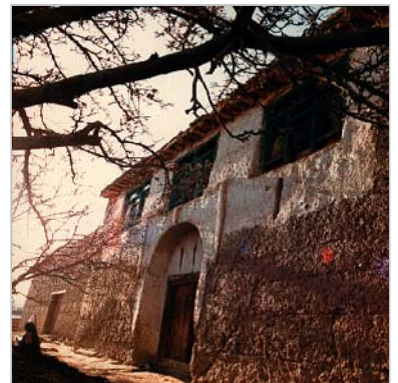


Fig. 86 from Exam. 19

Mud pre-stressed is the most common current wall type of the courtyard housing. Since the extensive instances of the mud pre-stressed wall are seen in the fort (*qal'a*) housing, we refer to this rather detailed discussion in the relevant section.

Most courtyard housing has a distinguished form, but mud pre-stressed constructed walls seem much more organic and in harmony with nature, because of the application of natural materials in proximity to the building. However, the grainy and hard textures of mud pre-stressed walls exceed their natural homogeneity. The horizontally regular and continuous bond of each layer of mud enhances further building (Fig.82). Mud pre-stressed walls have not always been unpleasant, as in the case of Fig.83. They are built to fulfil the required physical environment. Sometimes, some of the important surfaces of the mud pre-stressed wall are smoothed, just after building up of each layer. In Fig.84 only front façade of the house is smoothed down. In some cases, it is sufficient only to smooth down and brighten up around apertures, windows and doors (Fig.85, 86).

The sidewalls of mud pre-stressed buildings are usually coarse and harsh, depending on the mixture and impure loamy earth of the region. To eradicate such inconvenience has been a dream of each dweller. The outer surfaces of interior walls are usually coated by thatch plaster (*káhge*) (Fig. 87, 88). If the wall is desired to be much brighter and smoother, a more delicate plaster of sand or a kind of local reeds binding mixed with mud (*simgel*) is applied.



Fig. 89 from Exam. 21

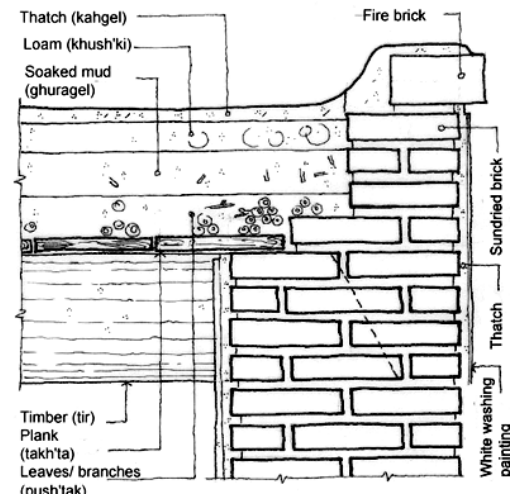


Fig. 93



Fig. 90 Ewaz Karbala-yi, Fuládi



Fig. 92 from Exam. 15

Local whitewashing mud and chemical colours play an important role in brightening the interior walls (Fig.131).

Various plasters have been used to coat the exterior façades of the pre-stressed mud walls in order to remove their harshness. One of those plasters is *káhgel*. *Káhgel* plaster smoothes the exterior façade of Fig.108 considerably, whilst in some other cases, e.g. in Fig. 89, whitewashing coated over thatch plaster has made the building much more fascinating in comparison with the nearby ones. Fig. 139 is a special instance, in which the outer facade of mud pre-stressed wall (*pakh'sa*) has been plastered first and then coated with cement mixed plaster¹², i.e. lime and an amount of cement.

Sun-dried brick¹³ is also among the important building materials, which has been applied to the walls, especially in the courtyard housing. Sun-dried brick is used without any coating (Fig. 90), but in some instances such as Fig. 91, 92 burnt brick is only used for the main living areas, where it is coated with cement plaster and painted a white colour.

The thickness of the sun-dried brick or combined sun-dried brick and burnt-brick wall is usually about 50cm or equivalent to two times the length of a brick (Fig. 93).

It seems that a 50cm thick wall does not fulfil the high heat conduction, thus brick wall is not widely seen in the region.



Fig. 94 *Ewaz Karbala-yi, Fuladi*

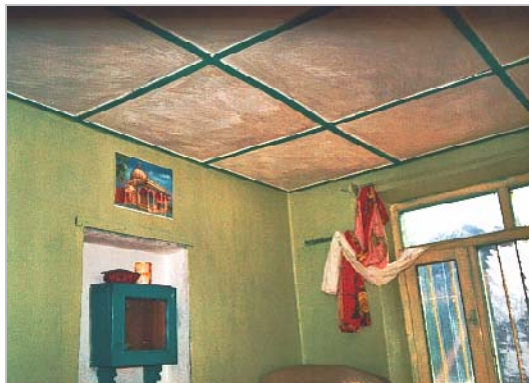


Fig. 95 *from Exam. 15*

Brick walls are more common in marginal part of Hazáraját. This type of walling deserves attention, since the outcome of the walling is more delicate and narrower, and especially, when there is not sufficient constructional mud for construction in the surrounding area.

Fundamentally, walls not only have apertures and openings, but these apertures are considerably larger. For this reason, a wooden lintel is mostly laid over the opening jump.

The ceiling of the courtyard housing is made of many different elements and it functions no more than to cover the enclosed area. The compound elements of courtyard housing are similar to those of the naked housing (*kaldiwál/ kuta*). The only difference existing in the courtyard housing is the ceiling coating (*mosattah*), which functions in order to hide improper features of the surface. The second reason is to prevent dust and other materials from dropping down the ceiling.

The ceiling of the courtyard housing is predominantly uncoated underneath because of the problem of leakage from the ceiling and rainfall (*chakka/ chakak*).

Since the outer thatch coating of roofs cannot resist the heavy snow and extreme climate of the region, the *káhgel* coating of roofs not only has to be renewed every year.



Fig. 96 from Exam. 15

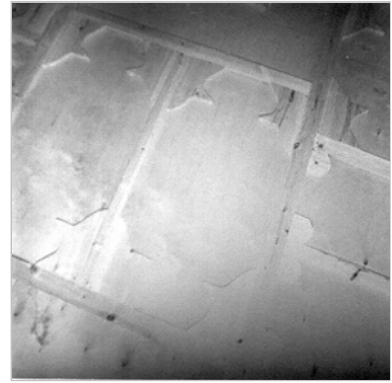


Fig. 98 from Exam. 29



Fig. 97 from Exam. 15



Fig. 99 from Exam. 5

In some cases, a sort of local loam (*mang*) having a long lasting adhesion has to be used. Meanwhile, the coated floor of the roof cracks when it encounters the extreme climate and heavy rain. Water penetrates into the roof and damages the ceiling. Nevertheless, the ceiling of some surfaces in e.g. the living and guest-rooms of some of the courtyard housing has been copied from the urban patterns. One of the most common ceiling coatings consists of a cloth. In this style, a wooden lacy 1x 1m is hung under the ceiling in order to level the surface, and then the cloths are spread out all over the ceiling and wooden mullions taken onto the cloths (Fig. 94, 95). In some cases, a flowered motif has been used like in Fig. 96, 97. In Fig. 98, however, a kind of sacking cloth has been applied. Moreover, a wooden lattice has artistically been worked in. In Fig. 131, the ceiling is elaborately coated with cloth of such smoothness and integrity with paintings on it, that it seems inconceivable in much more rigid and harder materials. An indigenous ceiling coating is seen in Exam. 31. In this instance, there is a woven lace of wild tree branches (*chaila*) hinged tightly with iron strips (1mm thick and 2cm width) under the ceiling, which has been coated with a little stiff thatch plaster (*káhgel*) afterwards, and smoothed by means of another more delicate plaster (*cemgel*).

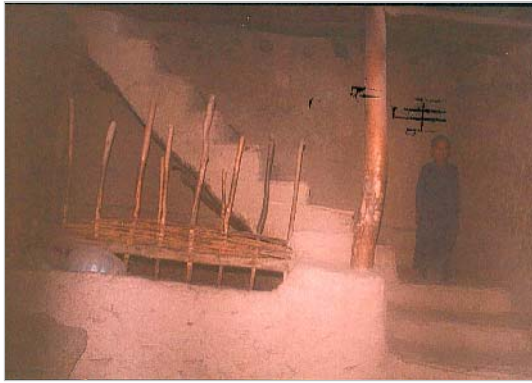


Fig. 102 from Exam. 14

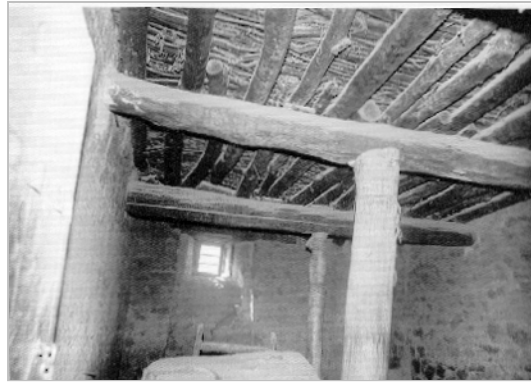


Fig. 100 from Exam. 24



Fig. 103 Tirkuh-e Lulenj

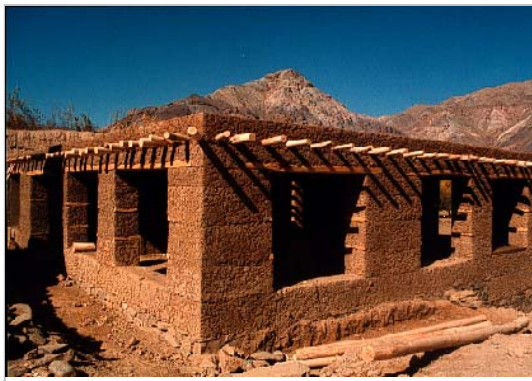


Fig. 105 Lulenj

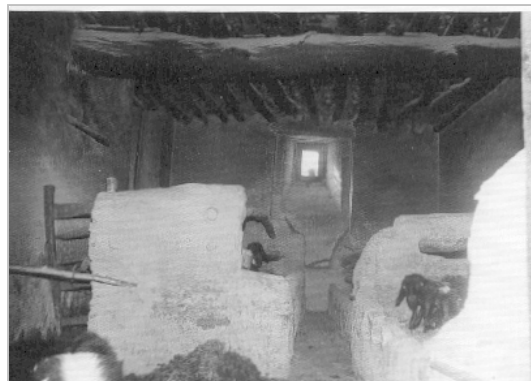


Fig. 101 from Exam. 24

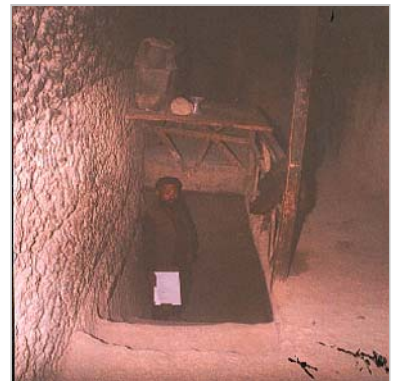


Fig. 104 from Exam. 14



Fig. 107 from Exam. 17

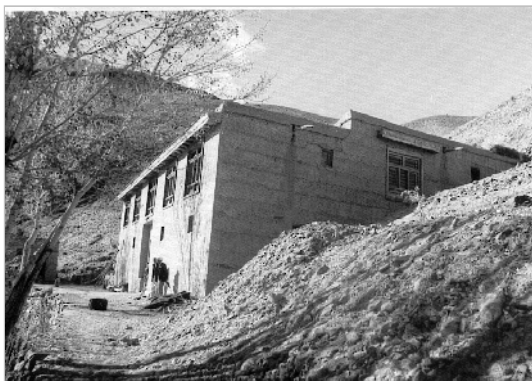


Fig. 108 from Exam. 24

The roof spanning of the courtyard housing is carried out on the shorter length of the rectangular area. Despite this general rule, there are instances of using strong girders and supporting pillars. In such instances, the common factor of being economic is shared with the naked housing (*kaldiwál/ kuta*) (Fig. 99). Perhaps, this method has not always been put into practice for the purpose of economic necessity, because, for instance in Exam. 24, it has a meaningful and explainable function in some cases. Since heating tunnels are conducted through the ceiling, and thereby causing it to become massive and heavy, two pillars supporting two strong girders (*pu*) are laid under the ceiling in this case, and into the width of the area (Fig. 100). Sometimes, only one girder in the middle of the ceiling bears the load of the roof (Fig. 101). In Exam. 14 strong girders and supporting pillars have to carry the load of the staircase (Fig. 102, 103). Static girders have achieved internal functions; but in one extraordinary instance (Fig. 145), supporting metal pillars carry the load of the projected ceiling, for the first time. The ceilings of some housing extend up to the level of the exterior wall and there is no indication of the appearance and determination of the ceiling on the exterior facades of the building (Fig. 81), However different types of ceiling projection can be seen in Fig. 104, 105. In some instances such as Fig. 143, only the eaves of the timbers are projected out of the wall.



Fig. 106 from Exam. 22



Fig. 110 from Exam. 19

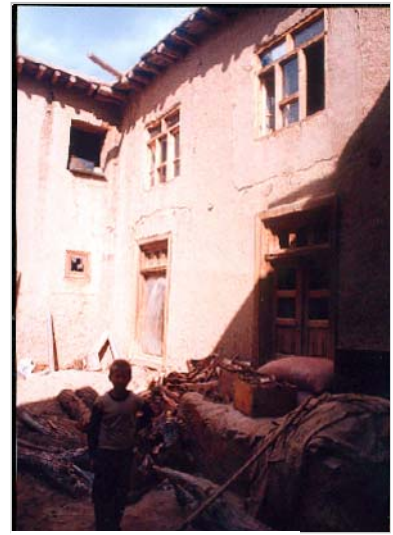


Fig. 109 from Exam. 20

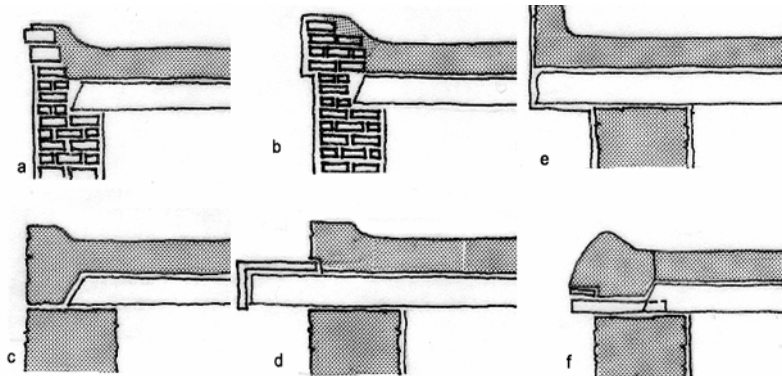


Fig. 116 Common pattern of eaves

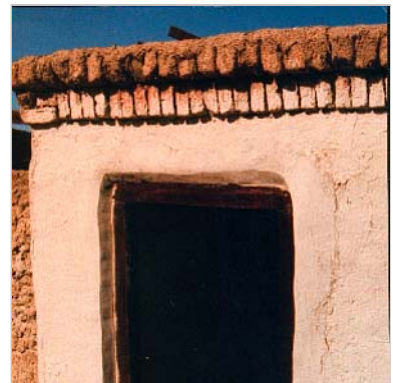


Fig. 111 from Exam. 15

In other cases, the ceiling projects about half a meter over the windows to protect them against rain and snow falls (Fig. 106). Sometimes, the ceiling console is seen in the main facades (Fig. 107). In other cases, the console extends over the non-important facades, especially over the windows as well (Fig. 108).

The projection of the ceiling over the courtyard housing is mostly oriented towards the courtyard (Fig. 109, 110); but in other instances (Fig. 141) the ceiling projection appears both in the central courtyard and in exterior facades. In some instances, the ceiling extension has taken place along with decoration and embellishment. In Fig. 111, two layers of exposed brick header are supposed to create a significant finishing to the top of the façade, whilst in Fig. 112 the plastering of a small part of the eaves is intended to delight the building exceedingly. The eaves in Fig. 113, 114 are in keeping with local conditions besides being decorative. The ceiling projection of Fig. 145 is unique among the others. This instance matches urban patterns rather than the domestic style of architecture.

In Exam. 27 a significant ceiling projection is supported by two pillars in front of the front façade of the living area and used as a shelter for shade (Fig. 115).

General patterns of the eaves and ceiling projections are seen in Fig. 116.



Fig. 112 from Exam. 32



Fig. 114 from Exam. 29



Fig. 118 from Exam. 27



Fig. 115 from Exam. 27

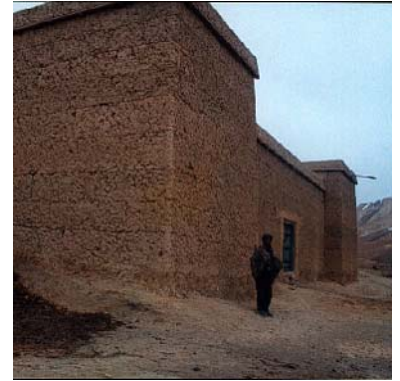


Fig. 113 from Exam. 16



Fig. 119 from Exam. 27

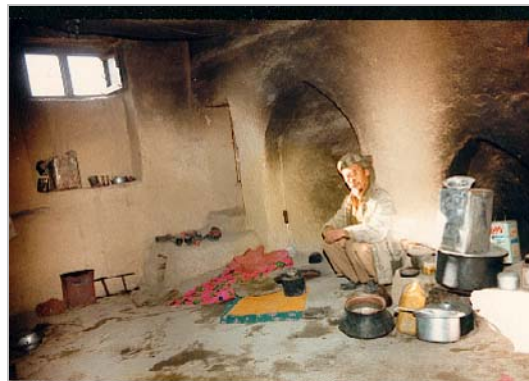


Fig. 117 from Exam. 25

3. Interior Design

The separation of human living quarters from quarters for the animals and service areas, the variety of human living areas having distinct functions, and the unfailing indications of the hand of man in the whole of the design are among the most significant characteristics of the interior design of the courtyard housing. Nevertheless, the interior design of many areas such as the fire room (*átesh khána*), the room with the underfloor heating tunnels (*táwa khána*), the guest room and the hygienic services i.e. the bathroom (*tash'náb*) and latrine (*mostaráh/ kenáráb*) are still at the roots of the domestic approaches.

The *átesh khána* of some courtyard housing is similar to that of the naked housing (*kaldiwál/ kuta*), and besides baking bread and cooking the meals is for family living and sometimes for sleeping as well (Fig. 117).

Although the interior design is fundamentally similar to that of the *kaldiwál*, the *átesh khána* is influenced by urban models (Fig. 118) in some instances and is used for baking bread and cooking the meal, for the storage of grain and as a kitchen with all the necessary utensils, and not so much as the family living area.

The various interior functions of a typical kitchen do not have their own identified design areas. Tea dishes are kept in one recessed niche and the boiling pot in another niche (Fig. 119, 120). Some of the other utensils, such as the hurricane lantern, the basket, sieve and local dining cloth, are hung on the wall.

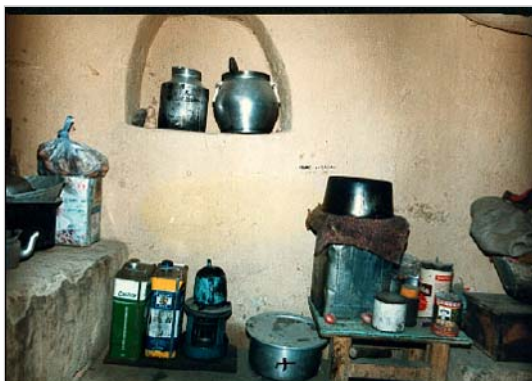


Fig. 120 from Exam. 27



Fig. 124



Fig. 121 from Exam. 15



Fig. 123 from Exam. 25

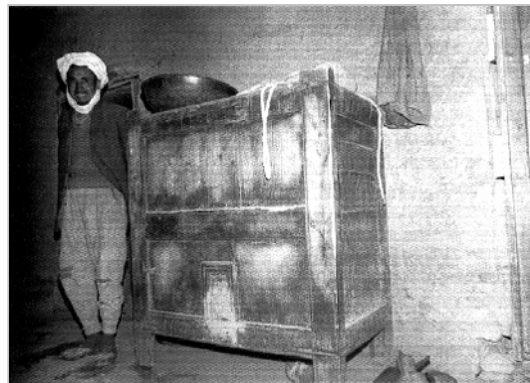


Fig. 122 from Exam. 24

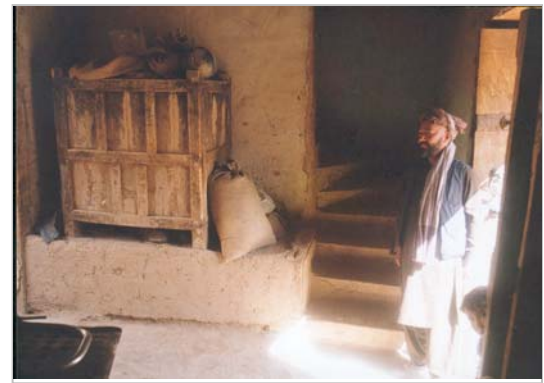


Fig. 125 from Exam. 20

A small elevated platform is made for storing the dishes and keeping the bread such as a clay bowl for making bread, the dough (*taghāra*), and woven reed patella for carrying bread (*shugur*) and a wooden box (*sandoq/ sanduq'chah*) for keeping bread into it.

In the other corner of the kitchen there is a washbasin containing a small water reservoir for washing the dishes and the food articles. A diesel brazier and other important means of cooking the meal and boiling water (*esh'tub*) together with gallons/ litres of diesel stand about on the floor.

In some kitchens (*kār khāna*), small wooden shelves are hung on the wall, in addition to recessed niches (Fig.121). Pre-kneaded dough leavens in a corner of the kitchen (Fig.122, 123, 124, 125, 126). Some fire rooms (*ātesh khāna*) are situated along the corridor (*dālun*). This type is not for family living-quarters of the family, but functions only as a kitchen, in kneading dough (baking bread) (*kandu-e ārd*) or in storing flour for wall shelves (Fig. 127).

In *tāwa khāna* and other spaces such as *bahār neshin*, embellishment and design features have rarely been encountered. Among the other elements, more attention has been directed towards the wall (Fig.128). The outer wall of *tāwa khāna* appears wider in the interior façade, despite having two small apertures. This fashion removes the existing simplicity and also functions as a shelf. In the opposite façade, considering the shelf in the middle, two other niches are symmetrically built around it.



Fig. 126 from Exam. 20



Fig. 127 from Exam. 28



Fig. 130 from Exam. 24



Fig. 128 from Exam. 22



Fig. 132 from Exam. 15



Fig. 131 from Exam. 32



Fig. 129 from Exam. 28



Fig. 133 from Exam. 15

In Fig. 129, this principle is followed as well. In this instance, moreover, a portable stove is placed in the middle of the room and it plays a role in changing the fashion of the interior. Large windows enhance the quality of the areas, and decorated shelves (*almári*) make them significantly more interesting (Fig. 130,131). Painted walls and shelves and ceiling coatings (*mosattah*) adorn the room. In Fig. 132, 133, besides drawing attention to the walls, large windows, decorated shelves, coated ceiling, painted walls, hung pictures and rugs on the wall have provided a colourful and joyous area.

4- Exterior Façade

When we talk about courtyard housing, we immediately conceive that some of the dwellers' activities are to be hidden from outsiders or to be protected against existing insecurity and so on. By the way, there may be many reasons why a building has been enclosed by high walls, but the important fact is that the surrounding walls hide the building tremendously and bring out its introvert characteristics.

Moreover, square dimensions with a height similar to the other lengths give it a closed cubical form of which all the sides are simple and clear (Fig. 134). The only opening is the entrance, which connects the building to the outside.



Fig. 138 from Exam. 29



Fig. 134 from Exam. 13



Fig. 135 from Exam. 19



Fig. 136 from Exam. 24



Fig. 137 from Exam. 20

The entrance door (*derga-e borun*) in some housing has distinguished and clear characteristics. Some of them have an arch recessed into the wall with a wooden door. In some cases, the entrance doors and the nearby complementary spaces occupy a vast area and enhance consequently the appearance of the entrance (Fig. 135).

Although, the courtyard housing fundamentally has closed walls with introvert characteristics, in some instances such as that of the closed central courtyard housing, all apertures and windows are oriented to the outside. In this type, apertures on the lower story are still small and limited, whilst the windows in the upper story are large (Fig. 136).

According to the observations, a number of the central courtyard housing types also have openings on the outside and violate the introverted nature of this type of housing (Fig. 137, 138).

The exterior façade of most of the courtyard housing is completely harmonious with nature, because the building materials are taken from the surroundings of the buildings. Coarse and harsh walls, in some cases, conceal the well-off and smooth image of housing (Fig. 51, 69, 139, 145). In some cases, the built up area is a little elevated from the surrounding walls and demonstrates its real features to the outside observer (Fig. 140, 141).

Since the built up area itself is in siege by the courtyard walls, in Fig. 142 a part of the large outside oriented windows, has changed the exterior façade of courtyard housing.



Fig. 139 from Exam. 31

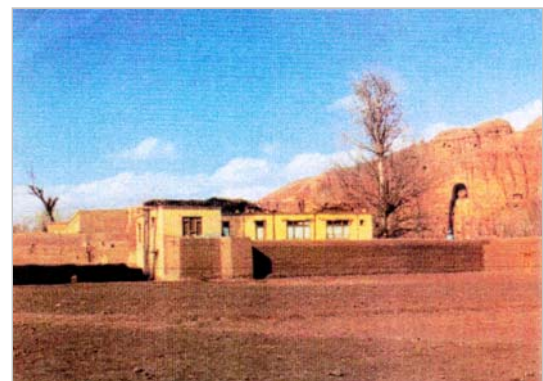


Fig. 140

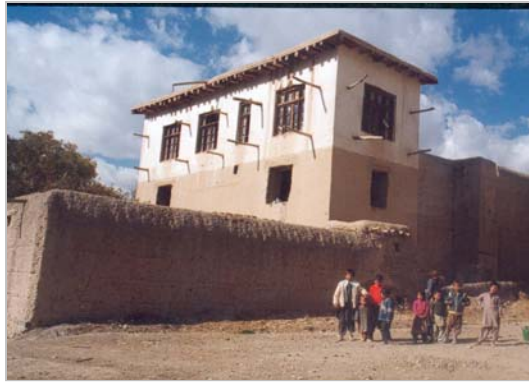


Fig. 142 from Exam. 30



Fig. 141 from Exam. 29



Fig. 143

The courtyard housing, in regard to its solid and distinct form would basically be built on flat ground, but this chance has not always been available in the mountainous terrain of Hazáraját. Many efforts have been undertaken, in order to set the building on an abrupt inclined surface. Despite its inclined setting, the housing is monolithically built in Fig. 143, whilst in Fig. 145 the surface of the lot has been levelled first, and then the building has been built on it. The exterior façade of the building clings amazingly to a flat rock (Fig. 144).

Most exterior façade materials of the courtyard housing, except Fig. 142, have a whitewashed colour, and are built of pre-stressed mud (*pakh'sa*). Mud constructed materials harmonise well with the peripheral environment; whilst the façade of some built up areas, including those influenced by urban patterns are pleasant and well painted. The building is set on a stone base about one meter higher than the ground level. Large windows exist on the outer surface and some sort of timber eaves is projected on the top of the exterior façade. In some façades a number of wooden logs projecting out of the ceiling have been seen (Fig. 143). In other cases ceiling eaves exist only over the windows (Fig. 106). Much attention has been drawn towards the main façade or front elevation (Fig. 107) and side elevations have been seen as being in the second rank of importance (Fig. 108).



Fig. 144 *from Exam. 23*



Fig. 145 *from Exam. 31*

In **Fig. 145** a considerable console appears in the exterior façade of the building. In some instances, as in **Fig. 111**, two layers of exposed brick create an important finish to the wall, whilst in **Fig. 122**, the forehead of projection has been plastered and painted.

Overleaf:

Fig. 146 *Haji Amir ja'n's old fort (qala)*
Fula'di valley



PART THREE
THE FORT HOUSING
(qal'a)

According to historical evidence, Central Afghanistan-Hazáraját has had many forts, in the past and populated valleys having towers and fortified ramparts. Populated valleys were as important as the magnificent city forts, but no more than their names and depictions, or the remains of their devastations have been left today. Some of the city forts and the populated valleys of these forts are as follows:

- The remainders of *Gholghola* historic city situated on a hillside to the south of *Bámíyán* city.
- The remainders of *Zohák* city in the *Kálu* gorge 17km east of *Bámíyán* city.
- *Khawát* city neighbouring nowadays *khawát* city in the environs of *Hesa-ye dowum-e behsud*.
- *Shahrak* in the environs of *Hesa-ye awal-e behsud* in the eastern plan of *Bábá Mountain*.
- The remains of the fortified and vast fort of *Lásh/ Rásh* in *Kejrán*.
- The marvellous fort of *Shir qal'a* in *Ajrestán* about 90,000sqm.
- *Judán* fort in the north of *Nayak* of *Yakaulang* and the fort of *Chehelburj*, which in fact had one hundred towers and is situated on the mountain 70 miles north of *Nayak* in the environs of *Sukh'tagi* village.

In the late 19th century, multi-family or neighbourhood forts, smaller than the city forts, were common in all over Hazáraját once again. Accordingly, there were only 1000 forts in *Uruzgán* district and the equivalent of this number were found in *Ajrestán* and other districts.

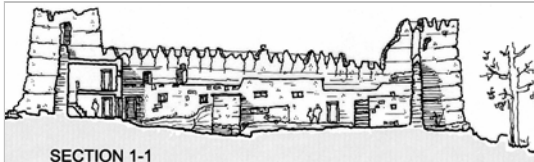
Clans of 30- 40 families with their livestock, tools and other necessary equipment, were using these types of forts. The widths of the ramparts (*burj*) were between 1½m to 2m and about 8m high. The forts had interchangeably four to six towers, of which each had a capacity of 10-12 armed men for guarding the security of the dwellers inside against any attack or offensive.

Bearing this in mind, the towers were built clinging to the corners of the fort, in order to have vision and control all around the fort. Many small holes or archery slits (*tirkash*) had been built in the *burj* and ramparts, in order to throw out pieces of stones, pour boiling water and smelted oil over the attackers, when they were gathering around the fort. By firing very old simple guns "*dahánpur*" to defend against and disperse the enemy gathered around the fort.

A similar defensive element was built on the gate (*dargah-e borun*) of the fort. There were many archery holes (*khuknu*) near the top of the surrounding ramparts.



Fig. 148 from Exam. 33



1. Fort yard
2. Sheep & goats pen (*qutun-e mál*)
3. Corridor (*dálun*)
4. Fire place room & kitchen (*átesh khána*)
5. Family living room having under floor heating tunnels (*táwa khána*)
6. Corridor with stairs
7. Spring use family living room (*bahár neshin*)
8. Cows stall (*ághul-e gau*)
9. Spring use stall (*ákhur-e bahárí*)
10. Rampart (*burj*)

Exam. 33- Old Fort (*qal'a-ye ke*)

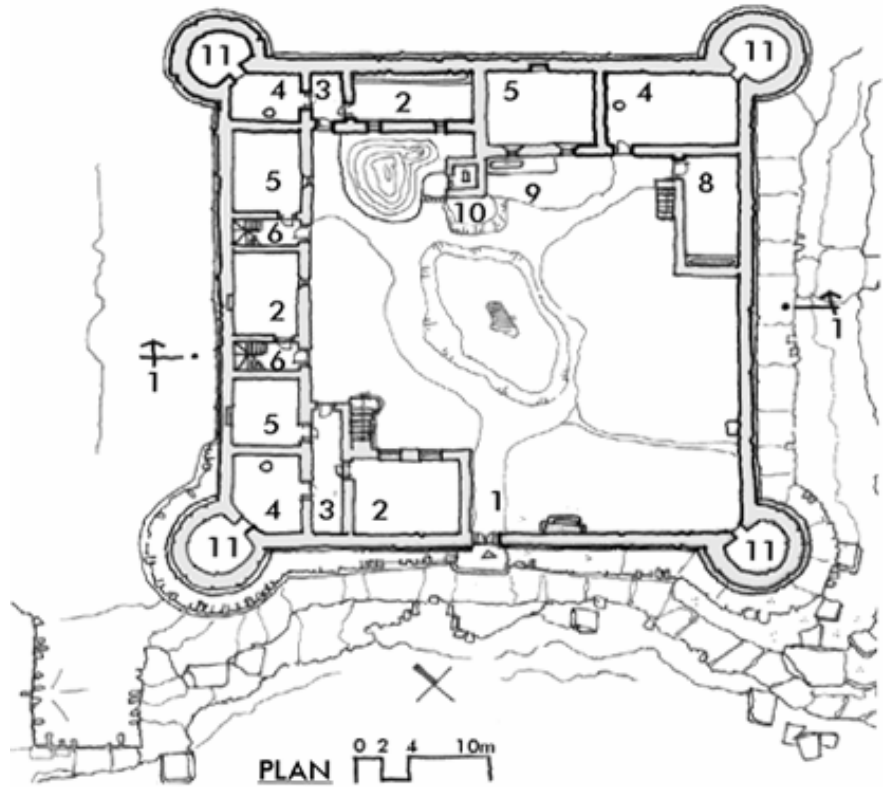


Fig. 147 from Exam. 33

Eventually, after the domination of *Abdur Rahman Khan* in Hazáraját in the last decade of the 19th century, the existing forts were either destroyed by the forces of the aggressor or their owners had to destroy them.

The end of this period (*19th century*) is actually counted as the period of the decline of the city fort and the multi-families or neighbourhood forts.

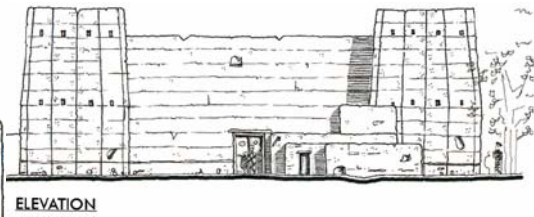
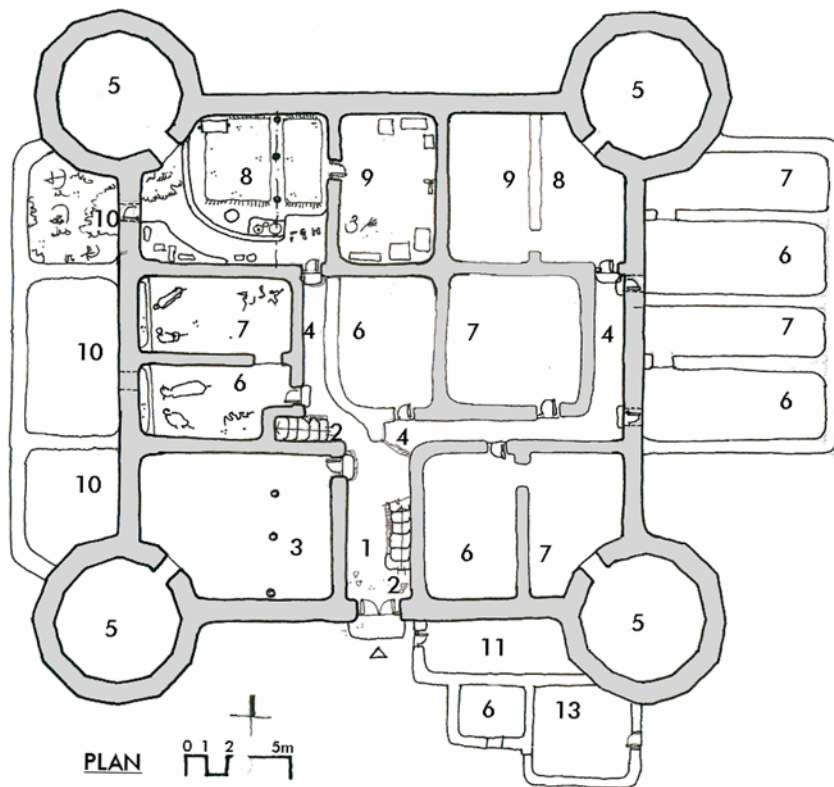
According to all the historical evidence, after this period no large forts have been built. Moreover, the vanishing of the previous wide-spread solidarity at the level of a clan, which tended towards the more limited level of a minor family, eventually brought out a new style of fort building architecture in the region. Although today's family forts are not as magnificent as those of the last lords (*mir/ arbáb*), and although the towers have lost their defensive function, they are still a feature of dignity and social characteristics.

According to the research undertaken, the family fort accounts the most valid type of housing in Hazáraját.

In the following we are going to focus more on it.

1- Plan

The remainder of the oldest fort i.e. the towers and surrounding ramparts is situated on a bed of limestone.



1. Fort yard
2. Stairs (*râh-e zina*)
3. Straw, hay & Lucerne store (*kâhdun/ alâf khâna*)
4. Corridor (*dâlun*)
5. Rampart (*burj*)
6. Cows stall (*âghul-e gau*)
7. Sheep & goats pen (*qutun-e mâl*)
8. Family living room with baking oven (*tanur khâna*)
9. Food articles store room (*tahwil khâna*)
10. Fire bushes & dried animal dung store (*buta & chalma khâna*)
11. Guests' horses, mules & donkeys stable
12. Passengers' mosque (*musâfer masjid*)
13. Donkeys stable

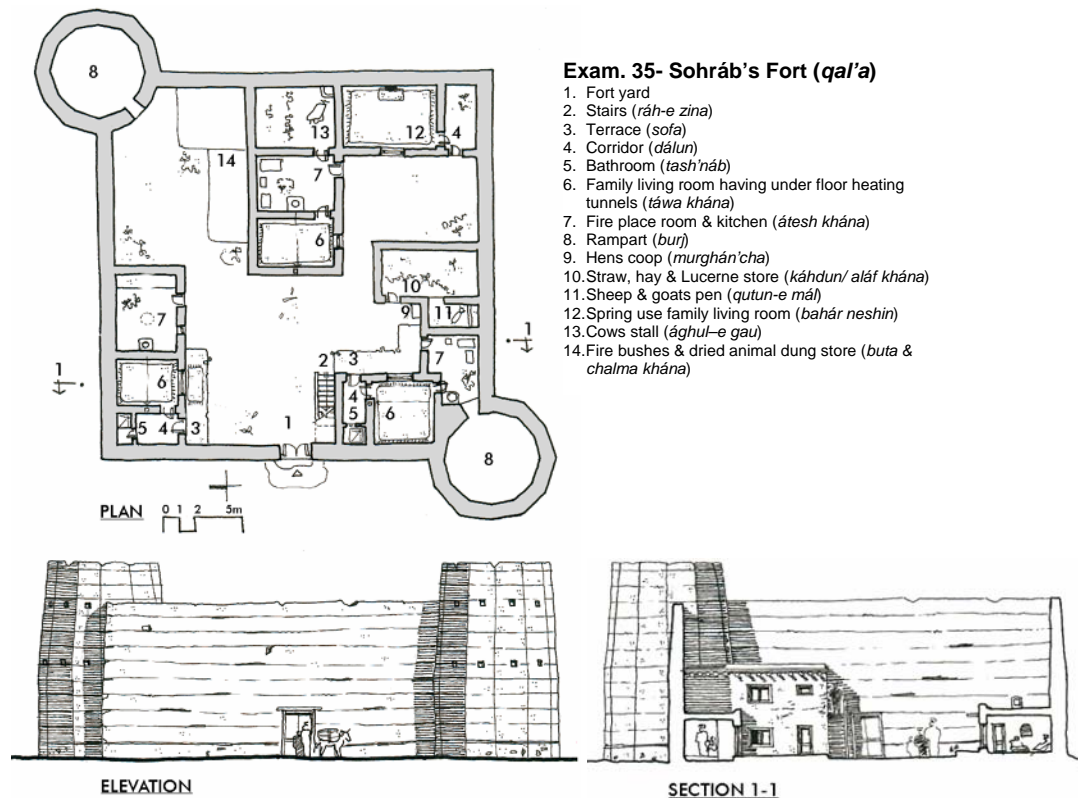
Exam. 34- Darwish Boy's Fort (*qal'a*)

However, this fort was built of limestone and its rampart building materials are also mixed with limestone. So the fort is called Lime Fort (*qal'a-ye kitch*) (Exam. 33). The strength of the building materials is the reason for the longevity of the building. Regrettably, no more indications of major built up areas are left to explain the identity and the style of the architecture (Fig. 147). The fort is a 40x 40m square in form and four towers are hung on to the four corners of the building. It has a rather small gate (*dargah-ye borun*), which seems unimportant. Newly built living areas of nearly 50 years of age, cause the fort to be able to continue still its functions. The fort is now the living area of an extended family having their livestock and necessary tools for working (Fig. 148).



Fig. 149 from Exam. 33

Exam. 34 is another fort, contemporaneous with *qal'a-ye kitch*, which, besides undamaged towers and ramparts, has interior built areas, which testify to the lifestyle of the ancestors of the people in this region. The families' living areas and animals' quarters are densely built inside the fort and no more open space is left inside the fort on the ground floor. Instead the roof is used as a yard for outdoor functions. (Fig. 149), this pattern is along the lines of the last neighborhood forts and the city forts. Moreover, other complementary areas have gradually been added to the different fort wings and caused the fort to lose its distinct and pure cubical form.



The mosque and the area for donkeys or horses are among the areas, which are located outside the fort (Fig.150).

The built area inside is generally built in one story, but one of the magnificent rooms in the central point of the fort is situated in the upper story. Since, the upper room, in contradistinction to those in the lower story has a distinct room with under floor heating tunnels (*tanur khána*) and a fire room (*átesh khána*), it belongs to the senior family (Fig.151).

According to the studies, the lower room is similar to the naked housing type (*kaldiwál/ kuta*). Generally, this type of room has a short and narrow door (*dargah*) and all the functions of a family including baking bread, cooking the meal; eating; living and sleeping and other complementary activities such as storing flour, water, firewood, and other necessary tools take place in one room. The fort has a square form with 25m long sides. The towers are 2m higher than the 10m high ramparts. The fort is now the living area of four close relatives.

As mentioned before, the tower in the old forts had had a special and protecting function. The number of towers had not always been constant. Forts are primarily built with four towers, but this number can vary depending on necessity.

Exam. 35 is among those old forts that has two towers at two corners placed diagonally. The fort is 25x 25sqm in dimension and has 10m high ramparts and 12m high towers indicating that the fort is higher than usual.



Fig. 150 from Exam. 34



Fig. 152 from Exam. 36



Fig. 151 from Exam. 34

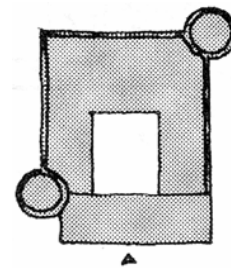


Fig. 153 Afghani banknote

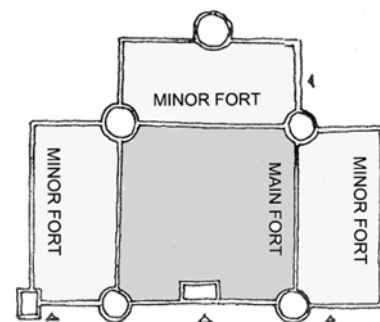
Since, the surrounding rampart is double in height with reference to the area built up in two stories; the fort can be characterized as much higher than normal. Although no indication remains from inside the built up area, there are now some irregular built up areas, which are allocated as the habitation of the owner of the fort with two other farmer families.

Exam. 36 is another instance of an old fort with two towers. The only difference is a newly built area planned in two stories (*sarácha*) affording guest services, which has been added to the building. Unlike the older pattern, the internal layout of areas is more ordered, and a small yard is seen in the middle of the fort. Nevertheless, there is no decline in the significant function of the roof, which is still to be seen. Furthermore, access to the latrine takes place through the roof. The living area of the senior family is situated wholly in the upper story only (Fig. 152).

Lakh'shán qal'a (**Exam. 37**) is among the oldest and the most valid forts, which was belong to a powerful man, named *Jum'a Big*. *Lakh'shán* means clear and smooth, likewise, *Lakh'shán qal'a* means that the outer facades of the fort are completely cleared and smoothed. Since the fort typifies highly significant and magnificent architectural values, its picture has been depicted on the 500-afghani of Afghanistan currency (Fig. 153). At present, the 300 years old *Lakh'shán qal'a* is mostly abstracted towers and ramparts of a fort and they are the only parts that are left today.



Exam. 36 Hájí Amir Ján's old fort



Exam. 37 Lakh'shán Qal'a



Fig. 155 from Exam. 37



Fig. 154 from Exam. 37



Fig. 157 from Exam. 37



Fig. 156 from Exam. 37

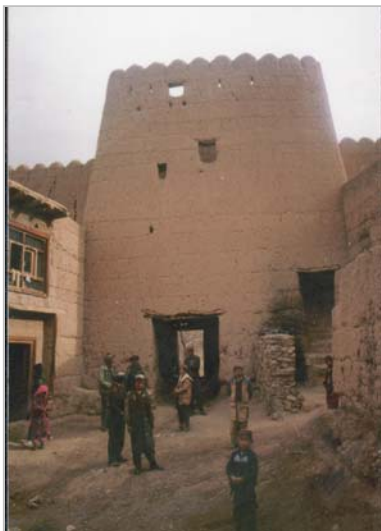


Fig. 158 from Exam. 37

Originally the fort complex is comprised of four forts clinging to each other. One of the forts has a square form with 30m long sides. Four large towers located at four corners of the fort are pointed out as the major fort, whilst the other three minor forts, each about half of the major fort are situated at the three sides of the major fort. Although all the forts are internally connected to the major fort, they each have an independent entrance gate (*dargah-e borun*) as well. The east elevation of *Lakh'shán qal'a* constitutes the main façade of the compound. The smaller forts, except the northern one, are not as magnificent as the major fort. In addition to the main tower, each fort has an extra tower. The southern fort has one cubic rectangular tower in the corner and the western fort has one cylindrical tower shorter than the main towers in the middle of the ramparts (Fig. 154, 155, 156). One of the elements, which make up the defensive system, is located over the entrance gate.

The system comprises slits or archery holes (*tirkash/ khuknu*) for special facilities and bow-shooting at two levels. The area is 10m long and 6m wide and it has been prepared to afford place to a high number of fort guards (Fig. 157, 158). The actual function of *Lakh'shán qal'a* is not clearly known, but the complex has certainly been used for occupation at the time when it belonged to a powerful man. Accordingly, the major fort was allocated to the senior family, two other minor ones belonged to junior families and the fourth one was used for their livestock.

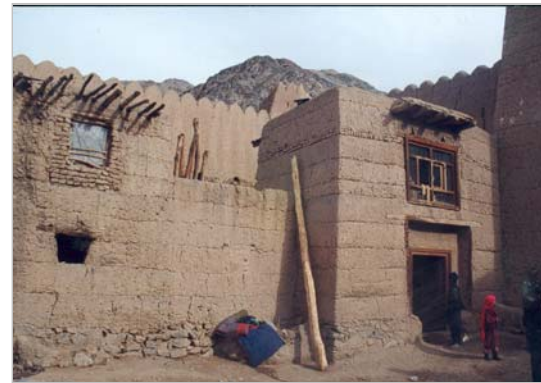
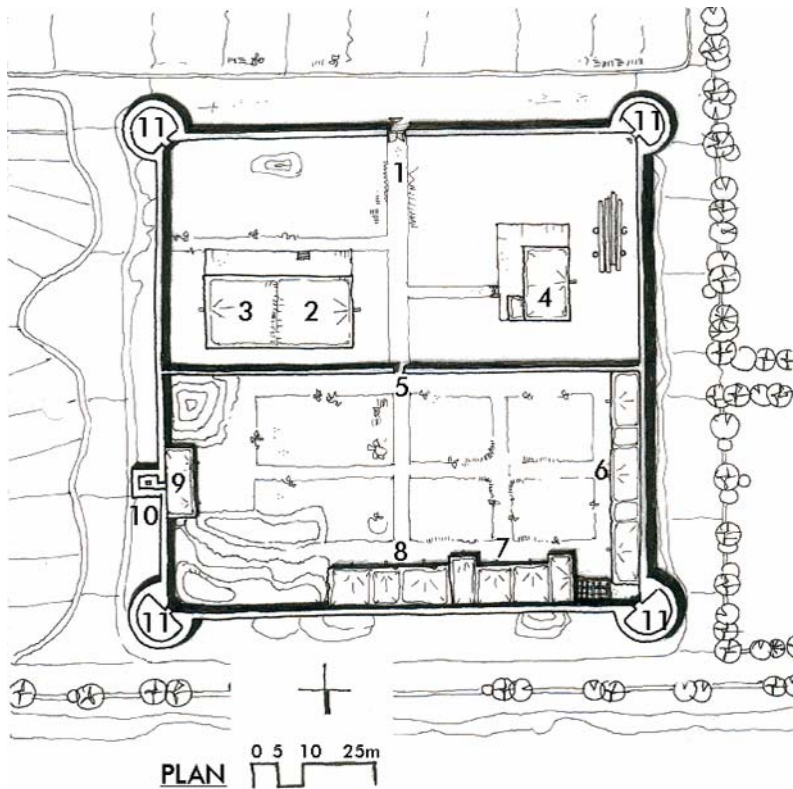


Fig. 160 from Exam. 37

1. Guest living part
2. Guest room (*mehmán khána*)
3. Food articles store room (*tahvil khána*)
4. Passengers' mosque (*musáfer masjid*)
5. Family living part
6. Formers' living quarters
7. Family living quarters
8. Live stocks stable
9. Horses stable
10. Latrine (*mustaráh/ kenáráb*)
11. Rampart (*burj*)

Exam. 38- Sayed Guláqá's Old Caravanserai (*sarai-e qadimi*)

According to observations, the built areas inside the forts had mostly been on one floor and the high built ramparts surrounding the built up areas had commonly been used for securing the forts against attack. Meanwhile, the magnificent aspects were considered as well. Recently, newly built up areas inside the compound indicate that life is still going on inside *Lakh'shán* qal'a (Fig. 159, 160).

Exam. 38 is a most unusual fort, because of the substitution of the original function of the dwelling. The fort, located in *Áqzarát* valley in the environs of *Panjau* province, was previously used as a formal caravanserai (for passengers' over night lodging with a stable) during the period of *Amir Habibullah Khan*. By virtue of this fact, the fort is now called the state caravanserai (*sará-ye dowlati*). Back then, transportation routes were secured by the central government. Therefore many lodging places were built as caravanserai for the rest of by-passers along their way. According to the local informants, there were about 30 caravanserais along the Kabul- Herat route. The existing fort of *Sayed Gul Ágha* was among these caravanserais. The distance from *Panjau* to *Áqzarát* is about 36km, which was covered on horse in 6 hours. The distance from *Áqzarát* to *Kermán* is about 18 km, which was covered in 3 hours. As vehicle transportation developed, all caravanserais including *Áqzarát* gradually lost their importance, and nearly 50 years ago, it was converted to a dwelling fort.

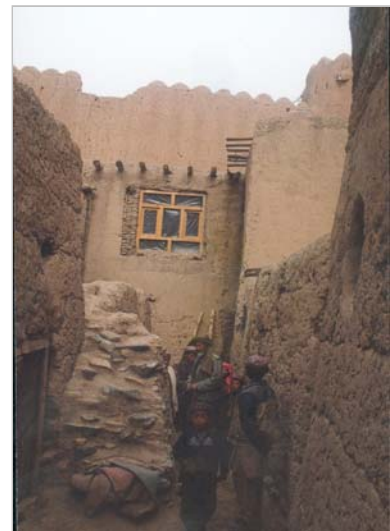
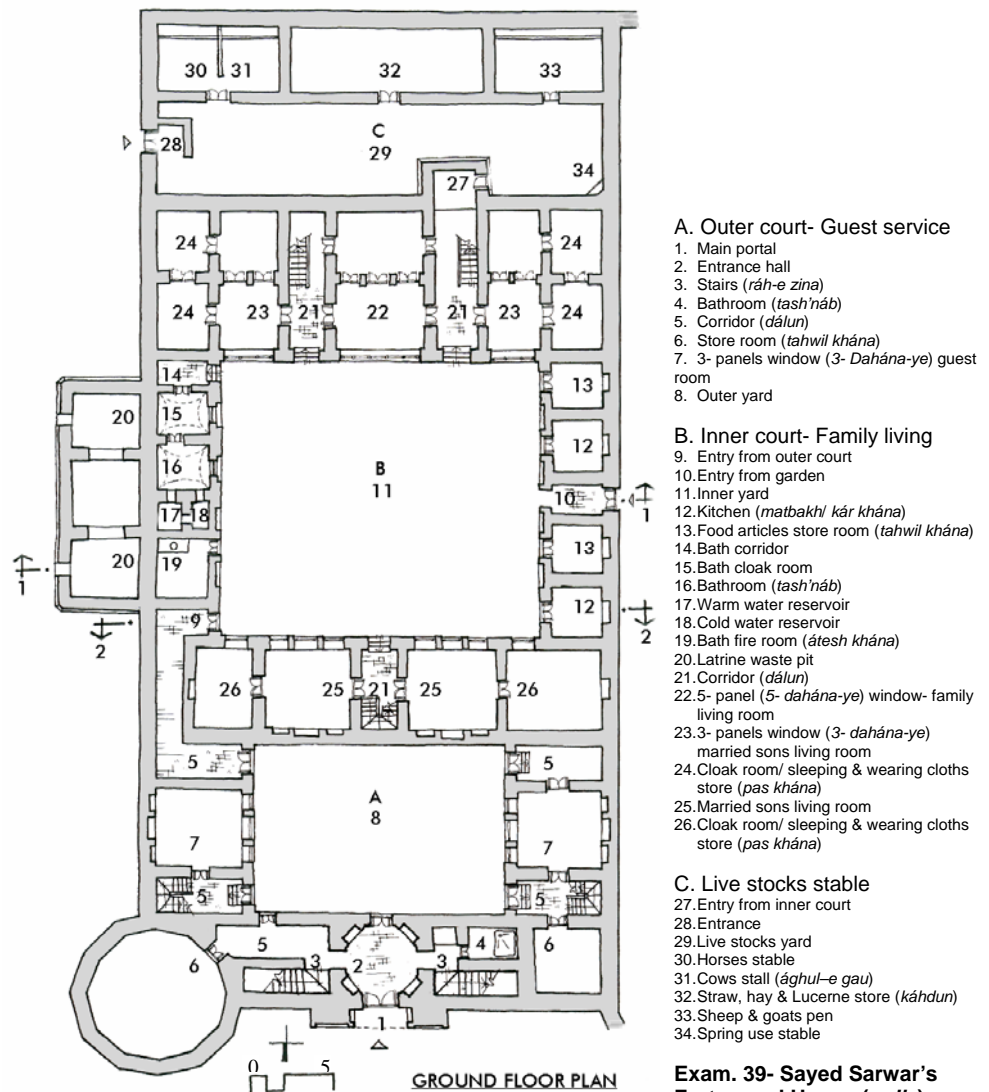


Fig. 159 from Exam. 37



Exam. 39- Sayed Sarwar's Fortressed House (*qal'a*)

The interior of the old buildings has also been renewed. The fort is square in form with 100m long sides. The circumference of the towers is 25m. The fort has one latrine, which clings to the eastern side of the fort. The height of the ramparts is 12 m, and the towers are 2m higher than the ramparts. The thickness of the lower part of the rampart is 1.50m and the upper part is 80cm (Fig. 183, 184). Recently a wall has been built to divide the fort into a northern and southern part. The northern part belongs to four close relatives with their farmers and the southern half of the fort is allocated to the guest services and a mosque.

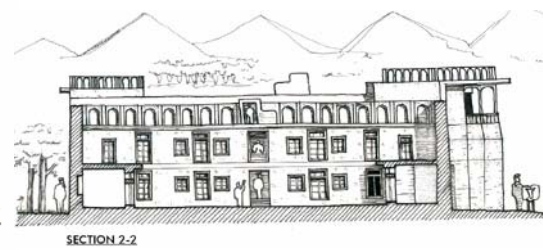
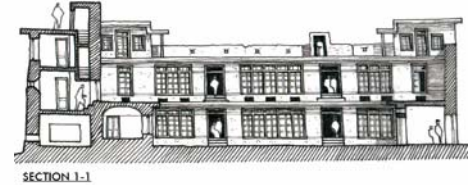
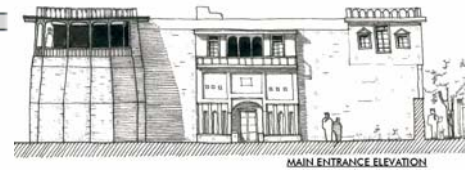
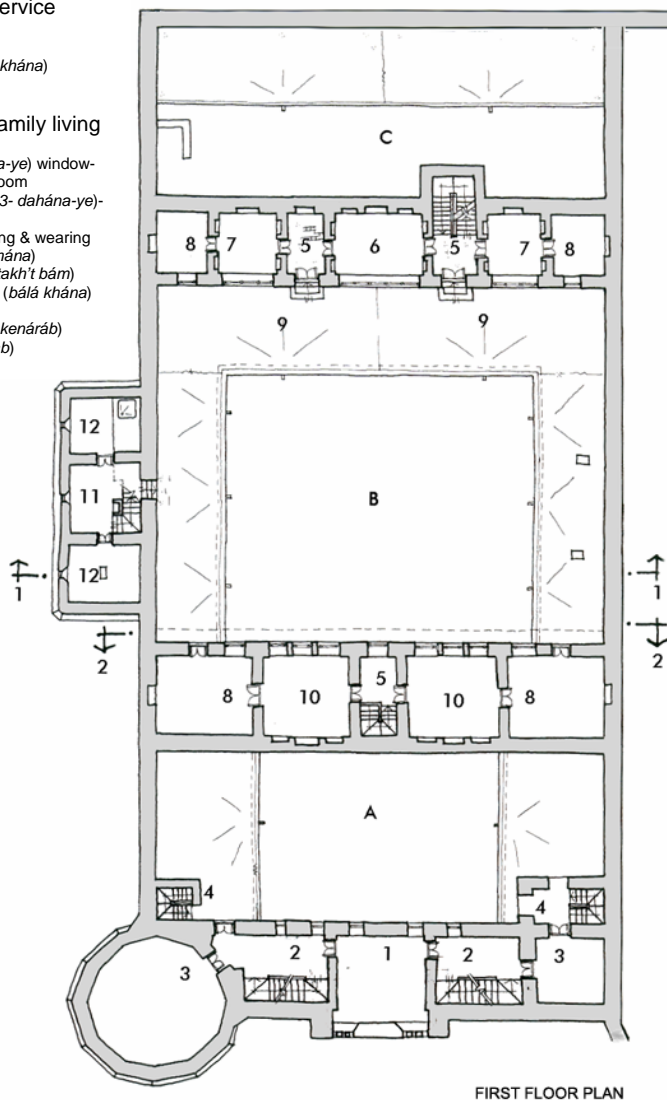
One of the most splendid forts in the region is the popular white fort (*qal'a-ye safidak*) (Exam. 39). *Qal'a-ye safidak* is an especially magnificent example of fort housing. The fort is more than 100 years old and according to hearsay, it was built in 1817.

A. Outer court- service

1. Servants room
2. Corridor (*dálun*)
3. Store room (*tahwil khána*)
4. Stairs (*râh-e zina*)

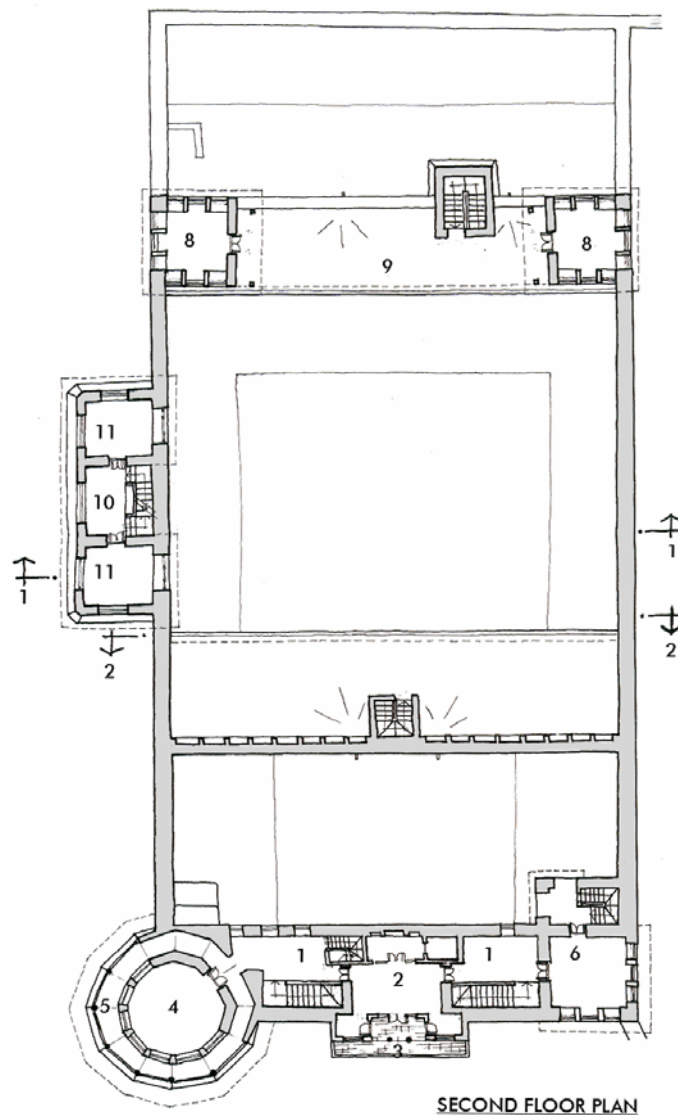
B. Inner court- Family living

5. Corridor (*dálun*)
6. 5- panel (*5- dahána-ye*) window- family main living room
7. 3- panels window (*3- dahána-ye*)- married sons room
8. Cloak room/ sleeping & wearing cloths store (*pas khána*)
9. Ground floor roof (*takh't bâm*)
10. Married sons room (*bâlâ khána*)
11. Latrine corridor
12. Latrine (*mustaráh/ kenáráb*)
13. Bath room (*tash'náb*)



Qal'a-ye safidak primarily belonged to a person named *Sayed Sarwar*, who was a much respected and also powerful man. In the region, despite the fort's archaism, it is still firm and consistent, and only a part of the roof of the tower has been damaged by an air strike (Fig. 163).

Although, *Sayed Sarwar's* grand children still live in the fort, but there is no longer considerable activity and it is regretfully wearing out. The white fort has a stretched rectangular plan of 30x 60m. The height of the ramparts is 1/3 of the width of the plan. Although the fort only has one large tower, 10m in diameter, which is located in the right corner of the front façade of the fort (Fig. 164), there are symbolic towers, which have been built in the three other corners. These towers are a little higher than the top of the fort and, contrary to other normal towers, they have not been clung out of the ramparts (Fig. 165, 166).



- A. Outer court- Guest service**
1. Corridor (*dálun*)
 2. Main guest portico (*saráchah*)
 3. Veranda (*baranda*)
 4. Round guest portico (*mahtábi-e gerd*)
 5. Round guest portico veranda
 6. Four sided guest portico (*mahtábi*)
- B. Inner court- Family living**
7. Stairs (*ráh-e zina*)
 8. Family portico (*mahtábi*)
 9. First floor roof (*takh't bám*)
 10. Corridor (*dálun*)
 11. Spring use room

The main tower of the fort is not only for defensive purposes, it has the ambitious function of being an alcove for watching the prosperous scenery outside.

Qal'a-ye safidak as a dwelling compound is a wonderful space, hierarchically vis-à-vis arrangements and layout. The fort comprises the outer compartments with a guest service in the first part of the fort; the inner compartment is the families' living area and service compartments.

The three divided compartments of the fort as well as having the inner access from one to the other also open to the outside. The outer compartment occupies one fourth of the rectangular plan of the fort and the main entrance is opened there as well. The porch (*hashthi*) divides the access into two different sideways and then connects them to the three stories on top.

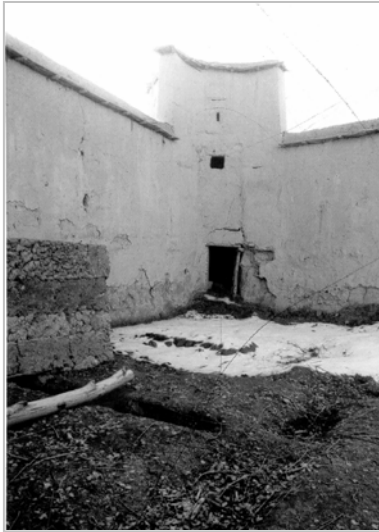


Fig. 161 from Exam. 38

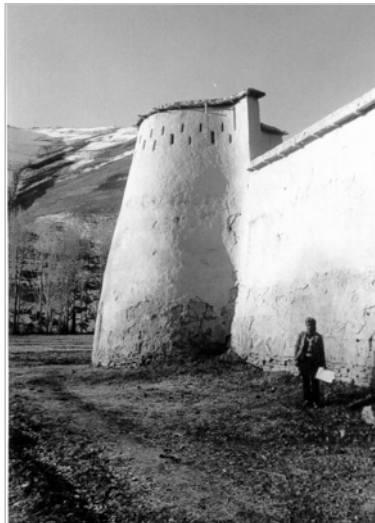


Fig. 162 from Exam. 38



Fig. 163 from Exam. 39



Fig. 164 from Exam. 39



Fig. 167 from Exam. 39



Fig. 165 from Exam. 39

The first and second stories are allocated as store rooms, service areas and servants' living area, whilst on the third floor there are three special semi-opened alcoves for cosines, comfort and watching scenes of pleasure nearby (*sarácha-ye mahtábi* or *round mahtábi*). The various spaces are of differing grades of quality allocated for the service of guests. One side of the porch opens to a small yard, which is enclosed on two sides by rooms with a type of three panel window (*3-dahána-ye*), and their adjacent corridors. These rooms are built in one floor and they are part of the guest rooms (Fig. 167). Since, the outer compartment has direct access to the outside it is far away from the families' living areas. The internal relation between these two compartments takes place through an indirect passage.

The inner compartment or the main part forms half of the fort.

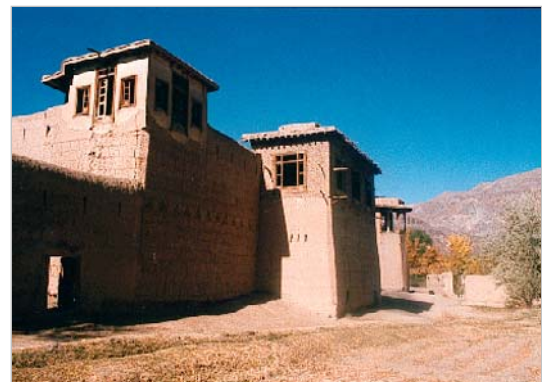


Fig. 166 from Exam. 39

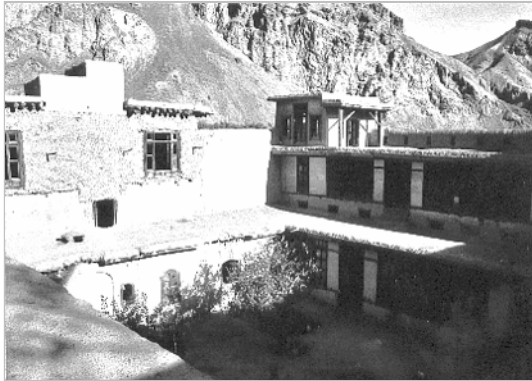


Fig. 170 from Exam. 39



Fig. 168 from Exam. 39

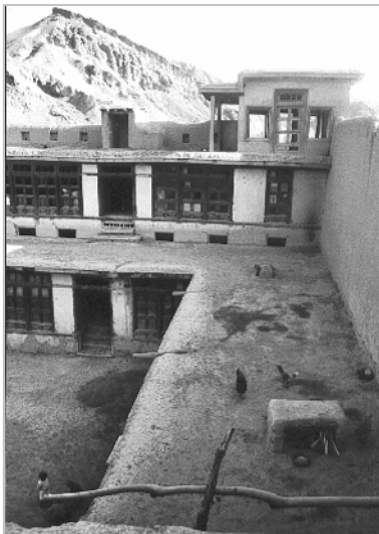


Fig. 172 from Exam. 39

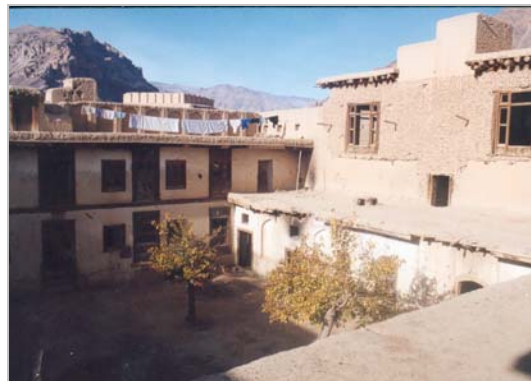


Fig. 169 from Exam. 39

The inner compartment is located in the middle of the fort and it has one access to the outside, and the services compartments have a direct entrance from the outside as well. The inner compartment comprises the living areas of the families together with the service and hygienic areas. The living areas of the families on the two floors are located on the two northern and southern sides of the yard, whilst the services and hygienic areas occupy the two remaining sides. The northern built up areas, which are the side oriented towards the sun have no more depth than 5m, while the southern built up areas have a double depth (Fig. 168, 169). Typically, a corridor having a staircase divides the built up areas into two parts. Each part has a square room of 5m on all sides with interesting wood working decorations. Equivalent to this, another room behind it functions as a cloakroom (*pas khána*). Some of this division is allocated to one of the married sons of the extended family.

The second floor in fact repeats the layout of the lower. The only difference is a door, which opens onto the roof from the cloakroom and facilitates access to the latrine (*kenáráb*). On the southern side conversely a corridor having a main staircase together with another corridor divide the whole built up areas in relation to depth (Fig. 170, 171, 172). This time the built up areas are divided in such a manner that a five-panel window (*5-dahána-ye*) room occurs in the middle and the two other three-panel window (*3-dahána-ye*) rooms, with an extra area in the back, complete the entire

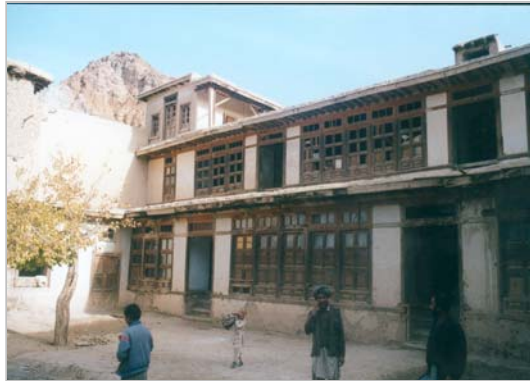


Fig. 171 from Exam. 39



Fig. 174 from Exam. 39

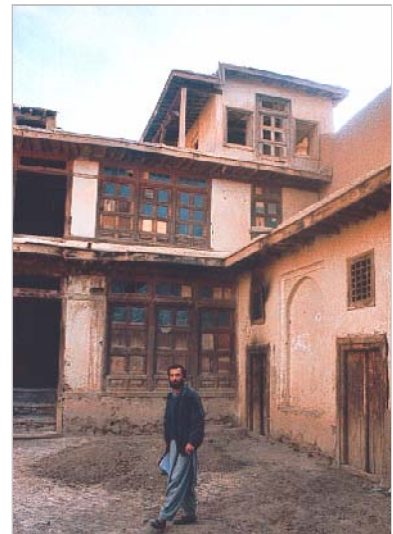


Fig. 173 from Exam. 39

southern side. Since there is no direct light in the back area; light can only penetrate there due to an elevation of the ceiling of the back area so that it is about 1.00m higher than the front area (Fig. 172).

On the second floor, there is a considerable setback equivalent to the depth of the lower front areas. The remainder of the built up areas comprises a *5-dahána-ye* in the middle and two other *3-dahána-ye* with a cloakroom in the back.

Moreover, the southern side of the inner compartment gets the benefit of two other areas in the third floor. These areas are called *mahtábi* and in the entry surface, there is a ceiling projection supported by two wooden pillars. The inner space is fully oriented to the pleasurable and prosperous natural scene nearby (Fig.173, 174). The inner compartments, as discussed above, include service and sanitary services, which are located in the two eastern and the western side of the yard, besides the families' living areas.

Two kitchens (*mat'bakh*) in addition to two store rooms (*tahwil khána*) for tools, food articles and other much-needed utensils for the families are situated on the western side.

On the opposite side, there are bathing areas with warm and cold water reservoirs and the bath fire room (*átesh khána*) on the first floor. A latrine, a bathroom and an access way of 5x 14m is already clung into the eastern ramparts of the fort. Moreover, there is a larger alcove (*mahtábi*) on the third floor.



Fig. 175 from Exam. 40

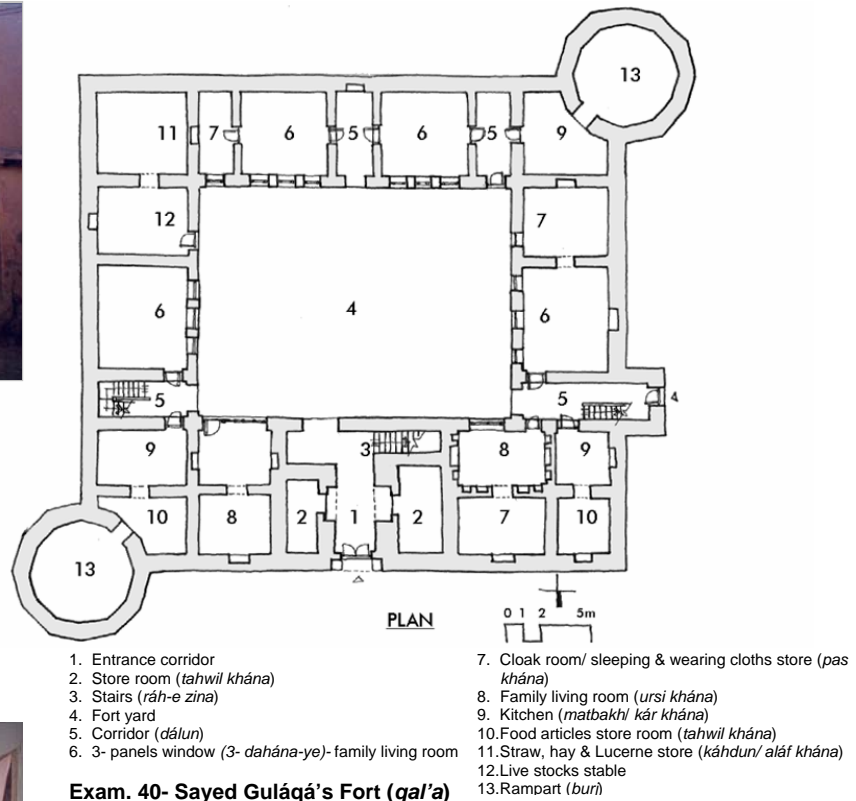


Fig. 176 from Exam. 40

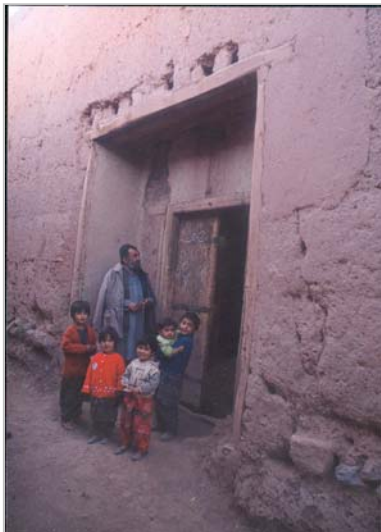


Fig. 177 from Exam. 40

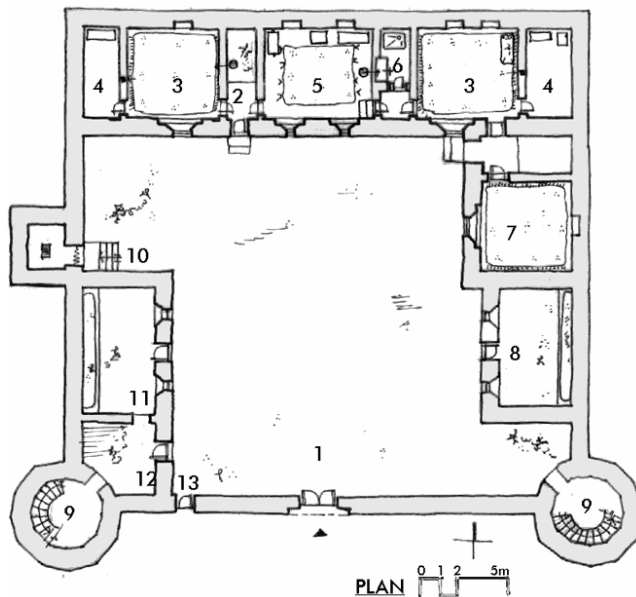
Exam. 40- Sayed Guláqá's Fort (*qal'a*)

The yard of the inner compartment is square in its form with sides about 18m. Contrary to the others, the yard is considerably dynamic. Different surfaces and leveled surrounding built up areas make it pleasant and delightful. In addition to having access to outer compartment from the eastern side, the inner fort yard also has access to the garden from the west and has another way to the livestock compartment. Livestock stables, which are situated in the end of the fort, occupy one fourth of the whole area, and divide it into built up areas and outer stables. The livestock area is entirely distinct from the family living area and inaccessible from the inner area. It has a separate entry from outside the building.

Exam. 40 is about 80 years old, having a squared plan with 30m long sides and two towers in the two diagonal corners. The built up areas had primarily been on one floor, but part of them have recently been built on two stories (**Fig. 175**).

The clinging part on the western wing is a latrine (*mostaráh/ kenaráb*) with a staircase leading upstairs. Newly-built rooms have partitioning doors between each room, called nested rooms (*farshi*) that functions as rooms, which can be used simultaneously as two rooms (**Fig. 176**). The entrance gate is rather wider than that of the similar forts. However, the entry porch is prevented from having direct access (**Fig. 177**).

Among the various types of fort housing, some one-tower forts have been surveyed as well.



- | | |
|--|--|
| 1. Fort yard | 6. Bathroom (<i>tash'náb</i>) |
| 2. Corridor & fire room (<i>dálun & átesh khána</i>) | 7. Spring use family room (<i>bahár neshin</i>) |
| 3. Family living room having under floor heating tunnels (<i>táwa khána</i>) | 8. Sheep & goats pen (<i>qutun-e má</i>) |
| 4. Cloak room/ sleeping & wearing cloths store (<i>pas khána</i>) | 9. Rampart (<i>burj</i>) |
| 5. Fire place room & kitchen (<i>átesh khána</i>) | 10. Latrine (<i>mustaráh/ kenáráb</i>) |
| | 11. Cows stall (<i>ághul-e gau</i>) |
| | 12. Fire bushes & dried animal dung store (<i>buta & chálma khána</i>) |
| | 13. Live stocks go & fro gate way |

Exam. 41- Wakil Akbar Khán's Fort (*qal'a*)

The number of towers and their locations is very important. A four-towered fort can completely control the fort's surroundings. Likewise, a two-tower fort having the towers built transversely in the two diagonal corners could still play their own role. However, in a two tower fort, where both towers are in the front of the fort (Exam. 41) or in a one-tower fort (Fig. 178), whose tower has a limited vision of the outside of the fort, it can not be claimed, that the existence of towers is just for defensive purposes, but that concerns of embellishment have been considered in these types as well. Despite its ineffectiveness regarding modern defensive systems i.e. advanced weapons, today's family fort still exists among the other housing types.

No doubt, many appropriate systems of housing have recently been built in Hazáraját, but none of them reflect the similarity of identity of domestic architecture as the tower fort does.

These fort types are recorded from nearly 50 years ago, belonging inclusively to the higher social ranks in the community i.e. local lords (*khán/ arbáb/ mir*) and other powerful families. But in the recent aftermath of a decaying feudal and aristocratic social system, any wealthy family, who can afford it, can build splendid and magnificent forts as well.

Nowadays, the habitable fort (Exam. 42) comprises a square area form of 24x 24m, surrounded by ramparts at minimum 1.00m in thickness and 6.00m in height.

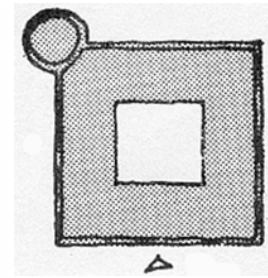
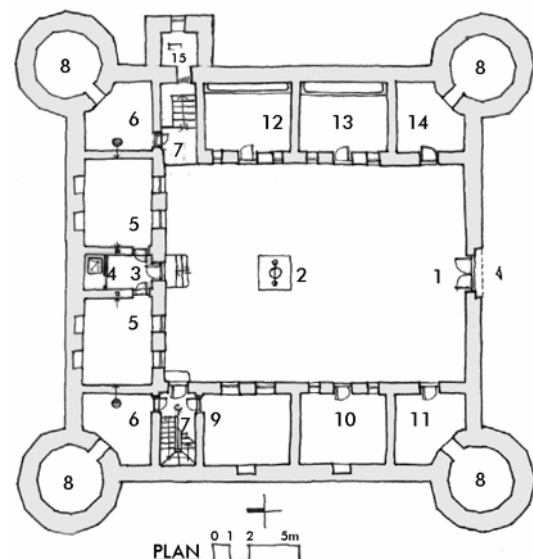


Fig. 178 Cornel Sultan Ali Qerghui, Hesa-yi awal-e Behsud

Exam. 42- Senátor Mohammad Ali Khán's Fort (*qal'a*)

- | |
|---|
| 1. Fort yard |
| 2. Water well (<i>cháh-e áb</i>) |
| 3. Corridor (<i>dálun</i>) |
| 4. Bathroom (<i>tash'náb</i>) |
| 5. Family living room having under floor heating tunnels (<i>táwa khána</i>) |
| 6. Fire place room & kitchen (<i>átesh khána</i>) |
| 7. Corridor & stairs (<i>dálun & ráh-e zina</i>) |
| 8. Rampart (<i>burj</i>) |
| 9. Spring use family room (<i>bahár neshin</i>) |
| 10. Food articles store room (<i>tahvil khána</i>) |
| 11. Fire bushes & dried animal dung store (<i>buta & chálma khána</i>) |
| 12. Sheep & goats pen (<i>qutun-e má</i>) |
| 13. Cows stall (<i>ághul-e gau</i>) & donkeys stable (<i>tawila-ye olágh</i>) |
| 14. Latrine (<i>mustaráh/ kenáráb</i>) |

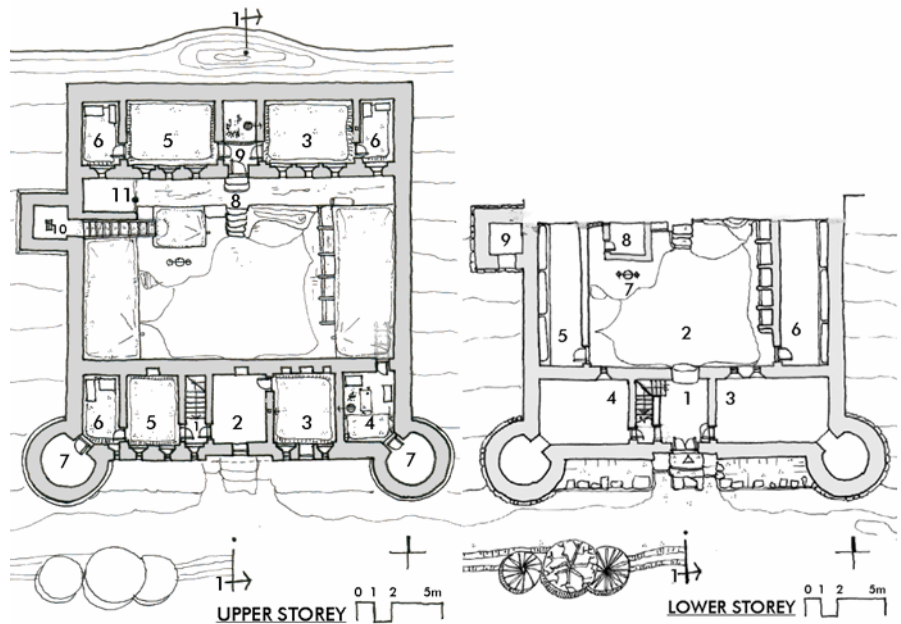


GROOOUND FLOOR PLAN

1. Entry corridor
2. Fortressed yard
3. Fire bushes & dried animal dung store (*buta & chalma khána*)
4. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
5. Sheep & goats pen (*qutun-e má*)
6. Cows stall (*ághul-e gau*)
7. Water well (*cháh-e áb*)
8. Storage (*qash'qal khána*)
9. Latrine waste pit
10. Rampart (*burj*)

FIRST FLOOR PLAN

1. Stairs (*ráh-e zina*)
2. Spring use family living room (*bahár neshin*)
3. Family living room having under floor heating tunnels (*táwa khána*)
4. Fire place room & kitchen (*átesh khána*)
5. Spring use guest room (*mehmán khána-ye bahárí*)
6. Cloak room/ sleeping & wearing cloths store (*pas khána*)



7. Rampart (*burj*)
8. Terrace (*sofa*)
9. Corridor & fire room (*dárun & átesh khána*)
10. Latrine (*mustaráh/ kenáráb*)
11. Kitchen (*matbakh/ kár khána*)

Exam. 43- Ya'qub-e Rezáei's Fort (*qal'a*)

SECTION I-1

Four polygonal (12 sides) cylindrical form towers having 6.00m diameter, a wider base than the capital, clung in the four corners of the fort in such a manner that one fourth of the towers have been sunk to the border of the fort while the remainders have been left out. The location, form and layout of the towers testify to the fact that they ought to have full privileges and control all around the fort and, in cases of emergency, the fort could be prevented from penetration by offensives.

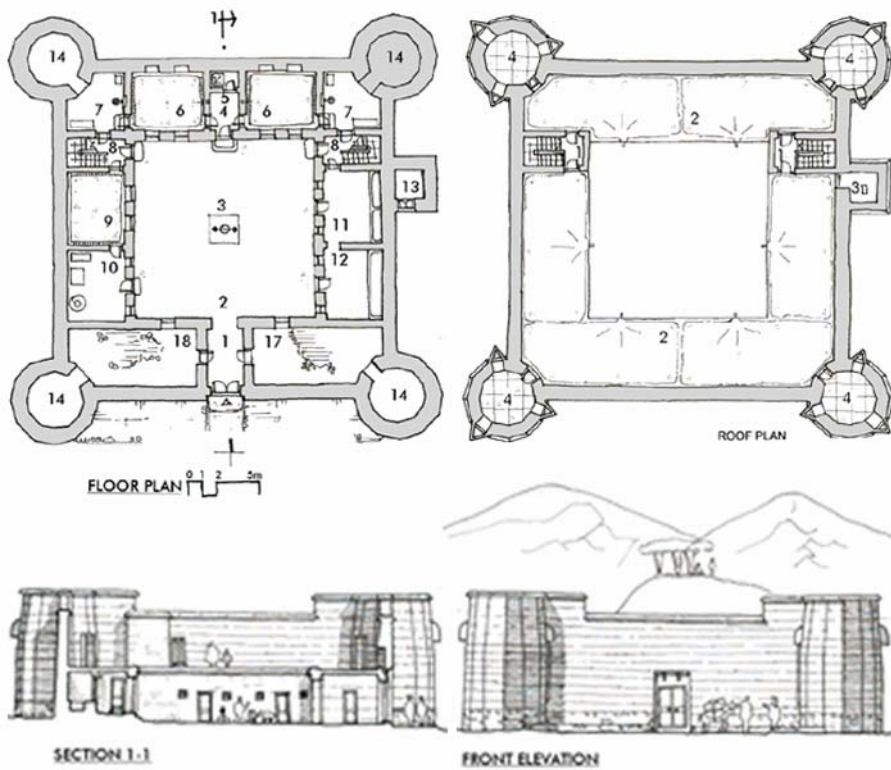
Originally, the towers are part of a defensive system, but because of the changes in today's methods of war, they do not function anymore. These types of towers are now being used as storerooms and so on.

The built up area belonging to two close relatives, with their livestock and other necessities have been built to accommodate one floor of about 5.00m in height, stands on three sun-oriented sides. In most instances, the south side is the most important side and the two other sides oriented towards east and west sun are of secondary importance. The shady north side has been used for storerooms for fodder and firewood, unless they have apertures on the outside of the fort as in (Exam. 43).

In this instance, the rooms having under floor local heating tunnels (*táwa khána*), the fire room (*átesh khána*) and the complementary areas of the two inhabitants are partly located in the sun oriented north of the fort.



Fig. 179 from Exam. 44



FLOOR PLAN

1. Entry corridor
2. Fortressed yard
3. Water well (*cháh-e áb*)
4. Corridor (*dálun*)
5. Bathroom (*tash'náb*)
6. Family living room having under floor heating tunnels (*táwa khána*)
7. Fire place room & kitchen (*átesh khána*)
8. Corridor & stairs (*dálun & ráh-e zina*)
9. Spring use family living room (*bahár neshin*)
10. Food articles store room (*tahwil khána*)
11. Sheep & goats pen (*qutun-e máf*)
12. Cows stall (*ághul-e gau*)
13. Latrine waste pit
14. Rampart (*burj*)
15. Straw, hay & Lucerne store (*káhdun*)
16. Fire bushes & dried animal dung store (*buta & chalma khána*)

ROOF PLAN

1. Stairs (*ráh-e zina*)
2. Roof plain (*takh't bám*)
3. Latrine (*mostaráh/ kenáráb*)
4. Rampart (*burj*)

Exam. 44- Háji Y'aqub's Fort (*qal'a*)

In contrast, the room for use in spring (*bahár neshin*), the storeroom (*tahwil khána*) for food articles, the firewood and other needs are situated in the west side. The livestock quarters, fodder storeroom and the latrine (*mostaráh/ kenáráb*) are on the east side (Fig. 179). Since mans' faeces are used as fertilizer for cultivating land, the latrine is built in such a manner that the main room is located above and a waste pit is in the floor area.

Considering this fact, this latrine with access through the roof inside the fort, also has a small entrance from the outside, in order to evacuate the waste pit from time to time. By and large, the latrine clings to the outside of the fort rampart (Exam. 44).

The towers of today's forts have a special importance, and in addition to providing archery slits (*tirkash*) for defensive purposes, they also serve the means of being an element of protection (*khuknul*) (Fig. 180). *Khuknul* is a small angular form or aperture being about 1.50m high.

Projecting out of the tower surface; at the roof level, it facilitates the defenders prevailing over their opponents around the fort. The height of the *khuknul* affords various possibilities of applying manifold means of defense. The *khuknul* originally had been used to pour down boiling water or bubbling oil over opponents around the fort.



Fig. 180 from Exam. 44

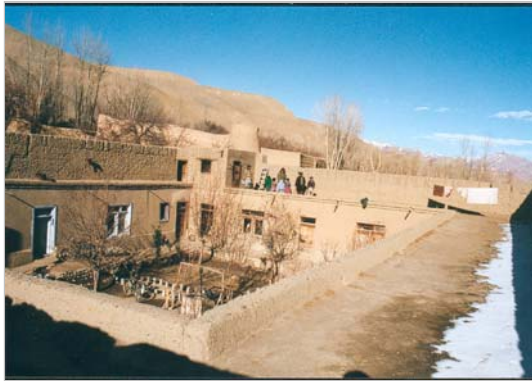


Fig. 183 from Exam. 45



Fig. 181 from Exam. 43

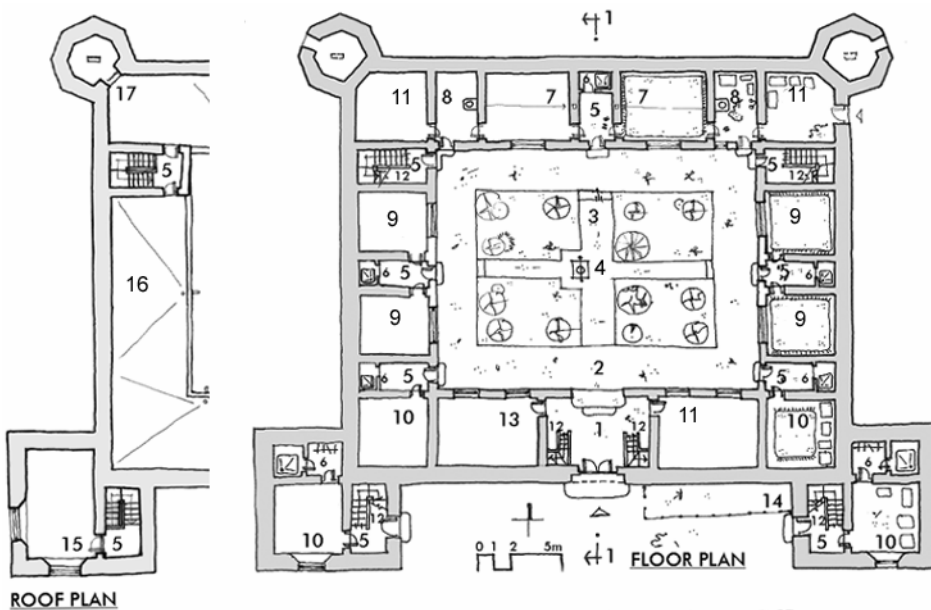


Fig. 182 from Exam. 45

Some forts have water wells inside the fort. The water well is not used all year round. Mostly, it has been applied during the winter, when fetch water from outside the fort is too difficult (Fig. 181). According to the mountainous character of Hazáraját, the setting of most forts has not been flat, and they are frequently sited on the steep sides of mountains or hillsides (Exam. 43). In this instance, the fort ramparts have been built routinely at one level on the sloping side. These characteristics emphasize the unity and rigidity of the building, whilst the slope of the site causes the building to be built on more than one level. The built areas in the lower level have been built on two floors, whilst the building on the upper level has been on one floor.

The entrance in most of the forts of today is generally distinguished in some manner. In some cases, widening the surface of the entrance makes it more important. In Exam. 43, a window has also been constructed over the entrance in accordance with the above considerations, which increases the inviteability and attractiveness of the entrance.

Some of the towers have been developed recently. Although many changes have taken place regarding the improvement of living areas and enhancing the quality of life, towers have recently been paid attention to as well. There has been an idea that the large splendid and expensive towers of the forts would not have been built just for the demonstration of social characteristics and pomposity.



1. Entry corridor
2. Fort yard
3. Orchard & planted vegetables plots (*bāgh'cha & curd*)
4. Water well (*cháh-e áb*)
5. Corridor (*dálun*)
6. Bathroom (*tash'náb*)
7. Family living room having under floor heating tunnels (*táwa khána*)
8. Fire room (*a'tesh kha'na*)
9. Spring use family living room (*bahár neshin*)
10. Food articles store room (*tahwil khána*)
11. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
12. Stairs (*ráh-e zina*)
13. Fire bushes & dried animal dung store (*buta & chalma khána*)
14. Spring use stable (*bahár band*)
15. Guest room rampart (*burj mehmán khána*)
16. Roof plain (*takh't bám*)
17. Latrine rampart (*burj kenáráb*)

Exam. 45- Háji Amirján's Fort (qal'a)

Instead, they should be converted to useful and physical functioning elements. In **Exam. 45**, the two rear towers of the fort have been re-formed and converted to latrines (*mostaráh/ kenáráb*), whilst the two front towers have also been rebuilt and used as guest facilities in the two stories on the outside of the fort (**Fig. 182**). However, the fort yard now has orchards, where various fruit trees like apple, apricot and sour cherry have been planted. Also a vegetable garden has been laid out with leeks, tomatoes, radishes and so on, and thus making the fort more useful than before (**Fig. 183**).

The construction and building materials of family forts are similar to those of the courtyard housing type. The foundation (*táhdau/ tahdáb*) is the basic constructional element of the building, because it has to bear the heavy overlaid load of the thick ramparts. Many efforts are being done, in order to the foundation to be firm and consistent.

Foundations depend on the soil strength. They have to be sufficiently dug into the ground and built up from crushed granite mountain stone or rubble river stone with mud mortar joists above ground level. The width of the footing is usually the same as the overlaid wall.

2- Construction and Building Materials



Fig. 184 from Exam. 33

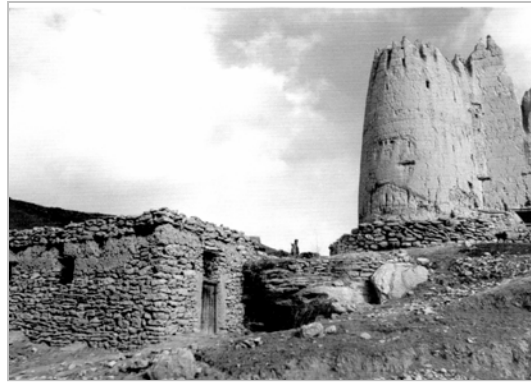


Fig. 185 from Exam. 33

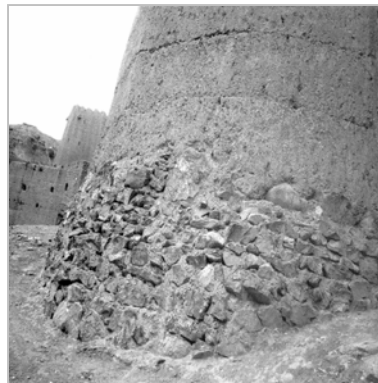


Fig. 186 from Exam. 33

Accordingly, some differences exist in the thickness of the ramparts e.g. top and bottom. Sometimes, the lower part of the footing is wider than the upper part of it.

The building materials of the footings are the same as found in the other types of housing, differing however in regard to the surrounding natural materials. Besides the crushed and rubble stone used here, a sort of gypsum stone (*ke*) has also been applied in the building of the footing, according to the current study (Fig. 184).

Since the natural bed of the site is firm, and the materials for the footing and other constructional materials have been taken from this material, this material has played an effective role vis-à-vis the consistency of the building (Fig. 185). Mortar joists in the footing are mostly made of mud, but in some cases (Fig. 186) a kind of traditional mortar called *sandal*¹⁴ and black lime (*siáh chuna*) is used for more firmness and consistency.

The foundation width of newly built family forts is mostly the same width as that of the overlaid wall, because the wall width has decreased and has generally become narrower in the family forts. The depth of the foundations dug into the ground, depending on the soil strength, varies from 30cm to 100cm and their minimum rise from the ground level is about 30cm. The top level of the foundation is considered when calculating the required depth and height of the new-built fort foundation on the hillside, and this foundation level continues to the point where foundation and slope



Fig. 188 from Exam. 36

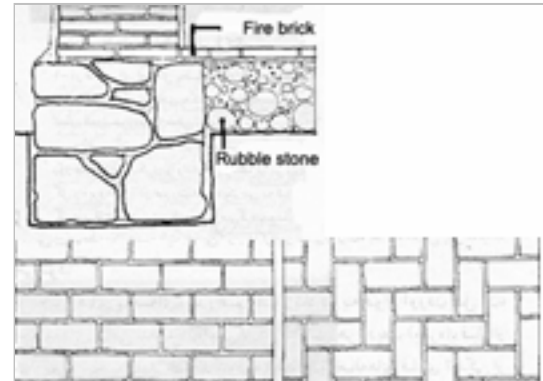


Fig. 187 Flooring



Fig. 189 from Exam. 45

are at the same level. In some cases, when the inclination is significantly steep, then the foundations are built up higher than usual. Since floor elevation of the building following a similar height seems to be irrelevant, the extra height functions as a wall. The ground floor is mostly covered with thatch plaster (*káhge*) and in cases like in Fig. 187 it is paved with burnt brick (*khesh't-e pukh'ta*).

The walls and ramparts of family forts function as a defensive shield and exude a bearing of pomposity and magnificence, besides bearing the load of the roof. The ramparts and walls of the forts have not only been characterized as load bearing and non-load bearing walls, they have rather been divided into two categories of interior and exterior ramparts.

Exterior ramparts besiege the enclosure of the fort. The heights of the exterior rampart of the old forts are usually 8m or higher; whilst the height of the newer types is lower than 8m. The height of the ramparts from the roof level in both new and old types of family fort in the form of a parapet wall has been equivalent to a man's height, but it is significantly higher than that (Fig. 188, 189). The thickness of the exterior ramparts varies greatly in relation to their heights. The lower part of the ramparts is thicker than the upper part as it decreases gradually.

According to the calculations, the width of the base and the top of the exterior ramparts of the old forts has been between 1.50m and

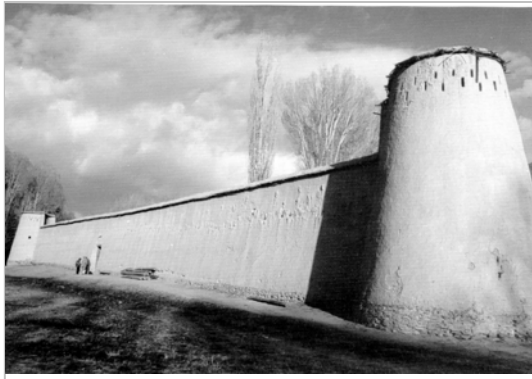


Fig. 193 from Exam. 38



Fig. 190 from Exam. 33



Fig. 192 from Exam. 37



Fig. 194 from Exam. 39



Fig. 191 from Exam. 35

80cm, but in new family forts, the figures decrease to 100cm and 75cm respectively.

The materials of the exterior ramparts consist mostly of pre-stressed mud (*pakh'sa*)¹⁵.

Obviously, the ramparts and walls have been precisely and painstakingly built and that is why they have been firm and consistent today.

The remainder of the ramparts of the early period (Exam. 33, 34) indicates that these ramparts only had one function (Fig. 190). In some cases, the top of the ramparts is without any decoration. In other cases, they are covered with slabs of ashlar stone or wooden planks hacked from the surface of the ramparts, and then covered by a layer of rounded mud chunks in order to lead away surface water before the top finally is being coated by thatch plaster. The outer surface of the ramparts, despite much consideration and many efforts still seem harsh and stiff, because after lying down each layer of mud and before the outer surface is softened to be smooth and clear.

Most of the ramparts' exterior surfaces in these old forts (Fig. 191, 192) are of mud pre-stressed material and without any coating. In exceptional cases, e.g. (Fig. 194), there has been determination to distinguish themselves as private buildings and not official ones. According to this fact, thatch plaster was used to coat over all the inner and outer surface of the mud pre-stressed wall, despite its long standing.

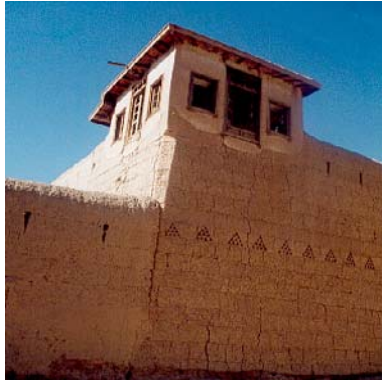


Fig. 195 from Exam. 39



Fig. 196 from Exam. 43



Fig. 198 from Exam. 45



Fig. 197 from Exam. 39



Fig. 199 from Exam. 45

The ramparts in Exam. 39 have an especially lustrous outer surface the main entrance façade of the fort was not only coated with thatch plaster, but for the first time it was painted with a whitewashing colour as well. Although, mud pre-stressed material is exposed in other parts of the facade, some decorations and special motifs have also been seen (Fig. 193, 194, 195).

The exterior rampart of Exam. 45 is also full of decorated motifs. Thatch plaster has been used in more or less all newly built forts as well as in the old ones. In Fig. 196, thatch plaster coating adds to the smoothness and clearance of the fort façade. Sun-dried brick has rarely been applied in neither old nor newly built forts. In Fig. 197, 198, somehow sun-dried brick has rather been used in the restoration and in the building of additional parts of the houses.

The interior walls are narrower and more delicate than the exterior ramparts. The thickness of the walls does not exceed 50cm in (Exam. 45) and 80cm in (Exam. 43). The thickness of the load bearing and non-load bearing interior walls is the same. The main reason is to prevent the conduction of heat and the strain existing in the flexibility of building materials. The constructional materials of the interior walls are mostly mud pre-stressed (*pakh'sa*). In some instances such as Fig. 199, the interior walls are nevertheless, completely built of sun-dried brick, which probably is why the wall thickness decreases up to 50cm.



Fig. 202 from Exam. 39



Fig. 200 from Exam. 33

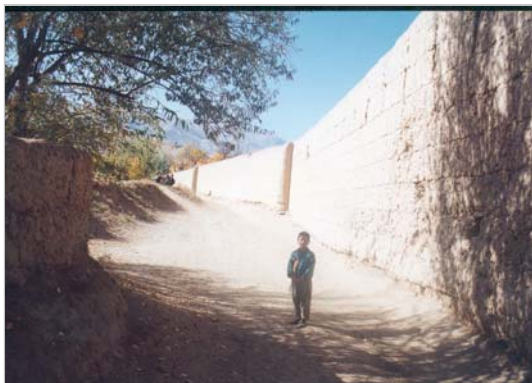


Fig. 203 from Exam. 39

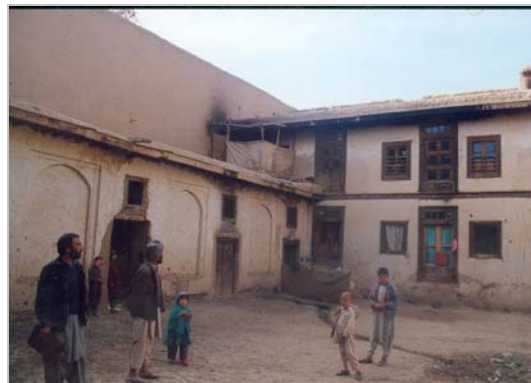


Fig. 201 from Exam. 39

Part of the walls surrounding the outer sides of the built up areas are the most important and are mostly smoothed with thatch plaster (Fig. 200, 201). Sometimes the exterior of the thatch plaster has been painted with a kind of local whitewashing colour to brighten up and adorn the facades of the building. The inside walls are the most important, because, in some instances, decorated stucco and fine modelling have been applied (Fig. 202), in addition to the smoothing with thatch plaster.

In the bathroom (*tash'náb*), a sort of local damp proof mixture called black lime (*siáh chuna*) with cement has normally been used, because of the moisture of the room. According to the samples taken from the exterior ramparts and the interior walls, there is another wall type, which is not particularly high, and which mainly has been used for enclosing gardens and small size fields. There is an abutment (wall) for every 50m interval, in order to make the whole wall stable and consistent (Fig. 203).

The ceiling is the most important element of the fort. In the past, when wooden timber was not accessible, domed ceiling was common.

Theory says that the ceiling of the caravanserai of Exam. 38 had previously been built by means of a dome roof, but today no indication of this dome is left.



Fig. 204 from Exam. 43

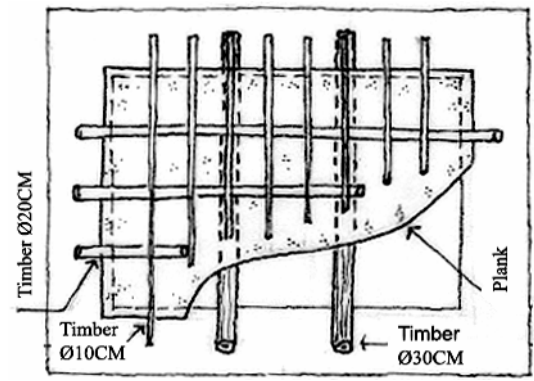


Fig. 206 from Exam. 43



Fig. 205 from Exam. 39

The ceiling of newly the built forts lacks complementary functioning, as does the courtyard housing, but the ceiling of the old fort functions just as before.

The components of the family fort are similar to that of the previous housing types (Fig. 42). The only difference is the way in which coating of under the ceiling is carried out (*mosattah*). In the most striking instance, 20mm thick wooden planks are laid down, over the wooden timbers instead of under wooden timbers. The plank was painted, so called *gullak push* (Fig. 204).

In the *gullak push* style, the coating under the ceiling is not as flat as it is deemed, but wooden timbers have been seen under the planking. The under ceiling coating of the bathroom and the WC decays slowly, but surely, because of the moisture, a dome form ceiling is built in order to prevent water dripping down. Materials of the ceiling are substantially waterproof and chalked with black lime (*siáh chuna*).

Besides responding to a specific domestic function, the ceiling has become even more beautiful with soft curved forms (Fig. 205). The shorter span is considered for the ceiling joist; whilst in some instances (Fig. 206) the ceiling joist has been carried out in a special way. By this method, two strong girders (*pu*) of 40cm diameter are laid down first, as the shorter span (4m), in such a manner, that the 5m length of the ceiling is divided into three compartments.

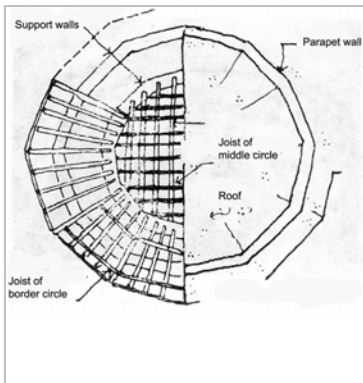


Fig. 209 from Exam. 39

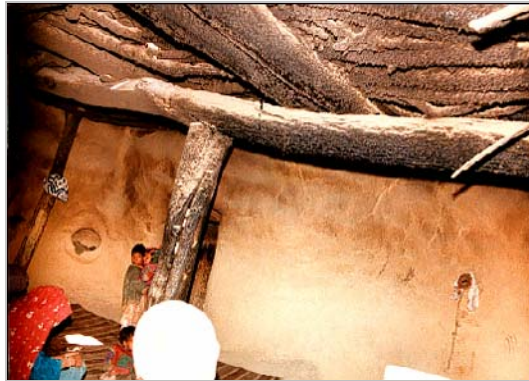


Fig. 207 from Exam. 34

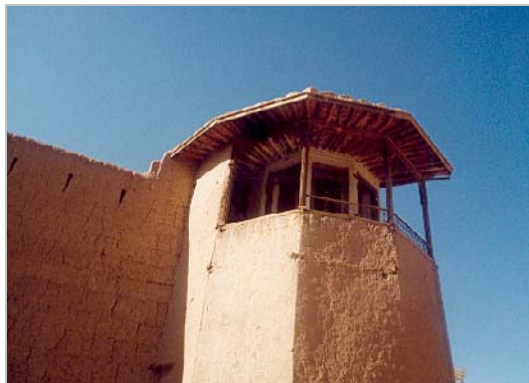


Fig. 208 from Exam. 39

Then three other poles of 25 to 30cm diameters are laid on the primary girders, in order to divide the width of the ceiling into four divisions. Then, laying down rafters of 15cm diameter all over the ceiling at a pre-determined distance eventually completes the ceiling joist procedure. This method was also applied in older types, but with regard to the long span, some pillars were laid under the main girder.

In the family living room with a baking oven (*tanur khána*), in Exam. 34, a strong girder borne by supporting pillars is laid over the width of the ceiling, then one single pole and a pair of poles are laid over in the opposite direction, and finally, the rafters needed are put in place (Fig. 207).

Wooden timbers are usually laid over the two sidewalls, but in a special case e.g. in Fig. 210, the ceiling acts as a veranda, one side of the joist is thus laid over the girder. Although ceiling joists have been put into practice and are in place on square plans except in the polygonal and circular plans of towers. However, in a circular ceiling above an alcove (*mahtábi*) (Fig. 208, 209), some special preparation has been made. In this instance, the circular central area of 4m in diameter, in addition to a round area of 1.50m wide has to be spanned - firstly the central area is covered, as in the towers, and secondly the joist of the adjoining area is projected to the outside and laid out.

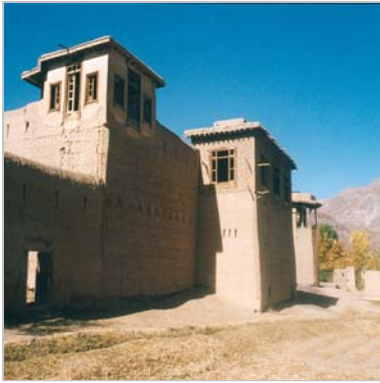


Fig. 211 from Exam. 39



Fig. 210 from Exam. 39

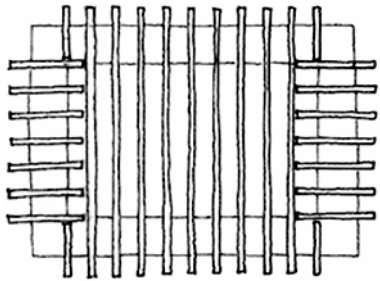


Fig. 212

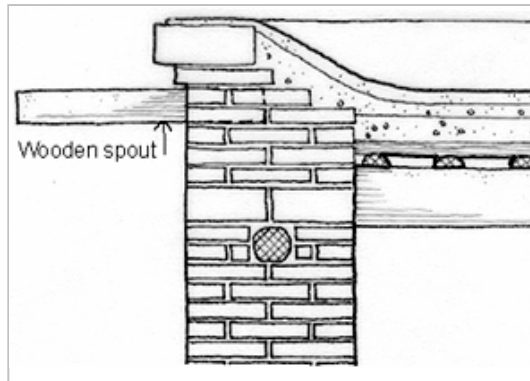


Fig. 213 Spout

The projection of the ceiling is varied according to the previous housing types is. Some of these take the form of timber eaves appearing on the façade of the building. Sometimes, the eaves come out over the windows, apertures and doors and in some cases; the projection is a demonstration of some bricklayers on the top of façade, which is discussed further in the courtyard housing part. The only cause, which it is necessary to pointed out now, is that the ceiling of all the important areas is projected out, as in Exam. 39, and in most cases this projection has taken place on all four sides (Fig. 210, 211). Laying down some shorter poles connected to the main poles (Fig 212) is an instance of projection in the opposite directions. The roof of such a flat ceiling has a 1 to 2 percent inclination, in order to conduct rain down through a spout (Fig. 213).

Although not much indication is left over from the interior areas of old forts, remainders of existing buildings testify that the interior areas of those old forts have undergone significant changes in comparison with those of the newly built forts. The interior areas of the old forts have areas for baking, which is much closer to the naked housing type. Respectively, their interior design has factors in common like softened forms and indications of the handiwork of man, which could be seen all over the interior design.

3- Interior Design



Fig. 216 from Exam. 34



Fig. 214 from Exam. 34



Fig. 217 from Exam.



Fig. 215 from Exam. 34

Although, in Exam. 34, the family living areas and the animal quarters are distinct, the entire hostelry functioning of the family takes place in the *tanur khána*. Pieces of felt (*namad*) or *gelim* laid over a part of the floor characterize the living quarter. Wooden chests for clothes (*sandug-e kálá*) and flour hives (*kandu-ye árd*) are put in their places throughout the area. Water supply dishes are situated on a special platform and many irregular niches are dug into the wall for storing the required utensils (Fig. 214, 215, 216, 217).

Some of the patterns e.g. the room having under floor local heating tunnels (*táwa khána*) is also seen in the old forts, but *táwa khána* is added to the complex in the newly built up areas. In another example (Fig. 218) *tanur khána* functions as a kitchen and the baking oven (*tanur*) and water supply are located on a platform. However, a larger niche has been built to hold the kitchen utensils. Moreover, the baking oven for use in the spring and a hearth (*digdun*) are built in open space (Fig. 219). Most of the old forts have newly built areas and newly built areas generally have component and physical resemblances, so there is therefore no need to review them again.

In one exceptional instance (Exam. 39), there had been magnificent indications of interior design in living and service areas e.g. family living areas, guest rooms, alcoves (*mahtáb*) and even in bathing and closet areas (*rakh't kan*).



Fig. 221 from Exam. 34



Fig. 218 from Exam. 34

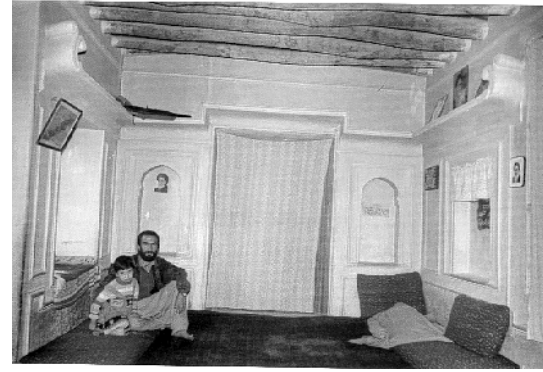


Fig. 219 from Exam. 39



Fig. 220 from Exam. 39

Since outsiders are in close contact with the family by means of their guest rooms, these areas are meant to indicate the magnificent and splendid aspects of the fort.

The interior design of most houses is restricted to the inside walls, which rarely involves the ceiling. According to the samples collected, the inside ceilings of most old buildings had been coated (*mosattah*), but they have been uncovered recently and are thus naked (Fig. 220).

The inside walls with regard to the existing physical elements have attracted the main focus of interior design. In one panel (*1-dahána-ye*) on the lower storey, a door for going to and fro in; windows (*urs*) for lighting and protection from the glare of the sun; niches closets (*almár*) for putting away things are among the existing physical elements. In addition to achieving their functions, as it is seen, such physical elements cover all the inside walls in such a manner that each of them has a sufficient independent function as part of an integrated complex.

In Fig. 221, the two lateral sides belong to two doors, one of which opens to the corridor while the other opens to a cloakroom (*pas khána*). The auxiliary door (*2 pala-ye*) is situated in the middle of the wall, where it divides the wall into two similar parts. The outer wall is for opening apertures and windows. The entire surface of the wall is employed by windows that on one hand, excludes the sun's glare and on the other hand, lets in the required lighting.



Fig. 244 from Exam. 39

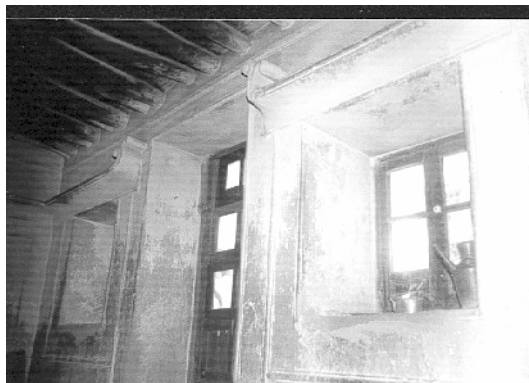


Fig. 245 from Exam. 39

In this instance however, it had not been deemed necessary to open this whole side. Nevertheless, by opening one-panel (*1-dahána-ye*) window, which is the axis of two other symmetrical windows (*urs*). These windows come to cover the whole side. The fourth side belongs to a wooden shelf, which is located in the middle of the wall, and the two interesting niches are placed symmetrically around the wooden shelf (Fig. 222, 223).

As mentioned before, the physical elements in the interior design of housing have a special order and adornment, and they are influence constantly by the two factors of the design and capability of applied materials; **first**, the difference between door jump and windows and shelf (*almār*) is solved in such a manner as to create a new physical element of a niche called *táqchah*. The *táqchah* correlates the two physical elements of the door and windows and between the door and shelf, which produces a companiate and prosperous complex at the same time; **second**, in addition to the independence and integrity of elements and the totality and unity of the whole complex.

These included knobbed margins on the wall, which are used to indicate that the elements are both independent and integrated to show the elements, are aggregated.



Fig. 224 from Exam. 39



Fig. 226 from Exam. 39



Fig. 225 from Exam. 39

The interior design of all the rooms has not been the same and these differences in decoration seem to indicate that they are of hierarchical importance.

According to those testifiers, the upper storey's sun oriented rooms are more important than those of the lower one, and e.g. top curved niches have been added to the decoration complex (Fig. 224). There are some differences in the amounts of decoration in the five-panel windows room (*5-dahána-ye*) and the three-panel windows room (*3-dahána-ye*).

These types of rooms have an overall windows side to the outside, as well as an outer one to the back of the room. The two lateral sides, with an entrance door, are much similar to the example of the sun-oriented rooms (Fig. 225). In *5-dahána-ye* instances, some decorations adorn the lateral sides of the wall, in addition to larger openings on the windows sides, (Fig. 226). Unprecedentedly, a decoration frieze full of flower and bushes over the door of *5-dahána-ye* is laid over the two supports at the side the door. Some extra decorations are also seen over the margin of the arched niches. Furthermore, the lateral side of the *5-dahána-ye* room has fully decorated friezes over the arches and the frieze of flowers and plants is added to the two sides of the shelf (Fig. 227).

The back rooms of the lower storey on the southern side, which receives light from the ceiling, have undergone some changes in the interior design as well.



Fig. 230 from Exam. 39



Fig. 227 from Exam. 39



Fig. 231 from Exam. 39



Fig. 229 from Exam. 39

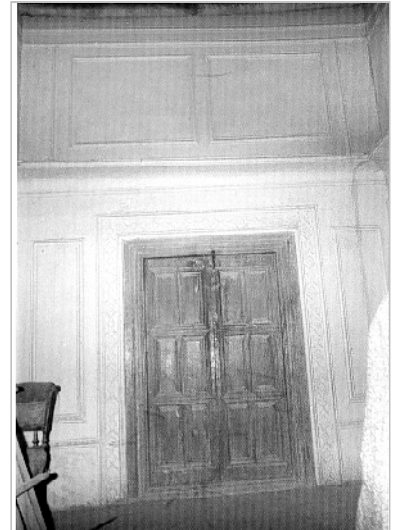


Fig. 228 from Exam. 39



Fig. 233 from Exam. 44

In the rear rooms, the extra height of these rooms is clearly presented by decorated cornices, even though these rooms are simpler than the front rooms (Fig. 228). Another disputable area is a semi-opened alcove for both guest and family cosiness and comfort, where nearby scenes of pleasure called *mahtábi* can be watched. The interior sides of the *mahtábi* include a single panel window (*1-dahána-ye*), which rises from the floor to the ceiling and two other smaller windows (*ursi*) on both of its sides (Fig. 229). The bathroom and the vestiary are among the areas, which are influenced by the display of interior design. A second domed ceiling has been erected and thereby hiding the original ceiling. The windows have been respectively changed to arched ones. Moreover, the ceiling is decorated (Fig. 230, 231).

4- Exterior Façade

Two factors play a substantial instructive role in the design of the forts: **first**, the fort has to demonstrate magnitude and pomposity; **second**, the fort has to be compatible and accommodated to the environment. The exterior façade of the fort is actually the exterior manifestation of the building, which is extremely influenced by its defensive function, although it has hidden targets of a much more paramount nature.

Forts are made of a platonic form, initiated from the major forms of the square and the circle.



Fig. 232 from Exam. 39



Fig. 235 from Exam. 35



Fig. 234 from Exam. 42



Fig. 236 from Exam. 41

According to D. K. Ching Francis, which is cited from Le Corbusier, platonic forms create distinguished, regular and rigid forms, which are clearly characterised; cubes, pyramids, cones, spheres and cylinders figure as the major forms and their domination is clearly indicated. Their forms are determined distinct and disambiguate, they are beautiful forms the most beautiful forms.

The existing forts of the region are among those that have distinguished and rigid forms viewed from a long distance (Fig. 232, 233). Cubic volume forts, high ramparts and cylindrical towers at the four corners of the fort add more stability and consistency to the building (Fig. 234). The two towers fort when the towers are placed in the two diametrical corners seems to keep the fort consistent (Fig. 235). Conversely, the two towers located at the same side of the fort expresses the feeling that the fort is not in equilibrium (Fig. 236).

Meanwhile the two towers that locate at the front of the fort merely acted as the two powerful pegs in order to prevent the building not to slide down (Fig. 237). In Fig. 238 despite having one major tower in the front of the building, three other tower-like elements (*mahtābi*) have also been built in the three corners of the fort. The towers in Fig. 239 play the role of maintaining the stability and consistency of the fort, where the one remaining tower half fort clings to the major fort and astonishingly enhances the stability of the complex.



Fig. 237 from Exam. 43



Fig. 238 from Exam. 39

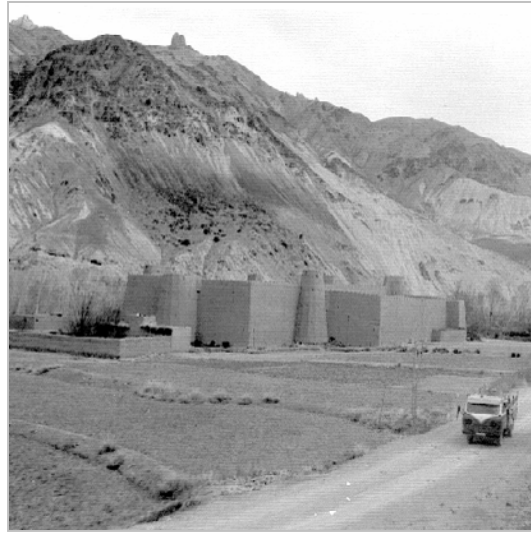


Fig. 239 from Exam. 37



Fig. 240 from Exam. 36



Fig. 241 from Exam. 38



Fig. 243 from Exam. 35



Fig. 244 from Exam. 37

Adding a complementary compartment in front of the fort (Exam. 36) makes the fort as an exceptional stable fort (Fig. 240). The towers are in complete harmony with ramparts. In cases, when harmony between towers and ramparts is replaced by one dominating the other, e.g. in Fig. 241, 242. Although the towers are considerably distinct, they are prevented from being brought out powerfully, whilst the towers of Fig. 243 completely dominate the surrounding ramparts.

Forts are mostly introvert and very significant openings are not seen in their exterior facades. Entrance door (*dargah-e borun*) and a simple arch above the gate is the only openings that exist in the old forts (Fig. 244).

In some new forts much attraction has been drawn to the exterior facades (Fig. 245). In these instances besides widening the entrance arch, a window (*urs*) is opened to the outside (Fig. 246). In Fig. 247 the entrance gate is recessed a bit, a large window opens to the outside, and an inscription of holy content is placed over the entrance door.

In Exam. 36 regardless of the initial functions of forts large windows have been built. Cubical formed forts have commonly had similar exterior facades. There has not been any special concern paid to the design of cubical sides. Of course the claim has not always proved, because in cases like Fig. 246 front elevation has been given much more importance.



Fig. 242 from Exam. 38



Fig. 245 from Exam. 45

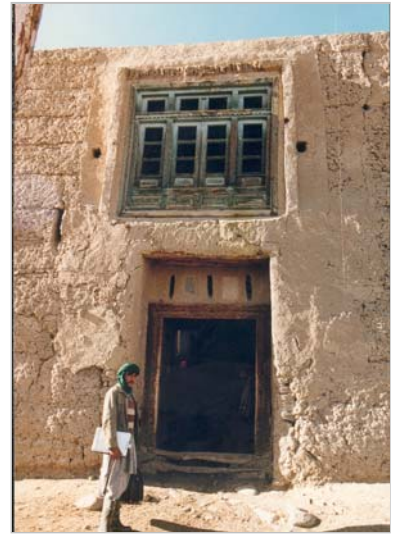


Fig. 247 from Exam. 36



Fig. 246 from Exam. 43



Fig. 248 from Exam. 39

This façade not only benefits from the privileges of tower, but it is coated by thatch (*ka'hge*) plaster, in contrast to the other forts. However some windows have also been opened in this facade. In Fig. 247, attendance of larger windows with old style lintel and circular motifs on the surface testify to the importance of the façade. The front elevation of some old forts has been very important. In Fig. 244 the importance of the front façade is that as much as possible of the façade can be opened up and the two other lateral forts also follow this instruction. However, in one of the forts, the tower is located in the front facade, in order to enrich the façade of the compound (Fig. 153). Moreover, the supremacy of the elements above the portal adds to the pomposity of the exterior façade.

In exceptional instances (Fig. 248, 249), the front façade become extremely important. In addition of special concern to the entrance gate the only tower of the fort and one of the alcoves (*mahtábi*) also appear in the front elevation.

The portal setting a little forth has an enlarged decorated surface above and on the two lateral sides of the gate. Furthermore the completely opened veranda (*baranda*) in the upper story expands widening of the entrance gate. Moreover, having a smooth surface with thatch plaster over all the front elevation and whitewashing paint, decoration and motifs of the entrance surface unprecedently expands the importance and significant values of the front façade of the fort.



Fig. 249 from Exam. 39

Introversion in **Exam. 39** expresses a different concept. Although, the front façade is rather opened and other facades are more widened. Still the fort is introvert, because **first**, the opening occurs in a higher level in the third floor, and there is no opening except entrance doors on the ground floor; **second**, outwards oriented areas such as verandas and alcoves (*mahtábi*), especially in front façade are not the family's main living areas.

Forts are not always situated on a flat plain; some of them are set on an inclined surface. If a fort is built on an inclined surface, and thus, ought to conform to the slope of the terrain, efforts have been made to maintain the integrity and rigidity of the form of the fort.

Setting forts on the ground in both cases of either a flat or inclined plain takes place in perfect accommodation and harmony with the nearby nature. Stone constructed footings that adjoin mud-constructed buildings with the ground are sometimes clear and out of the ground level and in some cases they are emerged in to the ground. Stone-constructed footings situated on inclined surface are more clear and obvious (**Fig. 182**). The building material of most forts is pre-stressed mud (*pakh'sa*), which is compatible with the nearby environment. In some cases, the front elevation of a fort has been smoothed by thatch plaster (**Fig. 196**). In **Fig. 248** in addition to applying thatch plaster, whitewashing paint is unprecedentedly used in some parts of the façade.

Although, there is no cope on top of most exterior walls, some times a sort of cope made by stone (*parchál*) (Fig. 248, 233) or any other rhythmic motifs (Fig. 244, 238) create a vertically suitable finishing of the exterior façade.

The exterior façade of forts is not initially based on the idea that the central part is to draw much focus and the other part is to be unimportant. Conversely, placing towers at the corners of the fort produces a kind of symmetry and emphasizing on the horizontal finishing of the building.



PART FOUR
THE GROTTOE HOUSING
(sum/ sumuj)

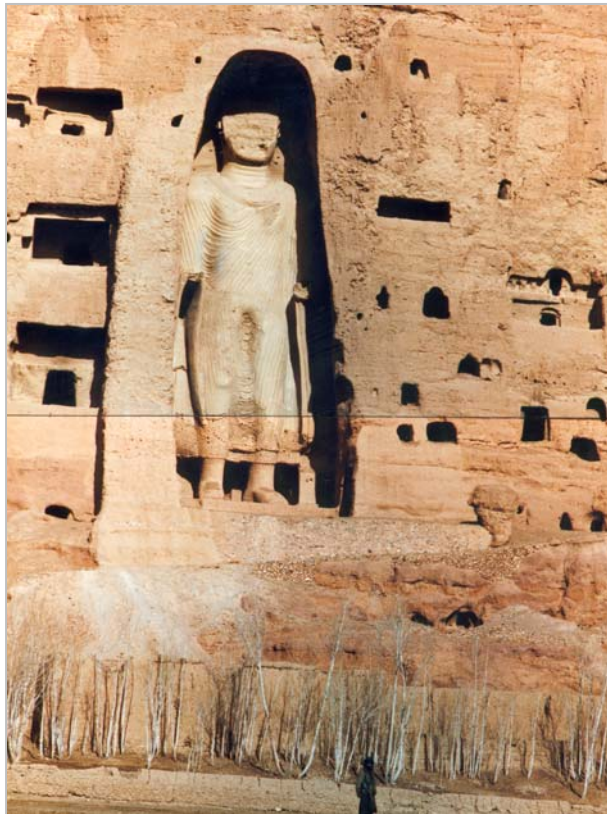


Fig. 251 *Grottoes around Buddhas' figure*

Grotto is another type of the existing housing where it was shelter of the past, which has been dug in to the mountain or hillside terrain made of conglomerate (*mixture of mud and gravel*). There have been records of people living in grottoes throughout Haza'raja't, particularly in Bamiyan, for a long time. This type of living extends up to the glorious period of ancient *Bámiyán*. *Bámiyán* during the sovereignty of the *Kusháni* emperor, especially during the great *Keneshká's* period, contemporaneous to the first century was a famous Buddhists' centre. *Hsuen Tsung*, a Chinese pilgrim, who resided in *Bámiyán* for a couple of days in AD 632 stated: " The capital of great *Bámiyán* land is situated among the mountains coated by snow and in the rear there is an abrupt cliff, which embraced tens of sanctuaries and thousands of monks" (Fischer 1967/ 1346). During the glorious Buddhist period in *Bámiyán*, two colossal 35m and 53m high statues were carved in to the cliffs. According to archaeologists, the 35m high statues was carved in the 1st century contemporaneous to the sovereignty of great *Kenishka* from the *Kushani* dynasty, and then the 53m high figure, 400m west of the first one was carved during the 2nd and 3rd centuries. Among them, three other niches were also dug in to the cliff, and three seated figures were put there (Fig. 251, 252, 253, 254).

According to the historical testifiers, by then part of the city was built on the ground and the other part was carved into the mountain cliffs around the colossal well known statues.

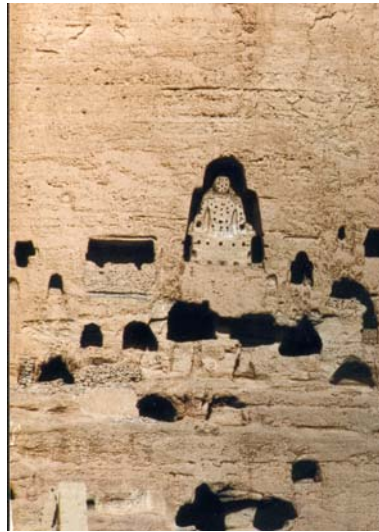


Fig. 252 A seated older child of Buddha

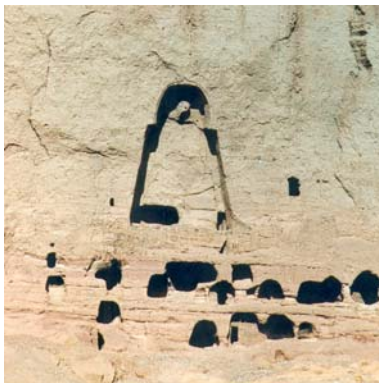


Fig. 253 A seated child of Buddha

Today, no more indication than a dust mound has left from the part of the city, which was built on the ground, but a number of grotto having decoration and motives are among the remainders of the carved in part of the city. Contemporaneous to the carving of the colossal statues, a large number of grottoes were also built. According to *Abul fazole* in *Áein Akbari*, the total number of grottoes of *Bámiyán*, *Fuládi* and *Kakrak* valleys amounted to 120 thousand. Grottoes had gradually been built, according to the requirements of statues. In other words, a group of grottoes including the grottoes situated around the 35m high and seated figures; and other thousands of *Fuládi* and *Kakrak* valleys have been built later. It is said that *Fuládi* grottoes was built simultaneously with the great 53m high figure, but the *Kakrak* grottoes were dug later (Godard, Hackin 1928).

The necessity of carving grottoes were perhaps an expression of a need to settle down the perpetual servants and monks belonging to the huge organisation of the statues, which according to *Hsuen Tsung* amounted to thousands. It seems that a large number of populace inhabited as well.

According to the French archaeologists, the grottoes were inhabited by a large number of people during the glorious *Bámiyán* period amounting to the population of a city. Following this fact, it can be expressed that the grottoes prepared settlement for the *Bámiyán* rulers with their retinues, in addition of being habitation of many simple servants of Buddha.

However, the common inhabitants of the city were also living there. According to the testifiers, the overlapped population of the city settled in grottoes of *Kakrak* and *Fuládi* valleys 5km southeast and southwest of Bamiyan respectively. Since, Bamiyán was a significant religious and commercial centre at the time, pilgrims and merchants therefore used some of the grottoes too.

A- The old Grottoes

Grottoes were gradually dug along a staircase, which starts from the base of the 35m Buddha figure and continues up to the top. Some of the other grottoes had been dispersed individually to different levels of the cliff, and each of them has a distinct staircase starting from the ground or from any accessible level and it generally ends to a vestibule oriented towards outside, then opens to a sanctuary or other areas.

Each sanctuary includes a larger assembly hall and a corridor, around which monks' cell or other areas are gathered. Grottoes look like perforated nests built on the cliff side. The nests are adorned and well ordered.

The horizontal access and escalating have been ordered amazingly, which gives full independence to each group of the grottoes.

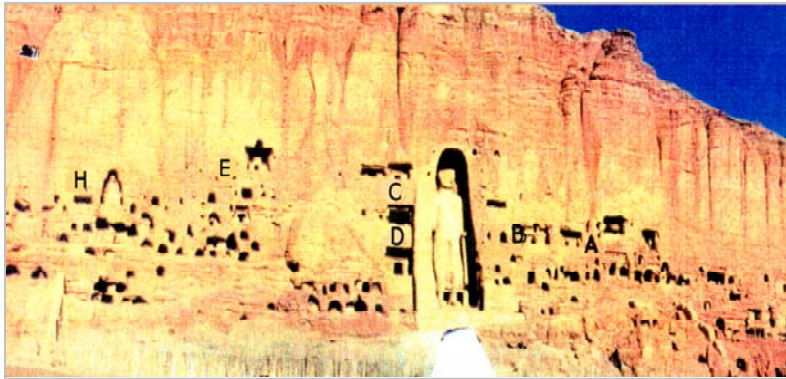
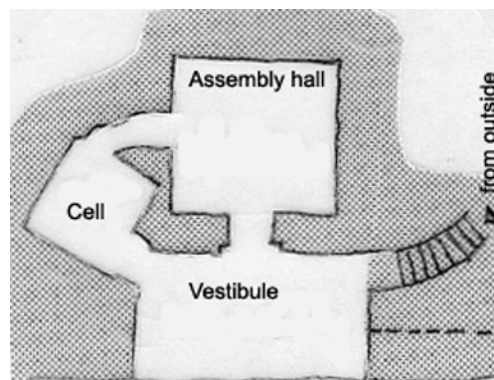


Fig. 254 Small Buddha and two seated Buddha children with the needed grottoes



Exam. 46 Grottoes of Group A

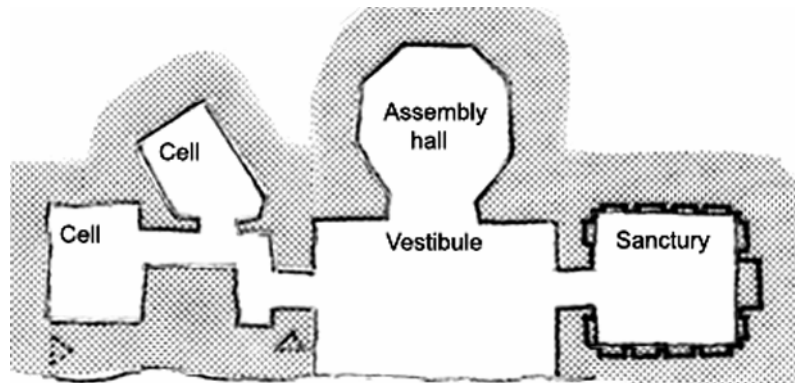
Grottoes sidewalls and ceiling have been full of splendid decorations, motives and paintings, but regrettably part of them have been destroyed by aggressors in different periods. The remainders were coated with thick layers of mud plaster, in order to preserve them from the destruction of invaders. This part has also been damaged by aging.

Categorising of these grottoes was carried out by a French archaeological group, and they were based on the antiquity of the statues, which started from the 35m high figure and ended at the larger 53m high figure. According to this categorisation, grottoes A, B, C and D belong to the 35m high figure, whilst grottoes E, F and H depended on three smaller seated figures (Fig. 276). The later groups of grottoes have not been discussed more, Because of vast devastation and inaccessibility.

First- Grottoes around small Buddha Grottoes A

Grottoes A, (Exam, 46) are among the first grottoes, which situates to the right of the main staircase. The grottoes in regard to both the plan layout and decorations are among the most important one.

1- Plan and Interior Design



Exam. 47 Grottoes of Group A1

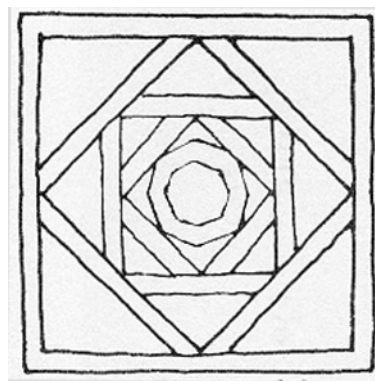
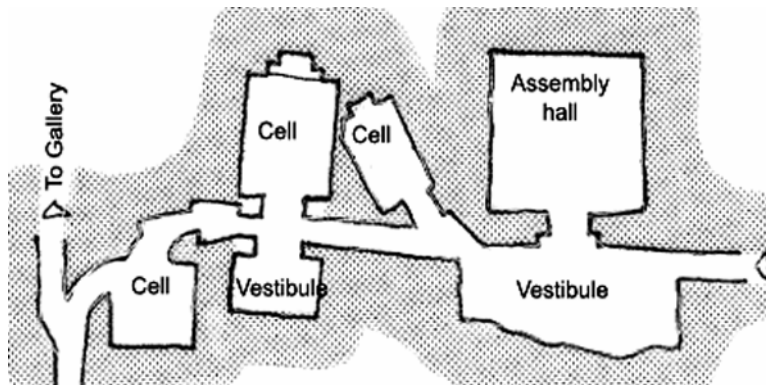


Fig. 255 from Exam. 47

The grottoes are in two stories. The lower story comprises an assembly hall, a cell and a large vestibule, which has access to the outside and an access to the upper story. Ceiling and inside walls of the large assembly hall had initially been full of painted motives, which is now destroyed or coated with a thick layer of smoke. Stone sitting seat 35cm is higher above the floor is built around the hall.

The upper story of the grottoes, which is called grottoes of group A1 (Exam. 47) are more important than the lower story. This level also has a wide vestibule, which opens to the main staircase. An octagonal assembly hall in the middle to a corridor, which leads to two cells in the west, and a square sanctuary with a round domed ceiling, which is laid over the square sides without any concern of the corner. The sanctuary is among the oldest grottoes. Although, many coloured decorations had been applied, nothing is left today. A niche recessed to the front wall of the sanctuary was for Buddha's figure and there were sitting places around the sidewall for prayers. The octagonal assembly hall is one of the most beautiful grottoes of Bámiyán. Though the ceiling does not have a common dome, but gradual set forth of slabs from corners of the ceiling square inspiring from wooden ceiling a special elaborated system of ceiling spanning called lantern (*fanusi*) type has been innovated. Building an entrance larger than a side of an octagon is wonderful and it is full of architectural values (Fig. 255).

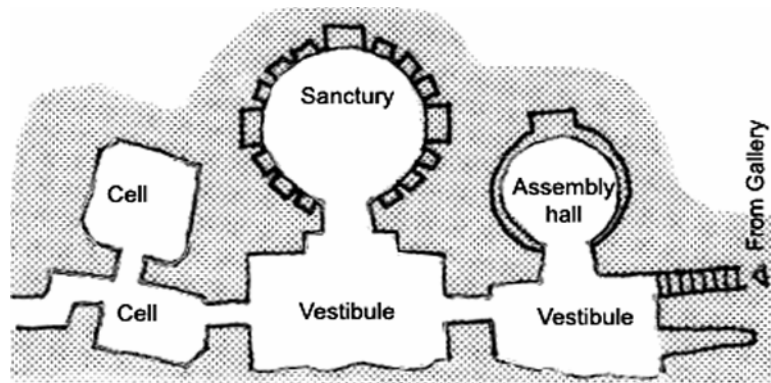


Exam. 48 Grottoes of Group B

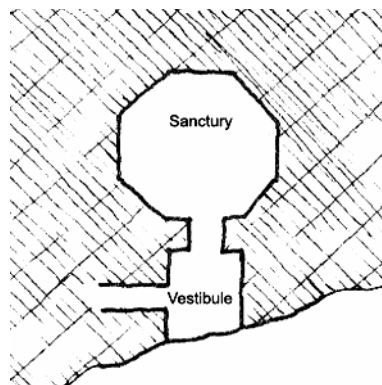
According to Dupree, this type of ceiling has been seen in *Fuládi*, *Nuristán* and *Wákhán* valleys (perhaps with wood, not stone constructed material). Certainly, ceiling in the mentioned regions had not been as old as the Bámiyán's pattern. Dupree adds: "This type of ceiling belongs inclusively to Bámiyán. Sculptures of Middle East and North of China had also been imitated from Bámiyán's pattern." He concludes that this type of ceiling erection characterises the significant contribution of Bámiyán in the world heritage.

Grottoes B

Grottoes B (Exam. 48) are very interesting. These grottoes have two staircases, one inside the grotto itself and one that connects to the main staircase. The grottoes are rather large complex formed of an assembly hall with a vestibule and a cell in its proximity, and a sanctuary with a vestibule and a cell at the end. Both Sanctuary and assembly hall of grotto B have squared form plans, but the ceiling of the sanctuary is lantern (*fanus*) type, which is elaborately designed and it figures among the most beautiful ceilings. Niches in the sides of sanctuary were built to place figures and for sitting of prayers. Above them, four angled niches for one seated and numbers of standees prayers were designed.



Exam. 49 Grottoes of Group C



Exam. 50 Grottoes D

Grottoes C

The entrance of Grotto C (Exam.49) begins just after the main stair descending from the top of figure toward the west. Grottoes C are compiled of an assembly hall with a vestibule, a sanctuary with vestibule and two cells. Both sanctuary and assembly hall having circular plans and domed ceilings, are full of decoration and coloured paintings.

Remainders of decoration still exist in the ceiling of the assembly hall. Moreover, there are indications of coloured paintings, where among the motifs, dams of Buddhist shrines have also been seen, according to Dupree. Assembly hall has elaborately adorned in the favoured Sassanian colours of Pompeian red, green, maroon, blue, ochre and white, the most extensive use of colour yet seen.

However, there are flowers, trees, and stylised floral sprays, which are delicate and sophisticated. Because of its plan layout and other applied details and decorations or for immensity of sanctuary areas grottoes C are restricted in contrast to other Bamiyan grottoes.

Grottoes D

Going one floor down from Grotto C through the main staircase, Grottoes D (Exam. 50) open to the right. Grotto D comprises of sanctuary with a vestibule. The ceiling of the sanctuary is domed and its decoration is contemporaneous with the grottoes in the

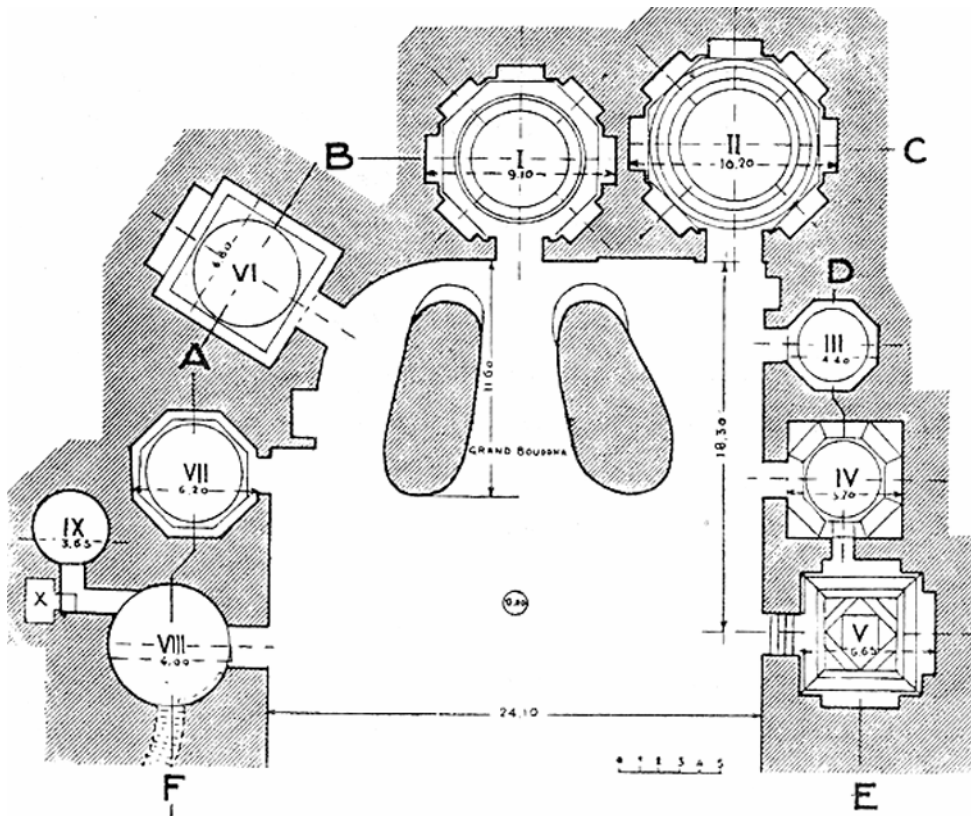


Fig. 257 The Grottoes around the grand Buddha

proximity of the large Buddha. The decoration has been applied on a lime layer, and no indication of painted motifs has been left. According to Dupree, in the decoration of Grottoes D, the Sassanian style has developed.¹⁶

Second- The Grottoes around the grand Buddha

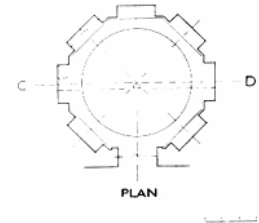
Around the feet of the large Buddha, there are ten, mostly single grottoes, which were dug probably in the VII century (Fig. 257, 258). Among them are grottoes I and V, which were selected for further study with a number of other important and valuable grottoes that are located east of the large Buddha.

Grotto I

This large octagonal grotto (Exam.51), resembling the other grottoes of large Buddha is now without any painting, but it is elaborately decorated with wonderful sculptural designs. Above the niches once sheltering statues, there is a band of foliated scrolls. Above this, there are pedestals on which small Buddha statues sit under trilobite arches connected by squat pilasters with pseudo-Corinthian capitals. On the ogee of each arch, sit ribbed vases ornamented with ribbon at the base, from the top which two wings arise. The arches are connected by grotesque masks of human faces upon, which other small Buddha's have been set.



Fig. 258 Grand Buddha



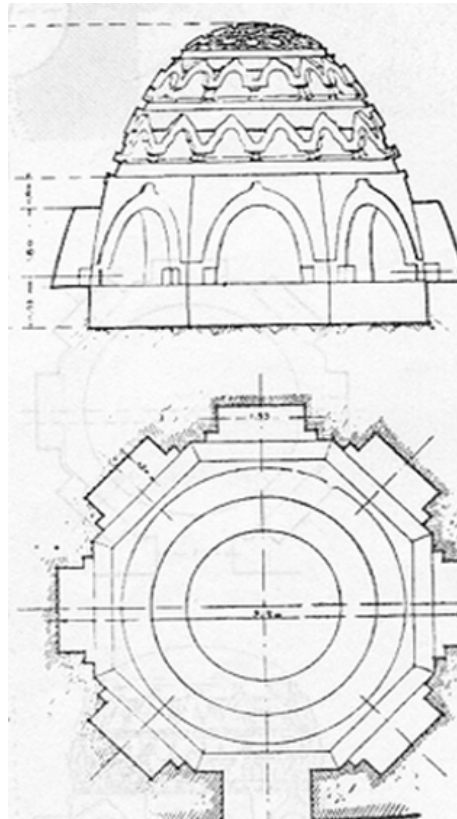
Exam. 51 Grotto I



Fig. 259 from Exam. 53



Fig. 260 from Exam. 53



Exam. 53 Grotto XI

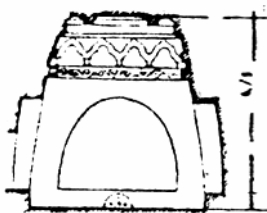
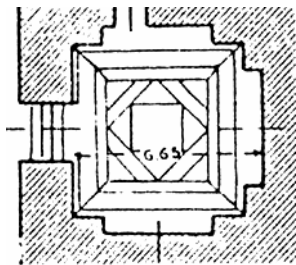


Detail of the ceiling of Grotto XI

Above this, there is another band of foliated scrolls followed by another arcade, this time designed for a standing Buddha (Dupree 1967). Painting of the ceiling has completely been destroyed.

Grotto V

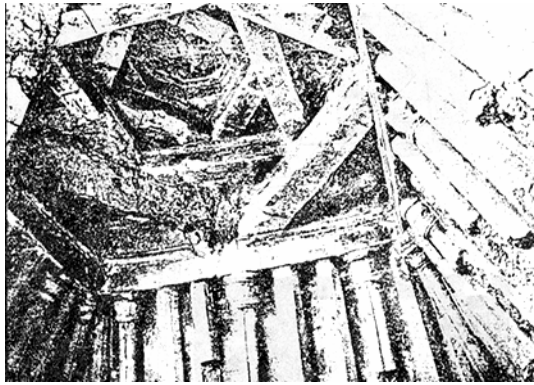
Grotto V (Exam.52) is rectangular. The ceiling of the grotto, showing evolved stage of lantern (*fauns*) ceiling is very interesting. The interfaces of false beams have a modelled t-décor of foliated scrolls, flying ducks and griffins (Dupree 1967).



Exam. 52 Grotto V

Grotto XI

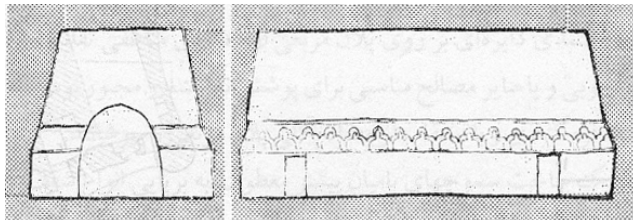
A precipitous and slippery path east of the statue leads straight to the entrance of grotto XI (Exam.53). The lower decoration resembles that of grotto I, but the ceiling is more attractive. Design of the ceiling centres around a series of hexagons is outlined by pearls. In the past there was a Buddha with nimbus and aureole in the centre of each. The hexagons are arranged in the shape of a star and joined together by decoration of lozenges and triangles (Fig. 259, 260).



Exam. 54



Fig. 261 from Exam. 54



Exam. 55 Grotto XIII

Grotto XII

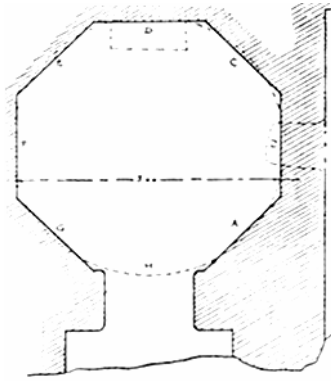
To the east of the large Buddha, when following a path rising to the upper to the cliff, a large grotto (Exam. 54) is seen to the left. A wonderful instance of lantern design can be observed in the ceiling of the grotto (Fig. 261).

Grotto VIII

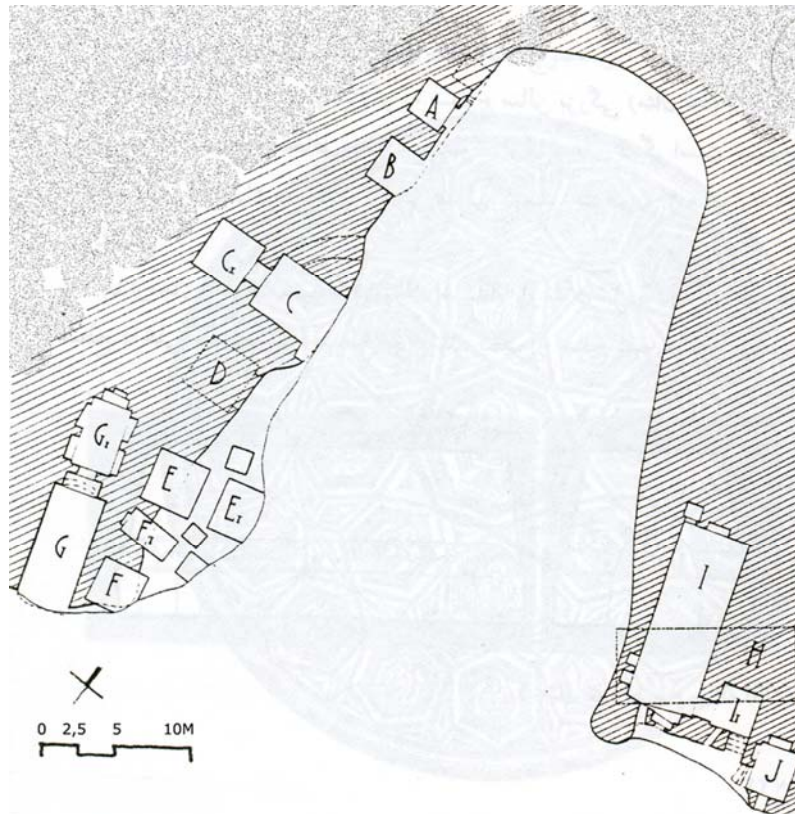
Following the path further, one can see a large grotto hall (Exam. 55). The grotto, in terms of architectural style, is different from the others. The hall is 20m long, 8m wide and 8m high. Sidewalls have been built inclined tending inwards, in other words; the floor area is considerably wider than the ceiling. Perhaps, this technique was thought the safest way of erecting a flat roof. Two meters above the floor, a bond of foliated scroll in high relief has been built all around the sidewalls. A recessed niche has been built on the front wall side

Third- The Grottoes of *Fuládi* and *Kakrak* valleys

There are many grottoes in the northern mountainside of *Fuládi* valleys are built at a later time than the grottoes of *Bámiyán* valley (Exam. 56). The French archaeological group recorded some of the important instances. The plans of these grottoes are not so much intricate.



Exam. 57 The Grottoes of Kakrak



Exam. 56 The Grottoes of Fuladi valley

It seems that the grottoes were used for praying and other specific religious actions. Although grottoes are now without any decoration, the ceilings had been formed as lantern type or other contemporary ceiling systems.

Mountainsides of *Kakrak* valley (Exam. 57) have individually been built and Fig. 262 is a good instance of this grotto type. The grotto is octagonal and a decorated ring adjoins the extraordinary widened sidewalls and fully decorated ceiling.

2- Building Techniques

One of the most important reasons for studying the style of habitation and life in grottoes (*sum/ sumuj*), is to bring out the hidden technical treasures and values, which were applied in the carving of two splendid and magnificent grottoes of Bamiyan and nearby districts thousands of years ago.

Applying the principles of domed ceilings on a square plan had mostly reputed Bamiyan construction. According to the French archaeological group, the mentioned ceiling erection is unique and Bamiyan is the inventor of that type. Perhaps, there are some other common principles of domed roofing in Bamiyan grottoes, which are not inclusive and they are shared with the other nations' architecture. One of them is based on the principle of an Indian architectural type, which covers a square or octagon.

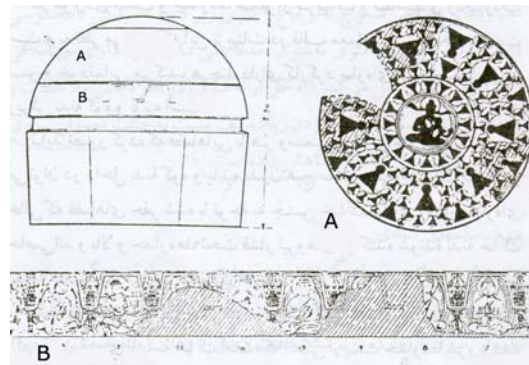


Fig. 262 from Exam. 57

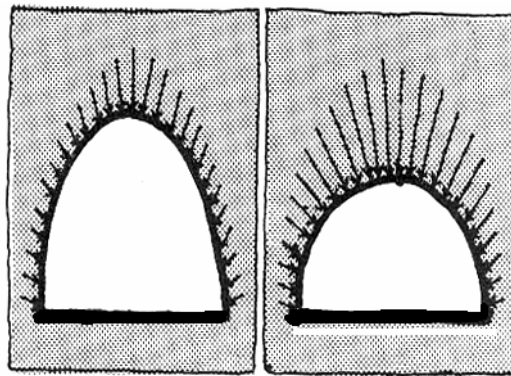


Fig. 263 character of soil loads in Grottoes

However the domed roofing, which spans over a squared form, is a Middle Eastern principle. It seems that putting circular domed ceiling on a squared plan was initially imitated from architecture of the region, because there had not been wooden logs or any other appropriate building materials and they thus had to apply mud for spanning.

Building techniques comprise mostly roofing and sidewalls. In cases, ceiling and sidewalls are full of decorations, motives and colourful paintings. As such, decorations are seemingly manifestations of the architectural type and building techniques, though, there has been a constructional functioning to prevent the cliff wall from falling down.

It should not be conceived that any range of areas with any type of ceiling can be carved in the cliff without any restriction. The areas dug regarding the different sort of mountain soil or conglomerate (*mixture of soil and gravel*) has special constructional characters and the proximity soil thus impacts the top and the side of areas dug. The impact to the ceiling and the sides are exaggeratedly loaded of layers of the soil, which begins just out of the dug area and acts as a stretched cylinder (Fig. 263).

First- Flat roof

The umbers of grottoes having flat ceiling are not high enough. Nevertheless, this type of ceiling has been built by special

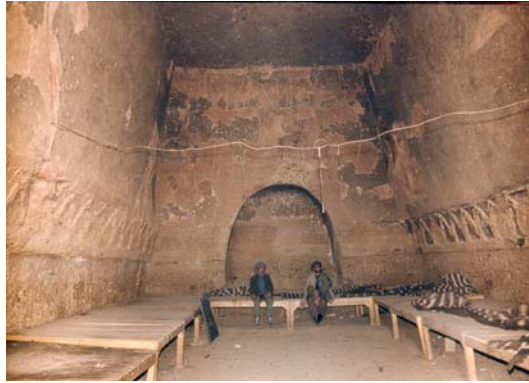


Fig. 264 from Exam. 55

techniques as well. According to this method, the spanning area of the ceiling, contrary to the wider floor area, minimizes. Considering this fact, the sides of grottoes have mostly been built tending inwards in the room. In one case, although, width of the floor area is 4,5m, by tending inside walls the width of the ceiling decreases to about 3m.

Perhaps, a decrease in the spanning area up to this rate makes sure that the roof could sufficiently bear all loaded pressures. In other cases, since, the designer expects the walls to not to be seen as significantly tended and inclined. The walls are therefore higher than usual. An interesting instance of a large and wide spanning flat roof has a 5m long span that is built as an outcome of 8m long floor width by inclining and heightens the sidewalls technique (Fig. 264). In this instance, tending the sidewalls up to 2m high is insensibly created then a ringed frieze actually adjoins the abrupt inclined part, which continues up to under the ceiling.

Second- Dome roofing

Dome roofing of grottoes resembles that of a normal dome roof, but there are slight differences. Normal dome roofing endures only dead load of the roof in addition to live load, which dome roofing of grottoes has to tolerate much greater load of released soil or part of a mountain or a hillside.

According to this constructional character, it seems logically that the load on the ceiling and sidewalls has to be decreased, in order to produce a much more firm and consistent construction.

The ceiling of most of the grottoes, among them the old grottoes pertaining to the large Buddha, have reasonably been built with dome roofs. In some cases, the ceiling is conically stretched. The designer had tried to reduce the load on the ceiling to create a wider and more interesting space by multi ringed friezes. However, ringed friezes act as a constructional ring against the pressure of lateral loads.

Obviously, a flat roof does not have the same capability as a dome roof, which could explain why; there is no wide range of flat roofing. The flat roofs of the old grottoes are severely affected by constructional character and capability of the cliff materials.

The designers had been fully aware of these interactions and, thus it was rendered such a solution.

Lantern (*fanusi*) ceiling technique

The simplest spanning technique of a square area is to put on a number of wooden log or any other materials over the shorter length of that area.

Since, joists of longer spans have many restrictions such as having durable and strong girders, which are mostly inaccessible and more expenditure.

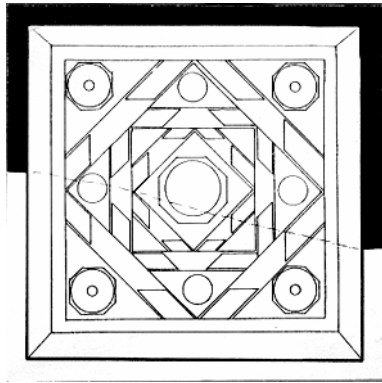


Fig. 265 Lantern ceiling of Group C



Fig. 268 from Exam. 50

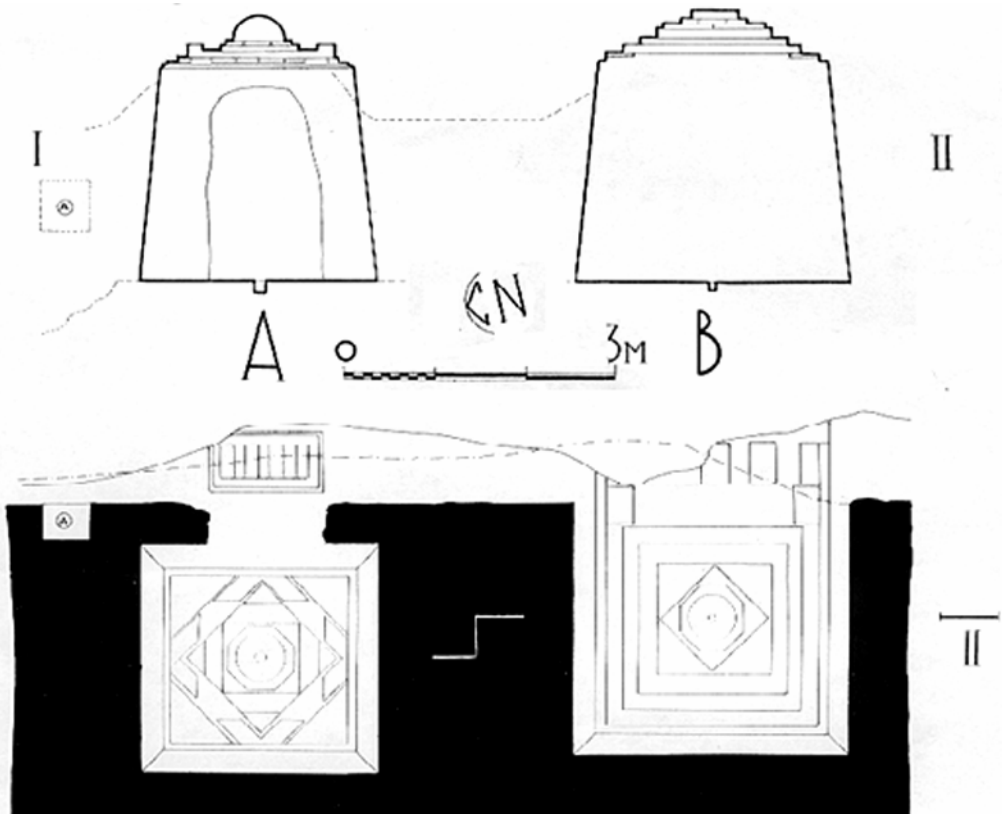


Fig. 266 from Exam. 56

Architects and designers of Bamiyán grottoes elaborately invented a similar technique of spanning, which had solved not only the problem of inaccessibility of spanning with normal joist materials i.e. shorter wooden log or other materials for longer spans, it had also been created a much more beautiful dome formed ceiling. According to this technique, instead of long rafters, four short rafters had first been laid down over the four corners of a square plan in such a manner as to produce another smaller transformed square. This procedure repeats necessarily until a very small square as an aperture to the top is left. This type of ceiling is called lantern (*fanusi*) ceiling (Fig. 265).

The lantern roofing could enable the designer to joist a span on much longer than the length of rafters. The first four rafters create a new square in the above fashion with an area equal to half of the original square and a side ratio of 7:10. If the inside area of the second square is still large, then the newly built square area becomes one-fourth of the primary square and the sides are half of the primary one. This procedure is necessarily repeated until the inside area stretches gradually to one-eighth or one-sixteenth. Grotto VII around the large figure is one of the smallest grottoes and it has a square plan and dome ceiling. The dome sits on a number of stone pillars knobbed out of the sidewalls. Meanwhile, the arcade has tended towards the inside of the room.

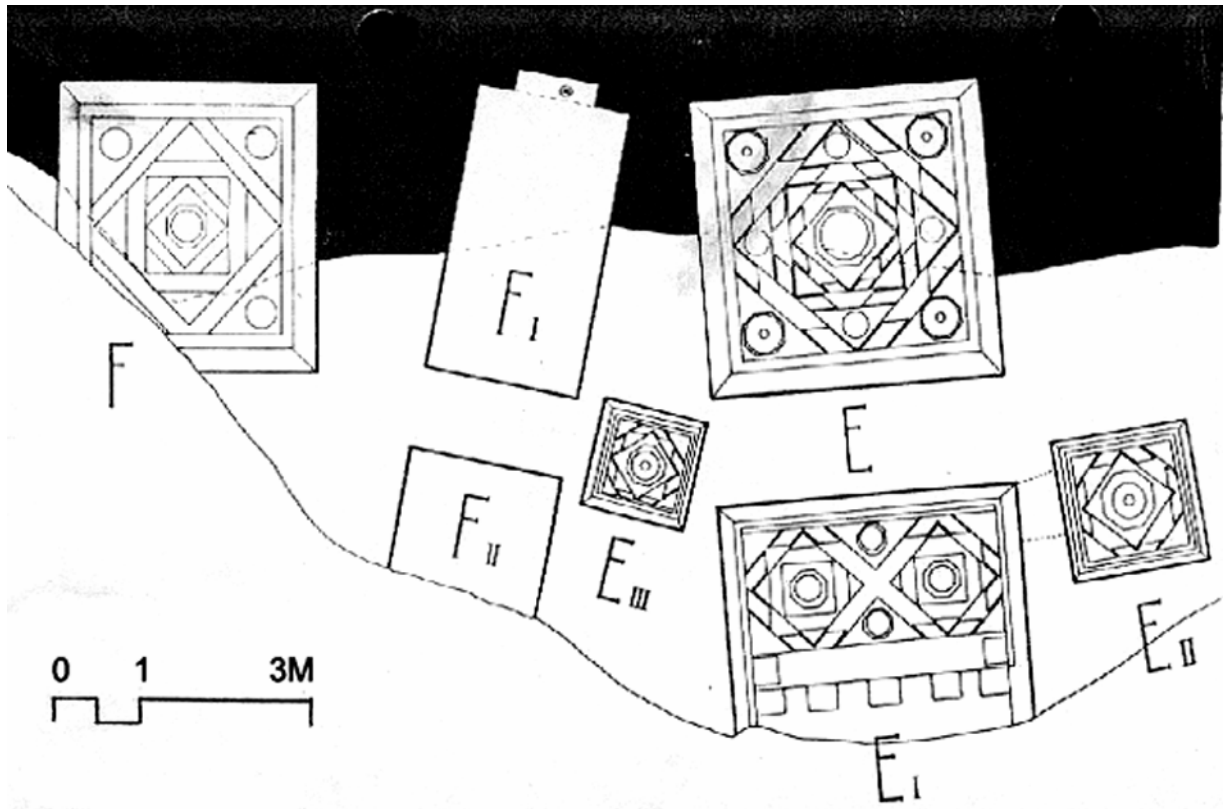


Fig. 267 from exam. 56

Although a simpler lantern technique has been seen primarily in a grotto around the feet of the large Buddha, many developed lantern ceilings exist in other nearby grottoes. In Fig. 266, 267 examples of beautiful lantern ceiling are shown. This procedure by which they are built has been repeated over larger areas in three phases, while smaller areas have been covered in one phase. However, spanning of a defected square has been displayed in grottoes of this example. Moreover, grotto E1 has a double square lantern ceiling, because of its rectangular ceiling.

However, another lantern ceiling type erected over a rectangular plan is seen in Fig. 268. This type is substantially different from the previously mentioned lantern ceiling. The ceiling has not formed as a gradually setting forth from each corner; conversely each part is hung down, which gives it a much more dynamic and artistic form. The sanctuary ceiling of group D displays another lantern ceiling type (Fig. 269).

Roofing on the basis of gradual set forth from the corner of a square plan is preferred, because of either facilities of the execution or use of cheaper and more accessible materials. This technique for the region of applying wood and stone for roofing is therefore in the focal point of concern. This type of roofing applies in different regions.



Fig. 269

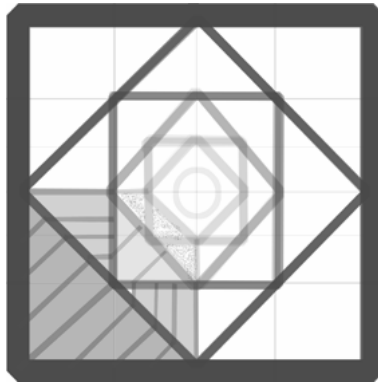


Fig. 270

According to Bota, since, housing of Armenians' farmers was being built under the ground, light and sun glare came in through an aperture locating in the top of the roof. However, the aperture functioned as smoke hole and ventilation as well (Godard, Hackin 1928).

Obviously, for erecting such a ceiling and its aperture, first four major thicker rafters must be put on the side corners of the room in such a manner as to create a square by thinner purlin. This procedure is repeated gradually for several times until a small domed form having a hole in the top is created (Fig. 270).

Another instance of this ceiling type has been seen in *Kashmir valley, Nimangat of Pomdish* and in houses in environs of *Hindukosh* (Godard, Hackin 1928).

Moreover, the principle of doming by gradually set forth from the corners of a square plan was common in India and was built elaborately.

In India, whenever it was intended to build a dome on a square plan, four stone plates were diagonally laid down on the corners of the room and gradually set forth until a dome form was created.

Then the needed decoration had been applied. *Alfred Fischer* in his book of *Greecko Buddhism industry*, rendered a picture of a sanctuary ceiling in *Panderan Tehan*, which this type of roofing applied (Godard, Hackin 1928).

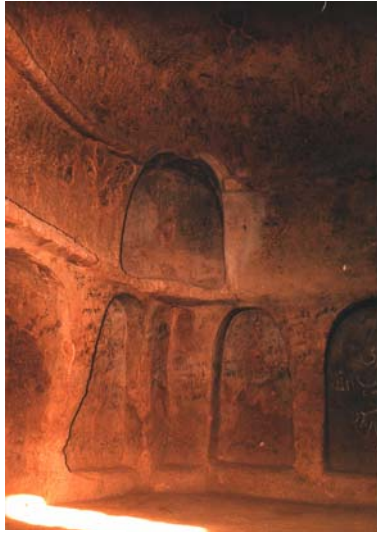


Fig. 271

According to Godard and other testifiers, the principle and patterns of stone decorations of Bámiyán were even imitated in *China* and *Korea*. Ceilings by using Bámiyán's pattern are widely seen in western part of *Turkistan* in *Qezel* and in *Kirish Simsim* regions. In these regions, stone plates of ceiling were carved on the cliff. This type of roofing existed also in the east of *Tuyoq* and *Scan Kaof*.

Technique of wall tending

One of the simplest techniques of dome roofing on a square plan is to tend the sidewalls inwardly, in order to decrease the ceiling area rather than the floor area for spanning. This technique has mostly been seen in smaller square areas e.g. in Grotto VI adjacent to the large Buddha and in grottoes of *Fuládi* valley.

Pendentive ceiling

One of the grottoes around the large Buddha's feet is square having 4.5m long sides and a hemisphere ceiling is put on to it. The walls under the pendentive ceiling were tended inwardly, and four niches have set forth by the corners of the square as to convert it to an octagon. Since, an octagonal form is much closer to circular plan; it is therefore easier to construct a circular based dome on this basis (**Fig 271**).



Fig. 273

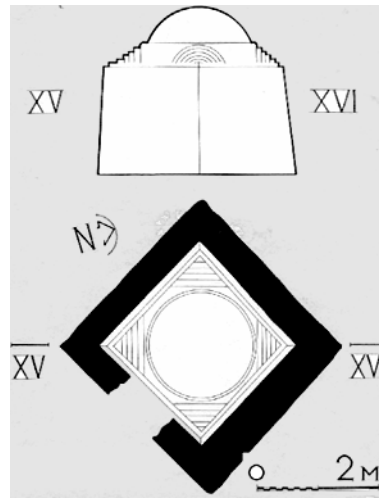


Fig. 272

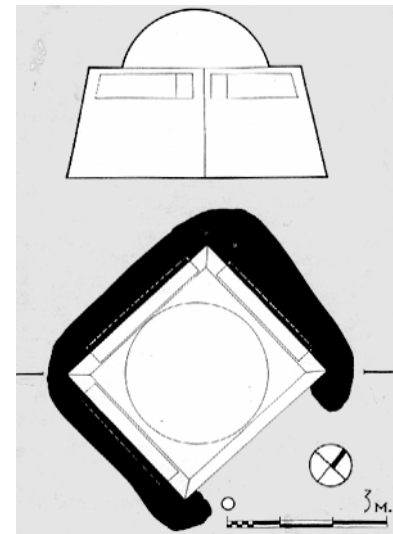


Fig. 274

Other instances of pendentive ceiling have been seen in Fig. 272, 273. In the construction of this type of ceiling, niches are set forth by smaller niches that are made up of four or five even smaller niches that are erected from the corners of the ceiling base. Although pendentive ceiling is the simplest technique of roofing of a square plan, other unusual and primitive techniques are also seen in Bámiyán's grottoes, for instance Fig. 274 is among the most unformulated techniques of such roofing. Perhaps, erecting such type of ceiling in outside of the grottoes is unpractical. According to this technique, sides of the squared plan are inwardly tended and then the ceiling is laid down. Despite the special instances, the pendentive principles are first seen in Bámiyán's grottoes and Bámiyán was the innovator and initiator of that type of ceiling.

Due to the fact that to date we have access to the entire world's knowledge, so erection of various ceiling e.g. domed ceiling on any type of plan is not a great task, but we have to accept that the mentioned innovation was a wonderful accomplishment at that time.

Godard interprets, that at that time *Indian* architecture was completely unaware of this technique, because *Indian* architecture was fed much more from *Achaemenian* industry and did not have any contribution in the developing of wooden or stone domed roofing, and did not know much more than the column structure and the principle of equilibrium.

Indian architects themselves encountered this restriction as they faced the question of how to build a hemispheric dome on a square plan. This problem was unsolved until the V century before building *la Sofia* in *Turkey* where architect of that country basically did not know the principles of pendentive ceiling and they were only able to put stone plates on the corners of a square plan, in order to convert it to an octagonal form, and then a circular base was placed on the top of it. *Gandahára* architects were also using this technique. Therefore, *Indian* and even *Gandahára* Buddhists did not know the principle of current roofing of *Bámiyán*. In *Turkistán* as it refers to the painted scene and construction of *Ilikol* and *Kumul* dome roofing where square plan was not common and instead of a dome being laid down directly on strong wooden pillars they were placed at different points of a square plan.

Dome ceiling on octagonal and circular plans

Even in the past roofing on octagonal and circular plans was not a great task, because, an octagonal plan is much closer to a circle circumference and without much high skill, it could be coincided with circular based dome. The most important point is to limit the gap between wall and ceiling by using part of a decorated frieze ring, which is placed between sidewall and ceiling.

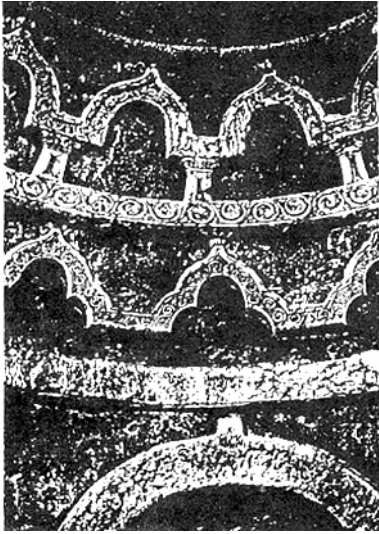


Fig. 276

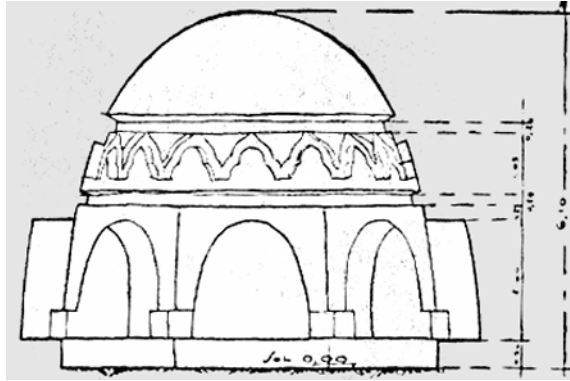


Fig. 275

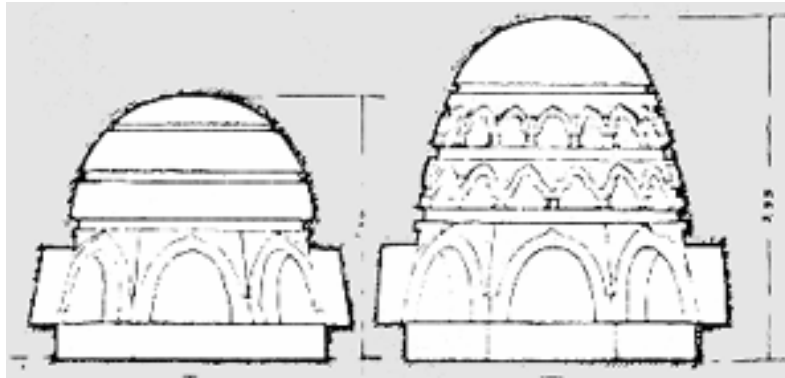


Fig. 277

Despite being a small sized room, the assembly hall of Grottoes A1 has a much closer rounded frieze ring put on the octagonal plan and then a lantern (*fanus*) ceiling is created on the top (Fig. 275). Instead of frieze in the small sanctuary of Grotto B, an inclined surface is formed as a dome and on the top a lantern ceiling forms the top of the ceiling (Fig. 276). A dome on circular plan of the assembly hall and sanctuary of Grotto C is not excluded of this principle, and in the sanctuary grotto, the decorated frieze ring adjoins the base of the dome and the side of the room, while coloured painting on the assembly hall ceiling associates delight and beauty. Whenever, there is a concern to minimize the coverable size of a dome, two or more frieze rings applied like in Grotto D, in order to convert the larger span of the dome in to shorter span and create a much smaller lantern ceiling at the top (Fig. 277).

In another instance, there is pendentive niches located over the frieze rings, which reduces the ceiling spanning in two levels. The niches are only decorative and do not have any structural functioning.

Third- vault roofing

Whenever plans are neither square, polygonal nor circular, they are of stretched rectangular forms, which do not follow current

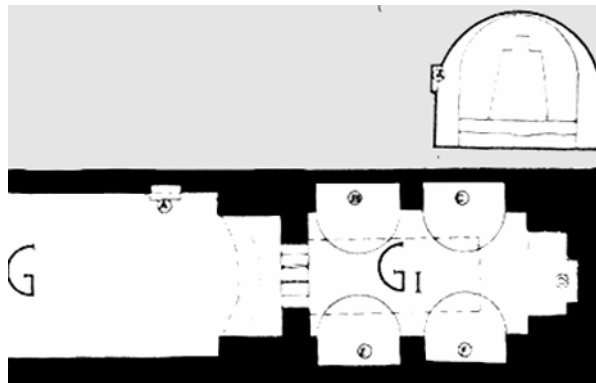


Fig. 278

principles. The ceiling of some rectangular plans e.g. Grotto G of *Fuládi* valley, has been built as a vault ceiling (Fig. 279).

In addition to the remainders of the historical, which form part of the large Buddha's complex, numbers of newly built grotto types have also been seen in Central Afghanistan, Hazáraját. Some of today's habitable grottoes are actually rebuilt forms of the old grottoes, while other grottoes have been dug in to the mountain or hillside of *Petáb-e zárin* of *Yakaulang* and in *Turkman* valley.

B- Habitable Grottoes

In the past, many efforts had been made to move the most important aspects of their lives into the heart of mountains in order to preserve them for longer periods. Protect against an extreme destructive climate and natural disasters i.e. wind, rain and sun glare and also flooding and thunder storms and also protect them from attacks and war destruction were considered, but today the above objectives have been changing considerably, and the attentions is focused on economical requirements. Right now, people who live in such grottoes cannot afford to build other shelters or there are no possibilities for building new shelters. In Bámíyán city, for instance, the tenure system is uncommon and there are no extra shelters for neither rent nor for sell, though there are vacant jobs. Even land purchasing for building shelters is not common.

Exam. 58- Názer's Inhabited Grotto (sum/ sumuj)

1. Family living grotto
2. Baking oven (*tanur*)
3. hearth & andiron (*o'áq/ digdun*)
4. Living place
5. Wrapped sleeping cloth (*cháder'shau*)
6. Wooden cloths chest (*sanduq-e kálá*)
7. Water reservoir dishes
8. Lambs pen (*eal-e baragu*)
9. Farming tools
10. Animal living grotto
11. Cows stall (*ághul-e gau*)
12. Donkeys stable (*tawila-e olágh*)
13. Straw, hay & Lucerne store (*káhdun/ aláf khána*)
14. Dried animal dung stack (*day-e chalma*)

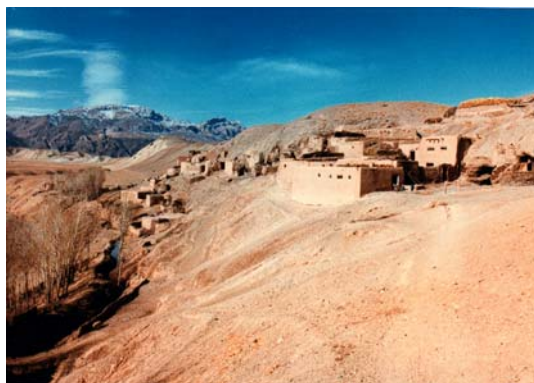
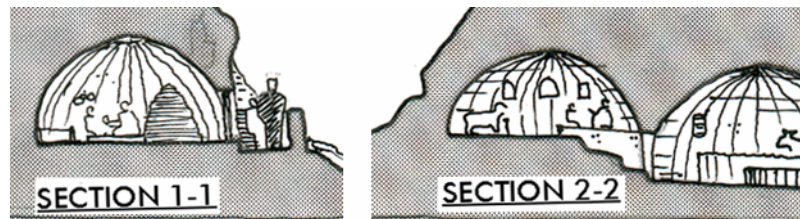
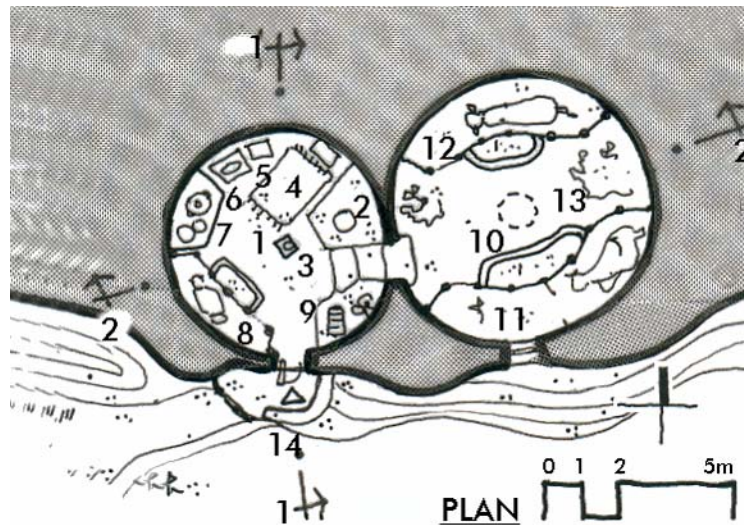


Fig. 279 *Petáb-e zárin Yakaulang*

Living in old grottoes has therefore appeared as the manifestation of city slum. In *Petáb-e zárin* of *Yakaulang*, there are numbers of grottoes that belong to landowners of the region (Fig. 279). Since, landowners employ workers for their farmlands annually; a grotto is therefore utilized for the settling down of the worker's family. By the end of the year, depending on the agreement between landowner and farmer, whether the worker is allowed to stay longer or whether he has to leave the grotto. Sometimes, when farmer gets fired, the family has to move out of the grotto.

1 -Plan and Interior Design

The grotto is the most primitive human and beast co-existing type of shelter, which had been dug the cliff of mountain or hillside with mostly irregular circular or square plans and dome or vault ceiling. There is not much of an opening to the outside except a narrow and short door (*dargah*) and small aperture. This type of dwelling is called man made grotto (*sum/ sumuj*).

The inside area of the grotto is limited; the reason is that it needs to have enough strength against compression of soil. The area rarely exceeds 20sqm. In cases, where, there is a need for wider area, two cells according to Exam. 58 are situated in such a manner that they overlap only a small part of their circumferences and create access at the contact line between the two cells.



Fig. 280 from Exam 58



Fig. 281 from Exam. 58



Fig. 282 from Exam. 58

These two cells amount to 50sqm, one is for habitation of a family of 8 members and the other is stable beasts for 6 sheep, a goat, a ploughing cow and a donkey.

In Fig. 280, two cells of family and beast living quarters are dug along the hillside surface. Passing through the simple entrance (Fig. 281) one can immediately enter a 20sqm family quarter and then reach the 30sqm beast stable. The height of the grottoes is considerably short. The main reason is to limit the inside area of the grottoes for keeping warm during the extreme cold months of the year. The floor of grottoes has been built in different levels. The floor of the family living cell is a little elevated; in order to prevent pollution from the beast cell from being transferred the family quarter.

Moreover, places of different activities have been distinguished and some of them have been allocated specific platforms that are elevated a little from the floor level. There is a peaceful co-existence between man and beast inside the grottoes. Both of them live in a common space. Man gets benefit from the warmth of beast and newborn beast are kept in the family living quarter (Fig. 282).

Family activities are enormously simple and contemptible. All the family hostelry functions including eating, sleeping, baking bread, cooking the meal, storing supplies and other activities take place in a small area.



Fig. 283 from Exam. 59

The baking oven (*tanur*) and the hindren (*ojáq*) form the focal points for activities of the family (Fig. 282). Bread is baked and the meal cooked there, and eating is also taken place there. The sitting place is characterized by spread out pieces of gelim (*satranji/ shatranj*) or woven felt of goat hair (*namaq*). During the night, especially in winter a large blanket (*jam'khu*) is spread over the warm *tanur* and all the family members sleep under that. In some cases, close relative guests also sleep under this blanket.

The sidewalls also have functions. Many of the used tools and utensils hang on the wall or placed in recessed niches. Flour hive (*kandu-ye árd*), made of a mixture of domestic material i.e. *chal* that is soft clay and oat meal (*árd-e jau*), which make it firm, light and dump proof with interesting motifs are put in a corner.

Further away, sleeping cloths (*rakh't-e khau*) including numbers of blankets made of sheep wool and goat hair (*konjula/ shā*) wrapped into a piece of cloth (*cháder shau*) is seen. In addition, there are two chests of wearing cloths and the wife's gauds. In the other corner, numbers of buckets of iron, plastic ewers and pitchers are placed on a platform (Fig. 283). Kitchen utensils don not exceed from one or two worn out pots; some bowls plates; iron pans with suck bucket and dough pans (*taghára*); old kittles and some cups and glasses, which are mostly placed next to the *tanur* or put in niches.



Fig. 284 from Exam.60

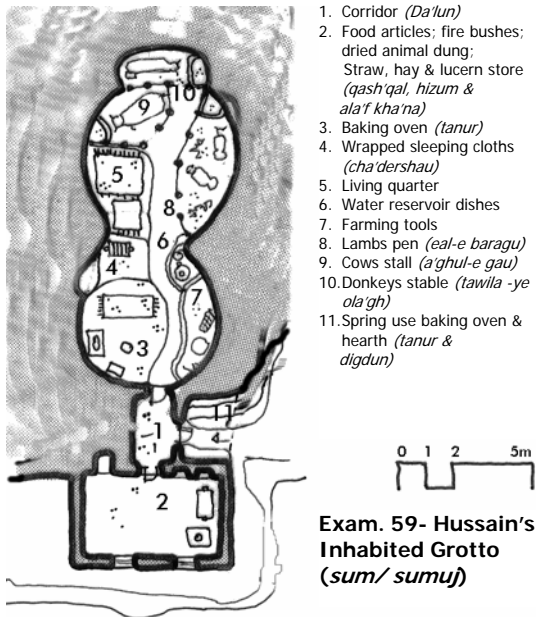
Other prerequisite tools like scythe, fork harvesting sweep, gallon of burning petrol, basket of animal dung, fire bush saw, fire bush axe, spade, sieve etc. are put or hanged on different places on the wall and ceiling, depending on their importance.

Depending on the type of animals the stable cells are divided in different parts that each part has its own manger (*ákhur*). The donkey quarter is separated from other animal quarters by a wooden fence, whilst the ploughing cow quarter is placed next to the sheep and goats. Fodder (*aláñ*) and dried animal dung is stored in a corner and hencoop aviary is situated in the other corner of the stable cell. Stacks of fodder (*day-e aláñ*), fire bushes (*day-e buta*) and animal dried dung (*day-e chalma/ tapak*) are kept just outside of the grotto.

Principally, grottoes do not have much of an opening to the outside. Staying into the depth of the mountain or hill means that protection against the extreme cold air is preferred to the advantages of sun glare.

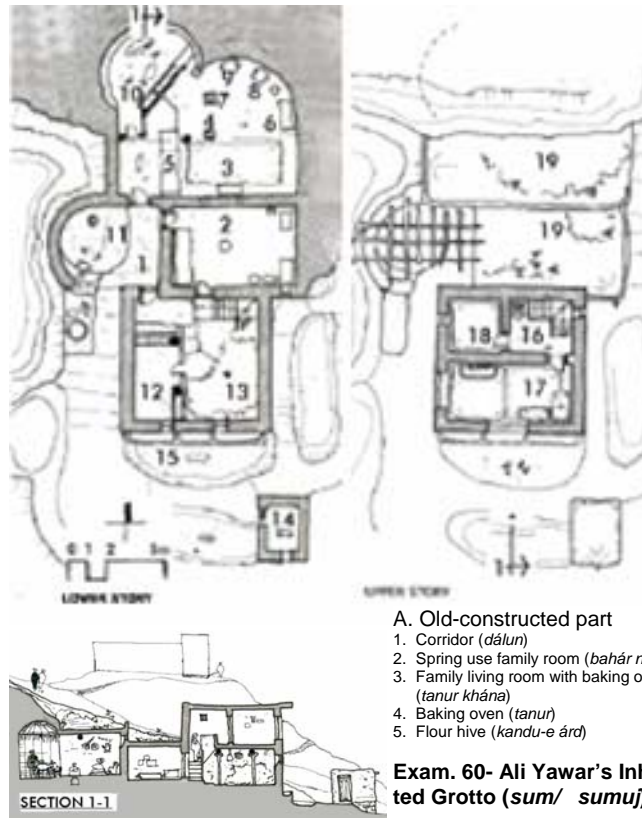
In addition to a narrow and short entrance (*darga*), there are small apertures 0.5x 0.5m for ventilation and lighting (Fig. 285).

The dwellers do not want to expel the smoke coming from *tanur* and *ujáq*, because the smoke carries heat and it is gracious. Moreover, smoke coats the harshness of wall and ceiling and prevents the dwellers from uncontrolled growth of moxius insects like lous, flea and so on.



1. Corridor (*Da'lun*)
2. Food articles; fire bushes; dried animal dung; Straw, hay & lucern store (*qash'qal, hizum & ala'f kha'na*)
3. Baking oven (*tanur*)
4. Wrapped sleeping cloths (*cha'dershau*)
5. Living quarter
6. Water reservoir dishes
7. Farming tools
8. Lambs pen (*eal-e baragu*)
9. Cows stall (*a'ghul-e gau*)
10. Donkeys stable (*tawila -ye ola'gh*)
11. Spring use baking oven & hearth (*tanur & digdun*)

Exam. 59- Hussain's Inhabited Grotto (*sum/ sumuj*)



6. Wrapped sleeping cloth (*châder'shau*) / Wooden cloths chest (*sandug-e kâlâ*)
 7. hearth & andiron (*ojâq/ digdun*)
 8. Dishes (*kâssa & chamchah*)
 9. Water reservoir dishes
 10. Lambs pen (*eal-e baragu*)
 11. Terrace (*sofa*) / spring use Baking oven (*tanur*) & hearth & andiron (*ojâq/ digdun*)
- B. New-constructed part**
12. Sheep & goats pen (*qutun-e mâl*)
 13. Straw, hay & Lucerne store (*kâhdun/ alâf khâna*)
 14. Latrine (*mostarâh/ kenârâb*)
 15. Spring use stall (*bahâr band*)
 16. Corridor (*dâlung*)
 17. Guest room (*mehmân khâna*)- upper storey
 18. Spring use family room (*bahâr neshin*)
 19. Roof
- A. Old-constructed part**
1. Corridor (*dâlung*)
 2. Spring use family room (*bahâr neshin*)
 3. Family living room with baking oven (*tanur khâna*)
 4. Baking oven (*tanur*)
 5. Flour hive (*kand-u-e ârd*)

Exam. 60- Ali Yawar's Inhabited Grotto (*sum/ sumuj*)

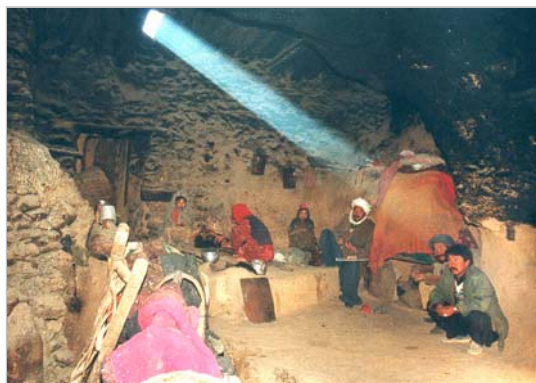


Fig. 285 from Exam. 59

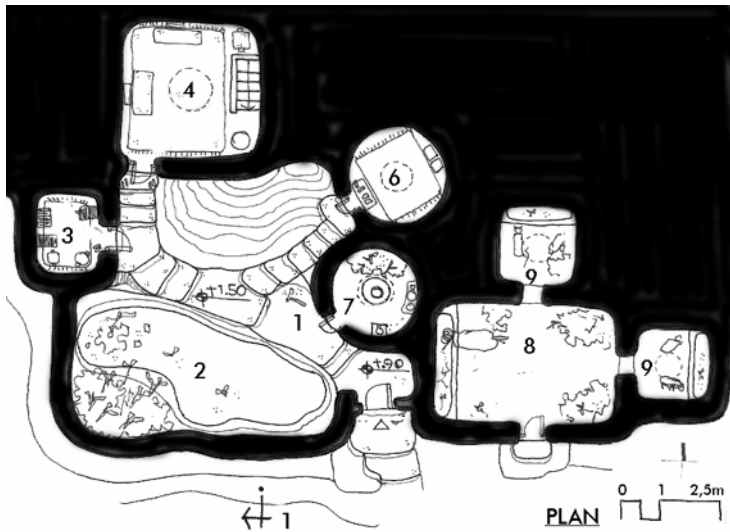


Fig. 286 from Exam.59

In **Exam. 59**, both family and beast cells are dug in to the depth of a hill. In addition to beasts going to and fro in through the family living cell, the family's living areas stretched into the animal cell and these two areas are thus intermixed considerably (**Fig. 285, 286**). In this instance, the family area is insufficient, so a small room is built on the hill and it is connected to the grotto as a storeroom for cereals and tools. According to the demographic growth rate and gradual importance of the social economy, habitation in grottoes has recently decreased.

In **Exam 60**, a composition of living in the grotto and outside of the grotto is seen. In this instance, the newly built part of the dwelling dominates the old grotto considerably (**Fig. 287**). Moreover, the lifestyle is also promoted and gets benefits from more sanitary facilities e.g. latrine (*mostarâh/ kenârâb*).

One of the strange types of habitation is the rebuilding of old grottoes. In **Exam. 61**, an attachment of an individual and distinct cell to the newly build areas form a new composition with a 9sqm kitchen (*matbakh*), a guest room of the equivalent size, a 6sqm storeroom in different levels. However, the main grotto is in two levels. The upstairs is 12sqm and there is a stair in its right corner that leads downstairs, which is a complementary family living area and it also functions as a store room (**Fig. 288, 289**).



1. Courtyard
1. Fire bushes & dried animal dung store (*buta & chalma khána*)
2. Store room (*qash'qal khána*)
3. Family living room
4. Cloak room/ sleeping & wearing cloths store (*zir khána*)
5. Guest room (*mehmán khána*)
6. Fire wood & dried animal dung store (*hizum & chalma khána*)
7. Sheep & goats pen (*qutun-e má*)

Exam. 61- Inhabited Shir Hussain's Grotto (*sum/ sumu*)

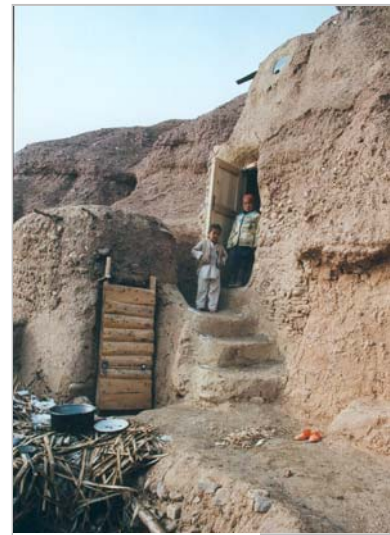


Fig. 289 from Exam. 61

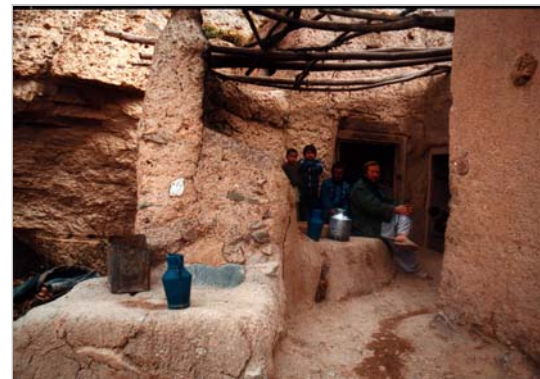


Fig. 287 from Exam. 60

The ceilings of all grottoes, except the newly built areas have been built in a domed form. Stacks of firewood and dried animal dung (*day-e hizum/ tapak*) located in a corner of the courtyard. The beast stable is unprecedently roomed away from the family living area.

Generally, a grotto is a cell or a place for all hostelry activities of a farmer having beasts, cultivating tools, supplies and fire bushes; or wood storeroom and other needs (Fig. 313).

The way of gaining livelihood, natural and climate restrictions and affordability of the dwellers are the causes that have considerably mixed the family and beast living areas. These two areas are characterized by their own different functions, and there is a slight separation between man and beast, i.e. fencing in front of the beast quarters.

Certainly, an indication of man's hand is clearly seen in all over the interior design of grottoes. In habitable grottoes of today, especially in *Petáb-e zárin* grottoes, there had been indications of unwillingness and lack of artistic skills and motives. Moreover, the interior surfaces of walls and ceiling are harsh and not smooth, and joinery materials used had also been tough and unpleasant.

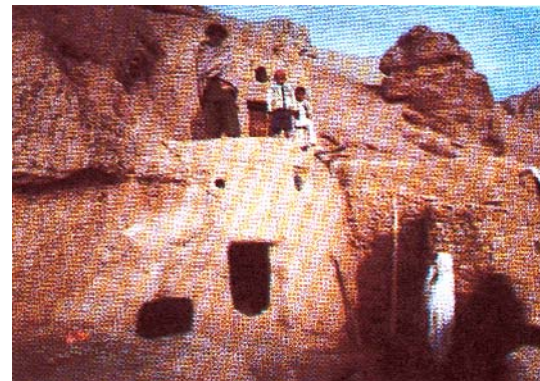


Fig. 288 from Exam. 61

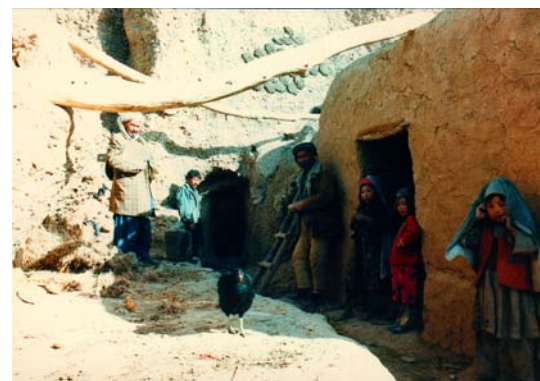


Fig. 290 *Petáb-e zárin*

2- Construction and Materials

The construction of grottoes differs basically from normal building constructions on basic matters. In normal building construction various building materials are being gathered to prepare a demanded area, perhaps by applying special technique, but grotto building is completely different. There is no need to provide building materials. An appropriate area gradually emerges as it is dug into the cliff.

Generally, three techniques are common in today's habitable grottoes, which are in fact a complex and rebuilt form of the old grottoes and normal buildings. Since, normal building structures have been discussed in detail previously, it is unnecessary to bring them out again.

Today's habitable grottoes usually have platonic formed plans i.e. circular, square, and polygonal. These plans are much widened and severely under the function of mountain or hill soils strength. Ceilings of grottoes have mostly been built with domed or vaulted forms, in order to prevent in-draft soils.

The principle of the domed ceiling in today's habitable grottoes is very primitive. In this type of grotto, the domed ceiling is usually laid down in a manner where it covers the rounded walls that primitively tends to inwards and adjoin the ceiling in a simple fashion. The round wall is not distinguished and well worked either.

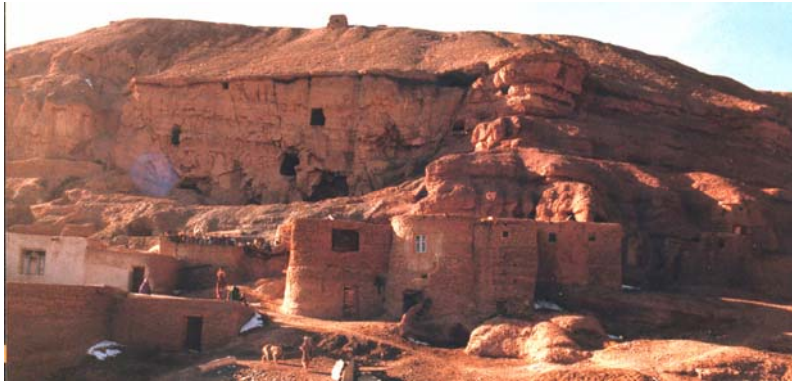


Fig. 292 *Surkh qul-e Bamīyan*



Fig. 291 from Exam. 60



Fig. 293 from Exam. 61

The mentioned principle of the domed ceiling is the simplest and the most secure technique of load transferring and deliverance to the sidewalls. There has not been any significant wall cut out to disturb load transferring. The only indication is the door of the grotto, which is narrower and shorter than the door jump. The door jump is as an arch form and constitutes the intersection between the two grottoes as well.

Recently, there has seen instances of wood constructed roofing interfering with to the original grotto structure (Fig. 291).

Nothing special is being seen in the exterior of grottoes. What is obvious on the mountain or hill side is the many holes look like holes of vespiary (Fig. 254). Today's habitable grottoes are a little different from the grottoes of the past. The old rebuilt grottoes of *Surkh qul* and *Kamāli* in environs of large statues have different images. In addition to the fastening of holes by the building door and apertures, some of the newly built areas have seen in all around. Characterising the private quarters by fencing in front of grotto perplexes the identity of the grotto and introduces a new mixed image (Fig. 292, 293).

The simplest exterior façade of old rebuilt grottoes are formed of a door and apertures made of poplar wood with natural white washing colour, which definitely contrasts with the brown

3- Exterior Façade



Fig. 294 *Petáb-e zárin Yakaulang*



Fig. 295 from Exam. 60

mountain colour. In some cases a short fence wall is set up in front of the grotto.

The exterior Façade of *Petáb-e zárin* grottoes have not been polished and cleared. Newly built areas mostly hide features of being grottoes. Meanwhile, the façade of some grottoes are appeared and clear (Fig. 294).

Grottoes of *Ali kháni* in environs of *Turkman* valley have organic forms and accommodate themselves with the surrounding nature. Grottoes are unclear and have been made a platform along the slope of the hillside.

The significant elements of the exterior façade are first the newly built areas and then an exterior side of grotto with a flat room, which functions as stacks of fodder (*aláñ*) and dried animal dung (*chalma*). However, small apertures are also seen in the exterior façade (Fig. 295).

Overleaf:
Fig. 296 *A dweller of
Portable housing (ghizh'd)*
Photo: Burgious & Szabo



PART FIVE
THE PORTABLE HOUSING
(chapari/ ghizh'di)

Generally, two types of portable housing are common in Hazáraját, namely the hut (*chapari*) and the black tent (*ghizh'di*). The hut is mostly being used by local inhabitants and erected during farming activities, when they are outdoors to pasture. Black tents were used by nomads, who were rushing from the eastern part of the country or across the border to Pakistan until the recent changes to Hazáraját (1978).

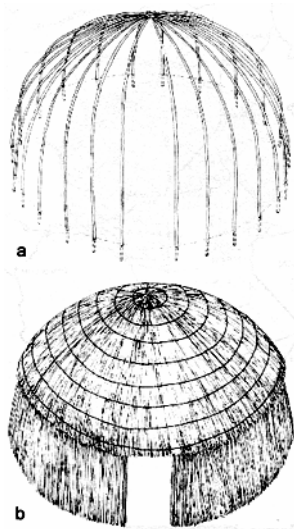
A- Hut (*chapari*)

The hut is a portable and non-sedentary dwelling type, which looks like a tent in appearance. The hut was temporarily and seasonally used by local dwellers. *Chapari* is used by northern *Hazáras* for six months of the year from early summer to late autumn. It provides shelter for villagers taking their animals to the mountain summer pastures, where they also have smaller irrigated fields of barley wheat and alfalfa in addition to their non-irrigated farms of wheat. Formerly, *chapari* was used alongside the yurt in Hazáraját, but only *chapari* is in use now. *Chapari* is popular in summer, because it allows the people to escape from flea infestations in their houses (Ferdinand 1959b: 28-29).

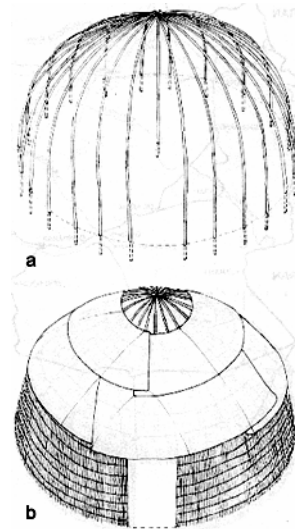
Huts are constructed of semi-rigid wooden poles or reed bundles tied together to produce a freestanding skeleton frame.

Unlike tents, huts are not depending on tension exerted by guy ropes via the roof cloth to remain standing.

Most huts in Hazáraját have portable structures, round or oblong in plan with a curved roof. Because they do not perform a structural purpose, the number of roof finishes is quite large consisting variously of reed bundles, woven reed mats, plaited grass mats, pieces of felt cotton cloth or even muddied plaster. Most portable huts are only used seasonally, and the materials needed to make them are easy to transport and assemble.



Exam. 63



Exam. 62

Although, there are various types of huts in Afghanistan, the types found in central Afghanistan are restricted, and according to Szabo and Barfield they include circular huts with or without a central pole central pole and some polygonal types (Szabo A. & Barfield 1991).

Circular huts with a centre pole

Circular huts with a central pole (Exam. 62) are constructed by setting about twenty-four poles into the ground in a circular pattern with a diameter that varies from 4 to 5m. The poles are bent towards the centre and attached to a forked centre pole (Exam. 62a). The resulting framework is low and squat in appearance.

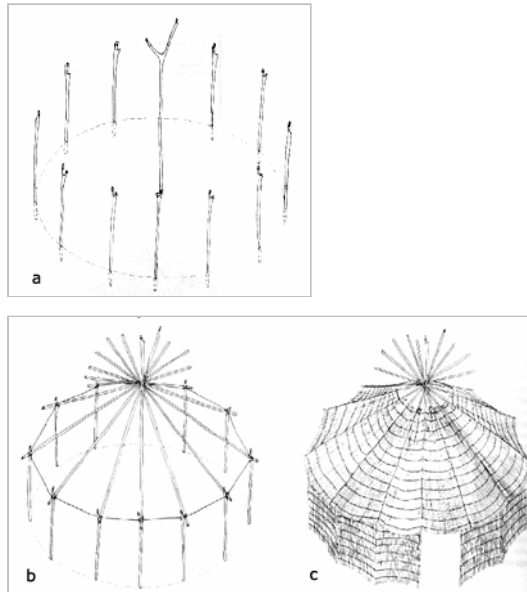
The wall consists of woven reed mats (*chegh*), which are secured onto the wooden poles.

The roof is covered with pieces of felt (*namad*), but they only enclose the lower part of the roof and leave a large open hole at the top. The door is a part of the wall *chegh* that can be rolled over the entrance (Exam. 62b).

Circular huts without a centre pole

Circular huts without a centre pole (Exam. 63) are constructed by using a frame that consist of about twenty-four curved poles, 3.7m in length and set in a regular circular pattern 4.5m apart. The poles are dug into the ground, bent towards the centre and lashed together with rope to form a domed roof (Exam. 63a). A woven reed *chegh* is wrapped around the bottom of the hut and tread to the poles. The outer cover takes a variety of forms.

The illustrated example is completely covered with straw, which is held in place by several circular battens of rope on the roof, while the sides are made of reed (Ferdinand 1959 b: 17).



Exam. 64 *Polygonal Hut*

The alternative is to use panels of dark felt sewn together for the top cover and let the woven reed *chegh* serve as the wall. The door is usually a separate panel of *chegh* tied to the top of the frame (**Exam. 63b**).

Polygonal huts

Setting twelve vertical 1,8m long poles into the ground evenly spaced in a circular pattern forms the basic construction of the polygonal style hut. The diameter of the plan may vary between 4,25m and 5,50m (**Exam. 64a**). The poles are linked together at the top by use of a continuous piece of rope tied to each pole, keeping them an equal distance apart. The roof poles are attached to the peak of each vertical pole and then tied together at the top where they all intersect. A centre pole is dug into the ground and placed underneath the apex of the roof poles to reinforce them (**Exam. 64b**). The sides consist of woven reed matting (*chegh*), which is pulled around the wall poles. Because there are relatively few poles, the resulting form is polygonal rather than circular. *Chegh* is also used to form the roof cover. Since, *chegh* is made in rectangular panels, it does not fit evenly over the roof and produces a conical shape with a hole in the centre from, which the tied roof poles project. The door is merely an extra length of the wall *chegh*, which can be pulled over the opening.

B- Black Tent (ghizh'di)

In Afghanistan, Pashtun nomad tribes have exclusively used black tent. These tribes are called *kuchi*, which is taken from the word of departure and immigration. Pashtun nomads are divided into two major *Duráni* and *Ghilza-ye* tribes.

The path of departure of these two tribes forms an area round the mountains of Central Afghanistan-Hazáraját.

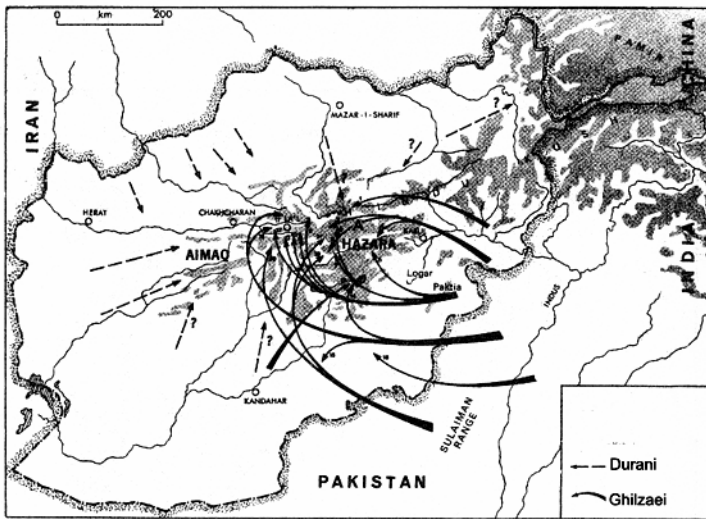


Fig. 297 Nomads moving path

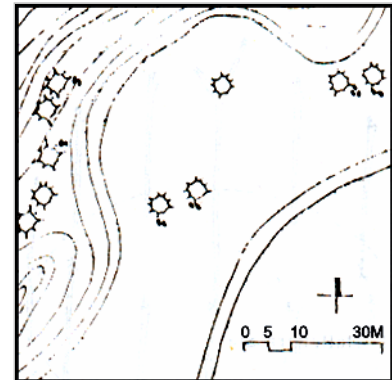


Fig. 298 A Camping site

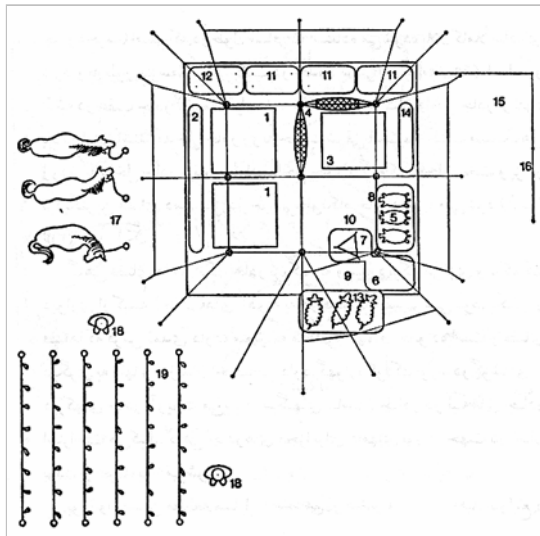
The *Durani* tribe covers the southern and western part of the area, whilst *Ghilza-yi* tribe completes it to the east (Fig. 297). Traditional habitats of nomads are near the eastern and western borders of the country. *Ghilza-yis* are living in groups of one hundred tents mostly in Ningarhár and in the southwestern province of Qandahár. During the spring season *Ghilza-yis* migrate gradually towards the central mountains in a group of five to six tents. The migration period takes two three months and covers about 500km. The altitude difference between traditional winter settlement (*qeshláq*) and the summer camp (*eiláq*) is respectively 300m to 2,800m, which actually covers 1,000km horizontally and 5 to 6km vertically.

According to Stanley and Samizay, the nomad journey takes place as a convoy of 150 tents. Gunmen march in the front of the convoy, whereas old men follow from the back. Children and woman cling to the heavily loaded camels that are escorted by fierce dogs. Cattle and sheep move apart from each other and come behind the convoy. Since, sheep and goatherds walk slowly, they reach the camping site latter than the others.

The convoy marching starts from two or three o'clock after mid night and stops about ten or eleven before the weather gets intolerably hot. Then the convoy divides into different herding groups and starts to erect the camp. Women are responsible for unloading the camels and erecting the tents.

The men check the arriving animals and together with the young boys they load the camels and other herds of animals to the nearby pasture.

A typical *Ghilza-yi* camp consists of a herding unit of which consists an expanded family of several brothers. The tents are so arranged, that the senior family is located in the middle of the camp. To assure privacy the tents are kept apart and are defended by dogs. A herding group consists of ten to thirteen tents, seven camels and three thousands sheep and goats (Fig. 298) (Stanley & Samizay 1980).



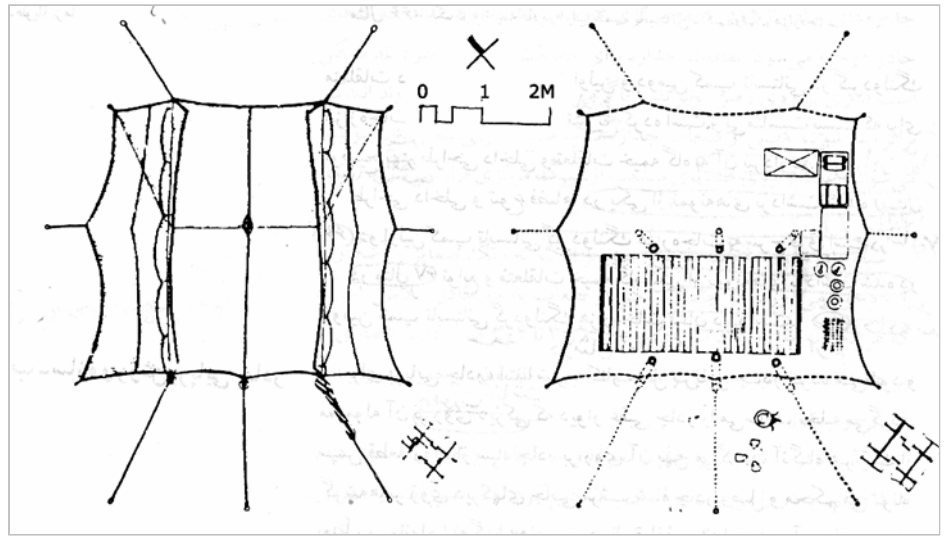
Exam. 66 A Tent in the first summer camp in Girdulang

1- Plan and Interior Design

Disposition of the tent of Goulmir in the first summer camp of Guirdolang:

- 1- quarter of the men and the guests;
- 2- pack-saddles of the dromedaries and harness of the horses;
- 3- quarter of the women;
- 4- hammocks for the newborn babies
- 5- outrage of water in skins of nanny goats;
- 6- reserve fuels: prickly and manure (*thorny & droppings*);
- 7- home;
- 8- cupboard on earth beaten for the dinnerware to tea;
- 9- site of the watch of fire;
- 10- site of the woman cooking the bread;
- 11- bundles and coverage;
- 12- reservation of flour and brown sugar (*gour*);
- 13- enclosed by the sheep to get fat;
- 14- low wall of beaten earth;
- 15- location where cheese is put to dry (*panit*);
- 16- canopy;
- 17- site of the horses;
- 18- bugbears places during night for nanny goats to chase away the wolves;
- 19- headstalls of nanny goats.

2- Construction and Erection Method



Exam. 65 A common type of Tent

The basic tent that is used during migration is quite simple in plan and about 5m across on average (**Exam. 65**). The entrance can be closed, so it shelters the inhabitants from the prevailing winds, or it can be opened, in order for the sun to penetrate to the tent and to warm it quickly. A bonfire for cooking may be built in front of the tent. Sometimes, the interior area of a large tent is divided into two garters by centre poles and a piling up of storage sacks. One of the garters which are covered by felt mats (*namad*) belongs to women and children and a hammock serving as a cradle for a new born baby is suspended between the poles. Guard dogs often crouch at the edges of the tent.

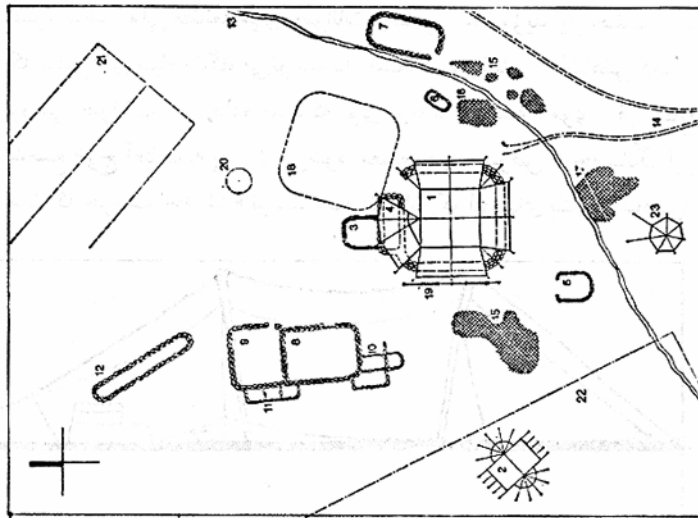
Sometimes, a distinct tent is set up for new born calves, in order to secure them from the severe cold climate.

Bourgeois, in addition to studying social aspects of nomads, renders two types of tents belonging to environs of the first and the second summer camp in *Girdulang* of Hazáraját.

The interior layout and various areas of the first and second summer camp are rendered in **Exam. 66** and **Exam. 67** respectively.

According to Stanley and Samizay, when a tent is going to set-up, the camel that is loaded with the tent is first of all brought close to the tent plot and its baggage is unloaded into a pile that makes the back wall of the tent. Then a centre piece of black cloth (*woven goats hair*) is spread out over the tent plot in such a manner, that its one side hangs over the neatly piled baggage. Ropes are then stretched from this central tent panel to stakes pounded into the ground. The spread out cloth is first left up by a centre pole and then adjusts by front pole.

Additional smaller side poles (*the number varies according to the size of tent*) lift up the tent sides until the centre-panel cloth suspends over the ground.



Exam. 67 A Tent in the second summer camp in Girdulang of Hazarajat

Disposition of the dependency of the tent of Goulmir in the second summer camp of Girdolang

- 1- patriarchal tent in hairs of nanny goats;
- 2- tent of the guests, European type;
- 3- place of dressmaking of the women;
- 4- enclosed by the sheep to get fat and lambs;
- 5- place of request;
- 6- crib of the sheep;
- 7- shed of cows;
- 8- barn with provender;
- 9- shed of beast kids;
- 10- cribs of the horses;
- 11- disused cribs;
- 12- crib of the dromedaries;
- 13- bed of a drained stream;
- 14- tracks or paths;
- 15- drying of animal fuel;
- 16- supply of plant fuel;
- 17- ash or cinder tracks;
- 18- relics or trace of a site of tent;
- 19- piles for the drying of the meat;
- 20- home for the smoking of the meat;
- 21- relic or trace of irrigation channels;
- 22- relic of big enclosed one;
- 23- tent of the researchers (*Bourgeois*).

Side panels are now added; each side is usually made of one piece of cloth. The side panels partially overlap the centre-panel and are pinned to it along its edges.

Side panels may be either lowered down the ground to shield extreme wind, or raised for ventilation. Sometimes, the side panels are staked down, but more often, they rest on top of the tent (Fig. 299).

Black tents are made of woven goat's hair, which gives a distinctive colour. Each tent is composed by strips of tent cloth (*palás*) each measuring about a meter in width and three to four meters in length, and a number of these panels are pinned or tied together to create the top and sides of the tent. Stakes are driven into the ground to secure guy ropes that hold the tent cloth on to poles or a frame. The *palás* absorbs the heat of the summer sun and provides considerable shade. The sides of the tent can also be rolled up to allow the wind to cool the interior; the result is an air temperature ten to fifteen degree centigrades cooler than the outside air (Dupree L. 1980: 172).

Although, it may seem counterintuitive to reside in a black tent in the desert, studies on animal hair and human clothing have suggested that black surfaces can reduce the solar load. The animal studies found that black hair prevents short wave radiation to the skin better than white hair.

The clothing study found that the heating gained by desert tribesmen was approximately the same whether black or which robes were worn.

It seems that the additional heat that the black robe absorbed was lost by convection before the heat could reach the skin (Sh'kolnik 1980; Harvey Bryan 1988).

As a perfect absorber of the sun's rays, black tent cloth may facilitate circulation when its internal temperature rises far above that of the ambient air around it.

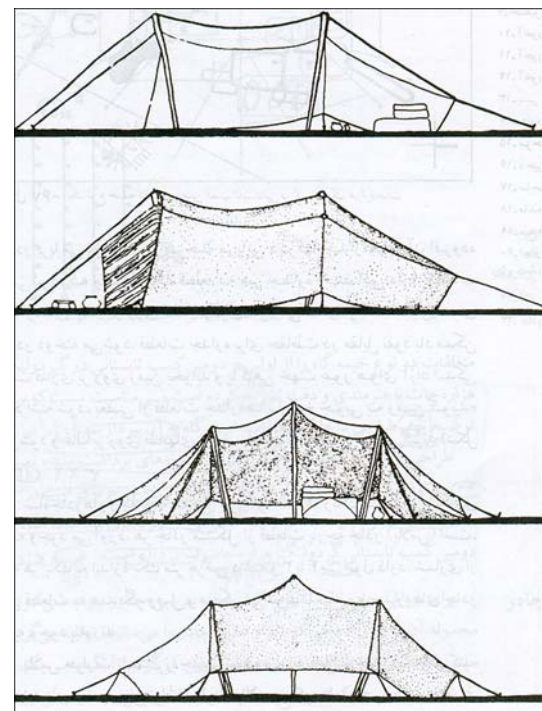


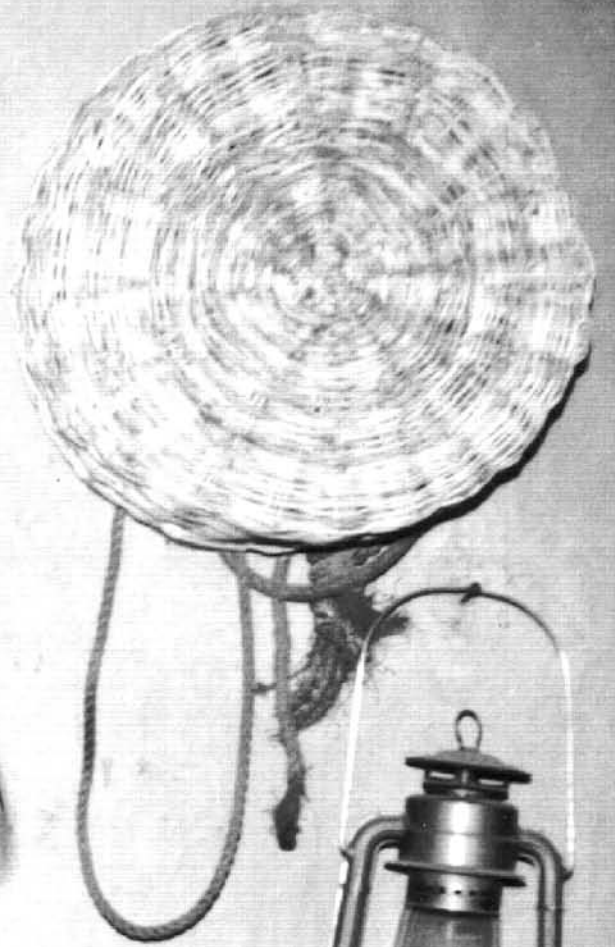
Fig. 299 Elevations & Sections of a Tent

This produces a stack effect in which the hot cloth generates a layer of superheated air above it, which induces a convection current by drawing air up from below.

Conversely, black tents are poor for coping with the cold and wet climates. Thus, it is very plausible that the close connection between the distributions of black tents in arid areas with high seasonal temperatures (Feilberg 1944) is related to their ability to cope with solar loads more efficiently than other types of tents.

Overleaf:

Fig. 300 *A detail from the kitchen*
Mohd. Aslam's house, Bamiyan



PART SIX
HOUSING DETAILS

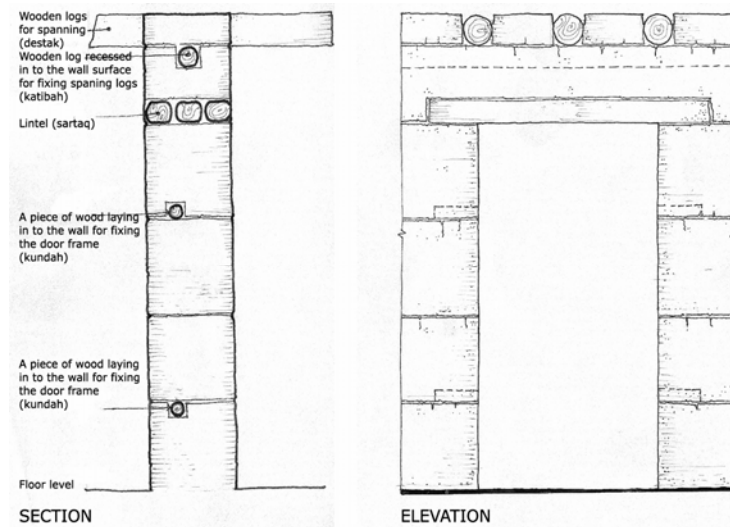


Fig. 301



Fig. 304 from Exam. 15

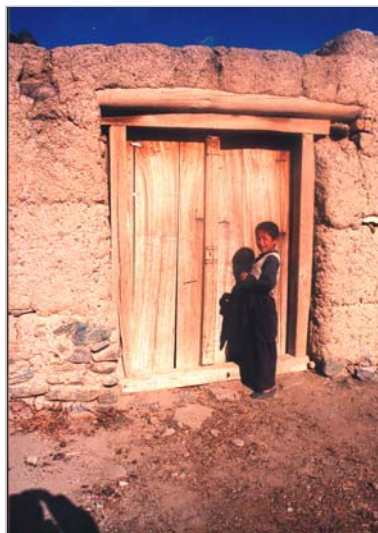


Fig. 302 from Exam. 26

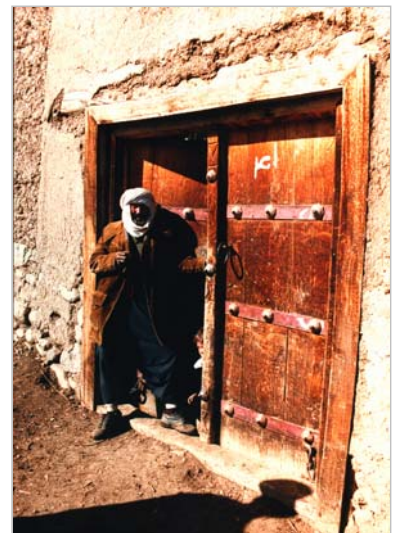


Fig. 303 Ewaz Karbalá-yi , Fuládi

1- Gate (*dargah*)

Gates have obtained a special position in the closed and introvert architecture of Hazáraját. regarding importance and functions the doors are divided into two categories of main gates (*dargah-e borun*) and interior gates (*dargah*).

Main gates (*dargah-e borun*)

The simplest gate in a dwelling unit is an opening about 2,50m in height and 2,0m in width, with a wooden lintel (Fig. 301) and a wooden doorframe inserted in to it. Two panelled doors (*2-lenga/pala*) made of thick wooden planks are fixed to the doorframe in such a way that they can swing on one side of the frame on an axis of about 90 degrees. One of the door panels overlaps the other (Fig. 302, 303). Sometimes, metal strips are pinned to the inner façade of the door panels to keep the door rigid and firm, whilst wooden chunks (*bázu*) fulfil this requirement on inner surface of the door.



Fig. 305 from Exam. 15

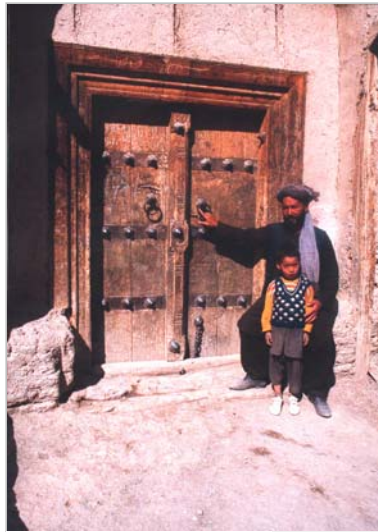


Fig. 306 from Exam. 20

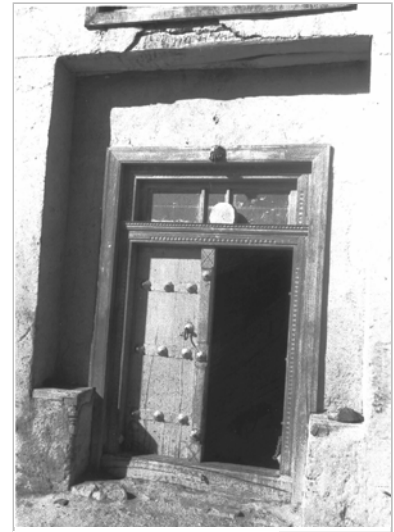


Fig. 307 from Exam. 24



Fig. 308 from Exam. 15



Fig. 309 from Exam. 44

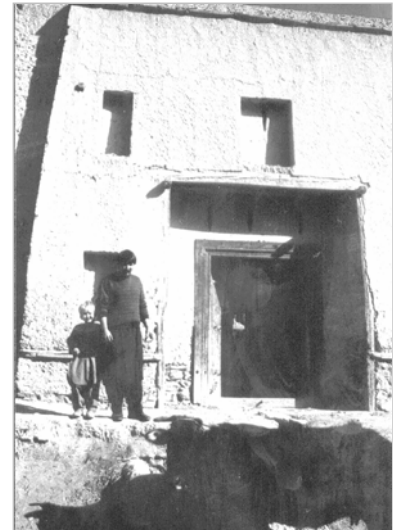


Fig. 310 from Exam. 19

In Fig. 304 metal sheets are also used. In another instance (Fig. 305), metal strips are pinned to the door by knobbed studs. Gates have usually had threshold, elevated from the ground level. Chains (*zanjir*) are utilised both indoors and outdoors for locking the gate, and they are the most significant features on the door (Fig. 306, 307). On the inside of the door, there is a wood shutter (*tanba*) in addition to the chain, which serves as an extra lock (Fig. 308).

Sometimes, entrance gates are inserted into a large recessed surface. This recession, on one hand, adds a clearance aspect to the door and, on the other hand, enables the dwellers to build a type of protective element called quivery (*tirkash*) (Fig. 309). When, the amount of recession does not fulfil the demands of dwellers, so a much larger area is brought out as the entrance surface (Fig. 310). Portals are not always flat.

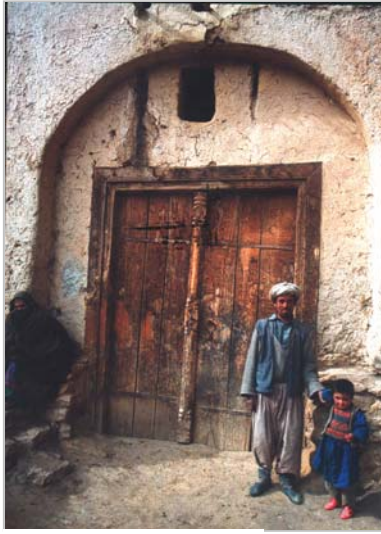


Fig. 311 from Exam. 22

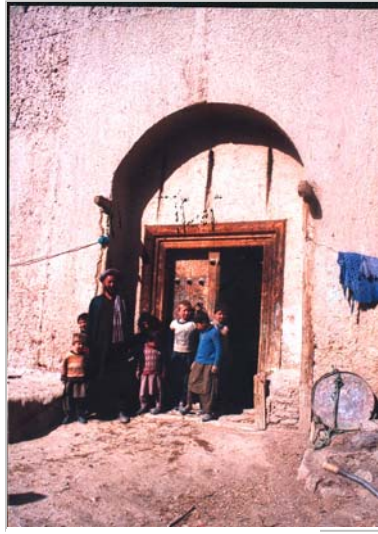


Fig. 312 from Exam. 20

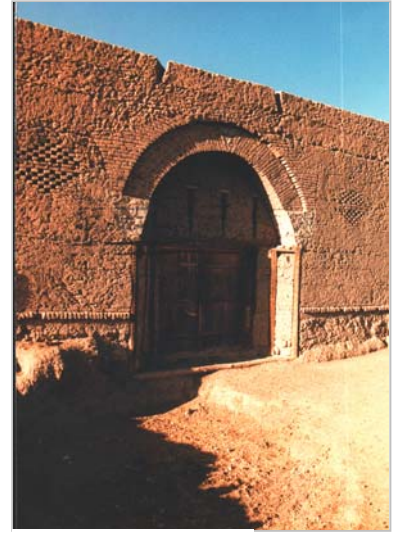


Fig. 313 Fuládí valley



Fig. 314 from Exam. 39



Fig. 315 from Exam. 37



Fig. 316 from Exam. 24

Some of them are arched and adorned, and sitting seats are built next to the door (Fig. 311, 312, 313). In other instances (Fig. 314), two columns are added to the entrance surface, in order to make it more attractive and seem more important. A window of a special guestroom (*sara'chah*) opens over the gate, which has significantly the role to make clear and distinction the entrance (Fig. 315, 316), and in the other instances, in addition of obtaining the above principle, a frieze of holly script is seen over the entrance. Fig. 317, 318 are among the comprehensive instances, which have not only the above arrangement, but also details are elaborately achieved. Metal strips cross-pinned to the door panels, adds firmness of the door. The clear and adorned arch; wide entrance surface in two sides and large veranda (*baranda*) backing with large windows exceed the clearance and invitation aspects of portal and brings it up as a unique instance among the other.



Fig. 318 from Exam. 39



Fig. 319 from Exam. 8



Fig. 317 from Exam. 39



Fig. 320 from Exam. 59



Fig. 321 from Exam. 61



Fig. 322 from Exam. 27

Interior gate (*dergah*)

The most primitive door of interior and exterior use is made of stems and branches of a local willow tree, (*ta'l*) (Fig. 319, 320). Door made of *ta'l* or *ta'li* gate is one panelled door fixed in to the frame. One of the frame log acting as axis is longer, the lower end of the log fixes in to the ground and the upper end pines into the door jump in such way to swing the door panel around this. The other primitive door (Fig. 321) is also based on this technique. The only difference is that instead of willow branch, thick wooden planks are pinned to two sides of wooden log. Certainly the techniques of building a door are gradually developed. In cases, in addition to inserting the frame into the wall, in some cases the door panel is made of wooden planks and metal sheets that are pinned together to make the panel tight and to cover the cracks between each plank (Fig. 322).

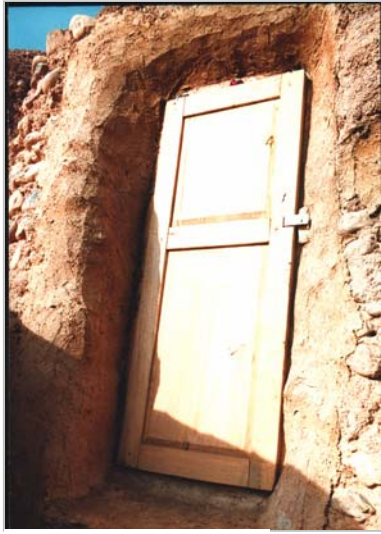


Fig. 323 from Exam. 61

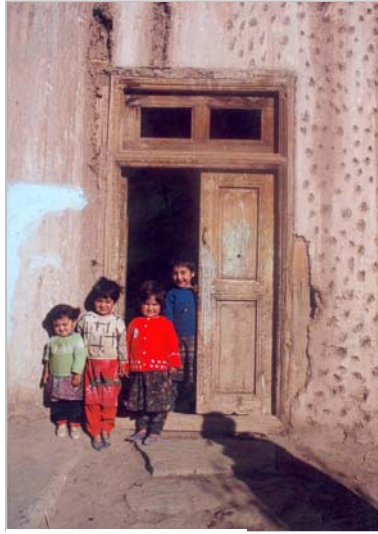


Fig. 326



Fig. 324

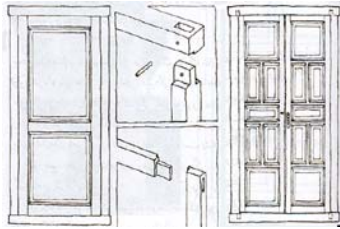


Fig. 325

Fig. 328



Fig. 327



Fig. 329

In other instances (Fig. 323), the door panel is well-developed plank boards adjoined together are shaved so that no crack is seen between the planks and the frame artistically forms the margin of the door. Doors are always made of solid wood. If light is needed, then an aperture is made in the top of the panel (Fig. 324). Sometimes, doors are painted. Doors of old buildings comply with the principles of symmetry have mostly been made with two panels, and they are made elaborately (Fig. 325, 326). In newly built doors heritage of traditional architecture has not been forgotten. In Fig. 327, indications of following this principle is seen and in other instances (Fig. 328, 329) the principle of simple and mature of urban pattern are used. Materials of doors, windows (*kilkin*), shelves (*almári*), with no exception, are mostly made of local poplar¹⁷ and deader trees¹⁸.



Fig. 330 from Exam. 7



Fig. 331 from Exam. 28



Fig. 332 from Exam. 24

Windows had not obtained an important position in the old architecture of Hazáráját. Due to the extreme climate and insecurity atmosphere prevailing in the region are impacted the housing to be not so much open. Mostly there has been just a small aperture of about 50x 50cm on the roof (*muri*) or on the sun-oriented sidewalls (*rushandun*) (Fig. 330, 331). Small apertures still common in Hazáráját.

Although, apertures appear to be fairly small, many efforts have been made to maximise them and let more light and sun into the house. For this purpose, the framework of apertures is an insertion into the outer surface of the wall, and then the extra thickness of the sides and lower part of the aperture reaching about the floor and thus makes a larger angle for letting in sun and light glare. The small size aperture therefore seems to be wider and adorned (Fig. 331, 332).

2- Aperture (*rushandun/ muri*)



Fig. 333 from Exam. 39



Fig. 335 from Exam. 39

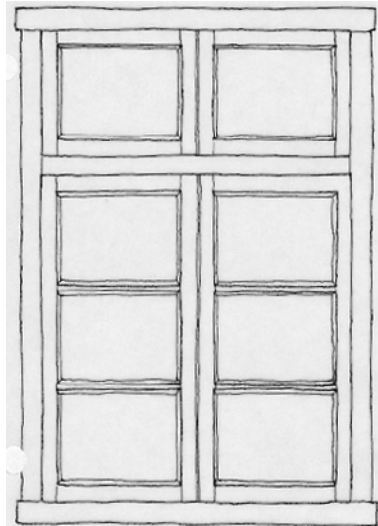


Fig. 334



Fig. 338 from Exam. 39



Fig. 336 from Exam. 33

Since marginal regions of Hazáraját are under the impact of patterns that origin from nearby cities like Kabul and since there is a severe climate, the region has thus accepted many changes, and the windows have thus become much larger. According to the various house types, windows of marginal regions are different. Although, the most important and current window type is the door-window, which is individually or compositely applied, there are also many other wider window types like the grilled window (*ursi*), three-panelled (*3-dahána-ye*) and five-panelled (*5-dahána-ye*). The door-window is as a door type with a double panelled (*2-lenga/ pala*).

The bottom of the door window is usually hard-wearing in the form of a slider and the top is made of glass. Depending on the need for light and sun glare, however glass is applied in the opening part of the panel (Fig. 333, 334, 335, 336).



Fig. E37 from Exam. 39

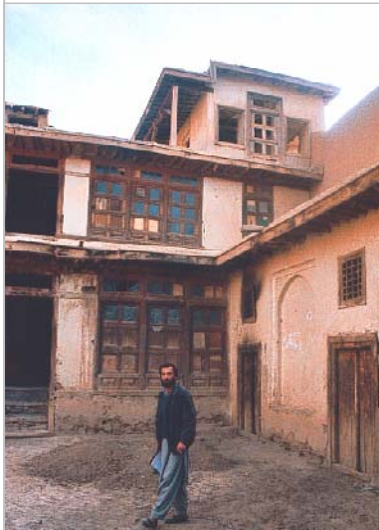


Fig. 339 from Exam. 39



Fig. 340 from Exam. 32

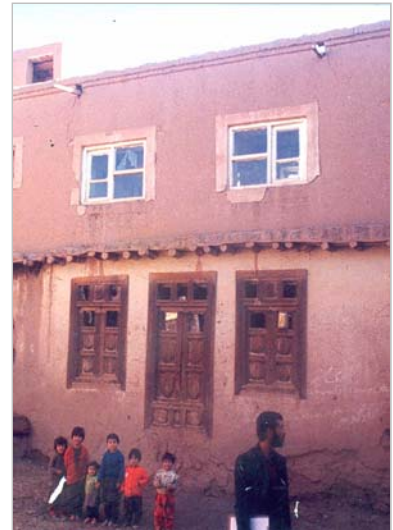


Fig. 341 from Exam. 40

In regions with cooler climate and in other appropriate areas, the door-windows are built individually, but in other areas *ursi* is usually built into sides of the door window. Obviously, the applied composition plays a significant role in elevating the quantity of the interior area and improving the exterior facade.

According to the investigations, this privilege has not been connived at in cooler regions. In this case, a small grilled window (*ursi*) is composed with to sided apertures (Fig. 336).

Three panels (*3-dahána-ye*) and five panels (*5-dahána-ye*) are composed of five or three panels respectively, which cover an area from the bottom to the top of the sidewall. Usually, two of the grilled top parts are built of glass planks (Fig. 337, 338, 339). Any old or new, small and large grilled window is locally referred to as *ursi*. One type of large *ursi* has close resemblance to the door-window. The only difference is that it has four panels (Fig. 340, 341).



Fig. 343 from Exam. 15



Fig. 344 from Exam. 29



Fig. 342

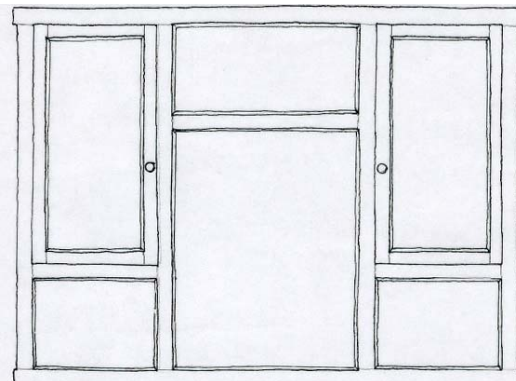


Fig. 345

As security and economy have been improved, significant development has taken place in architectures of Central Afghanistan- Hazáraját. Windows, among other elements have accepted many significant changes i.e. the previous small apertures have vacated their positions to wider and larger windows (Fig. 342, 343, 344, 345). In addition to being considerably wide, newly built windows, have chosen their patterns among the simple and mature urban type. According to this fact, windows are thus divided into different solid and open able glass divisions. The newly built windows are either in standing or sleeping positions The standing position is usually 180x 90cm or 180x 150cm, whereas, the sleeping position mostly is 90x 90cm, 180x 180cm and 180x 200cm. Fig. 346 is picturing one of the widened windows, which is bound up by a wooden framework and divided internally in smaller divisions.

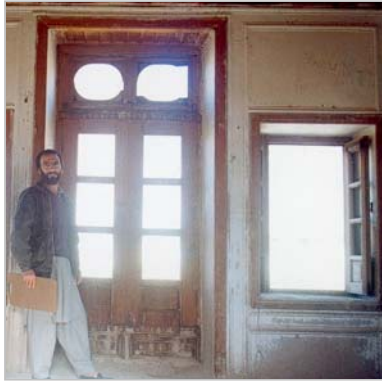


Fig. 347 from Exam. 39

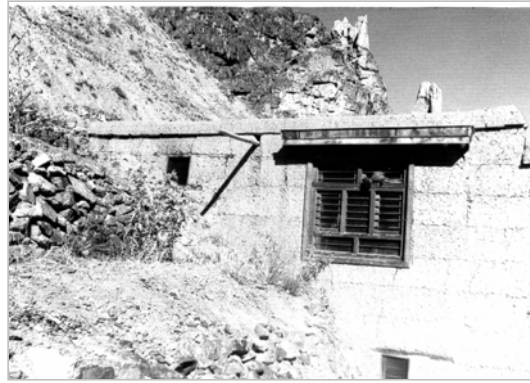


Fig. 346 from Exam. 24

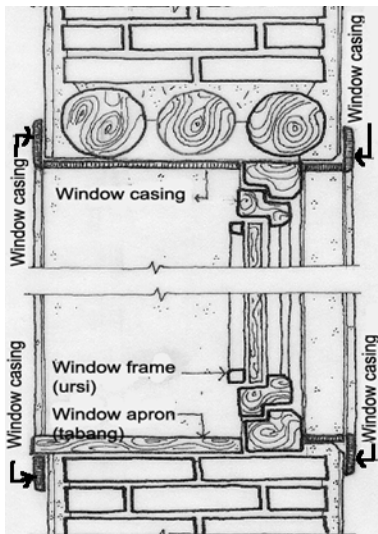


Fig. 349



Fig. 348 Ewaz Karbalá-yi, Fuládi

Out of all these divisions, only two can be opened for ventilation purposes, other surfaces are therefore allocated for inflow of light and sun glare. Today, local carpenters build large windows. In existing instances, their elaboration and skill are clearly seen. Sometimes, extra wood planks overlap around the window in exterior façades in order to cover the gap between window and walls. However, in interior façades in addition to round plank windows, floor and ceiling of windows jump are covered by wooden plank (*tabang*) (Fig. 347, 348, 349).

Táq'cha and shelves are among the major elements of a living room. These elements can sometimes be used together and sometimes they are applied individually. Old rooms with baking ovens (*tanur khána*) and rooms with local under floor heating

3. Recessed Niche (*táq'cha*), Pinned Niche (*raf*) and Shelf (*almári*)

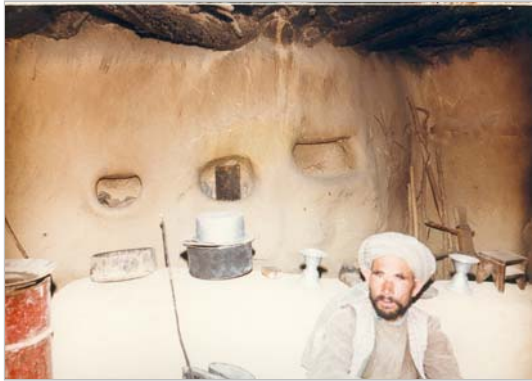


Fig. 350 from Exam. 34



Fig. 351 from Exam. 27



Fig. 353 from Exam. 39



Fig. 352 from Exam. 22

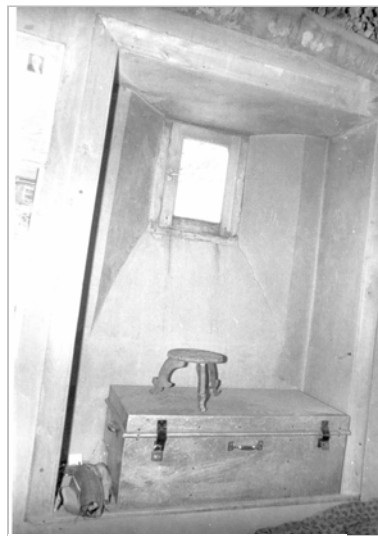


Fig. 354 from Exam. 24



Fig. 355 from Exam. 40

tunnels (*tāwa khāna*) mostly have recessed niche (*tāq'cha*) and hang onto the wooden niche (*raf*), whereas, newly built houses are more inclined to use shelves (*almār*).

Recessed niche (*tāq'cha*)

Tāq'cha is a recessed niche, which is used for holding different utensils of a household.

Tāq'chas are often small and limited (Fig. 350, 351) and sometimes irregular and curved, and indications of man's hand can be seen all over the design. *Tāq'chas* are not always simple and irregular. Sometimes they are adorned and regular and having decorated arched niches (Fig. 352, 353).

Since, all surfaces above the floor level is normally applied for holding needed utensils, the bottom of window and apertures openings are therefore used as a *tāq'cha* (Fig. 354, 355).



Fig. 356 from Exam. 15



Fig. 360 from Exam. 32

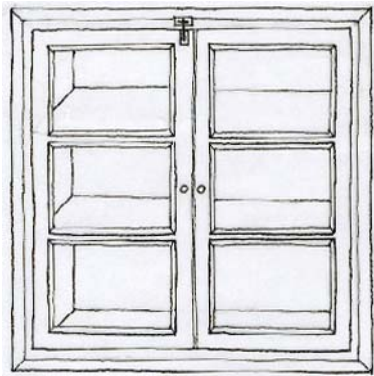


Fig. 359



Fig. 358 from Exam. 32



Fig. 357 from Exam. 39

Pinned niche (*raf*)

Raf is another means of holding utensils. The only difference is that instead of the wall being recessed, a wooden plate or box is pinned to the wall and utensils are put on or into it (Fig. 356). In an exceptional instance (Fig. 357), *raf* acts as a decorative element, in addition to its normal function.

Shelf (*almári*)

Shelf is a rather developed form of recessed niche (*tāq'cha*), which is built for keeping more precious things and utensils. Whenever a regular *tāq'cha* is going to be built larger than usual and it is divided into smaller divisions, which is called shelf (*almári*). Although, some *almáris* have no opening (Fig. 357, 358), they usually have two panel glass doors. The door panels can be locked with a small metal lock (*qoflak*) in order to keep the contents of the shelf out of reach for children and others (Fig. 359, 360).



Fig. 362 from Exam. 20



Fig. 361 from Exam. 14



Fig. 363 Ewaz Karbalá-yi, Fuládi



Fig. 364 from Exam. 7



Fig. 365 from Exam. 24

In Fig. 361, 362, a *raf* is also made on the top of a shelf. Some shelves are well-decorated. Glass panel is mostly made to display the inside of the shelf (Fig. 363), but in some instances (Fig. 364, 365) embroidered curtains are hung behind the glass panels in order to hide the inside of the shelf. In fact, it is expected that the curtain is seen instead.

Overleaf:
Fig. 366 *Scenery*
Jer valley, Sheikh ali



PART SEVEN
HOUSING CLUSTER

The central mountains especially *Bābā* Mountain, has been the cradle of birth, growth and evolution of Buddhism, an important world civilisation. Back then, not only the defensive potential of Bāmiyān valley was revealed, but also the capability of mountain rocks in the northern part of the valley, which stands up as a sublimed wall persuaded the Buddhist monks to enterprise carving the great statues there, with generous support of the Great *Kinsh'ka* of *Kushāni* dynasty.

In the Islamic period, many efforts had been made to cast light on the region, but Bāmiyān never attained the last glorious status. Nevertheless, in that period, some fortresses were built over the hill and mountain sides i.e. *Gholghola* and *Zohāk*.

Invasion of Pashtun nomad tribes in the realm of Hazārajāt in recent century as a consequence of political decisions was a crucial and persistent incident regarding the habitation and settlement. As a consequence of this political decision, the domestic dwellers had gradually been repulsed from the flat plains towards the high mountains. Moreover, very soon, invaders followed them and mountainous Hazārajāt was no longer safe.

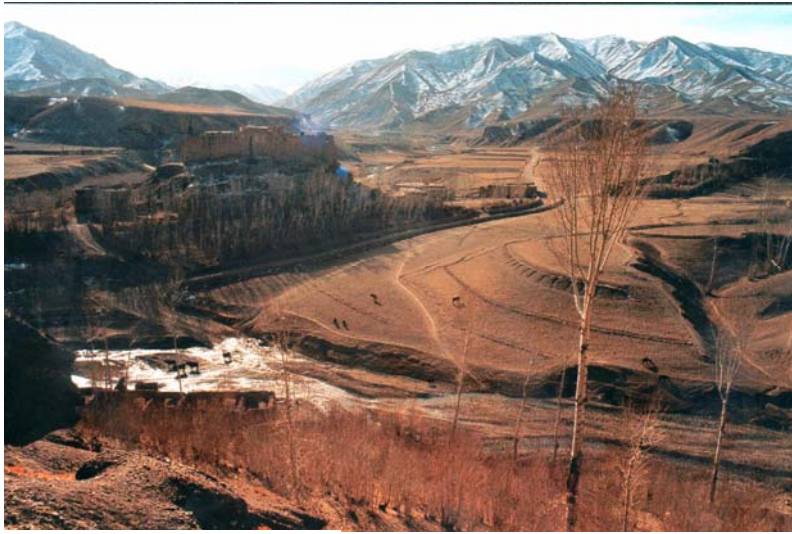


Fig. 373 *Petáb-e zârin, Yakaulang*



Fig. 369 *Qul khish*



Fig. 367 *Qerghui*

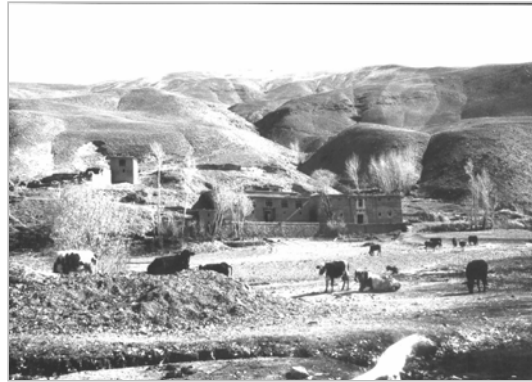


Fig. 368 *Dahân-e qul khish*



Fig. 370 *Narqes-e Panjau*

By prolonging the duration of habitation, the domestic dwellers had to cultivate and utilize the existing pastures, in order to, survive. The small pieces of cultivated land between mountains were divided among the settlers, and new cultivated forms were thus created and new settlements were built.

Although the central government has spread its sovereignty all over mountainous Hazârajât, it has never been able to disturb the traditional style of habitation and prepare new centralised and densely built clusters in Hazârajât.

Nonetheless, a housing cluster is the association and gathering of numbers of close relatives' houses connecting to one grandfather (*ur/ tul/ tabâi*), which were built on a common fatherly-cultivated land (Fig. 367, 368). As the consequence of demographic excession is headed in the direction of a tendency towards living alone, some single house clusters have abundantly been built in a corner of the common cultivated land throughout Hazârajât (Fig. 369).

Sometimes, a single house forms a cluster and embraces all the close relatives, including several families (Fig. 370). Vastness and congestion of housing cluster depends on how large the fatherly-cultivated land is.



Fig. 372 *A'qzara't-e Panjau*

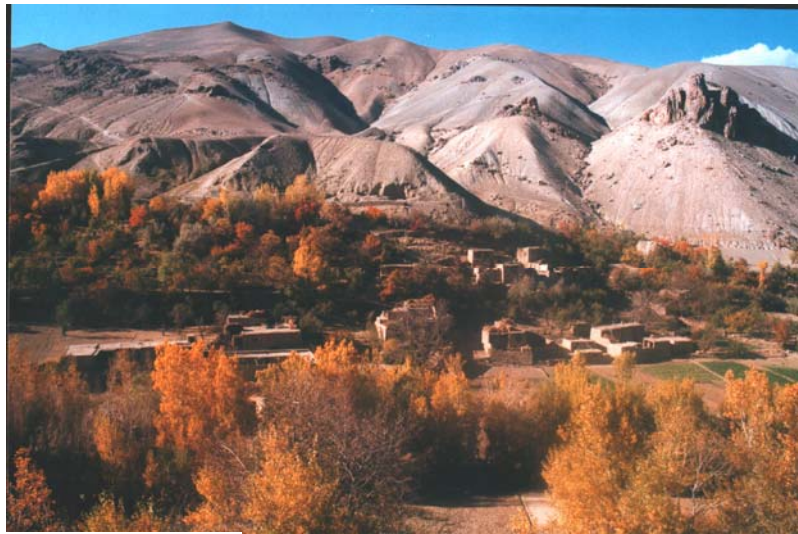


Fig. 374 *Jerf-e Shikhali*



Fig. 376 *Petáb-e zárin, Yakaulang*



Fig. 371 *Fuládi Bamiyan*

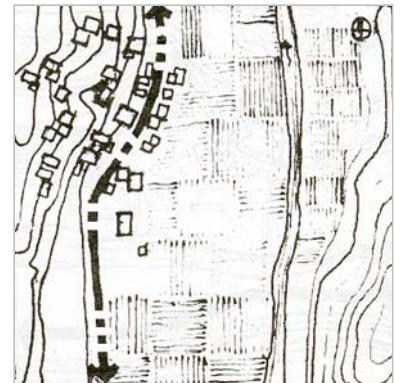


Fig. 375 *Jerf-e Shikhali*

Recently, because of the population growth, the existing cultivated lands no longer fulfil the livelihood demands, thus a vast number of the inhabitants have left their homeland.

Many factors play a role in the building house clusters on this form of land. Because of land scarcity, for instance, efforts have been made, without exceptions, not to build houses on cultivable lands. Houses are rather going to be built in higher levels in order to keep them safe from eventual moisture and damp (Fig. 371, 372, 373). In Fig. 374, 375, land scarcity influences the dwellers to built their houses on a nearby hillside and not to occupy the existing limited cultivated land.

Consideration of climate factors such as sun orientation and protection against extreme wind is necessary when building a house. However, access to running water, i.e. river, stream and spring has also been considered, otherwise, provision of using water will cause problems, especially in winter. Depending on the financial situation, relations and social structure of the dwellers, some housing cluster including various types of the existing housing of Hazáraját are different.

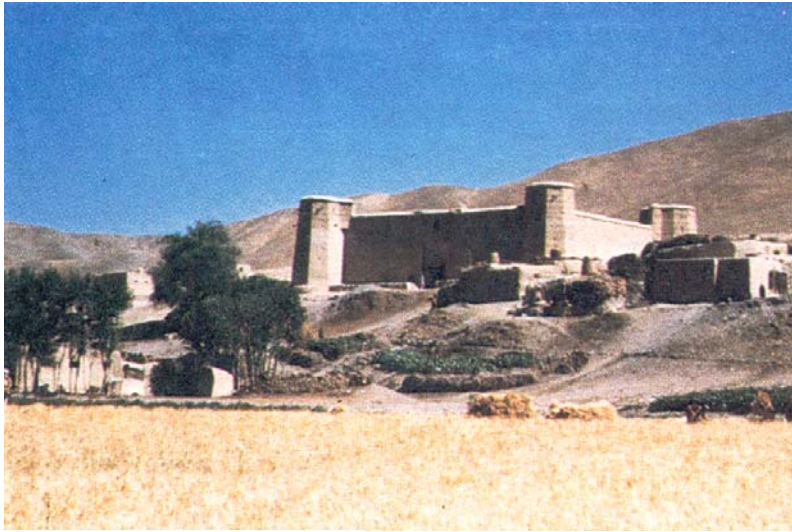


Fig. 378 *Sangzard-e sarejanqle*



Fig. 380 *A'qzara't-e Panjau*



Fig. 379 *Kata khān Yakaulang*

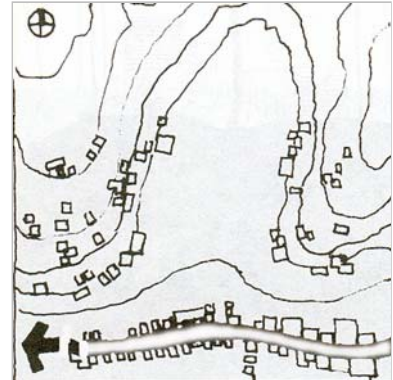


Fig. 377 *Surh qul Bamiyan center*

Fig. 376 portrays a mix of a normal cluster and grotto cluster, which has been built by landowners for temporary workers. Furthermore, grotto clusters of *Surkh'qul* and *Kamāli* in the environs of Bāmiyān city display the other instances of workers' slum houses (Fig. 377). The image of these houses indicates social structure that prevails in the community.

In Fig. 378, the distinguished and magnificent fort and its peripheral numbers of contemptible naked housing (*kadiwāl/ kuta*) indicate a villein social system. The composition of different housing types exists in many clusters e.g. in Fig 379, but they are not as significant as the above instance. In some cases, the contemptible naked houses (Fig. 380) of the farm workers are located away from the major fort.

Obviously, vastness and congestion of clusters in scarce land gorges and wider valleys are not similar. Vastness and congestion of clusters in narrow gorges are low and restricted and in wider valleys are higher. Dispersion of housing clusters depends on the dispersion of farms and cultivated lands as a consequence of the natural characteristic of Hazārajāt.



Fig. 384 Zarin Yakaulang

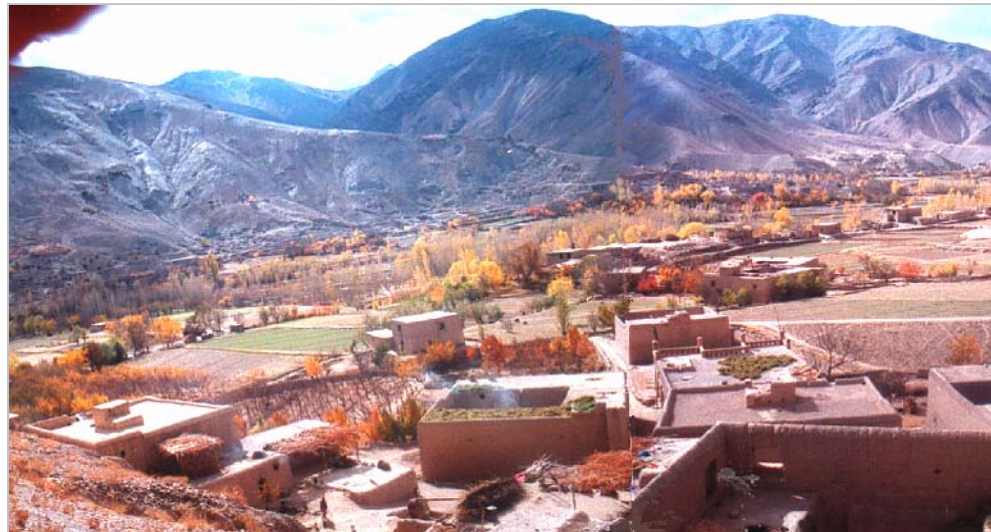


Fig. 385 Ali khani Turkman

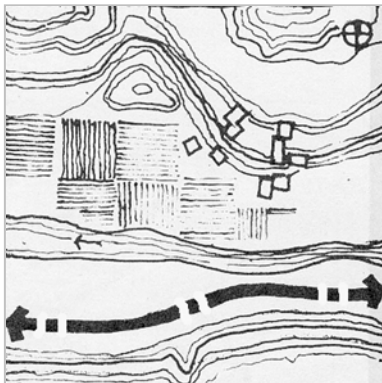


Fig. 381 Kata Khan Yakaulang

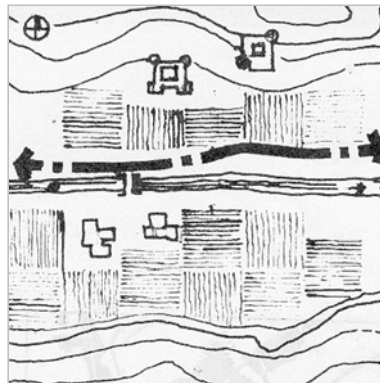


Fig. 382 Siah khak-e fuladi

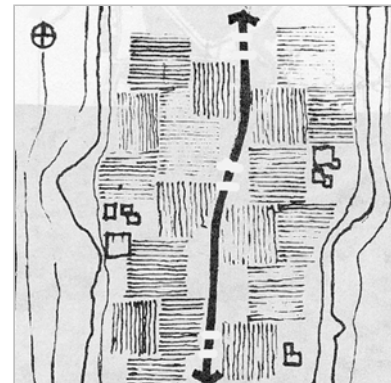


Fig. 383 Zarin Yakaulang

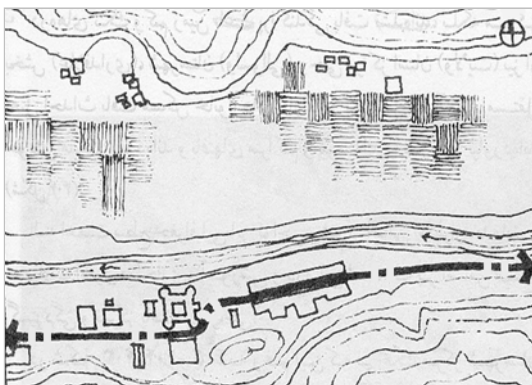


Fig. 386 Nayak Yakaulang

The natural geography of e.g. gorges, secondary divisions of gorges, intersections of gorges and valleys are actually the major determinants in the composition and arrangement of independent farms, where housing clusters are built on each farm (Fig. 381, 382, 383, 384). In fact, narrow and land-less gorges are not the only factors of dispersion of clusters, but even in the centre of districts and provinces the principle of building house on own land still applies and it has therefore not formed much congested and attached clusters (Fig. 385). Perhaps the importance of the region geography is mainly based on the establishment of administrative commercial, educational and medical services and facilities, not on the basis of spreading and congesting the housing clusters of the region.

In Fig 386, 387, 388 despite being *Nayak* the centre of *Yakaulang* district, part of the services and facilities of administration, new and old markets, polyclinic, cereal warehouse, educational facilities and a staff house had been built in a completely distinct area, out of the housing cluster. This principle is evident all over Hazarajat like in *Panjau*, *Behsud*, *Shahrestan*, *Day mirdad*, *Navur*, *Malestan*, *Jaghuri*, *Uruzgan*, *Surkh parsá*, *Saighan* and so on.

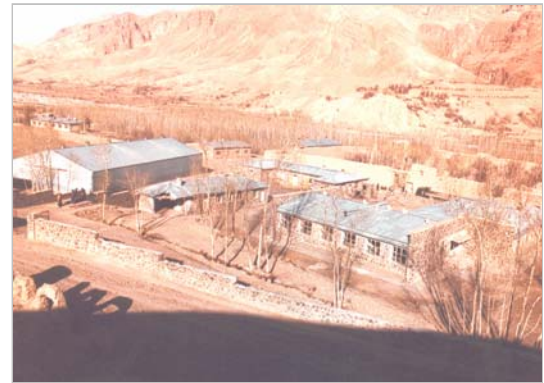


Fig. 387 Yakaulang centre

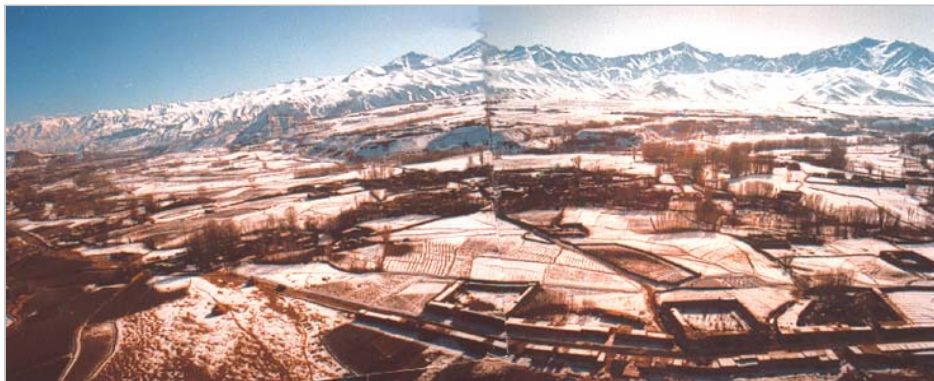


Fig. 389 Bamiyan city center

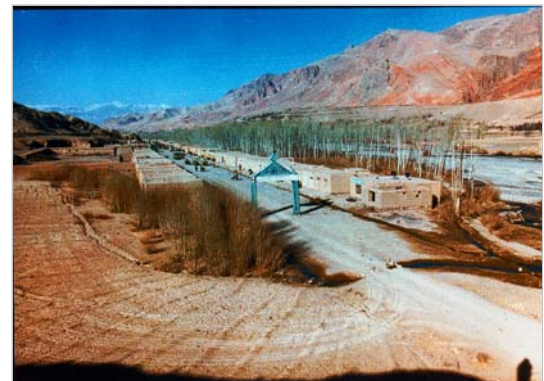


Fig. 388 Bazar of Yakaulang

The above districts (*woloswāl*) resemble the village centres rather than district centres. Meanwhile, the living basins of Bāmiyān, *Maidān*, *Chegh'cherān* and *Terincout* because of having simple and restricted services and facilities are going to be brought out as the province centre (*welāyat*). Numbers of shops and transportation terminals are gathered around the streets without any comprehensive plan, in order to bring them out as a rural city (Fig. 389).

The only instances of manifestations of urban cluster that are valid as city centres are seen in *Ghazni* in the east and *Chārikār* in the north of the region (Fig. 390).

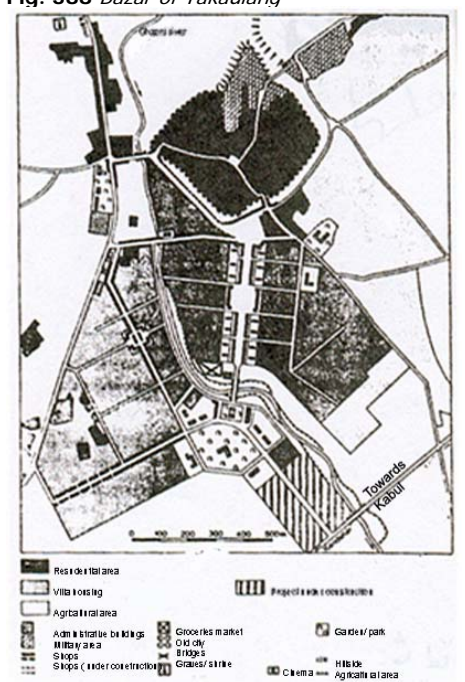


Fig. 390 Ghazni city center

Overleaf:

Fig. 391 *motif in the vestiary ceiling*
Sayed Sarwar's fort, Lulenj valley



CHAPTER 3
HOUSE MEANING
& INFLUENCING FACTORS

PART ONE
SOCIO-CULTURAL & PRIMARY
FACTORS VERSUS HOUSE FORM

We know there are many factors and forces affecting a house i.e. the traditional housing of Hazáraját. We once again call to mind the basic hypothesis of Rapoport (1969): house form is the consequence of a whole range of socio-cultural factors and physical forces, where the socio-cultural factors are primary and determinants and the physical forces are secondary and modifiers. Throughout the rest of this chapter, we will be trying to understand what is meant by socio-cultural and physical factors, and how they play a role in the creation of house form.

1- Traditional Beliefs

Religion and traditional beliefs as important parts of a culture, significantly affect house form in the geographical research area. Home is the place for a household's dwelling, and according to the traditional belief, the household is of great importance. The home is sacred, and it is an image of heaven on the earth. As heaven always is depicted as being full of pleasure and delight, the real house on the earth must be the best place for a household to settle.

Home is a place of safety. It has to protect the dwellers from climate abnormalities and other dangers. Furthermore, a house provides a place of ease and comfort for its inhabitants.

Local dwellers have had special beliefs regarding the housing for ages. These beliefs are mainly directed towards the old ruined forts and the newly built houses.

A general domestic belief depicts a very vulnerable image of human beings, whose shelter or properties are steadily rushed by natural and supernatural forces. The human being is not even safeguarded from dangers caused by his own fellows. He has to make certain arrangements in order to secure himself from numerous probable problems and injuries, by which he is threatened by strange forces.

These beliefs regarding the housing form can be divided into two categories; one is securing the house from dangers of human and supernatural forces; and the other is the traditional and adhered to orders and instructions, which shape the housing form.

In the community competition, rivalry, jealousy and injuries caused by evil eyes have threatened the ease and comfort of the dwellers on an ongoing basis.

Competition and rivalry may be interferences when building a house. For instance, if someone builds a two storey house, his rival has to build a three storey house. Also, if someone applies for example for five or six windows in his building, his rival has to build more than that, otherwise, the rival will be followed by sadness and restlessness and feel very depressed and humiliated. In some cases, other people may add to this misery by taunting the rival.

Due to the fact that many of these rivals have been unable to afford their buildings, there have been a great number of cases where rivals have felt a pressure so strong that they have had to borrow money by leasing out part of their property, in order to not back down from other rivals and thus fulfil the alleged demands.

Moreover, a belief in the injuries caused by evil eyes is significantly deep and embedded in the community. It is said that evil eyes can cause stone to burst and flying birds to fall from the sky. It seems that this belief and its influence has emanated on the basis of poverty so severe that it deprives people of even the most basic needs in life, and a kind of generic negative mind has thus gradually being developed. This conception is based on the belief that the poor peasant might not reach a position of affordability and welfare, and he therefore does not try to develop his abilities, but instead makes an effort of trying to make sure that his fellows are also be deprived of the conveniences in question. As much as the performer of evil eyes may be jealous, the injuries of their eyes are strong and serious.

Obviously, the concept of jealousy and injury by casting evil eyes is the opposite of rivalry and competition, because, competitions, even in the worse cases, promote and enrich the dwellers' life status, whilst, injuring someone by casting evil eyes deteriorates the situation.

The dwellers try hard not to display their success, wealth and prosperity in front of the eyes of their fellows. In cases, when for example a house is being built and there thus is no way of hiding

what is taking place, some arrangements are carried out, in order to guard it from evil eyes and other evil forces that may cause a threat to it. In the beginning of the process when the foundation of the house is being laid, charities like baking bread with oil (*chaplak/ qatlamah*) and slaughtering a sheep or a cow are made; depending of course on the economic affordability of the builder. Moreover, benediction is read in order to ask God to help the builder finish the building successfully. When building the most important parts of the building i.e. during the erection of the ceiling, or when fixing windows and doors, charities are also made, when the walls come up and reach the ceiling, red cloths are hung as they look like flags. It is believed that if the red cloths are confronted with evil eyes, they will neutralize the effect of the eyes and the performer who has cast them will get a terrible headache.

There are special traditions after finishing the building and before occupying the house. Before using the house, the holy Koran, a dish of water and a mirror are being carried into the house for good fortune. For prosperity and safety of the dwellers, spiritual persons and noblemen are asked to enter the house first and open it up.

There is furthermore a tradition of arranging a party, to which close relatives are being invited and where the Koran is read, and benediction is read when initiating the process of moving into the house. The close relatives also submit their presents like baked bread or cash to the house owner. Holy scripts are hung over the main entrance to tap lucky supernatural forces for good fortune and to protect against evil spirits. However, animal horn, especially dear horn, is hung for bringing success and good fortune to the house.

Other beliefs initiating from instructions and orders arise from traditional and religious beliefs, which influence the layout and interior design of the house. The houses are usually situated in such a position that, in addition to benefiting from the south oriented sun, one of the main sides of the house is directed at the Kiblah or God's house in Mecca, Saudi Arabia. It should however be noted that the determination of the Kiblah direction is not necessarily accurate, but according to the domestic experiences a westward direction within a small deviation from the straight west in any geographical location is accepted as the Kiblah direction. Based on religious beliefs however, it is forbidden to place the toilet in the direction of the Kiblah. This point must be taken into consideration when planning on building a toilet.

Also, having to face pictures, images and sculptures of human beings and other living beings when giving prayer neutralizes the prayer, so there are none of these types of images on the western wall where holy scripts are hung instead.

Instead of admiring and appreciating the remainders of ruined forts as reminders of former power and magnificence of the ancestors, these forts are, converted into fearful places, which people hardly dare to have any form of contact with. In this regard, people believe that the old ruined forts are now the

stronghold and settlement of spirits or fairies called *alkhatu*. *Alkhatu* in essence looks like a dangerous monster with long ruffled hair, red bloodshot and impudent eyes, and long ears, and it is interested in horse and horse rider. The older dwellers express that they have seen these trolls before their own eyes. *Mohd. Hussein* who is 70 years old and from *Qerghuy* of *Behsud* says: "When I was going to irrigate during the nights, I had to pass across an old ruined fort." He adds: "The fort was unpopulated, but I was clearly observing some human looking beings going to and fro inside the fort and in the towers."

The local dwellers also believe that spirits or fairies do not only live in ruined forts, but occasionally also bother local dwellers in other places. Sometimes, being confronted with *alkhatu* may turn out in favour of the local dwellers. For instance, it is said that *Ahmad Ali Karbala-ye* who is 65 years old and from *Qerghuy*, about 30 years ago had a good relationship with *alkhatu*s and accepted them on equal terms with his aunt in law. *Alkhatu*s were also kind to him, and they provided fresh grass for his horse even in winter. He was telling *alkhatu*s to leave there, in order the people not to be frightened of them.

In another instance, it is said that a horse rider passing through an old ruined fort was feeling that his horse became heavier. He looked behind him and saw an *alkhatu* sitting behind him. He silently took off his turban; wrapped it around the *alkhatu* and his own waist, fastening it so tightly that the *alkhatu* could not run away. The man carried the captured *alkhatu* until close to the village where the *alkhatu* was released after much pleading. *Alkhatu* swore not to bother him and his family after that, and gave the rider some of her hair as a hostage. Local dwellers believe that conciliation with *alkhatu* has been better. Bothering and punishing *alkhatu*s never gave anyone a good result. It is heard of that some *alkhatu*s were previously captured by the people and harassed. Very soon the one who bothered the *alkhatu* and his family would suffer terrible harm. Believing in the existence of fairies in the form of *alkhatu* is more or less spread out through all of the community. This belief has not been restricted to the common people. Even a number of religious educators confirm it. They do not negate the presence of *alkhatu* to fairies and they express an interesting interpretation in this issue: "Fairy has a body made of fire; it is low and mean and appears in different forms, even in the shape of a dog and a pig". The reason for such an expression is not known, but it is of course clear that the remainders of the old forts are reminders of the tough and hard period where the forts of their descendants were crushed and suppressed.

Reluctance to saving the old forts from the invisible forces of fairies might be an indication of the mental focus on the last powerful and magnificent period of the descendants, which is brought out and gradually penetrated in to the minds of the inhabitants.

2- Basic Needs

We build houses in order to fulfil our basic needs: needs for privacy; protection from the weather, and enemies of both man and beast. Our needs could be defined in terms of needs to breathe, eat, drink, sleep, sit or love. What important in regard to the built form is, according to Rapoport (p. 61) the culturally defined way in which these needs are handled.

The significant characteristic of basic needs is the optimal utilization of spaces in local vision. This vision is affected in accordance with un-affordability of the people in encountering the natural discordance. On the basis of optimal utilization of space, a basic multifunctional space is considered, in which almost all the major hostelry needs of a family can take place. As such, these spaces have recently been developed for responding to the excessive needs.

According to the existing lifestyle pattern, one room is considered to be the major living area. In Hazáraját there is a social system with peasant structure, and thus in some cases families continue to co-exist with their beasts and tools under the same roof, although a considerable separation has taken place in recent years. There have not been concepts like living room, sleeping room, dining room and so on in local words, but words like *tanur khána* (living room with baking oven), *táwa khána* (living room with under floor heating tunnels), *bahár nishin* (a room for spring use), *bálá khána* (up stairs room or guest room) are used for describing the major room depending on the quality of the area, and there is sometimes another room for guests as well. The major room is the frame for the primary living activities of the family, and it does not change in accordance with seasonal changes, but some inside functions may be moved to the outside if the weather permits it. For instance, the local stove (*chari*) is used during the Winter as the basic tool for cooking and at the same time, it warms the house as well. During the warm seasons it is moved outside and is used as an outside baking oven instead.

The current furniture is not as of modern one, but it is in the form of a mat that is spread out on the floor, whereas mattresses and pillows are used as changeable furniture in the room. Mattresses and pillows together with blankets are used as beds during the night, and during the day these mattresses and pillows are used for sitting purposes. The dimensions of these articles therefore have to fit this multifunctional character in the room.

Sitting

Sitting is a basic need and it affects the house form. People commonly rest by squatting, and in this regard a local preparation has been made (Fig. 30, 31, 32, 129, 130, 131, 132, 133, 214, 219, 149, 244, 282, 283, 284, 285). Sitting on the floor and the height of sitting significantly affects the height of the windows, cupboards, wardrobes; and particularly the height of the ceiling. It also has the result that the width of the room is quite short.

This habit of sitting entails that the shoes are taken off, and there is thus a need for a number of places for taking off the shoes and leaving them there; and special floors.

The room or quarter of sitting is hierarchically divided in accordance with the status of people. The area closest to the entrance door is for the lower status, whereas the opposite sides are called upper position of the room and are designated for the elders and guests. The importance of a room is better understood by spreading out different types and qualities of mats and mattress.

Eating and cooking

Eating requirements and cooking habits greatly affect the house form. There are habits of baking bread, cooking the meal, and eating that are carried out in one place. In this regard a built in baking oven (*tanur*) and an andiron (*digdun*) or a hearth (*ojaq*) is built on the floor of the room. In accordance with this tradition, all of the needed kitchen utensils and fixtures have to be kept in this room, and firewood and water reservoirs also have to be placed nearby.

During the warm season, the outside area is used for baking bread and cooking the meal. Washing the hands before and after a meal is a requirement which has caused a need for extra fixtures like ewer and bucket or a fixed sink and water tap in a corner of the room.

Sleeping

Sleeping like the other needs affects the house form. The sleeping arrangement is rather problematic compared the other needs in regard to the principle of optimal utilization of space. The biggest problem that arises in connection with sleeping is that all of the family members, including both parents and children, sleep in the same room. This habit of sleeping restricts and ignores the emotional and biological needs of dwellers considerably.

There are many types of family structures throughout the area that all affects the house form differently.

Families are mainly extended and heavily populated families. Three generations including grand parents, parents and children are usually living together.

That all family members, in some cases several generations, are living together is an indication of a communality way of living.

Although, it figures as a manifestation of overcrowding, this way of living does not prevail on the basis of economic constrains, it is a model tending to co-existence and communality. According to this model, three generations of young, middle and older aged with different tendencies and interests live together.

How these tendencies and ways of living are being combined is not an easy job. Certainly they all have to ignore and eliminate parts of their desires in favour of common and general interests. On the basis of this way of living, the middle aged is actually steering and propelling the wheel of daily life by benefiting from the experiences of the elders and letting the young learn and practice it.

3- Family & Social Structure

The pattern of the traditional family has once again become significant, because the modern family status has been increasingly dissatisfactory, and there is great concern for the young generation. Young people in some countries are allowed to move out of their parents' house. The key idea behind this practice is the freedom of choice for the young members of the family in practicing their own lives. Some social and financial protection is also made to support them and to ensure that they would become successful. According to research carried out in Sweden (Karin Lidmar Reinius 1990), this policy has not been realized. Instead an atmosphere of frustration, suicide and addiction among the young people have been prevailing and according to Reinius, more young members of the family have recently chosen to stay in their first home (Housing research and design in Sweden 1990).

On the basis of the traditional outlook in my study area, I adhere to the belief that young people are dependent on their parents. Their evolution and development take place in the family environment by practicing and elaborating on their parents' experiences. Parents stand as advisors and supporters behind their young children. It is the duty of all family members to maintain this pattern in a balanced manner. Despite some discordances and endurances, this way of family living is acceptable for all and there therefore has not been as many problems in the families as there exist in the modern families.

The extended family very clearly affects the house form. In this regard, almost all the five known types of houses are the outcome of extended families. The naked housing (*kaldiwal/ kuta*), the grotto housing (*sum/ somuj*) and even the portable housing (*ghizhd*) are being used by extended families. It is very common that grand parents live together with their married sons, who also have several children. In case of polygamy, the family becomes even more heavily populated. The courtyard housing (*hawill*) and the fort housing (*qal'a*) are the place for these highly populated families. There have also been instances where workers and farmers have been living with the owner of a housing type, particularly the fort housing.

Social structures dictate a particular form of house and settlement. Building a house on ones own land demonstrates that houses are dispersed and scattered, so apart from a few exceptions, we cannot observe many congested clusters throughout the area. However social institutions reveal two major facts: one, the degree of dependence that members have on each other; two, the matter of rivalry and being better than the others. Built up environments respond adequately to these problems and requirements. In the past, during the privilege of the tribal way of living, many village forts belonging to different tribes existed. To date, these social institutions are much smaller and are made up of e.g. clans or families, so the built up environments reveal the form of large forts and family forts; and courtyard houses. As the consequence of recent changes in the structure of social institutions, the lower caste with a few exceptions is no longer

living with landlords in a compound. This trend of living expresses the very simple naked houses of smaller households and tenant farmers adhesive to the most magnificent house types of forts and courtyards.

There are various social classes in the area. Social class is measured on the basis of income, which strictly depends on land possessions.

Nevertheless, there are two distinct castes, namely high caste or land owner and low caste or land less.

Land owners consist of tribal leaders and rich occupants, whereas land less inhabitants includes workers and farmers, who work for landlords in different branches of the existing occupations.

Caste and social class have significantly affected the house form. The majority of the magnificent tribal forts were built as expressions of prestige, but the rich inhabitants now prefer to live in courtyard houses. The lower caste lives in the contemptible naked house (*kaldiwal/ kuta*) and the simple grotto house (*sum/ sumuj*).

There are three patterns of house settlements for the lower caste: one, those who have a small piece of cultivated land build houses in the form of the naked housing; two, those who work for landlords use pre-built houses e.g. the naked house or grotto house types. In some cases the naked house or grotto house types are located in environs of the fort or courtyard house, and in other cases they are situated quite distant from these types of housing. Sometimes workers' families are lodging inside the fort or courtyard house of the landowners. In this pattern, the internal built up areas of pertaining fort and courtyard hierarchically become important. The farmer's house of course must be situated in the second rank of importance.

The third pattern of settlement is related to those who are busy in other occupational branches as they have recently begun to build houses. Due to the misfortune that land required for a proper house is unavailable in the city and even adjacent to cities, the houses appear in the form of city slum.

The position of women significantly affects the house form.

There are a few statements about the position of women. Among them Schwerdtfeger (1982) argues that there is seclusion of women and attributes it to Islam. However, he rejects his own statement almost instantly as he justifies that seclusion of women as being an ancient custom that existed even before the rise of Islam (Schwerdtfeger 1982: 289-290).

Schwerdtfeger's idea is not confirmed in my study in sense of:

First, the tradition, which is currently practiced in the community, is a domestic habit and requirement rather than a religious sanction. **Second**, there is a kind of separation that, according to the traditional beliefs, regulates and legalizes relations between women and men within a defined framework. In this regard, there are several arrangements afterwards; e.g. an expensive wedding and a stringent marriage, in order to safeguard the family's honour and prevent consequences like divorce and so forth.

4- Position of Women

As a result of this custom, strangers are not allowed to intrude on the family quarter. The act of receiving guests mainly takes place in the front part of the house. Whenever there is affluence involved, in some cases the whole compound is divided into three compartments like in **Exam. 39**, namely the family, guest and service compartments, which each is independently connected to the outside and linked to each other by a door.

5- Privacy (*satre*)

Privacy is known under different interpretations. It is commonly defined as dwellers keeping to themselves away from the eye of strangers. Privacy is the state of intimacy, which according to Westin (1976), is determined by the minimization or elimination of all sensory inputs from outside the boundaries of occupied settings. According to observations, privacy is also a matter of modesty and attitude towards sex, as regarded by both men and women.

We know that every human being has a private life as well as a public life, so there are both private and public domains involved in a person's life. The need for privacy is severely essential in the area of the study. Houses significantly react in accordance with the separation of domains that set up a proper balance between private and public spheres in order to maintain normal social relations and preserve the efficiencies in the social structure. The houses are traditionally inwards looking. Built up areas are built next to each other in such a way that an inside courtyard exists, or it is enclosed by walls closed to the outside in form of a courtyard house or a fort.

The need for privacy has not always been distinct to all house types. There are manifestations of questioning the strict need for privacy in different ways. Opening larger windows to the outside has been an excessive way of demonstrating that the house was looking outwards, though these rooms are mostly used for guests (**Fig. 86, Exam. 5, 12, 16, 20, 24, 29, 36, 39, 45**). Some houses have recently been built in such a way that part of the house, including the windows, are placed in the surrounding walls, which express the need for more territorial freedom (**Fig. 140, 143, Exam. 29, 30**). This issue can be compared to the way in which teenagers react. According to Sammut (1990), vast numbers of teenagers express their need for territorial freedom through communicating, behaving and dressing in ways, which may be considered unconventional and unacceptable by adults (p.42).

This type of reaction in the form of housing expresses dissatisfaction and unwillingness in regard to the strict privacy practices in the community. This continues to establish a new identity for the houses.

6- Social Intercourse

Social intercourse is sufficed to social contacts and the celebration of different public and private ceremonies. Social intercourse has been demonstrated as the form of public and private ceremonies in the past as well. It includes feasts and different celebration and

grief ceremonies, which are taking place in accordance with particular occasions. The ceremonies provide public contact and social intercourse, and women, men and children all take part in these ceremonies.

What is important to consider when regarding the topic of private intercourse in the study area is the presence and reception of guests who are going to spend the night in the house of another family. There is a high level hospitality in the area as a consequence of tradition; nonetheless, strangers are not allowed to intrude on the family living quarters.

The social intercourse commonly takes place in two forms with two types of people: one, as unknown passersby; two, as guests.

Unknown passersby

From far back in time when people have been traveling from one place to another by feet or on animal back e.g. on horse, donkey or mule, the norm has been to travel during the day and stop before nightfall at a house where they would spend the night in comfort.

Relative guests

According to the existing tradition, families always let them know what is going on their relatives, and this is emphasized by beliefs. It seems that the social intercourse makes the family connections closer and tightens the bonds of friendship between them. In other cases, families invite each other for particular occasions. It is therefore common to spend days and nights in each other's houses.

Traditional social intercourse still exists widely, but to date the changing travel patterns mean that the pattern of receiving passersby and guests has been altered as well. Nevertheless, hospitality is still among the most dominating traditions of the people. The tradition of hospitality affects not only house form but constitutes a major part of it.

What is important is the attribution of the meaning of hospitality and receiving guest to the form of the physical environment and the houses. In this regard, we explicitly observe two significant patterns of old and new.

In the critical reflection of the old pattern in accordance with the social intercourse, the major focus has been drawn to receiving unknown travelers and passersby, who spend the night.

According to general beliefs, people must receive and welcome guests. For the purpose of meeting this demand, the people, depending on their capabilities, build up an appropriate place with the required installations. The people endow a part of their property for receiving guest and call it a mosque or God's house. It is not dependent on ones property; it is for all and free of charge. As a host, the endower of the facilities has to not only welcome and receive guests, he must also make sure that food and tea is prepared and served during their residence, and it is expected that the accompanying animals e.g. horse, donkey and mule are fed as well. The process of receiving guests may take place repeatedly every night, every week and every month, and it is even stepped

up after harvesting and after finishing a cultivating period where people travel more.

The importance of the guest area, its orientation and layout in the house compound, is among some of the most important issues, which are addressed significant consideration.

In this regard, three basic patterns of guest quarters have been differentiable throughout the study area, namely guest mosque, separate guest house and attached guest room.

Guest mosque

A guest mosque is attributed to the old type of guest area, which is allocated for receiving unknown passersby. In this case, relative guests are allowed in the family living quarters.

The guest mosque has always been incorporated in the fort house type (*qal'a*), where the guest mosque is built in front or adjacent to the fort (Exam. 33, 34, 37). A guest mosque is normally in the shape of a simple room with or without a local heating system; and it is connected to the outside by a corridor.

In larger forts, as seen in Exam. 38, the guest area is built inside the fort; in two distinct compartments with a guest living area and a mosque for praying. However, the two areas are considered to function as a place for receiving unknown travelers and as a guest room for special guests. The guest mosque is well-known in the fort housing, and in exceptional cases in the naked housing (*kaldiwal/ kuta*) as in (Exam. 25) and it is basically an area allocated for guests and it is merely named mosque.

Guest house

A separate guest house is designated for receiving common travelers and strangers. As the area is built outside of the family living area, it is mostly attached to the other part of the house. The guest house is not only incorporated in the fort house, it is included in the compound of a courtyard type as well.

In the mentioned house types, the guest house is predominantly considered over the single entry of the *qal'a* or *hawili*, with apertures facing outwards. It is called *sara'chah* or *ba'la'kha'nah* respectively in the fort and courtyard house types.

The guest house, in contrast to the guest mosque, functions as either private property for the owners or for receiving both passersby and guests, and it is thus more useful for the family than a guest mosque.

In a simple type of housing a guest house consists of a multifunctional room for sitting, eating and sleeping, and a washing basin is built as close to it as possible. In some cases, a stall for keeping and feeding the accompanying animals like horses, donkeys and mules has been added to the complex (Exam. 28, 30).

In a very uncommon instance, the two front towers of a fort house (Exam. 45) has both formally and functionally been changed and replaced by guest houses and pertaining areas.

The guest house has not always been meant only for the purpose of travelers or guests spending the night; it has also been used for particular functions like meeting of the elders, local councils, accord and so forth as in Exam. 39. The guest compartment is

distinct from the whole compound of the family living area. It consists of a varied and appropriate area in quality. The major areas include receiving areas where an entrance is facing outwards in order to benefit from the summer breezes and the view of the pleasant countryside. In addition, there are other rooms located on the ground floor for guests to stay in over longer periods of time.

Guest room

According to the guest room pattern, guests are allowed to enter the family living area, but according to the lack of funds for some of families like for example those who stay in the naked housing (*kaldiwal/ kuta*), the guests live together with the family. And in the cases where a family lives in the courtyard housing (*hawili*), a room is designated for receiving guests, which is the so-called guest room. In the contemptible naked house type there is no differentiable area for receiving guests. Apparently, dwellers cannot offer strange guests a place for the night due to the limited area of a *kaldiwal*. Guests are thus mainly close relatives, who commonly live together with the family (Exam. 1, 2, 3).

In the severely cold winter season, the situation becomes even worse because all family members, including the guests, have to sleep around the baking oven (*tanur*) which is the only means of heating. For this purpose, a large blanket is spread over the *tanur* and all the dwellers, regardless of sex and age, have to sleep there and spend the long and cold winter night together.

During the short warm summer, the male guests sleep outside on the ground terrace or roof terrace.

The area for receiving guests is the most prestigious part of a house after the prerequisite shelter. Due to the economic affordability, people have invented varied physical solutions to meet the desire for such a room. Sometimes, two families who only have two rooms, have allocated the best and most well-equipped room mobilized with a local heating system (*ta'wakha'na*) for guests visiting either of the families (Exam. 9). In these cases, when they have visitors staying over night, all of the women sleep in one room and all of the men sleep in the other.

In a small developed *kaldiwal*, a separate room for spring use is designated for receiving guests (Exam. 4, 5). Normally, the best area is allocated for guests, because receiving guest is traditionally prestigious for the host.

Ta'wakha'na, which is the room with local under floor heating tunnels, is used as guest room (Exam. 7, 8). Even in the form of *baha'rneshin* (the room for spring use), since guest room is important, it is therefore built in the upper floor so-called *ba'lakha'na* (Exam. 5, 10, 11, 12).

In the cases of economic constrains, when an individual household cannot afford to build its own guest room, a common guest room is built to meet the needs of all the households that are living in a compound like e.g. in a courtyard. Due to the fact that the households consist of close relatives, it might not be economic constrains that result in a common guest room, as the majority of guests are related to all households and not only to one of them. A room can therefore fulfill the requirements of all (Exam 13-25). A

guest room still addresses the consideration that families should be protected from the intrusion of strangers, so it is preferred to build the guest room adjacent to the entry of the house with a short distance to the latrine and washing basin (Exam. 26, 27).

PART TWO
PHYSICAL & SECONDARY
FACTORS VERSUS HOUSE FORM

1-Site & Settlement

Extending household activities to the outside of a house or even beyond, i.e. until the boundaries of their occupations and jobs e.g. farm, local market, school, clinic etc., determines the urban design, which is beyond the scope of this study. What is important to this study regarding site and settlement is the issue of territory.

In this study area, the enclosure of a house and its surroundings do not only figure as a private territory. In comparison, the farm, garden and cultivated land are also deemed part of the private territory.

According to the local opinion however, the nearby pastures of the village and other renewable natural resources like firewood bushes grown on the mountain of the region are also considered to be part of the local territory, because these are the only resources found in the region and the only reasons why it is even possible to be living in this hard mountainous area. But on the basis of uningenious policies the nomads from both inside and outside the country were given the possibilities of intruding on the local territories, which imposed a great humiliation on the local dwellers. According to Raymond Sammut (1990), territorial behaviour or the need to possess, occupy and control a portion of space is as basic as man's other existential needs and requirements (p. 33).

Human beings need to possess and control an area in which they would be able to satisfy their everyday needs of eating, drinking and relaxing without interference.

They need autonomy and protection for themselves and their young as well as privacy to engage in emotional release, protected communication and self evolution (Westin 1967).

Territoriality is very important for human beings, and it exists at different levels of human existence. A whole country is considered to be a territory for all, and thus all groups mobilize to defend it.

Many factors play a role in different sedentary and portable lifestyles. Settling down in a village and living together is often the result of dependency on water, soil and the natural environment. According to this type of lifestyle, agriculture is the major basis for livelihood, and the ruling social system is based on peasant and tribal structures.

Sedentary and stable settlements comprise four of the five main housing types of Hazáraját. The portable lifestyle of nomads who rushing towards the territory of Hazáraját in the past, are evident in the form of temporary shelters, which are erected by the dwellers during periods with activities outside of their farms and pastures.

Site and settlement affects the house form in two ways: first, the symbolic, religious and cultural values; second, the physical nature of the site.

This study confirms neither that sites are chosen on the basis of myth, religion and way of life, nor for the initial utilitarian purposes.

It is clear that settlements primarily have been motivated to be incorporated with natural resources like abundance of water, cultivated fertilized land or other natural potentials. The highland of Hazáraját however, despite having prosperous grazing areas, lacks the offerings and potentials of e.g. water and soil.

Natural beds of outcrops and mountains in continuation are accumulated and compressed in the area, which has left very little vacant space for flat plains throughout the area. These flat plains have special characteristics and are mostly situated as plateaus at more than 2,000m heights above sea level, and they are comprised by valleys and gorges, located among the mountains and heights. It therefore cannot be claimed that natural fascination and water and soil potentials have been the reasons for settlement. Instead, suppression and the use of force had primarily resulted in the migration of people and their settlement in the heart of mountains and inaccessible heights.

Prolonging the duration of settlement and the inevitable acceptance of this region as the place for their permanent habitation, dwellers had to accommodate to the natural environment and by making a serious effort and through elaborated hard work, they have gained control over the operation of natural resources like water, soil and whichever resources the mountain has to offer (Ferdinand 1959; Gopherberg 1975).

All this suggests that the attitude towards nature and site would be an important aspect in the creation of house form, in the modification of the site, and in the relation between man and landscape as the first aspect that needs to be considered.

Lack of affordability and suppression by the ruling powers have caused an attitude towards nature from an exploitative viewpoint, where man is the completer and modifier of nature, then creator and finally destroyer of the environment¹⁹.

The physical nature of the site has not affected all types of housing, because most of the house types like the naked housing (*kaldiwál/ kuta*), the courtyard housing (*hawih*) and the fort housing (*qala*) can be seen in all gorges and valleys of Hazáraját. Perhaps geography has introduced a particular type of the grotto housing (*somuj/ sum*).

Nevertheless, the influence of nature on the site is seen in more or less all types of housing and their settings. In narrow valleys and also many similar areas, there is a lack of distinguished courtyards because the houses have been built on the steep slopes of the mountains. In some cases, the roof of the lower house is used as the courtyard of the house built a bit higher on the slope. However, the setting of most houses on sloping sites have resulted in a form where the lower floor appertains for beast stable and the upper floor for the family living area.

The fort and courtyard housing have mostly been built in larger valleys. Since these types of housing have been built on different geographical beds regardless of special regulations, the ampleness and constriction of the natural bed only affects the vastness and tightness of the inside areas. For instance, the courtyard housing in *Turkman* valley has been gathered around a small central courtyard because of land scarcity.

Still the geography of Hazáraját has not been efficiently applied. As it was the case in the past, dwellers were forced to temporarily migrate into the highlands by the ruling tribes.

In early twentieth century, the duration of these types of temporary settlements have been prolonged, and it now seems that the dwellers unwillingly have had to find a shelter in which they will be staying forever. These factors caused a high number of the population to settle down in unpopulated harsh natural environments.

In recent decades however, demographic growth and depletion of natural resources have been the starting point for migration towards flat plains, but a high number of the population still live in discordant and remote environments without access to facilities and welfare services, and they thus lead a primitive lifestyle. Moreover, inefficient application of geography, and undevelopment and dispersion of living basins are other issues that need to be considered.

2- Climate

The specific climate of the region has influenced the housing and habitation significantly. Since dwellers are familiar with the natural phenomenon of the climate, and since this knowledge is crucial to their existence, they have endeavoured to accommodate their lives to it in a peaceful manner.

Hence, people have applied methods and developed skills in order to make the extreme natural phenomena of the climate tolerable, and at the same time, they have demonstrated high degrees of patience and high standards of invention skills and artistic innovation. The occupants of the buildings and living basins in the Hazáraját region fully experience the hazardousness of staying in a remote geographical area during times with snow fall when routes for travelling are blocked. This leaves the inhabitants captured by nature and facing a silent and lonely period in the snowy, cold and inaccessible mountains.

Sun glare is as an elixir, which decreases the power of the cold air when it is penetrating the small aperture of a house, and it can be sought just in the sun-oriented foothills of mountains and walls. Attempts to catch the warming light of the sun entails building the building on the sun-oriented side of a valley. In order to escape from frost in the ground, the building is built on the upper ground from the water level or the beast quarter, which comes to function as a buffer area between the human living quarter and the frozen ground.

The specific climate of the region has given rise to a special function in the houses of these mountainous areas. Most of them have been built with a unique and fully controlled heating system. Moreover, storage of wood fire stacks and cereal silos have also arisen due to climatic requirements.

Unique and closed forms of areas, thick walls as a guard pertaining between living areas and out side cold air, limited numbers of windows, fastened apertures and flat roofing for utilizing the snow as a heating insulator have been among the most common methods for fighting the climatic phenomena of the region. In other words, nature has a major modifying role in the creation of the specific forms of housing.

Snowy and freezing winter for around five to seven months and a short summer sum up the climate of Hazáraját. In summer, the heat is not higher than comfortable temperatures can easily be maintained inside the building by applying appropriate building materials. Most of the year however, the use of heating means is unavoidable because of low temperatures. One of the common principles in balancing the climate factor is to prevent cold air from penetrating the building and to prevent the loss of heating from inside the house. Minimising the outer surface of buildings with compressed and congested plans is among the features that can prevent this penetration of cold air.

This characteristic has mostly been seen in older housing types, especially in the old forts (*qala*) and the naked (*kaldiwál/ kuta*) housing. The use of thick pre-stressed mud (*pakh'sa*) in walling is one of the most important ways of trying to avoid that cold air penetrates the building.

Because of its uncompressed molecules, mud constructed materials have the ability of a low absorption of the cold and on the other hand, the transformation of cooling is also low. Materials in the ceiling have the same function.

Naturally, special characteristic of mud constructed wall prevails to that of stonewall having higher cool transmission. Although there is an abundance of stone in the region, walls are rarely made of stone, and in the cases where walls are made of stone, they are often coated by thatched plaster. Selecting a flat roof for using the snow as a thermal insulator and minimise the amount of inside convection by limiting the size and number of windows are among the other measures that are employed in order to prevent cold air from penetrating the building.

Sun glare is affected by wind cooling. Nevertheless, in newly built houses i.e. in the courtyard and fort housing more attention has been drawn to benefit from the sun glare. Accordingly, the dimensions of windows have become considerably larger. Moreover, the houses are being built above the ground level, in order to avoid the frost.

The method for preventing heat loss resembles that of the hot and arid climate architecture. The difference is that in Hazáraját's cold climate the thermal reservoir is located inside the building instead of outside. Warming up the inside of a building is among the ways of adjusting to the climate factors.

Other measures are to make use of the warmth coming from the baking oven (*tanur*) in the middle of the room and the warmth that are coming from the animals with whom people are co-existing. The latter method is the most primitive method for warming up a house.

Indeed, the current methods of heating have some disadvantages. Warming up the house by *tanur*, causes some breathing problems like asthma because of the smoke from it. Utilising the warmth coming from the beats has unhygienic problems as well.

One of the best methods for optimal utilization of the limited resources is the application of a room with under floor heating tunnels (*táwa khána*), because it gives the heat from the *tanur* dual functions. On one hand it is used for baking bread, and on the other hand, the heat is transferred through under floor tunnels to the adjacent living room. This method, in addition to preventing unhygienic polluting problems of the smoke, entails that the room gets a steady temperature on a regular basis.

Though, continual and full time users like inactive persons or elderly people may still catch some problems like e.g. rheumatism.

A local stove (*chari*) functions in much the same way as *táwa khána*. The difference is that *chari* is a heat source inside the house, and at the same time the meal can also be cooked on it. Both methods for heating; both *táwa khána* and *chari* are common in newly built houses. *Táwa khána* is a proper solution with respect of the climatic conditions of the region, whilst *chari* is suitable for emergency use and temporary use. As such, *chari* can warm the house immediately, but the fuel expenses are rather high.

Hence, to keep costs at a minimum, *chari* and stove are mainly dependent on imported long burning and durable fuel like oak wood or charcoal. Firewood (*hizum*), fire-bushes (*buta*) and dried cow dung (*tapak*) can also be used, but none of them are a long lasting heating sources.

The soil of the region was covered by masses of ice over a period of time, and because of its mountainous character, it is varied and almost all types of known soil, gravel, sand clay and silt soil can be found. Soils are not often pure, but often rather mixed. Certainly, gravel and sand dominates in the mixture of soils because of their formation background and the erosion of rocks. Soils of the regions thus mainly come in the forms of gravel and sand soils, gravel clay, sand clay and silt clay.

Sediment rocks have actually appeared after the ocean water settlement and the end of the glacial period. The sediment rocks carried by water are the pieces of rocks which are found all over Hazáraját today. They come in the form of pieces of hard stone, gravel sand stone and clay stone. A great many of these rocks have been broken down into smaller rocks or even grains, and they have thus been turned into crushed stone with sharp edges; gravel, sand powder of gravel sand and clay; and mud and silt. Marble stone in *Saighán* and *Tupchi* and crystallite and vitreous stone in *Shikári* gorges are among the metamorphic stones.

The other types of building stone include limestone in *Lurah sheiw* of *Gizáb* and *Waras* and gypsum abundantly found in *Sar-e qul* of *Yakaulang*, *Bamiyan*, *Waras*, *La'alo ser-e jangle* and other regions. There is also a special kind of limestone for spanning the ceiling in *Burjigay* gorges of *Behsud*.

Trees were rarely planted, because of the cold climate of the region and there is therefore a restriction in growing plant species. Based on experience, it has recently been established that poplar trees not only accommodate well to the weather of the region, but also is very resistant against moisture compared to other trees. Therefore, planting of poplar trees is promoted so that local demands can be met in addition to demands from outside the region.

Due to the shortages of wood and problems in transportation from outside the region in the past, the ceilings of the buildings were built as domes by mud-constructed materials. However, this ceiling system did not accommodate well to the damp and snowy conditions of the region, and therefore, many problems have arisen ever since.

The promotion of planting poplar trees and the availability of wood has ensured a fulfilment of the necessity for durable ceilings and other necessities of the building.

The new system is so wide spread that may be no more domed roof has remained in all over the region.

3- Construction, Materials & Technology

It is expected that a large amount of stone have to be applied to the buildings, because of high erosion as a consequence of severe climatic conditions and due to beautification of buildings, but this expectation has not been confirmed yet. Most of the building materials are primarily mud-constructed and whenever there is no access to the mud, then stone is the secondary material which is used in a special manner or coated by thatch plaster (*kāh'gel*) in order for the wall to not be displayed as a clear exposed stone constructed façade.

According to this, the main reasons for applying a limited quantity of stone in comparison with mud materials are the cost of supplies and transportation. Furthermore, the problem of transporting these building materials along mountainous routes makes the situation even worse.

Mud is the only mortar joist, but mud is a soft material with low adhesive capability and so it is not very practical between two pieces of hard stone. Nonetheless, mud mortar fills the gaps between each parcel of the stone.

Stone constructed walls are only able to transmit vertical loads into the ground, and it has no real strength against the lateral pressures. Thus, other types of mortar joints like cement and lime mortars have also been used, but because of their high costs, they are not so common.

Due to the ability of absorbing the cold and letting cold air penetrate the building, the stone constructed wall does not respond very well to the climatic necessities. Generally, the existing stones are hard and tough. Stones are difficult to sculpt and using stone therefore entails extra expenses and skilful workers, which are inaccessible for the majority of people in the region. Nevertheless, footings of most houses are made of stone constructed materials.

Since the application of stone has been insignificant, stone construction techniques and the education of skilful masons in the region has not been developed.

Mud has held a special position. Principally, Hazáraját's architecture is mud-constructed architecture. As such; mud is either directly part of the major building material or it is employed in the mixture of composed building materials. Both interior and exterior walls of the building and courtyard walls are built of mud entirely. Mud is applied as a mortar joist and filler between bricks and in gaps between parcels of footing stones. Mud and soil have a dominating role in building the ceiling as well.

Spanning of most buildings is carried out by the use of wooden logs, which are laid along the shortest span and rarely exceeds 5m in length. In some cases, a joist of more than 3m is supported by stronger girders and pillars.

Certainly, the existing knowledge and skill of spanning responds to the local needs. In case of a larger spanning, the span is divided into two or three modules of joists, and a pillar is laid under all of them.

It seems that the most precious ancient knowledge concerning the spanning has not sufficiently been utilised, because wider areas can easily be spanned by utilising the artistic lantern (*fanusi*) spanning technique, which does not entail extra expenses.

Because it is in touch with rain and heavy snow, the materials of the roof coating encounter severe erosion. The materials for roof coating consists of a layer of thatch plaster (*káhge*), which is used as a protective layer against leakages from cracks in the roof. According to this, attention has been drawn towards the adhesive characteristic of clay and the adjoining capability of straw. Thatch coating of the roof is renewed every year, and in some cases, a type of more adhesive mud called *mang* is used.

Still, most of the applied building materials have been prepared from materials surrounding the building. Availability and frugality in expenses are the main interests to builders, which explains why they do not use industrial materials except in very special cases.

For instance, flooring of most houses are thatch pavement, though, burnt brick has also been used; however rarely. The floor of the bath basin is built of cement plaster. Previous traditional materials i.e. *sandala* and black lime (*siáh chunah*), which were used more efficiently than mud, are not used anymore. The problem of finding these composed materials and the availability of industrial materials like cement are the major reasons for not using these materials.

Wood is another type of material, which grows in nature in close proximity of the building sites. Wood types are limited; most of the wood used is prepared by *poplar*, which is durable against cold and moist weather conditions, and used in the form of logs and planks.

Even though wood was the primary building material decades ago, and despite its wonderful decorative and artistic facilities, wood has not been able to sufficiently hold its position as it has in other parts of the country. However there are tendencies to apply woodwork in public buildings.

According to the local experiences, different wood types have special and restricted functions. Poplar (*chenár/ sapidár*) and buck thorn (*senjed*) have the abilities load bearing and tense in the dump climate, whilst deader wood is suitable for slicing up, and a kind of local tree called *jalghuzah* tolerates compression well and is thus mainly used for pillars.

The different housing types reflect the historical background and the past events of Hazárjât. Tremendous differences in the existing housing pattern, from living in the grotto (*sumuj/ sum*), and the contemplated naked housing (*kaldiwál/ kuta*), to the courtyard housing (*hawil*), and to the magnificent fort housing (*qala*), bears witness to the events of previous historical periods in the region.

4- Defense

According to the historical evidence, the inhabitants of Hazáraját have seen various invaders and plundering on a regular basis, and insecurity has continually upset the spirit of the dwellers. Living in a grotto, which some people still do, is an indication of a feeling of insecurity of Buddhists who were living in Bámíyán as well as in neighbouring valleys in the beginning of the first century as they were facing the eventual disturbances and occasional erosion due to the extreme climate.

Living in grottos has been continued long after the sovereignty of the Buddhists, but it has not flourished and thrived as much among the Buddhists as in the previous period. At a point in time, the remaining grottoes had been used and no more new grottoes had been dug.

Central Afghanistan re-flourished in the Islamic era where many living basins and famous fortified cities were built, but aftermath of the ousting of any ruling dynasty has often resulted in the devastation of their civilization by the new conquerors. Many indications of architecture and arts are not therefore being found in the region.

The forts mostly belonged to the different tribes' elders and leaders. According to the historical testimonies, high numbers of forts were built in the region, but most of them were devastated on the command of the central government.

This era is registered as the crucial point in the history of Hazáraját. Because of the domination of the central government Hazáras' leaders and powerful men were captivated and their forts were destroyed completely, and for a long time being it was forbidden to build new buildings that could be displaying prestige and pomposity in the same way as the forts.

Clans of 30- 40 families including their livestock, tools and other forms of equipment were using these types of forts. The widths of the ramparts (*burj*) were between 1½m and 2m and about 8m high. The forts had interchangeably four to six towers, of which each had a capacity of 10-12 armed men for guarding the security of the dwellers inside against eventual attacks.

Bearing this in mind, the towers were built so that they were clinging to the corners of the fort in order to have vision and control all around the fort. Many small holes or archery slits (*tirkash*) had been built in the *burj* and ramparts in order to throw out pieces of stones, pour boiling water and melted oil over the attackers when they were gathering around the fort, or in order to be able to fire very old simple guns "*dahánpur*" against an eventual enemy as he gathered around the fort.

Furthermore, a similar defensive element was built on the gate (*dargah-e borun*) of the fort, and there were many archery holes (*khuknul*) near the top of the surrounding ramparts.

Although, suppression by the central government was not prolonged seriously, *kaldiwál* was used as a shelter for many deprived and poor peasants instead of the fort.

The family forts had never been registered before the conquest of Hazáraját, where the oldest type dated back to a the most recent period where Hazáraját was in a well-off condition, and different types of forts from this period, with small changes, are used up till now.

Housing holds a special position in the socio-economy of the region. In the past, a closed and self-consuming economy system only depended on the cultivation and husbandry sectors. Since, incomes of these sectors were restricted and could fulfil just the basic and first priority needs, a vast majority of the dwellers were unable to build the required housing.

The aftermath of the recent changes has improved the economy a lot. Some important transportation routes through the region have been opened and cultivation limitations have been removed, and this has improved the cultivating system. These improvements are, especially seen in the deliberation of the economy from land and land possessing and the operation of the service and trading sectors and they have caused wages from local workers from outside the country to stream to the region, and this has resulted in significant changes in the livelihood of a single family and also in the socio-economy of the region.

As a rapid consequence of economic growth, many changes have also been seen in improving and elevating the houses and in the building of new houses throughout the region.

Housing in Central Afghanistan as well as in the other parts of the country is not an economic asset. Most dwellers, depending on their affordability, have built housing on their own cultivated land. Housing figures as a part of the land that they have inherited from their ancestors and can by no means be transferred to others, unless all of the cultivated land is sold along with it. Obviously, in the land depended economy systems of Hazáraját, the more the dwellers are depended to their honours, concern the more their inherited lands. In parts of Central Hazáraját a kind of feudalism still prevails where most farmers and workers have no role in building their houses and they thus mainly use pre-built housing.

The current dwellings actually reveal the rural structure, but the houses of cities have not completely accommodated to the act of exchanging as a commercial commodity. For instance, in Bámiyán and Ghazni cities, despite the high demands for tenement of housing, there are no housing offers, and slums are therefore growing up. Even the rebuilt grottoes in the environs of Bámiyán city have been converted to shelters for workers in the city. Economy and livelihood have considerably influenced the housing types of Hazáraját, and these factors explain the quality of inside areas and outer form of the building.

5- Livelihood & Socio-economy

According to the studies, the influence of the economy in formation of the housing is considerably large, and all five recognised types of housing are reflections of economy changes during different economic periods.

The naked housing (*kaldiwál/ kuta*), the most contemptible housing, is actually the remainder of the transformed housing type which came about when central government dominated Hazáraját. *Kaldiwál* is the shelter for poor and low-income families, and it is built by a large number of inhabitants.

According to the observations, *kaldiwál* has spread to all corners of Hazáraját, but it is most common in Central Hazáraját, especially in *Day zangi* and nearby regions. Perhaps there are still remainders of feudalism to be found. Landlords and powerful leaders are possessing magnificent houses. The peasantry, who work temporarily for landlords or have no sufficient affordability to built proper houses, live in the simple naked housing (*kaldiwál/ kuta*) around the landlord's magnificent fort housing (*qala*) or in pre-built grottoes.

Grottoes are situated in the worst economy category. Despite the good reputation of the grottoes in the past, they are situated in the lower rank of Hazáraját housing types. Most of the grottoes now function as shelters for those families who do not even have a small piece of cultivated land to build a shelter on it. The grottoes of *Petáb-e zárin* in the environs of *Yakaulang* are among those that are possessed by landlords and dependent on the acceptance to live in them by temporary workers. In cases like in *Surkh'qul* and *Kamáli* of Bámiyán city, grottoes form part of the slums of the city.

As mentioned, economy and livelihood considerably affects the form and exterior facade of buildings, especially the fort housing (*qala*) and the courtyard housing (*hawill*), which belong to well-off dwellers.

In the past, forts exclusively belonged to the higher social class; especially landlords and powerful men, but the aftermath of recent changes have meant that any wealthy inhabitant now can build magnificent forts.

Improving the socio-economy has had a direct influence on housing development. The improvement of the economy has just started and some powerful potential growth is foreseen, especially since there is a very rich reservoir of iron minerals in *Hájigak* in the region, and this may have an effect in the development of the region and the housing respectively.

Overleaf:
Fig. 392 *Horizon*
Lulej valley



CHAPTER 4
NEW PATTERNS
OF HOUSES AND SETTLEMENTS

So far we have been developing and examining Alexander's theory of pattern language by a varied method. According to this method, the notion of three major concepts of context, problem and solution has been composed structurally as the general framework of this study. House form, house meaning and influencing factors are not only contexts that define a set of conditions. They also bring out the problems, which define a set of needs that occur in the given context.

A new pattern of houses and settlements is actually the solution, which defines the spatial arrangement of parts that are needed in order to solve a recurrent social, psychological and technical problem.

I am like Alexander aware that solutions and patterns are not absolute. They are empirical matters and they are always open to further observation and experiment, in order to gradually develop and improve the house form.

According to the appraisals, the house form in accordance with the influencing factors has not only been in improper condition, it has suffered some abnormalities in terms of quality. Some of the influencing factors are gradually improving, whereas the precious cultural ancient heritages have still not been unveiled and well applied.

Moreover, changes in economic status necessitate developing plans, which is beyond our scope. Some of the other influencing factors like the climate are not substantially changeable.

Thus the focus should be directed towards the housing itself. In other words, the housing should be mobilized against the climate. Geography and house setting are other influencing factors.

The existing habitations have small capabilities of improving because of affluent inconveniences. Natural possibilities for the provision of building materials might play a considerable role in changing and developing the house form.

House form has also had problems in terms of quality. Simplicity, being humble and contempt of living areas, the mixing of mans' living area with beasts' quarters, lack of sanitary amenities like latrine (*mostaráh/ kenáráb*) with running water, appropriate bathroom facilities, accessible water reservoirs, electric light and gas sources as a sanitary and cheap means of cooking the meal are among the most common matters that endanger the quality of the traditional houses in question.

Accomplishing the above tasks constitutes the major axis of changing and transforming the traditional houses. On the basis of these objectives, a long term strategy of interference is suggested, which is applicable into several short term programs. The strategy would be consisting of re-selection and developing of habitats and clusters and improvement of housing. Obviously, execution of the strategy of arranging the existing houses and settlements in order is the headline of the tasks, which necessitate precise study and implementation of plans.

The plan might be hierarchically achieved by authorities or by direct administration of an implementing organization enabling self-help approaches. However, there is a need for some kind of financial support like housing mortgages or other considerable allocated funds. The implementation of development programs necessitates other additional detailed discussions, thus the focus here is sufficed only on technical categories.

Housing of Central Afghanistan-Hazáraját cannot be developed and improved, unless we focus on the macro-level. Selecting appropriate habitats from the existing inappropriate areas and developing new living centers can be carried out in accordance with two obvious models of developing settlements on macro-level.

PART ONE
CHOICE & DEVELOPMENT
OF SETTLEMENTS

The significant enterprise of macro settlement and house cluster is to recognize and select the appropriate habitats on basis of the existing settlements. The security factor of the past was the top reason for settling down among the highland mountains full of natural discordance, and many old and inappropriate habitats have therefore been used as compulsory settlements. Recently however, on the grounds of demographic growth and depletion of natural resources, the procedure of moving down towards nearby low and flat plains has started, but with respect to the high dependence on people's own land, there are still many terrible habitats located in inappropriate regions.

Fundamentally, accommodation in mountainous habitats of the central regions with the recent standards are impractical to carry out, and it should therefore not be suggested that the appropriate habitats of central regions of Afghanistan should comply with the entire range of current criteria and standards of a basic settlement and house cluster.

Nevertheless, two bases shape the criteria of assessing what the proper and improper habitats are. The regions called inappropriate habitats that have a harsh and discard nature, so the consequences of the dwellers' struggle are almost in vain and the natural resources do not fulfill the needs of the dwellers. The other characteristics of inappropriate habitats are lack of growth and developing potential and having no access to welfare services and amenities.

Conversely, the appropriate habitations hold the above positive characteristics. It is proposed that the appropriate habitats ought to be changed, developed and welfare services and feasibility have to be added. Meanwhile, the inappropriate habitats ought to be evacuated. A number of the dwellers could be resettled in the developable living areas in the lowlands, and the remainders could be moved to other parts of the country according to a comprehensive plan.

Development of habitat and cluster

As some areas are inappropriately accessed, there are many other areas that serve as suitable for development and expansion. Naturally, wide valleys, depending on their potentials, are proper beds for developing habitation. The establishment of administrative centres can also be based on this fact. Perhaps, in the past, simplicity of the administrative system, un-developing of regions, easy accessibility of the centre of provinces via Kabul was of the main concern. Although it is said that tribal contradictions impacted the administrative centres located in Hazáras' habitats, or moved other tribal groups into the Hazáras living realm to benefit from the allocated services and feasibilities. The main objective of the administrative centres, to serve and solve the problems, were therefore only of secondary importance.

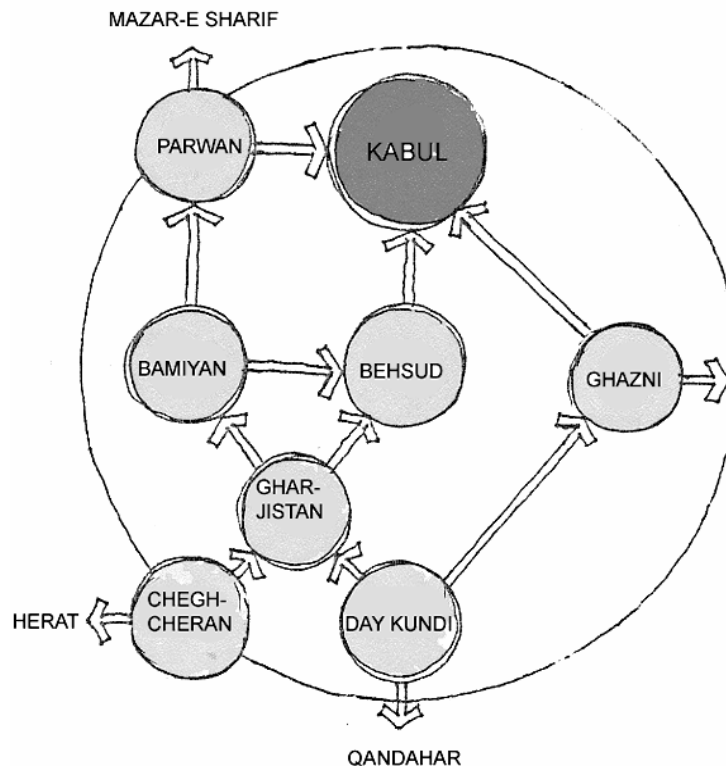


Fig. 393 *Kabul city as the major central*

Although, developing habitations now are taken into consideration on the basis of previous administrative centres, it does not exclusively suffice to those centres. Because, there are other habitats, which by getting importance, the region might be improved and influence considerably to habitation as well and to centralise the population of this region.

According to this target, there are three ways of centralising population and habitation in the regions. Hierarchically, habitats include the province (*weláyat*), the district (*woloswáli*) and the division (*aláqadár*) centres. The main parts of the central regions are located in Kabul's development zone. On the other hand, the geography of the region does not point to any of the provinces as a centre and supplier of the other needs. Meanwhile, parts of the central regions can not be joined to the neighbouring living centres as well.

By the basis of this fact, Kabul is considered as the major maternal supplying city for the central regions, and the centers of the regions that function as the secondary cities, rural cities and rural centres, ought to play large regional and local roles (Fig. 393).

As seen in Fig. 394, the province centres of *Ghazni*, *Bamiyán* and *Chegh'cherán* with the same existing position; *Nili* and *Behsud* valleys as the centre of *Uruzgán* and *Maidán* provinces; and *Panjau* as the centre of a new constituted province are suggested as the secondary cities²⁰.

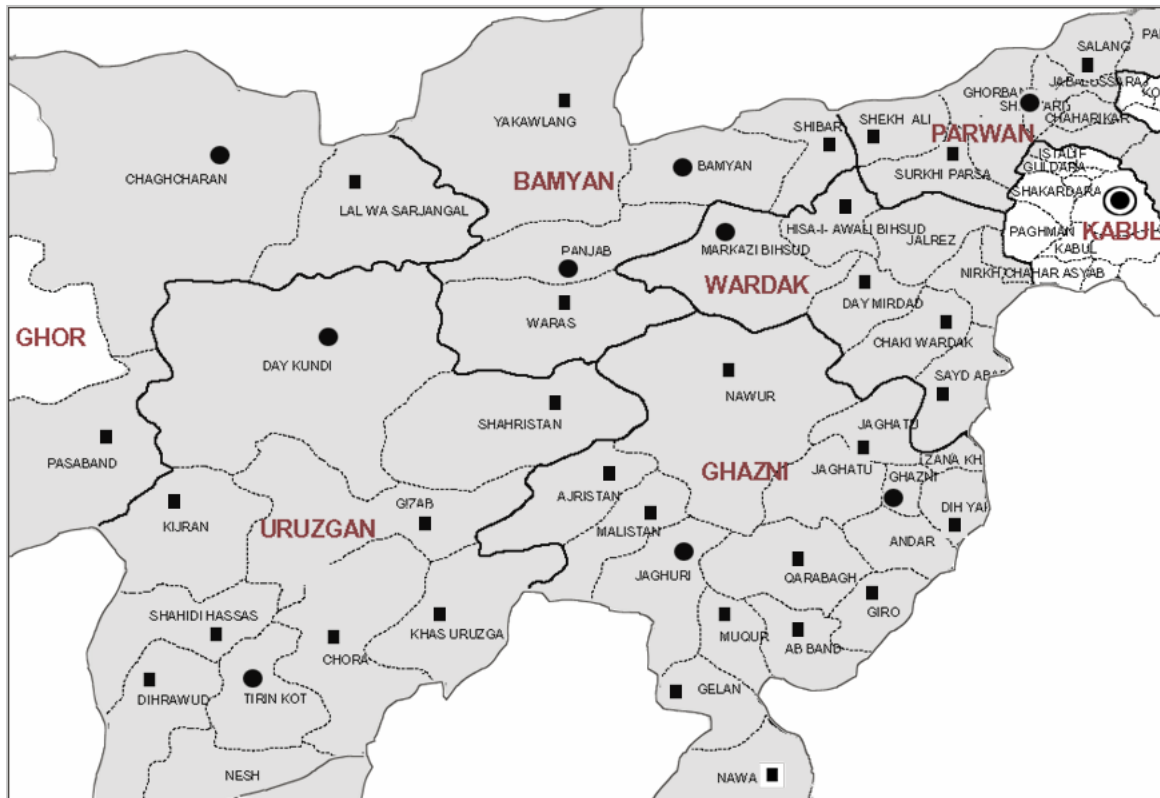


Fig. 394 The secondary cities, rural cities and rural centres

- Kabul, capital of the country, the major city
- Centre of province (welayat), the secondary cities
- Centre of district and division (woloswali/ akeqadan), rural city and rural centre

Moreover, centres of the districts and divisions like *Surkh pársá*, *Saighán*, *Nayak*, *Day merdád*, *Náwur*, *Málestán*, *Shahristán* and other centres of *Uruzgán*, depending on their potentials, could be brought out as rural cities or rural centres.

Although some of the proposed areas have growth and development potentials, some of the others are no doubt out of this capability. Regarding this purpose, some protective policies have to be taken and followed, and so the living areas ought to function hierarchically, especially on an economic level which includes agriculture, husbandry, handicrafts, tourism, industry and economy exchange, which could benefit from welfare and communication services eventually match the objectives of the improvement and development of habitats in central regions.

PART TWO
IMPROVEMENT OF HOUSES

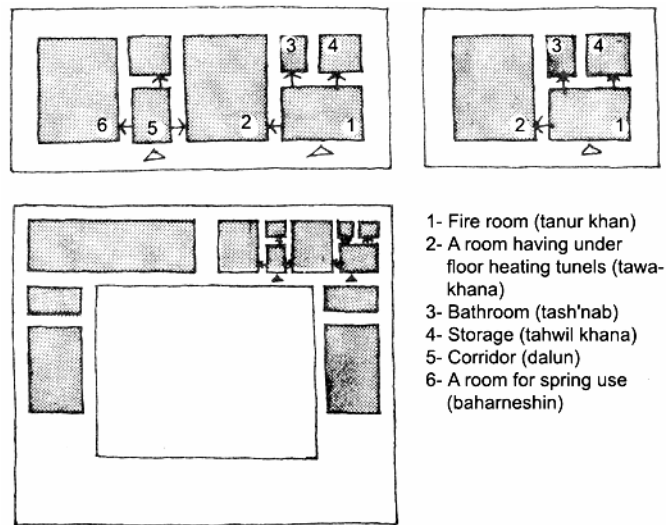


Fig. 395 Human minimum living area

According to the evaluation and assessments, the ways of improving and elevating the quality of living areas firstly has to be studied, and then we have to be focused on protecting methods for habitats in an extreme climate, access to appropriate building materials and the accommodation of constructional techniques.

Improving the quality of habitation

The solutions' amplitude of elevating the area quality is as widespread as the criteria of area quality, thus it needs to be directed to minimum standards, and it needs to be determined which level that is the critical level of quality, and that levels lower than the one decided upon are unacceptable and that levels above are ideal. Most housing of the central regions includes the family living quarters, beast stables and additional areas.

Family living quarters

The quality of the area affects the well-being of humans and the average pace of life directly and considerably. The proper quality of an area depends on the economic affordability and capability. Although, a small number of dwellers benefits from these possibilities, but such a quarter is almost an inaccessible demand and ideal for majority of the people.

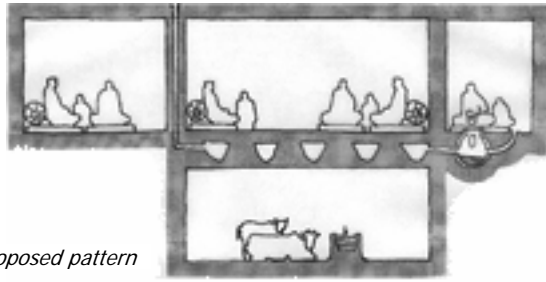


Fig. 397 A proposed pattern

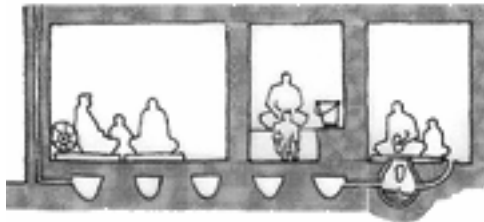


Fig. 396 A proposed pattern

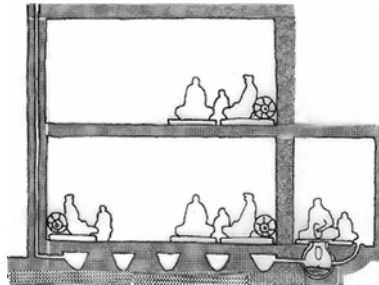


Fig. 398 A proposed pattern

Nevertheless, the struggles of the dwellers could consequently be deduced and give them access to at least minimum areas, by which the human munificence could be preserved.

According to the studies, the minimum family living quarters contains the major area hostelry activities; eating and sleeping; household dimensions of nuclear and extended households. and hygienic and service areas. The major areas depend on the It is suggested that the minimum area for as nuclear household including a wife and a man with one or two small children, might be a room with under floor heating tunnels (*táwa khána*) and a fire room (*átesh khána*). For an extended family however, extra areas like a room for spring use (*bahár neshin*) can be added (Fig. 395).

The *táwa khána* can be suggested as the major and significant focus of the family hostelry activities of sitting, eating and sleeping for both parents and children (Fig. 396, 397, 398). *Táwa khána* is convenient with a local heating system, and it is therefore highly suitable, especially in cold seasons. *Átesh khána* and the *tanur khána* are facilitated with a baking oven (*tanur*). The heat generated from *tanur* is used for baking bread, it warms up the room and is led through under floor tunnels and warms the adjacent room of *táwa khána*.

It is supposed that the fire room is going to be used as kitchen (*kár khána/ matbakh*). In other words, bread has to be baked and the meals have to be cooked (Fig. 396, 397, 398).

Note:

As it should be understood, most of the wives' time is spent in the *tanur khána* baking bread, cooking the meals and other related activities. It is therefore suitable that *tanur khána* could remain the main family activities' room as it was before, but that the discordance factors like smoke expelling and its harmful qualities are removed. In this case, such an arrangement has to be taken care of in addition to planning after a proper layout of *tanur khána*. By applying different facilities, smoke has to be drawn out of the room, and in another case, *tanur* has to be built as a fire place, which in addition to utilizing the existed warmth for baking bread, might also give consideration to the aesthetic aspect. Then *táwa khána* would become a warm and clean room which could be used as young children's sleeping room and as a guest room. Instead, *tanur khána* could also function as the parents' sleeping room. Perhaps, *tanur khána* has to be large enough to perform all the needed activities. Because of its lack of a heating system like there is in *táwa khána* and *átesh khána*. *Bahár neshin* could be considered as a seasonal room.



Fig. 400 Bath room

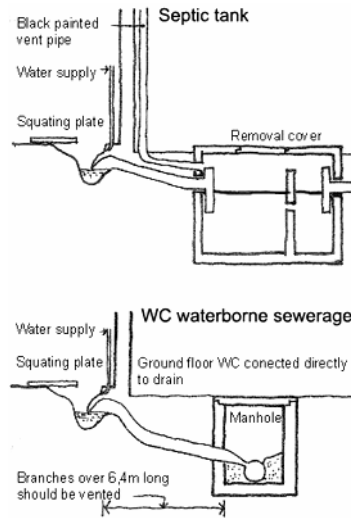


Fig. 399 toilet

It is suggested that *bahār neshin* can be used as a guestroom and sleeping room for young children of the extended family by using temporary heating means like a local stove (*chari*) (Fig. 436, 437).

Sanitary areas

Sanitary areas including latrine (*mostarāh/ kenārāb*) and bathroom (*tash'nāb*) are among the most necessary areas which a house has to be facilitated with. Lacking appropriate sanitary installation decreases the quality of a living area significantly and entails the decrease in the average rate of life. Latrine and bathroom therefore figure out among the basic elements of the minimum standard of the needed areas of a household.

The required condition of a sanitary latrine is the reticulated water supply (Fig. 399). A bathroom has to be either a warm area or have warm water for bathing. The most proper place for a bathroom is between *ātesh khāna* and *tāwa khāna* (Fig. 396), because burning *tanur*, not only warms the bath area, but it can warm up the water reservoir as well.

In cases, when it is impossible to build a bathroom between *ātesh khāna* and *tāwa khāna*, another fire room can be used as an independent source of the heating system. This approach is suitable for a common bathroom for the whole family of an extended household (Fig. 400).

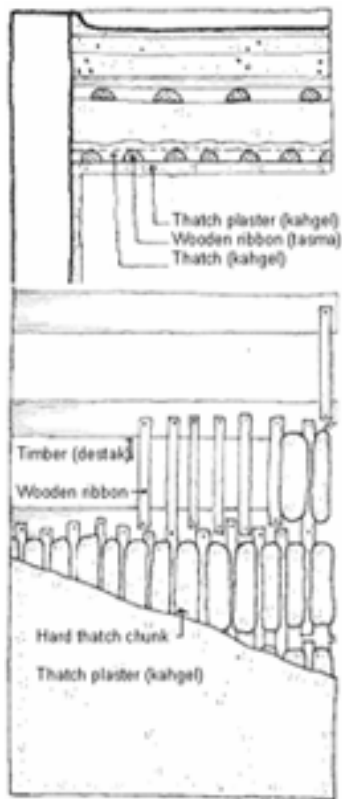


Fig. 401 Thatched ceiling coating

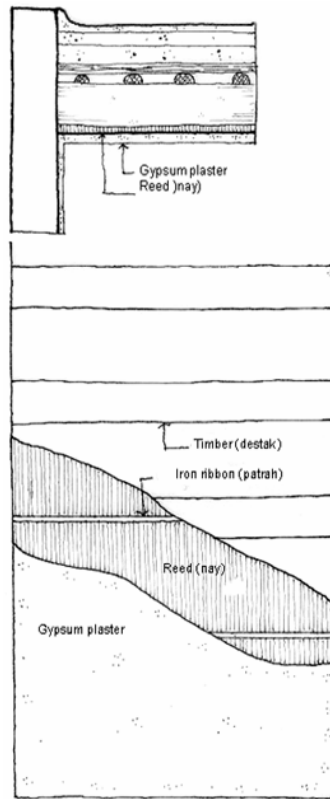


Fig. 402 Gypsum ceiling cover

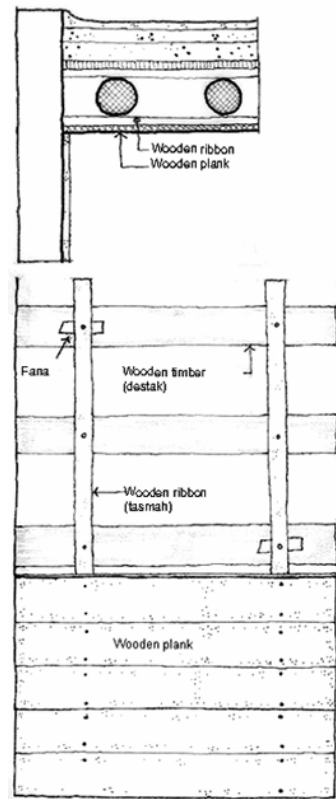


Fig. 403 Wooden Plank ceiling cover

No doubt, the above suggestion is needed as a minimum area for housing, but the other complementary areas like storerooms for fodder, fire wood and dried animal dung are also unavoidable as being adjacent to the proposed areas.

Interior design and exterior façade

The interior design and exterior façade play significant roles in the beautification of a building. However, they are a manifestation and identity of domestic architecture, although elements emanated from cultural and religious values could be found. Ceiling and interior sidewalls count as identical interior design and under ceiling has to be covered (*mosattah*). In Fig. 401, 402, 403 some of the ceiling covering instances by using mud and plank wood materials have been seen, and they accommodate the conditions of the region best.

Prosperous sidewalls and adornment of doors, apertures, windows niches, shelves and so on exceed the quality of other areas (Fig. 404).

Painting the sides and ceiling lights up the area and adds to its pleasantness, and it is therefore necessary to paint the ceiling covering and sidewalls by applying either natural or modern materials²¹.

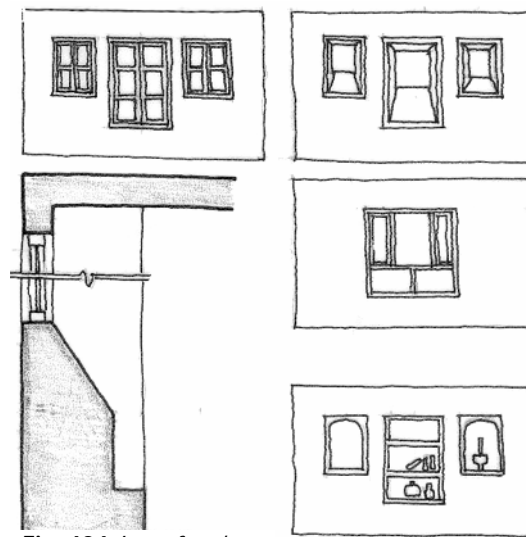


Fig. 404 Inner facades

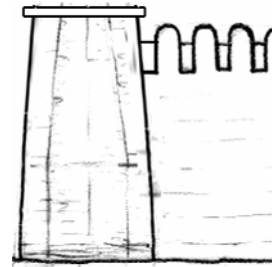


Fig. 405 defensive elements

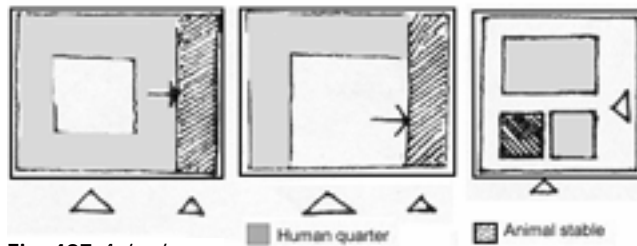


Fig. 407 Animal

On exterior facades the gracious cultural elements inherited from the past have to be used, but today's valuable physical elements ought to be utilized as well (Fig. 405, 406).

Animal stable

For observing the sanitary requirements, not only the stable of beasts have to be moved out of the human living quarter, but the area where they go to and fro in should be separated as well (Fig. 407). Perhaps, the distance between the two areas would become a problem during the cold winter. Perhaps, one of the reasons that Helvetian, Swiss peasants kept their beasts in their living areas, was the warmth they could get from them (Rapoport 1969: 35-36). However, they had access to the beasts and, thus, did not have to get outside in extreme cold and snowy weather.

Protection against climatic factors

Tending to improve the climate conditions of housing is of utmost importance in Hazárjât because of a long period with very cold weather and a snowy winter. The cool season, depending on the location of the region, extends from five to seven months of the year. This is of course a long period. If accordance between housing conditions and the climate situation existed, this period might be shortened to three months; January, February and March

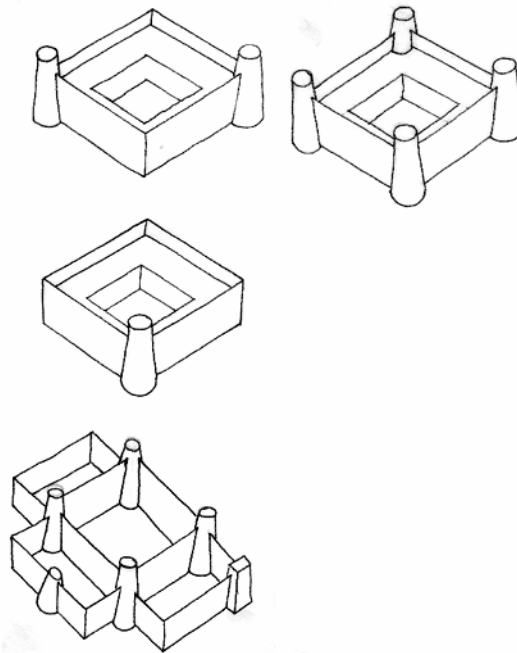


Fig. 406 *Physical elements of a fort*

(*Jadi, Dalve and Hut*), which is the most critical period of the cold season. In other words, the houses could be warmed by any type of heating means during these three months, whilst the remainder of the period might be balanced by some arrangements.

The following climate instructions actually comprise a set of proper existing and other required efforts.

There are basic attempts to balance the discordant climate factors like cool and cool wind and accordant climate factors like sun glare. In other words, the sun glare has to be maximally used in order to remove the unbearable influence of cool and cool wind or reduce it to a minimum. Cool weather emanating from the low temperature is a comprehensive and unavoidable fact, whilst the two other factors of wind and sun as a discordant and proper climate factor are the variable factors that affect architects and designers.

Wind is substantially the air movement. It becomes cold whenever, there is cool air. Nevertheless, the wind role is not as much of a determinant as the sun. Architects and designers cannot be careless about the sun, which is mostly an accessible elixir.

The destructive role of wind can be protected by some ordering e.g. erecting windbreak walls. Of course, wall protections are only effective in decreasing the influence of wind, not to stop it completely. Nonetheless, sun and wind play an effective and determinant role in the formation of buildings and clusters.

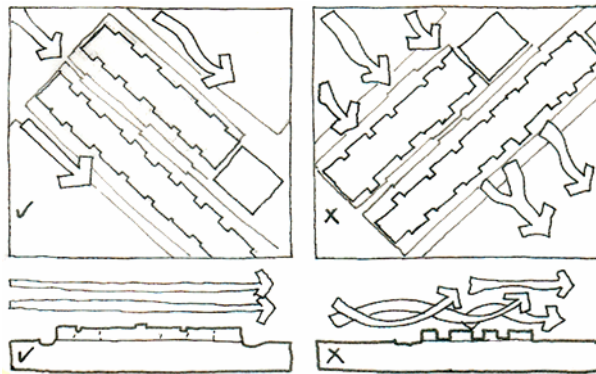


Fig. 408 Situation of clusters versus the winds

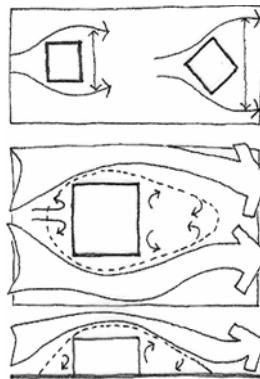


Fig. 409 Wind direction

Regarding the impacts of accordant and discordant climate factors, depending on the amount of their abilities and efficiencies and the effect it has on the form and layout of housing and clusters, some suggestions are rendered below:

First, if there is no access to the sun glare or its role is not significant; the role of cool air and cool wind will be determinant. In this case, square plan and cubical form are recognized as the most proper forms, because the cubical form has minimum exterior surface considering its massive volume. The existing naked housing (*kaldiwāl/ kuta*), with mostly small apertures, connives the sun glare, but it mobilizes against the wind. For protecting the wind squeeze in the rear of the building against wind, a small angle with the direction of the wind is the most proper layout of building and clusters (Fig. 408).

Cubical form in facing the terrible wind prepares a much wider area of the wind blowing, which blows through the edge of the two-angled surface of the cube, This area is suited for some exterior functions. Moreover, the two other secured sides of the building are suitable for openings like doors, and windows (Fig. 409). **Second**, in cases where the sun glare is significant, the cubic form would not cope with the climate necessities, except in exceptional cases, but stretched rectangular cubic form oriented towards the sun might be a more appropriate form in regard to the climate.

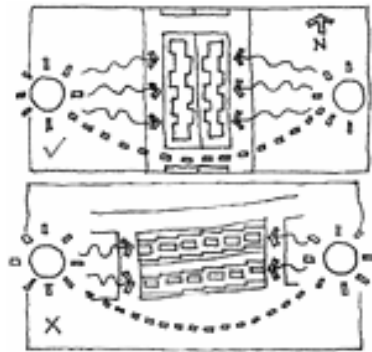


Fig. 410 Situation of clusters versus the winds

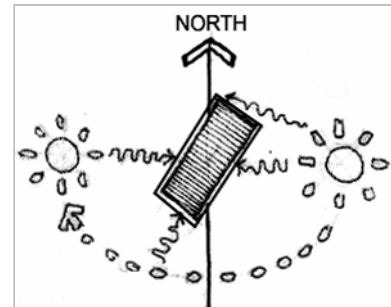


Fig. 411 Perfect situation of buildings

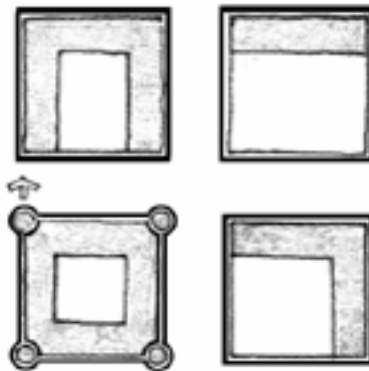


Fig. 413 Situation of man's living areas

The sun orientation is more determinant than the wind direction. It is suggested for this purpose that the direction can be chosen to be suitable for sun absorption.

In this case, the two following themes have to be taken into consideration:

One: Minimizing the northern front of the building and cluster and situating maximum length of the building and cluster in sun orientation (Fig. 410). **Two:** Deviating buildings and clusters from the precise north-south axis about 25 degrees clockwise, in order the whole part of building and cluster to be in sun orientation for longer periods of time during the day (Fig. 411).

It is noteworthy, that the most important factors in the layout of a housing cluster, is sun orientation on both sides of the streets and single buildings, which might prevent the snow from stacking and freezing. Moreover, there must also be facilities for shadow on the sidewalks during summer. The fort ramparts and courtyard walls play a considerable role in protecting the wind squeeze (Fig. 412), thus the main areas have to be built in the southeast and westward sun oriented sides (Fig. 413).

In some cases, northern sides of buildings have sunk into the hill or mountainside. Obviously, it is not suggested to build a building with no protective walls (Fig. 453). When it is necessary to build a house with a congested square plan and distinct from surrounding walls, the major areas have to be in sun orientation and the service areas like the kitchen (*kár khána*), store room (*tahwil*

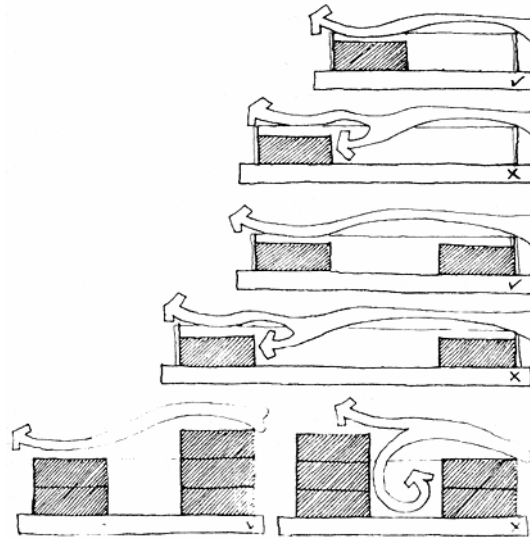


Fig. 412 Wind shield

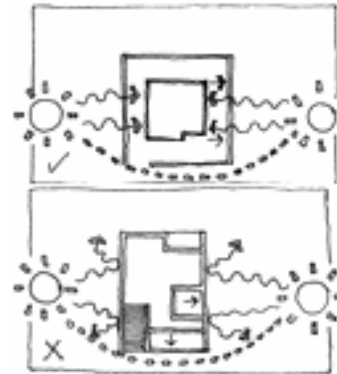


Fig. 415 Building situation

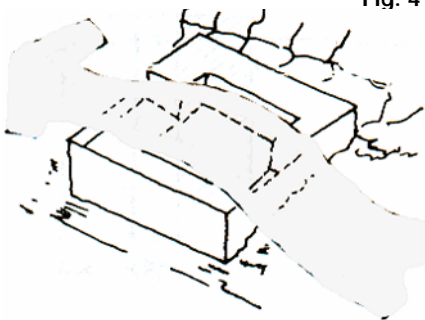


Fig. 414 Wind shield

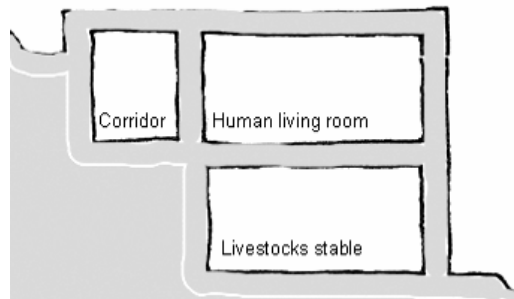


Fig. 416 Living quarter above the frost line

khána) and so on have to be located in northern part of the building as a heating isolator (Fig. 415).

During the months where the weather is not so cold, there is no problem with ventilation, but in winter months, because of extreme cool and low air moisture, outdoor convection has to be minimised. Transpiration of interior surfaces in the winter is one of the main problems. When one cannot prevent it by air circulation or natural ventilation, the situation becomes even worse. Because admitting cool air to come in from the outside causes it to become unpleasantly and severely cold inside. However, the admitted outside air decrease the interior moisture because of its low moisture.

The interior moisture decrease may cause skin itches, so for preventing transpiration, the interior moisture has to be decreased without the loss of inner warmth. Nevertheless, preventing transpiration from window surfaces by the current techniques is almost impossible, (*unless the windows are made with double glazing*). Thus, some details have to be added in order to not soak the underlying wall of the windows.

Building floors have to be elevated at least one meter above the ground level in order to avoid the frost line. According to the local approaches, building the beast stable on a lower floor than the family living area and buffering this room with the fire room or corridor along the mountain or hillside, these are among the practical techniques for having the right distance to the frost line (Fig. 416).

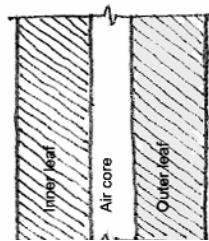


Fig. 417 Two leaves wall

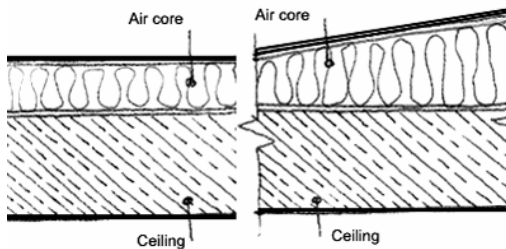


Fig. 418 Flat and pitched roof

The existing walls, built of sun-dried mud bricks or pre-stressed mud (*pakh'sa*) of a great thickness, fulfil the climate necessities of the region. If the existing type of the building material and the large thickness of walls ought to be changed, no doubt, wall details also have to be changed.

In this case it is suggested that two leaved walls with an air core between the leaves should be built (Fig. 417).

The cored walls should not have any type of interruption between them, because the core captures moist air that comes in through the cracks in the exterior surface leaf and prevents any moisture from penetrating into the inner leaf. However, it is suggested that water conduits in the lower part of a cored wall is built, because moisture that stops in core also descends downwards in the core. If there is not any form of conduit, the water gathered will cause damage to the wall and moisture can penetrate the building.

The existing ceilings, like the walls, are functioning quite well in connection with the extreme climate of the region, but if we are going to use modern building materials, the ceiling ought to undergo some changes.

In this case, the best suggestion is to use isolation. Ceiling isolation can be used over or under the roof, and in a pitch roof; a layer of captured air can be kept (Fig. 418).

Development of building materials and construction

Still, the peripheral nature is the significant supplier of building materials. Most of the existing building materials like mud and stone can be found abundantly in the peripheral nature and the other materials like wood have not been ready made. So, these types of materials have to be applied after having grown in the nature.

The applicable building materials have not been very varied and include clay, stone and wood. Likewise, building techniques are also restricted and extremely dependent on the possibilities according to which the existing building materials have been prepared.

According to the evaluations, the existing building materials and techniques have been applied with no changes and no improvement for ages. Using clay has not yet been developed and it is applied in primitive style. The potential of stone and its abundant capabilities have not been revealed. Wood still steps up from the first stages. Likewise, mortars have not been in good conditions.

As pointed out, that these improvements are unaffordable for the dwellers is one of the main reasons to the undeveloped character of the building materials and construction, which tended towards the easy accessible building materials and restricted techniques. In this chapter, we try first to find out the ways, which would terminate the growth and improvement of the building materials in order to fulfil the primary and minimum necessities and then it can be directed to the higher quality materials, which could better cope with the climate needs and high erosion. Perhaps it would be a good idea to focus on the community-based materials.

Building materials

Mud constructed buildings have been known to be very old and they have been recorded from the beginning of man's removal from the caves and as long as people have been living together. From then and up to the industrial revolution, in almost all the continents in any climate, in nearly all cultures and civilisations and in all of the rural and urban areas and in simple or magnificent buildings, mud constructed materials have been used.

After the industrial revolution however, mud constructed buildings had been forgotten, but Frank Lloyd Wright (1869- 1959) in Central America, Le Corbusier (1887- 1965) in France and Hassan Fathi (1900- 1989) in Egypt are among the famous architects, who nevertheless tended to mud constructed architecture. Today about 30 percent of the world population is living in mud buildings, this figure is 50 percent for developing countries, and of these, 30 percent are rural housings and 20 percent urban houses (Multajá M. E, 18-20 & 38-40, 1372-73).

Despite mud and mud constructed building as a natural material and accessible building technique, it has not been brought up well in many countries facing a housing crisis, but in Hazáraját and other parts of the country, mud plays the most significant role. Mud buildings are the most common building construction, but it is undeveloped. Therefore, the indigenous style inevitably has to be mixed with modern technological supplies like chemical functions like, soil polymerising and composites, which are among the new approaches in encountering today's exceeded problems and necessities, in order to bring mud constructed buildings up as a new type of building today's buildings.

For enrichment of the soils, some mixtures can be added in order to provide a proper building material. The enriched materials cause the soil particles to stick to each other and the soil is thus fully soaked and does not swell. Soil enrichment has taken place in the previous traditional techniques and part of it is still being used, but because of inaccessibility of the ingredient materials the techniques have been abolished almost completely.

Adding milk to the pre-stressed mud (*pakh'sá*) of forts, particularly in *Shir qala'* of *Ajrestán*, now remains to be no more than a tale.

The traditional enrichers i.e. *Sandala* and *Siáh chuna*, used ash of local kiln (*dásh*) and lime (*chunah*) because of inaccessibility to traditional materials, but this has also been forgotten.

What is left today from the traditional enrichers is the adding of straw into mud which applies widely and also can be applied as a thatch plaster. Moreover, mixing animal hair, especially, goat's hair is used for smoothing of the baking oven (*tanur*) and building of the cereal heave.

Many mud enrichers have become recognised, and it is thus important in the selection between them to accommodate with the regions' soils. The main issues are that they have to be easy accessible, economic and fulfil the demanded targets.

Cement is the best stabiliser of soil. It has just two flaws. It is expensive and inaccessible. The mixture is called soil cement.

Cement affects the clays to a high degree. It has to be perfectly added, bigger particles have to be smashed, in order for all particles to have contact with the cement.

Two factors have a direct impact on the soil strength - the coefficient of friction and adhesion. Adding cement exceeds the adhesive coefficient and afterwards exceeds the soil strength. The characteristics of the soil cement mixture depend on the soil type, the type of stabilising used and the amount of ingredient material of the mixture. Regarding the time needed for cement to reach its maximum strength however, the mixture strength also ascends gradually. From soil cement mixture, a sort of brick can be prepared which can even be used for building higher buildings than the normal two floors.

According to the studies in Kabul Engineering Faculty, adding 6% cement to soil consisting of 45% sand and adding 4% cement to the soils with more than 50% sand, a strength of more than 14kg/sqcm can be obtained (Zia 1992).

Quick lime and hydrate lime are the best stabilisers of clay. The lime enriching operation differs from cement because lime is not originally an adhesive material, and it therefore cannot produce a stiff mixture. Nevertheless, close contact of limewater with clay particles has the result that more water cannot penetrate into the mixture. In addition to not being as expensive as cement, lime can be accessed throughout the central regions. A soil lime mixture needs six times more time than the soil cement mixture in order to reach its maximum strength.

Lime facilitates to work with soil, but it cannot sufficiently be mixed with soil because it cannot come into contact with all soil particles, but soil strength can be reached through applying a lime and cement mixture. Although, this solution is more expensive and takes longer time, it might be the best choice.

Adding a proper amount of tar to the soil prevents the brick dimension to not be changed and it protects it from dump distraction. Tar is added to the soils, which consist of a large amount of sand, a small percentage of slit stone and clay. In addition to being an adhesive, tar in the mixture results a very strong mix. This characteristic is well-suited for walling made of a mixture with a large amount of clay but with little strength. In the soil consisting of 50% sand, 4- 6% tar is optimal. In soil consisting of predominant clay, 12- 20% tar can be added according to the studies, in the soil having 50% sand 4- 6% tar and in the soil of predominant clay 12- 20% tar can be added.

Sand soil is suited for pre-stressed brick. For preparing pre-stressed bricks, if the soil is grainy (*larger than 10mm*), it has to sieved first and then dried. Then, after adding the needed stabiliser, the brick should be cast by hand, or by mechanical or electrical mould in order to produce the brick.

The produced bricks have to be soaked in order to reach their strength. If the cement and lime are going to be used as stabilisers, at least one weeks time is needed for the wall to be ready.

For preparing mortar, one gauge cement, one gauge lime and six gauges sand with sufficient water or one gauge cement and three gauges sand with sufficient water is needed. Whenever, soil mixer is going to be used for mortar, it needs to be a type with less clay, in order to prevent expansion cracks from appearing. Adding a stabiliser like Portland cement or lime to mortar, strengthens the wall made with pre-stressed brick.

Stone is among the materials, which is abundantly found in the mountainous area of Hazáraját. Stone has various potentials and having different colours and characteristics, thus they can be applied for different constructional purposes.

Because of higher cost and poorer isolation, stone has not been well applied, but due to the weak structure of soil, it is unavoidable to consider stone as an abundant and cheap natural material.

Moreover, stone is a long lasting and consistent material that protects against the severe climate erosion. A stone construction is more adorned and delicate than a mud one. It has an aesthetic and pleasant appearance and makes the architecture more magnificent and beautiful.

Preferably, stone is to be applied as masonry, and the use of block stone as ashlar is not recommended.

Construction

The existing load bearing wall is still efficient for many of the housing types. The only needed enterprise is to strengthen the system more and renew its building materials. Regarding the climatic necessities of the thick walls of the buildings, there is no need to build a single skeleton system.

It should be noted that for developing the building techniques in addition to rendering new proposals, it is summarised in two categories for optimizing and improving the existing construction. Optimizing and improving the existing construction take place by using mud constructed materials and aim at finding out how it can affect the existing problems and discordances.

If mud constructed materials are going to be used unimproved, the building techniques will accordingly remain undeveloped.

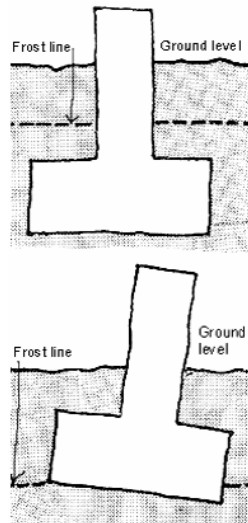


Fig. 419

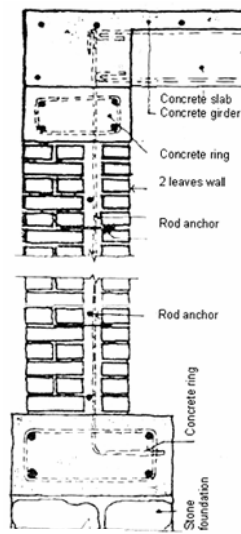


Fig. 420

Certainly, any qualitative improvements of building materials directly influence the building techniques.

In the following, besides rendering instructions for promoting the quality of materials, some principles and regulations have unavoidably been brought up for improvement of the building construction as well.

The foundation is the lowest part of the building, which is sunken into the ground, and its main role of it is to tolerate the load of the building and transmit it to the ground.

However, the base functions as a preparation for a levelled surface for walling and it prevents the building from cracking up due to frost or severe winds.

The base dimensions depend on the soil strength and weight of the building. Stone is the main ingredient in the material of the basement, because when it is sunken into the ground, it has to be consistent and durable against the climate erosion, frost and moisture.

In Hazáraját, the foundation has to be built lower than the frost line, because otherwise, it might budge or crack during or after a very cold period (Fig. 419).

Mortar for jointing stone parcels has to be in good quality in order for the stone parcels to not be released from each other.



Fig. 421



Fig. 422 *pre-stressed brick wall*

Generally, two sorts of mortar are suggested. One, is mortar made of cement and sand, which is prepared by mixing one gauge of cement with six gauges of sand. The other is batard mortar, which is obtained by mixing cement, powdered lime and sand. For preparing this mortar, 130kg cement and 130kg powdered hydrated lime has to be mixed with one cubic meter sand.

In the case of using modern materials, the foundation can be carried out on the basis of the previous technique. The only sensible difference is that a concrete ring of stone masonry is built in order to level and stabilizing it. However, it can also be joined with the upper part of the building by vertical rings or columns (Fig. 420). Some of the surrounding walls can be functioning without any critical changes (Fig. 421). The only suggestion is that the wall surface of pre-stressed mud has to be smoothed. If the mud is coarse or grainy, it has to be coated with thatch and coped on the top of the wall, in order to be protected against climate erosion.

The existing walls ought to be changed significantly. The walls can first of all be built in two leaves. In other words, air has to be captured in-between the two leaves. The captured air is a good and considerable isolator and figures the simplest and cheapest method.

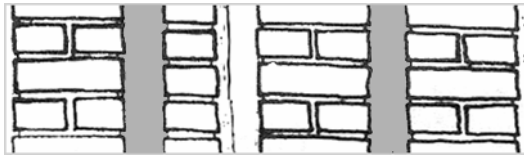


Fig. 423 Two leaves walls with pre-stressed brick



Fig. 424

Fig. 425



Fig. 429 Inside leave of the wall with cement block

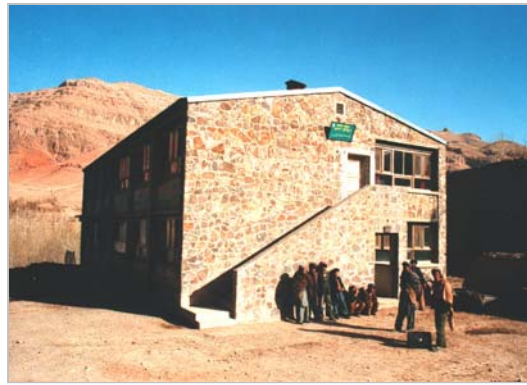


Fig. 427 Stone constructed wall



Fig. 428

Other types of isolation, like foam, can also be used. Then different alternatives in applying building materials in both interior and exterior leaves would have to be considered.

For building the two leaved walls with either the stabilised mud or the new stone materials, a composition of the two traditional and modern materials would necessarily have to be applied.

Two leaved walls not only cope with the climate conditions, they are thinner than the existing walls. Moreover, they would be much more beautiful. In Fig. 422 the stabilised mud materials, i.e. pre-stressed brick, form part of the two leaved wall materials. This type of walling is applicable whenever there is no access to pure clay.

Walling width exposing the pre-stressed bricks is either suitable for the outer façade (Fig. 423) or inner surface, which can be plastered by thatch types of coating (*kāhgel/ semgel*).

In other instances (Fig. 424), the outer leaf is made of pre-stressed brick and the inner leaf is built of cement blocks.

In addition to being hollow and light, the inner surface of cement blocks is suited for new plaster types like lime, cement and sand and it leaves a suitable plane for painting.

In Fig. 425, 426, the two leaves are made of new materials. Stone is a delicate and long-lasting material against climate erosion in the outer leaf and cement blocks best suits in the interior leaf of the wall (Fig. 427, 428, 429).

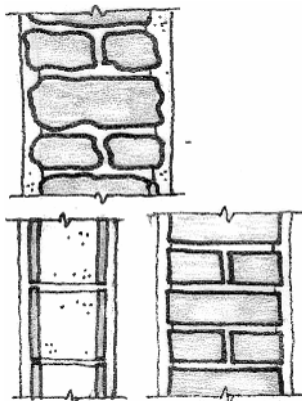


Fig. 431 Inner walls



Fig. 432 Inner wall with stone

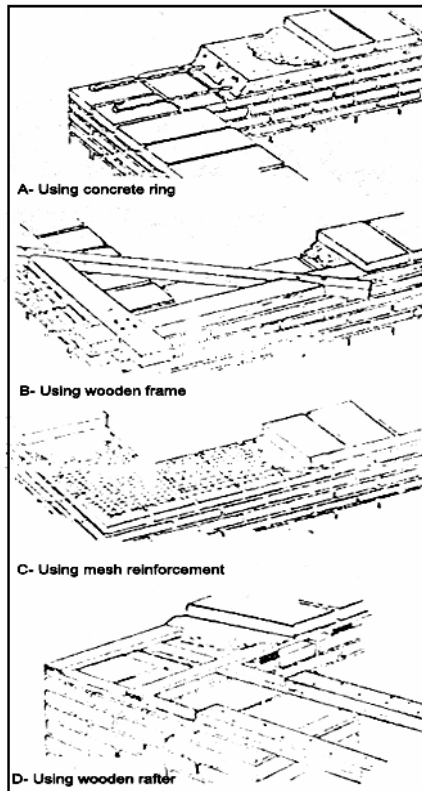


Fig. 430 Joints of mud constructed walls



Fig. 426 Two leaves wall

For strengthening pre-stressed mud walls, the elements of the building ought to be joined horizontally, and concrete or wooden rings have to be built in the middle and underneath the slab. (Fig. 430). Inner walls are only partition walls. The sidewalls are neither climate modifiers nor do they bear heavy loads. Inner walls as well as outer walls can be varied by replacing mud-constructed materials with new materials (Fig. 431, 432).

The ceiling is among the most substantial elements in load bearing systems. If the ceiling is going to be changed, the changes according to the existing facts would be slight and minor, but it would be necessary if the current problems are to be solved. Among the other elements, the outer leaf of the roof has to be changed dramatically, because it is facing severe erosion by being in contact with heavy snow and rain. Moreover, the area under the ceiling ought to be coated by thatched or wooden coating (Fig. 401, 402, 403).

For this purpose, mud loam (*ghurage*) for the roof has to be well softened, and then the stabiliser material lime and cement have to be mixed first in order to prevent cracks and leakages. However, adding an amount of tar or petroleum to the mixture, which ought to be well squashed, is the other solution. In climate terms, a protective outer layer is needed to prevent climate erosion, thus a thin layer of small sized gravel can fulfil this need. Spreading out a shell of tar prevents the dispersion and displacement of gravel.



Fig. 433 *Pitched roof*

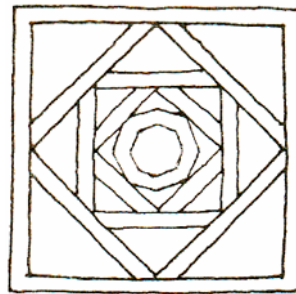


Fig. 434 *Lantern ceiling*

If the ceiling is going to be built of modern materials, regarding the characteristics of new materials and climate necessities, the form of the ceiling must be considerably changed in order to be improved and it has to be changed to a pitch roof.

For this purpose, prefabricated girders with hollow cement blocks may be among the solutions for roofing. Nevertheless, casting slab can also be used.

In a load bearing wall system, a concrete girder acts as a horizontal beam ring. However, this girder is applied for vertical joints of the ceiling to the walls and foundation, in order to stabilize the building. The horizontal ring under the ceiling and the vertical ring are unavoidable in prefabricated girders used with the cement block system. Although a ceiling consisting of a girder and cement blocks, especially with concrete slab, is a substantial and stable ceiling.

It cannot prevent convection between the inside warmth and outside cold. A layer of captured air as an isolator in the ceiling fulfils the climate requirements.

However, an at least 12% ceiling slope prevents the snow from accumulating on the roof and there is no need to shovel it off.

Domestic materials like wooden trusses for sloping the ceiling and wooden planks for levelling the surface are convenient. However, galvanised metal sheets are suitable for the final finishing of the roof (**Fig. 433**).



Fig. 435 *Plaster finishing erosion*



Fig. 436 *Plaster finishing erosion*

The proposed ceiling systems fulfil only limited spans whether or not they are constructed according to local techniques or new styles. For joisting larger spans, the current technique of wooden, concrete or metal trusses ought to be applied. If there is a restriction in regard to the architectural form, then an old lantern ceiling system could be utilised. By using this technique, larger areas can easily be spanned with minimum expense and with local or new materials (**Fig. 435**).

Well-congested soil is suitable for flooring, but stabilisers have to be used for more stabilising and long lasting effects. The soil used for building is suitable for flooring as well. Lime and Portland cement is among the most important stabilisers, and more proper flooring can be built by using tar, which gives the floor a dark colour. Even though it may not sound as nice, ash and even animal blood can also be used as stabilisers.

The floors that are in contact with water i.e. bath floor, kitchen sink or basin and latrine drainage can also be built in accordance with this method.

However, for the last finishing saturated cement has to be poured over the surfaces in order to cover all probable leakages.

Despite applying a limited finishing, no finishing has been suggested for the outer façade of stone or pre-stressed brick, because the extreme climate causes it to erode rapidly and crack and fall down (**Fig. 435, 436**). The facades of the houses built elaborately with pre-stressed brick are more beautiful than the

ones made out of plaster or coating. Stone facades are also pleasant on the eye. Most indications of plastering or coating are seen on inner surfaces. Thatch plaster (*kāhgel/ semgel*) is appropriate for pre-stressed brick walling and lime, cement and sand plaster are mostly suitable for cement block walling.

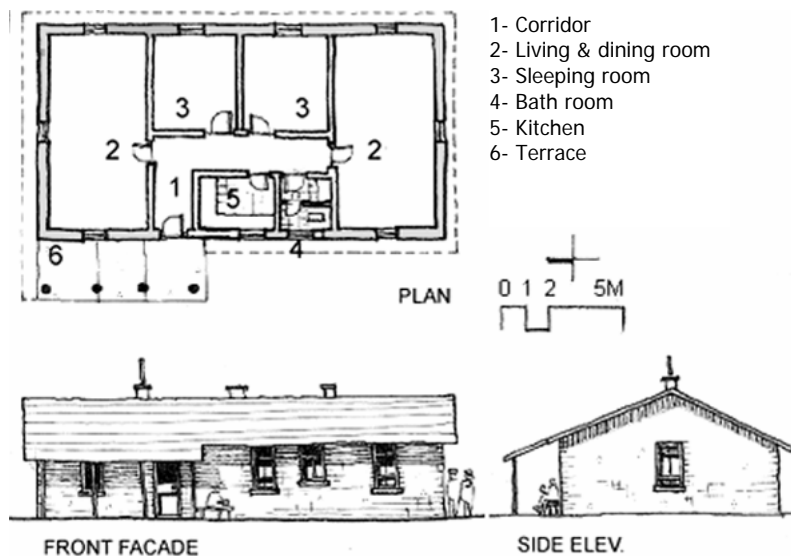


Fig. 437 A staff house in Yakaulang

Many writers regret the fate of forts, which were destroyed in the last century, and many experts and artists now express their enthusiasm in preserving the remainders of the forts, but local dwellers have a different opinion because the old ruined forts just seem boring to many of them. The housing architecture of Hazáraját has accepted some changes after the decade of seventieth and the changes have been stepped up since the end of the present decade.

In tracing the path of changes and transformations, two criteria have been of the primary concern; **first**, the official act and **second**, the dwellers' explicit and implicit attitudes.

The authorities have not been playing a significant role in the recent changes. Perhaps the only noteworthy case is a dwelling, which was built near a clinic in *Nayak*, the centre of *Yakaulang* (Fig. 437, 438)., Design of the dwelling, despite responding the extreme climate of the region, and use of the compatible building materials did not hold a position from the heart of the domestic architecture.

The dwellers' implicit attitudes had mostly been idealistic in their objecting to change and they would thus blame the hard living conditions for delineating an ideal lifestyle for the future, which is demonstrated by writers' and artists' expressions. The reflection on the dwellers' implicit attitudes has come about through interviews with them on the ground. They pointed to many idealistic physical built up areas, which had been built by their fellows, but those built up areas had been unaffordable for the vast majority of the people.

The explicit attitudes of the people can be seen as proper criteria for appraising their willingness to change, which is evident from the physical built up areas. Fortunately, the changes have had sufficient time to render some patterns and outputs.



Fig. 438 A staff house in Yakaulang

Epilogue

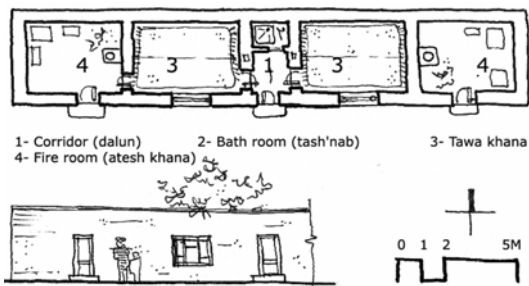


Fig. 439 Suhra's house Fula'di Bamiyan,

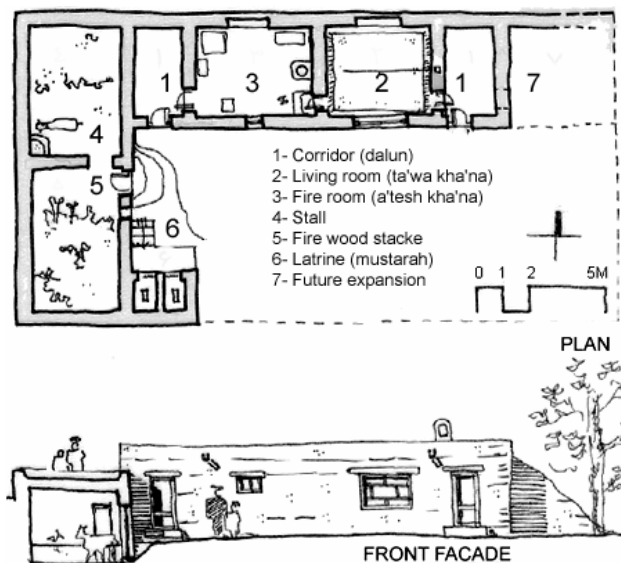


Fig. 440 Mohd, Ali's house Shinyah Fula'di Bamiyan,

The presented patterns consist of a plan layout for improving and raising the quality of the built up areas and the application of qualified building materials.

The simplest newly built housing patterns are seen in Fig. 439, 440, which have been chosen after leaving the old *qala'* (Exam. 35) and *Kaldiwal* (Exam. 25).

The dwellers have usually tended towards the two new types of housing of Exam. 17, 24 and Exam. 30, 32. Note that the mentioned examples belong to the courtyard housing type. However, the second example is the main type of housing that is built in all parts of Hazáraját, but especially in the proximity of Kabul city, because of its more qualified plan layout and appropriate materials, which situates it in the top level. This does not however decrease the abundant tendency towards the first example, because the dwellers in central Hazáraját and the *Uruzgán* province are much more likely to tend towards the ear-dropped (*gushwára-ye*) type. Moreover, in *Turkman* valleys people tend to build more a house type called *the central courtyard housing* due to the land scarcity. Exam. 45 is one of the most conservative newly built patterns. Even though new patterns have been accepted, this example shows that there is no firm intention to neglect the privilege of social prestige, which existed in the towers of the old forts. By this given function, the towers have been employed for undergoing a new architectural style.

The newly built dwelling of Exam. 29 is more sensitive when it comes to changing the old patterns compared to Exam. 43, because in this example, regardless of the special security condition of the region, there are larger windows in the lower floor.

Generally, the dwellers' explicit and implicit demands versus change and transformation can be categorised in two groups: first, some of the attitudes and physical built up areas are principally built on rich experiences and based on precise recognition of the region.

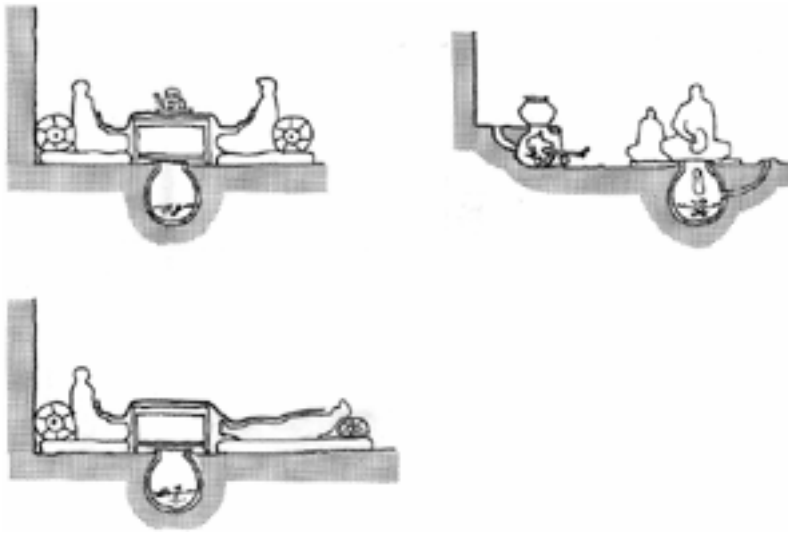


Fig. 441 Different functions of tanur kha'na

Consequently, the outcome of changes has been useful and efficient. For instance, the selection of an optimal solution for the naked housing; as of observing hygienic criteria by withdrawing beasts from man's living quarter, and in the cases where there is distinct stable; sanitary services like latrine (*kenārāb*) and bathroom (*tash'nāb*) have been included. Facilitating proper lighting and ventilation by widening the windows and clearing interior and exterior façades have also been seen. **Second**, some of the attitudes and physical built up areas have not been based on any principles. Having parapet walls around the roof by consoling the ceiling with wooden logs as it is common in modern buildings (**Exam. 31**) reveals the poor recognition of applying technical knowledge. In **Exam. 45** however, the towers have been given the function as guestroom, which has annihilated the characteristics of towers, and by turning the towers into guestrooms instead of maintaining their original purpose, harms the old architectural values. The opened up windows in the lower floor of **Exam. 29** display a clear contrast to the common style of the region.

One of the most important requirements is that the houses have to obtain the inhabitants' prestigious demand.

We understand that habitation in mountainous Hazárājāt has gradually been developing with regard to the congested and nested shelters of the naked housing (*kaldiwāl/ kuta*) or in the fort (*qala*) types. Certainly, in previous housing types, only the primary need of being a shelter was considered, and the goal was for people to be safe from the severe climate and fierce animals. In the old days, the housing types did not respond to the prestigious demands of the dwellers. Instead it considerably affected the human munificence.

Co-existence between man, beasts and tools in a closed and limited is among the most distinguished characteristic of such a shelter type, which lacked sufficient lighting, inlet of sun glare and ventilation.

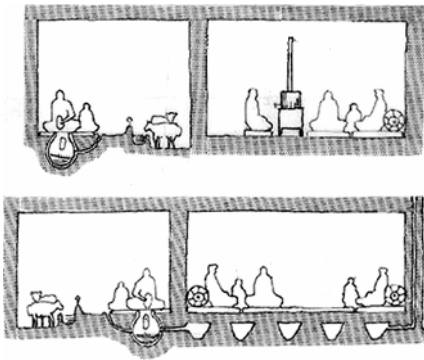


Fig. 443

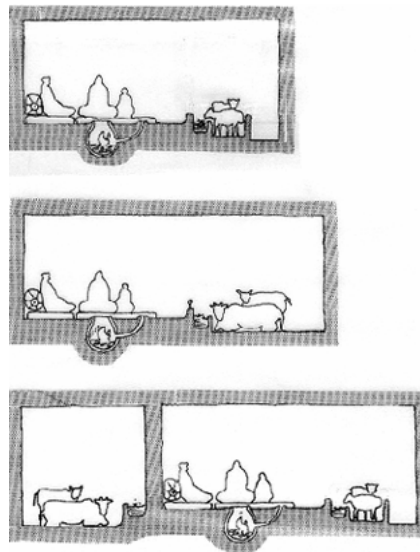


Fig. 442 Animal quarter versus human

Furthermore, the housing was deprived of proper hygienic facilities like latrine (*mostaráh/ kenáráb*) and bathroom (*tash'náb*).

Although the naked housing (*kaldiwál/ kuta*) is the remainder of a primitive life style, it has been undergoing considerable improvement. Nevertheless, the hostelry activities of a family in the *kaldiwál* are not distinct, but most of the activities take place in a small room with a baking oven (*tanur khána*) (Fig. 441). Recently, significant changes have taken place in improving and promoting the quality of human habitation in *kaldiwál*, especially in separating man's and animals' quarters (Fig. 442). Meanwhile, climatic requirements have also been given attention. The family living room has been mobilised with under floor heating tunnels (*táwa khána*) and heating reservoirs like as local stove (*chari*), which has added to the quality of the family living area (Fig. 443). In spite of these changes, numbers of *kaldiwál* houses are still deprived of natural lighting, sun glare and sufficient ventilation. However, hygienic installations like latrine and bathroom have been given the least attention during the process of change and development. Despite all of the changes that have been carried out, the *kaldiwál* and its lack of hygienic criteria and social prestige for coping with the dwellers' demands, means that it remains located in the lowest level of housing standard.

The social prestige of *hawili* and *qala'* housing types have not been forgotten. These are actually characterised on the basis of the exceeding demands of the dwellers, and the quality of habitation is thus raised. In addition to having been subjected to more qualified changes than *kaldiwál* housing, the above mentioned dwelling types stand out due to the creation of substantial separation between man and animal quarters, which lifts the quality of the human living area. In some of the houses, the human living area has been moved to the upper floor, which ensures a broad separation between the two areas.

Moreover, seasonally used areas like a distinct *bahār neshin* for cooking the meals and baking bread are sometimes included too, and this also heightens the diversity and quality of these dwelling types. Mixing man and animal quarters only takes place if the inhabitants wish to warm up their cold living quarter during the winter, but with animals in mans' quarter, the health and well-being of the inhabitants is threatened. Because animals produce various types of fungus and herpes and attract harmful insects, and thus having animals close to the human quarter and the use of wood as the building component escalates the problems emanating from being careless with hygienic matters, which ultimately reduces the average age of death considerably. In cases where livestock is placed in the lower floor under the human living quarter, pollution decreases, but fungus from the animals' stable rushes towards the ceiling.

According to the evaluations, the pattern of the *Nayak* dwelling has never been imitated, even in more flexible instances like **Exam. 30, 31**, not even partially, but the mentioned examples have had immense influences on the Kabul city patterns.

Two factors might play a determining role in the selection of patterns: **one**, the social ties and solidarity between the people of the two regions; **two**, lack of access to and lack of knowledge about building techniques and materials have had the result that the new patterns were not imitated and, thus, the interests have tended towards the patterns that are common in Kabul city. No doubt, life is running and people build house by traditional customs and community based knowledge and experiences. Nevertheless, an important question is still remained, whether the absence of political will could make possible the people to benefit the advantages of new changes in order to get rid of today's hard life style and provide ease and access to a better welfare life.

References

¹ The word of *A'qzara't* has been used throughout this text, and many other local literatures, but M. Nasim Sáei, a local language expert believes that *A'khzarát*, which means pleasure and greenery, is the correct pronunciation.

² Ferdinand 1959a, 1960; Andrew 1973; Kazimee 1977; Szabo (Albert and Brenda) 1978; Centilivers Demont 1978; Edelberg and Jones 1979; Erwin Groetzbach 1979; Stanley and Samizay 1980; Azizi 1980; Wutt 1981; Herberg and Janata 1982; Edelberg 1984; Karzev 1986; Habibi 1987; Centilivers and Centilivers Demont 1988; Najimi 1988; Leslie 1990; Szabo and Barfield 1991.

³ These are my comments.

⁴ Rapoport takes this term for granted from Max Sorre.

⁵ This term belongs to Redfield.

⁶ Refer to Manzoor (1989:37)

⁷ In dialectal Farsi of Hazáragi and Kabuli the last "r" of common noun e.g. "*diwár*" and its derivatives e.g. "*kaldiwár*" change to "l" and pronounce as "*diwál*" and "*kaldiwál*" respectively.

⁸ In dialectal Farsi of Hazáragi "*dálár*", "*dígdár*" etc. change to "*dá lur*", "*dígdur*" etc.

⁹ In dialectal Farsi of Hazáragi "*áb*" changes to "*au*" such as "*tahdáb*" changes to "*táhdau*".

¹⁰ In local market wooden timbers categorises by the size of their cross sectional circumferences. Wooden timber has sufficient strength against tension and compression. Moreover, it is natural isolator, light and durable. Timber produces from poplar tree (*chenár/spidár*) according to the following procedure: primarily, trunks of the cut tree are wet. Since wet timber deforms, cracks, twists and it is vulnerable against insects and fungus, therefore, it requires to be laid down against blowing wind on a flat surface, then to be skinned and branched. This procedure may take 4- 5 months.

¹¹ Reed is a round-stemmed plant, which is grown in swamps. It is mostly laid down over wooden timbers and pole of the roof. Reed besides having isolating characteristics is light and easy portable. However, it applies as inner coating of gypsum plaster of the ceiling. Reap plant after cutting has to be laid down under the direct glare of sun for nearly two weeks, and then to be bounded in bunches of 25- 50cm.

¹² Cement plaster is a compound of lime, sand and cement. In the beginning, lime soaks with water, and then ceives to get the extract of the mixture. After adding an amount of cement, plaster is ready to use. When the finishing is considered to be much smoother and transparent, a plaster made of lime extract having small amount of cement is coated repeatedly.

Stucco is used for smoothing interior walls. Meanwhile, smooth surface stucco is not a good idea for painting. In some cases, sand gravel as big as a pea is added to the mixture called coarse plaster (*chitka-ye*) for exterior facades.

Quick lime produces as a consequence of high degree burning of gypsum in local kiln. For preparing joist mortar, water adds to the lime as much as to stop its boiling status.

Lime plaster is a mixture of burnt lime, sand and water, which uses as mortar for masonry materials such as brick and stone. It also uses for plastering of interior and exterior walls.

If gravel adds to the mixture instead of sand, then a kind of lime concrete (*shifteh*) produces, which is used for under lying of floors.

For preparing lime plaster, water adds to the lime after boiling as much as to be attenuated, then adds an amount of sand and stirs up to produce a viscid paste.

Stucco is in the form of white colour powder, which produces by a high degree burning of stucco. Powdered gypsum in contact with water hardens rapidly (*gach-e zendah*). Therefore, the needed plaster has to be prepared gradually just before using. For preparing stucco plaster, first powdered gypsum pours gradually in to the required amount of stucco plaster and stirs. If the mixture is going to be a long last

material, water should be added gradually more than the usual needs and to be stirred as to lose its initial adhesion and to be convert it to a kind of loosen paste, called died stucco (*gach-e mordah*). This mixture uses for plastering of walls and ceilings and applies for painting as well.

¹³ Sun dried brick prepares usually on building lot from surrounding soil. If the soil is going to be used for mud, is too hard, primarily water has to be powered on the soil, to loose it and prepare it for spading and digging out. Then it has to be soaked more than before as to form a mixture of soil and water. This process usually achieves in the evening and let it releases until tomorrow morning. Then the mixture is as much spaded as to get adhesion and consolidation. The mud mixture is now ready for use. Mud puts in to small portable wooden moulds of 4- 5 normal brick, in order to form of brick and drop it out on a flat site under sun glare until to be dried. To prevent adhesion of mud in to the wooden mould, inside the mould soaks with water than dries with sand after each dropping out of mud. Brick dries under sun glare in one to two days. Eventually sun dried brick are gathered and uses as constructional material.

Sun dried brick are converted to burnt brick by local kiln. Local kiln has cylindrical form and it is made of two compartments. Lower compartment is a little trenched down the ground and it is about one fourth of the whole cylinder forms furnace of the kiln divided. There is a lacy ceiling over the furnace, as to room for the entire contents of the kiln such as layers of gypsum in lower level and sun dried brick in upper level. Meanwhile, out come of burning heat and smoke of furnace penetrate into the nested piled sun dried contents of kiln and convert them to burnt brick and stucco. All around of the kiln except smoke hole in the top, coats with thatch plaster (*kahgel*) and let the fire turn on for two three days and equivalent to this time remains heat to be gradually cooled. By the end of this process, a huge amount of burnt bricks and stucco are produced.

¹⁴ Sandal is a dump proof local material consists of burnt powder of firebrick called *karand*, lime and water, which apply for plastering of walls and ceilings. According to Prof. Sami from Department of Architecture of Kabul Engineering Faculty 1/3cum lime (*chunah*), 1/3cum burnt powder of fire brick in 160 litre water constitute the component of sandal.

¹⁵ In the past, many efforts had been made to prepare a best quality pre-stressed mud. Firstly, around side walls or ramparts were ploughed, the soil made upside down up to the demanded depth and was soaked, then one or two ploughing bullock or possibly an elephant had to steady walk on the mud for nearly one week time, in order to stir the mud as to get cohesion and adhesion. In *Shir qal'a* of Ajrestan, when mud was well prepared, for quality control a small chunk of mud in the size of a tennis ball had been knitted and put it into running water. If the ball had not been dispersed, deformed or lost weight, then it had been evaluated that the mud had been reached to the consolidation stage, otherwise, mud stirring had to be continued until to meet the demanded requirements.

Since cow milk plays an important role in exceeding the mud firmness and adhesion, so it is said, milk was mixed in to the pre-stressed mud of *Shir qal'a*. *Shir qal'a* means milk fort.

Pre-stressed mud prepares in all around sidewalls. First, a layer of 60cm high wall has been laid down for being the base wall, and then the above layers have gradually been built up until to reach the demanded heights. Sometimes, there might be the problem of cohesion between each layer, because of slow progress of building the layers over each other or occurrence of a long pause, which might be terminated as poor joints and cracks in the future. For preventing such a defect, thin stone slabs are put over the joints of each layers of *pakh'sa*.

¹⁶ Dupree explains: On the walls, unfortunately, in bad condition, the purely Sassanian style reaches to its florescence. On the ceiling there were a series of medallions of roundels, in the tradition of Sassanian textile designs, containing winged horses, heads of wild boars and dove like birds with strings of pearls in their beaks. Hunting wild boar was very popular with the kings of Iran and boar's head became a heraldic symbol of the royal house during the time of Khosru II and in here, it was copied by the ruler of Bamiyan during the early part of the VII century. Part of medallion with a bird might still be seen in the southwest edge of the vestibule roof. Others, in excellent condition have been removed and might be found in the Kabul Museum. The façade of this vestibule is the only retaining any of its original decoration.

The octagonal sanctuary is very ornate. Above the niches, which has originally been sheltered seated Buddha is a foliated scroll in each circle having a finely modelled Buddha in low relief (Fig. 28). The placement of human and animal figures within foliated scrolls was very popular in Roman art of the Antoine period and it was a motif employed frequently by Gandahara sculptors. Below this frieze, there had been finely painted Budhitrees with reddish trunks and branches sheltering seated Buddhas. In the Northwest corner, these branches had been flow up tiny white blossoms. Above the foliated scroll had been an ornate arcade of trilobed arches decorated with foliated scrolls in very high relief as well. On the ceiling there had been a very interesting example of lantern (*fanus*) roof. The central hexagon had been filled with a geometrical design of lozenges and triangles, which had been repeated on the copula of Grotto XI near the large Buddha.

¹⁷ Poplar trees grown in the region have normally been from 30cm to 1.0m in diameter, which are cut in to 10x10cm, 5x12cm and 10x15cm in width and uses for door, window, and shelf frames. Sometimes, the trees trunk is sawed as a 2.5cm planks for door panels, table, chair and under ceiling cover (*mosattah*) and shelf panels.

¹⁸ Deader or Himalayan cedar of pine family wood has considerably been used in doors, windows, ceiling cover and furniture of the building. This type of wood is not found among the local espies of trees, but it is imported necessarily from out of the region.

Deader wood is various with different qualities, including *Nishter*, *Mirzaka*, *Gordom*, *Chahár tarásh*, *Jalghuzah* and *Jajer*. Deader trunks are normally cut as a cubic rectangular form with 80x80cm cross-section and 4 to 5m in length.

¹⁹ Rapoport cited in Robert Redfield, *Peasant Society and Culture*, 1965.

²⁰ According to the proposal of local political parties, Haza'raja't should be divided into the five provinces of *Bamiyan*, *Ghazni*, *Behsud*, *Gharjistan* and *Day kund* with *Bamiyan city*, *Jághuri*, *Markaz-e behsud*, *Panjau* and *Nili* as the centres of these regions respectively.

²¹ Painting usually takes place by using white washing, plastic and oil paints. It is better to use white washing and plastic paints for sidewalls and ceilings, while, woodwork elements like doors, windows, shelves and ceiling coverings ought to be painted with oil paint. Although both washing and plastic paints have commonly been used, plastic paint is preferred, because it is suitable and long lasting. Nevertheless, white washing paint is a color in which there is water in the mixture. As this type of paint is used widely in other parts of the country, e.g. in Kabul, it can be used in the central region as well. For interior walls with *semgel* plaster, a natural mud paint called *Iranian mud* is suitable.

Iranian mud naturally comes from the *Lalandar* gorge on the outskirts of Kabul. It is stiff and soft with a disseminated form. It mixes with water and produces the required paint. The mixture is originally white and a kind of colored powder, preferably *Belgian powder*, is used to get the required color. In cases of a full white washing color, an amount of gypsum is added to the mixture. According to the experiments, $\frac{1}{2}$ seir (*equal to 3 $\frac{1}{2}$ kg*) of gypsum is sufficient. For preparing paint, the first step is to saturate water with mud, then pass it through a sieve in order to remove large grains and other unwanted materials. Glue made with straw is soaking in another pot and is added to the mixture after sieving it. 2 seir (*equal to 14 kg*) of *Iranian mud* with $\frac{1}{2}$ páw (*equal to 300g*) straw glue is sufficient for a 12-sqm room. 12 eggs in addition to a glass of washing powder for clothes have to be added to the mixture. Eventually, the paint is ready to be applied by using either a painting brush (*muyak*) or roller.

For interior wall with cement made plaster, the most appropriate paint is the mixture of powdered marble and water.

The wall surface is firstly smoothed with emery (*rigmál*), and then it is coated with straw glue (*serish-e káhh*) which lasts to become dry in 2 hours time. The surface is sanded (*batuna*) after the application and needs to be painted three times. In mixtures of powdered marble and water, special carpentry glue (*serish-e kamánger*) is added in order to the mixture become more adhesive. 2 seir (*equal to 14 kg*) of powdered marmarite in addition to one páw (*equal to 600g*) of glue is sufficient to paint a 12 sqm room. Colored powder may also be used.

Oil paint (*rang-e rughani*) is mainly used for painting woodworks. First the woodwork surface is sanded, then it is sealed (*galga*) and sanded again by using

emery number one. After the first coating, it is sanded by using emery number zero, and after that the second coating is applied.

The applicable filler (*galga*) for mud plastered walls is comprised by stiff *Iranian mud* and glue, while the mixture of powdered stone (*semkák/ qásh/qár*), a bit of oil, varnish, and an amount of water in order to descent the adhesive components of the filler used on woodworks.

Specification & Address of Examples

1. The Naked Housing (*kaldiwál/ diwál/ kuta*)

- Exam. 1-** Panjau (*Panjáb*), Áqzarát, Safidak, Mohammad's House
Exam. 2- Hesa-ye awal-e behsud, Qulkhesh, Ergin, Sardár's House
Exam. 3- Hesa-ye awal-e Behsud, Qerghui, Ali Ján's House
Exam. 4- Surkh Pársá, Lulenj, Dahán-e Tirkuh, Sakhi Dád's House
Exam. 5- Hesa-ye awal-e behsud, Qulkhesh, Shinia-ye Ergin, Sultán Ali Jawádi's House
Exam. 6- Hesa-ye awal-e behsud, Qerghui, Nesár Ahmad's House
Exam. 7- Hesa-ye awal-e behsud, Qulkhesh, Sur'khak-e Ergin, Masjidi's House
Exam. 8- Yakaulang, Kata khána, Ayub-e Sayed Mirzá's House
Exam. 9- Hesa-ye awal-e behsud, Qerghui, Mohammad Ashraf's House
Exam. 10&11- Hesa-ye awal-e behsud, Qerghui, Mohammad Nabi & Shaikh Sultán's House
Exam. 12- Panjau, Áqzarát, Dahán-e Gudar, Musá's House

2. The Courtyard Housing (*hawil*)

- Exam. 13-** Shebar, Bolulah, Khodá Dád's Courtyard
Exam. 14- Shaikh Ali, Jarf, Katasang, Shaikh Báqer's Courtyard
Exam. 15- Markaz-e Bámiyán, Tulwára, Mohammad Aslam's Courtyard
Exam. 16- Panjau, Áqzarát, Shinia-ye maktab, Chaman-e baqál's Courtyard
Exam. 17- Hesa-ye awal-e behsud, Qulkhesh, Dahán-e Lakh'shán, Ali Rezá's Courtyard
Exam. 18- La'lo sar-e jangle, a type of Courtyard
Exam. 19- Turkman, Ali Kháni, Háji Mohammad Hussain's Courtyard
Exam. 20- Turkman, Ali Kháni, Háji Haqáni's Courtyard
Exam. 21- Turkman, Ali Kháni, Háji Ghulám Rezá's Courtyard
Exam. 22- Hesa-ye awal-e behsud, Qulkhesh, Surkhak-e Ergin, Hussain Bakh'sh's Courtyard
Exam. 23- Hesa-ye awal-e behsud, Qulkhesh, Dahán-e besrak, Hussain & Ebráhim's Courtyard
Exam. 24- Hesa-ye awal-e behsud, Qulkhesh, Dahán-e besrak, Háji Náder's Courtyard
Exam. 25- Markaz-e bámiyán, Shinia-ye fuládi, Mohammad Ali's Courtyard
Exam. 26- Shaikh Ali, Jarf, Katasang, Mohammad Báqer's Courtyard
Exam. 27- Markaz-e bámiyán, Sur'kh Qul, Háji Mohammad Náser's Courtyard
Exam. 28- Yakaulang, Petáb-e zárin, Mohammad-e khazána Dár's Courtyard
Exam. 29- Panjau, Dahán-e sadberg, Khádem Zawár's Courtyard
Exam. 30- Yakaulang, Kush'kak, Mohammad Easá-ye Khazána Dár's Courtyard
Exam. 31- Yakaulang, Mar'ghistán, Eng. Azizulláh's Courtyard
Exam. 32- Lulenj, Dahán-e Tirkuh, Dalir's Courtyard

3. The Fort Housing (*qal'a*)

- Exam. 33-** Panjau, Áqzarát, Kich's Fort
Exam. 34- Markaz-e bámiyán, Kham-e kala-e páyen, Darwish Boy's Fort
Exam. 35- Markaz-e bámiyán, Shinia-ye fuládi, Suhráb's Fort
Exam. 36- Markaz-e bámiyán, Siáh khák-e fuládi, Háji Amir Ján's Old Fort
Exam. 37- Shebar, Bolulah, Lakh'shán Qal'a, Juma' Big's Fort
Exam. 38- Panjau, Áqzarát, Sarah-e daulati, Sayed Gul Áqá's Fort
Exam. 39- Surkh Pársá, Lulenj, Qal'a-ye nau/ safidak, Sayed Sarwar's Fort
Exam. 40- Surkh Pársá, Lulenj, Dahán-e Tirkuh, Háji Sayed Gul Áqá's Fort
Exam. 41- Panjau, Narges-e Áqzarát, Wakil Akbar Khán's Fort
Exam. 42- Panjau, Narges-e Áqzarát, Sanátor Mohammad Ali Khán's Fort
Exam. 43- Panjau, Dahán-e gudar-e áqzarát, Ya'qub Rezá'ei's Fort
Exam. 44- Panjau, Áqzarát, Háji Ya'qub's Fort
Exam. 45- Markaz-e bámiyán, Siáh khák-e fuládi, Háji Amir Ján's New Fort

4. The Grottoes Housing (*sum/ somuj*)

- The Old Grottoes

- Exam. 46-** Statue (35m high) depended grottoes, Grotto A.
Exam. 47- Statue (35m high) depended grottoes, Grotto A1.
Exam. 48- Statue (35m high) depended grottoes, Grotto B.
Exam. 49- Statue (35m high) depended grottoes, Grotto C.
Exam. 50- Statue (35m high) depended grottoes, Grotto D.

Exam. 51- Statue (53m high) depended grottoes, Grotto I.
Exam. 52- Statue (53m high) depended grottoes, Grotto V.
Exam. 53- Statue (53m high) depended grottoes, Grotto XI.
Exam. 54- Statue (53m high) depended grottoes, Grotto XII.
Exam. 55- Statue (53m high) depended grottoes, Grotto XIII.
Exam. 56- The Grottoes of the Fuládi Valley
Exam. 57- The Grottoes of the Kakrak Valley

5. The Portable Housing (*hut/ chapari*)

- Huts (*chapari*)

Exam. 62- Circular Hut with Centre pole
Exam. 63- Central Hut without Centre pole
Exam. 64- Polygonal Hut

- Tents (*ghizh'di*)

Exam- 65- A Typical Tent
Exam. 66- A Tent from the first Summer Camp in Girdulang of Háza'raját
Exam. 67- A Tent from the second Summer Camp in Girdulang of Háza'raját

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Fig. 447, 448, 454 *Hasan Reza*
Fig. 469 *Abdul Halim Zia*

Glossary

<i>Àbáti</i>	enclosure of a house
<i>Àbriz</i>	local toilet
<i>Àbriz-e mehmán</i>	guest's water basin
<i>Àbruw</i>	gutter
<i>Àbruw-e bám</i>	roof gutter
<i>Àghil</i>	village
<i>Àghul-e gau</i>	cows stall
<i>Àkhur</i>	manger
<i>Àkhur-e bahári</i>	stall for spring use
<i>Almári-e lebás</i>	wardrobe
<i>Almári-e zoruf</i>	cupboard
<i>Ang´áf-e fururafra</i>	recessed pointing
<i>Angáf</i>	joint, point
<i>Angáf-e barjastah</i>	tuck-pointing
<i>Angáf-e rangi</i>	pencilling
<i>Angáf-e sáf</i>	flat joint pointing
<i>Archah</i>	deader tree
<i>Áster</i>	base coating, bond coat
<i>Átesh khána</i>	fireplace room
<i>Átesh khána</i>	fireplace room & kitchen
<i>Átesh´dán</i>	hearth
<i>Átesh´khán-e tash´náb</i>	bath fire room
<i>Bágh´cha</i>	orchard
<i>Bahár kháb</i>	roof terrace surrounded by parapet wall about two meters high for sleeping during the summer
<i>Bahár neshin</i>	room for spring use
<i>Bahár neshin-e mehmán</i>	guest room for spring use
<i>Bálá khána</i>	upper story room, guest room
<i>Balut</i>	chestnut tree
<i>Baranda</i>	veranda
<i>Báru</i>	rampart
<i>Bid</i>	willow tree
<i>Burj</i>	tower
<i>Burya/ Buryá</i>	woven mat made of straw
<i>Chahár pá-ye</i>	bed made of wood and rope
<i>Cháhak-e kenáráb</i>	latrine water pit
<i>Chahár díwáli</i>	chamber
<i>Chahár khesh´ti</i>	hearth
<i>Cháh-e áb</i>	water well
<i>Cha´kak</i>	dripping, drippage
<i>Chalma</i>	cows dried dung kneaded with straw
<i>Chapari</i>	hut
<i>Chari</i>	local stove with cooking & boiling means
<i>Chegh</i>	woven reed mat
<i>Chenár</i>	poplar tree
<i>Chufti</i>	mullion
<i>Chunah</i>	lime
<i>Chuquri</i>	trench, canal
<i>Curd-e sabzi</i>	vegetables planted plot
<i>Dagar</i>	leaves and branches laying over the wooden logs of the ceiling
<i>Dálan/ Dálán</i>	corridor
<i>Darwáza-ye dupala-ye</i>	double leaf door
<i>Dásh</i>	traditional kiln for baking sun dried brick and gypsum
<i>Dastak</i>	wooden log for spanning of the ceiling
<i>Day-e aláf</i>	stacks of fodder
<i>Day-e buta</i>	stacks of thorny scrub or bushes
<i>Day-e chalma</i>	stacks of cow dried dung's kneading with straw
<i>Dayrak</i>	narrower timber laying over the main logs of the ceiling
<i>Digdun</i>	andiron
<i>Dudkash</i>	chimney

<i>Eal-e baragu</i>	lambs pen
<i>Eiláq</i>	summer camp
<i>Ghizh'di</i>	black tent
<i>Giru</i>	shadow side
<i>Gulpushak</i>	under ceiling coating depicted flowers
<i>Gush'wára-ye</i>	new type of the courtyard housing set forth by the two sides as eardrop
<i>Hash'ti</i>	vestibule
<i>Hawili</i>	courtyard
<i>Hawili-ye andaruni</i>	inner court
<i>Hawili-ye buruni</i>	outer court
<i>Hawili-ye paslu</i>	back yard
<i>Hawili-ye pish'lu</i>	front yard
<i>Hesár</i>	fort wall, rampart
<i>Hizum khána</i>	fire bushes store room
<i>Jágah</i>	bed, sleeping quarter
<i>Jam'khu</i>	large blanket
<i>Jar</i>	trench, gutter
<i>Jelgah</i>	valley, wide gorge having a river and flat plain
<i>Jui</i>	water gutter
<i>Káh gel</i>	thatch made of mud and straw
<i>Káhdun</i>	straw, hay & Lucerne store room
<i>Kaldeh</i>	simple village
<i>Kaldiwál</i>	simple and contemptible house called the naked housing
<i>Kandu</i>	cereals silo
<i>Kandu-ye árd</i>	flour hive
<i>Kandu-ye tokh'm</i>	seeds hive
<i>Kár khána</i>	kitchen
<i>Káriz</i>	underground watercourse
<i>Kenáráb</i>	latrine
<i>Kenáráb-e mehmán</i>	guests' latrine
<i>Khaima</i>	tent
<i>Khána-ye daftari</i>	registered house
<i>Khána-ye dudí</i>	any habitable registered or unregistered house
<i>Khána-ye farshi</i>	two rooms dividing by a door window partition
<i>Khawázah</i>	mason's timber scaffold
<i>Khesh't-e khám</i>	sun dried brick
<i>Khesh't-e pukh'ta</i>	burnt brick
<i>Khuk nul</i>	quivery, special archery hole
<i>Khush'ki</i>	loam lying on the ceiling to adjust the needed slope of the roof
<i>Kurd-e gul</i>	flower planted plot
<i>Lahad</i>	threshold
<i>Lakh'shán</i>	clear, smooth
<i>Mahtábi</i>	portico
<i>Mahtábi-e gerd</i>	round portico
<i>Manqal</i>	brazier
<i>Masálah</i>	mortar
<i>Mash'k zadan</i>	churning butter in goat skin hung from a tripod
<i>Maska</i>	churning butter –from soured milk
<i>Mehmán masjid</i>	guest mosque
<i>Muhra</i>	row, layer of pre-stressed mud in walling
<i>Muri</i>	draft tunnel in kiln or fireplace, smoke hole
<i>Mustaráh</i>	local toilet
<i>Namad</i>	felt mat
<i>Náwah</i>	waterspout, conduit

<i>Ojáq</i>	hearth
<i>Pakh'sa</i>	pre-stressed mud chunk for walling, ceiling and so on
<i>Pakh'sa tarash</i>	tool for smoothing the outer surface of pakh'sa
<i>Palah</i>	leaf
<i>Parchál</i>	cope
<i>Pas khána</i>	cloak room / sleeping & wearing cloths store room
<i>Paytau</i>	sun shelter
<i>Payzárah</i>	cornice
<i>Pul</i>	strong wooden girder lay underneath of the wooden logs of the ceiling
<i>Purána</i>	drainage fill, porous fill
<i>Push'tak</i>	branches and leaves lay over the logs of the ceiling
<i>Qalá/ Qaláa</i>	fort
<i>Qáleb</i>	mould for brick casting
<i>Qash'qal khána</i>	storeroom
<i>Qish'láq</i>	winter settlement
<i>Qul</i>	a plain bounded by hill or mountain in two or three sides and ending to another plain
<i>Qutun-e mál</i>	Sheep/ goats pen
<i>Raf</i>	pinned niche
<i>Ráh-e zina</i>	stairs
<i>Rajah</i>	mason's line
<i>Rakh't kan</i>	closet room
<i>Rakh't-e khau</i>	wrapped sleeping cloth
<i>Rubáh khana</i>	under floor trench for elevating the room up from the moisture level
<i>Sandali</i>	table like uses as a member of heating means
<i>Sar táq</i>	lintel
<i>Sarácha</i>	portico, guestroom
<i>Saráh</i>	caravanserai
<i>Say dahána-ye</i>	three panels window
<i>Sem gel</i>	final mud plaster
<i>Senj</i>	partition wall
<i>Sháh tir</i>	girder / rigged beam
<i>Sheftah</i>	mixture of lime and sand uses as a mortar
<i>Siáh chunah</i>	remainder of gypsum powders, mixes with lime and uses as dump proof mortar instead of cement for bathroom and others flooring.
<i>Sofa</i>	terrace
<i>Sum</i>	inhabited grotto, man made café
<i>Sumuj</i>	inhabited grotto, man-made café
<i>Tabang</i>	window apron, windowsill
<i>Tafti</i>	table like uses as a member of heating means
<i>Tahdáb</i>	foundation, base
<i>Tahjá-ye</i>	house plot
<i>Tahkawi</i>	cellar, basement
<i>Tahwil khána</i>	storeroom
<i>Takh't bám</i>	roof terrace
<i>Tálár</i>	huge room or saloon
<i>Tanba</i>	wood shutter
<i>Tanur</i>	baking oven
<i>Tanur khána</i>	room having baking oven
<i>Tanur-e bahári</i>	baking oven for spring use
<i>Tapak</i>	dried cow dung kneaded with straw
<i>Táq</i>	recessed niche
<i>Táq'cha</i>	smaller niche
<i>Tash'náb</i>	bathroom
<i>Táwa khána</i>	room with under floor heating tunnels
<i>Táwa khána-e mehmán</i>	guest room with under floor heating tunnels

<i>Tawila-ye asb</i>	horse stall
<i>Tawila-ye ulágh</i>	donkeys stable
<i>Tir kash</i>	archery hole as a defensive means locating over the gate or at the towers of forts
<i>Tut</i>	mulberry tree
<i>Urkah jáy</i>	summer camping place
<i>Ursi</i>	nested window from floor to the ceiling, window door
<i>Wasak</i>	rafter / purlin
<i>Zir khána</i>	lower story room
<i>Zuruf-e áb</i>	water reservoir dishes

Bibliography

- Alexander, Christopher
1970 *Houses Generated by Patterns*, Centres for Environmental Structures, Berkley California.
- Alexander, Christopher
1977 *A Pattern Language*, Oxford University Press.
- Alexander, Christopher
1979 *The timeless way of building*, Oxford University Press, New York.
- Anders, Hoeyer Toft
2001 *Huset uden egenskaber*, Arkitektskolen I Aarhus.
- Azizi, Moh. Masum
1980 *A Preliminary Study of Traditional Building Crafts in Kabul-Afghanistan*, Copenhagen, Denmark, The Royal Danish Academy of Fine Arts.
- Behsh, M. Basam
1993 *Towards Housing in Harmony with Place*, Department of Architecture and Development Studies, Lund University, Sweden.
- Bourgeois, Jean et Daniel
1972 *Les Seigneurs d'Aryana: nomades contrenandiers d' Afghanistan*, Flammarion, France.
- Bromberger, C.
1992 *Habitat, Architecture et Société ruale dans La Plaine du Guilân (Iran septentrional)*, Persian translation by Alaoddin Gouche-guir, Cultural Studies and Research Institute, Tehran.
- Ching, Francis D. K.
1996 *Architecture: Form, Space & Order*, Van Nostrand Reinhold.
- Christian, Norberg Schulz
1965 *Intention in Architecture*, the M. I. T. Press, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Christian, Norberg Schulz
1971 *Existence, Space and Architecture*, Studio Vista, London.
- Christian, Norberg Schulz
1980 *Genius Loci: Towards a phenomenology of Architecture*, Rizzoli, New York.
- Christian, Norberg Schulz
2000 *Architecture: Presence, Language and Place*, Skira, Italy.
- Clifford, M. L.
1992/ 1371 *Land and People of Afghanistan*, Persian translation by Mortaza As'adi, Scientific and Cultural Press, Tehran, 2nd Edition.
- Dagens, Burno & Mark Le Berre
1964 *Monuments pre Islamiques D afghanistan*, Paris.
- Davidson, Forbes and Geoff Payne
1964 *Urban Project Manual*, Liverpool University Press/ Fairstead Press, Paris.
- Dupree, Louis
1980 *Afghanistan*, Princeton, Princeton University Press.
- Dupree Nancy Hatch
1967 *The Valley of Bamiyan*, Afghan Tourist Organisation, Kabul, 2nd edition.
- Edelberg, Lennart

- 1984 *Nuristani Buildings*, Jutland Archaeological Society Publication, Moesgaard, Aarhus.
- Essayas, Ababu Tarekegn
2000 *Transformation of Low Income Housing in Addis Ababa*, Institutt for Byggekunst, Fakultet for Arkitektur, Plan og Billedkunst, Norges Teknisk Naturvitenskapelige Universitet, Trondheim.
- Fathy, Hassan
1973 *Architecture for the Poor*, the University of Chicago Press, Chicago and London.
- Ferdinand, Klaus
1959 *Preliminary Notes on Hazara Culture*, Historisk-filosofiske Meddeleser, Det Kongelige Danske Videnskabernes Selskab 37(5), København.
- Ferdinand, Klaus
1962 *Nomad Expansion and Commerce in Central Afghanistan* Folk 4: 123-159.
- Godard, A. & John Hackin
1993 *Les antiquites bouddiques de Bamiyan, Memoires de la Delegation Archeologique Francaise en Afghanistan*, Vol. 2, Paris and Brussels, Persian translation by Ahmad Ali Kohzad, Isma'ilian, Qom.
- Groetzbach, Erwin
1979 *Stadte und Basare in Afghanistan*, Wiesbaden, Persian translation by S.M. Mohsenian, Asetan-e Quds-e Razawi Press, Mashad.
- Hami, Ahmad
1987/ 1366 *Khak Shen 'si-e Sakh'tomani va Payeda karden-e Khak beray-e Barguzary-e Bish'ter*, Tehran, Center for Construction and Housing Research.
- Hassan Reza
1981/ 1401 *Alkhotut val Asalib*, Madineh, Saudi Arabia.
- Hesari, Sultan Husein
1992 *Preliminary Developing Plan of Central Afghanistan- Haza'raja't*, Bana Com., Bamiyan.
- Hugues, Theodor, Klaus Greilich & Christine Peter
2004 *Building with Large Clay Blocks*, Institut für Internationale Architektur Dokumentation GmbH & Co. KH Sonnestr. 17, 80331 Munich, Germany.
- Huque, Ashraf
1982 *The Myth of Self-help Housing, a critical analysis of the conventional depiction of Shanty towns*, Department of Building Function Analysis, The Royal Institute of Technology, Stockholm.
- Jensen, Svend Erik; Jørgen Peder Hansen & Martin Rubow
1973 *Moensterteori, beskrivelse af en arbejds metode*, Kunst akademiets Arkitektskole, Koebenhavn.
- Kasmayee, Mortaza
1984/ 1363 *Eqlim va Me'amari*, 1st edition. Iran Housing Corporation, Tehran.
- Kateb, Faiz Mohammad
1954/ 1333 *Serajut Tawarikh*, Public Press, Kabul.
- Kazimee, Bashir Ahmad
1977 *Urban/ Rural Dwelling Environments*, Kabul, Afghanistan, School of Architecture and Planning, Massachussets Institute of Technology, Massachussets.

- Kuhzad, Ahmad Ali,
1955/ 1334 *Ráhnemáy-e Bámiyán*, Public Press, Kabul.
- Lamm, Johan O, & Anders Görling
1992 *Environment, Energy and Housing*, Danish Council for Building Research, Stockholm, Sweden.
- La'li, Alidád
1993/ 1372 *Sayr-e der Haza'raja't*, Ehsani, Qom, 1st edition.
- Lawrence, Rodrick J.
1987 *Housing, Dwellings, and Homes; Design theory, research and practice*, John Willey & Sons, Chichester.
- Lesli, Julyan
1990/ 1369 *The Result of Surveying of The Housing in Kabul, Heart, Mazar-e sharif and Qonduz Cities, Persian translation by Ghulam Sakhi*, Administration of Scientific Research, Central Institute of Projecting, Kabul.
- Low, Etha M., & Erva Chambers
1989 *Housing, Culture and Design*, University of Pennsylvania Press, Philadelphia.
- Manzoor, Shokrolla
1989 *Traditional and Development, an approach to vernacular architectural patterns in Iran*, Chalmers University of Technology, School of Architecture, division of Housing.
- Marcussen, Lars
1990 *Third World Housing in Social and Spatial Development, the case of Jakarta*, School of Architecture, Royal Danish Academy of Arts, Avebury, Aldershot, Bookfield USA, Hong Kong, Singapore, Sydney.
- Marling, Gitte & Mary Ann Knudstrup
1998 *Bymiljøindikatorer: Bymiljøvurdering af danske boligbebyggelser*, Institut for Samfundsudvikling og Planlægning, Aalborg.
- Mehran, Alalhesabi
1991/ 1370 *Pazhuheshi der Me'amari-ye Khurásán*, Desertation, Centre of Studies, faculty of Architecture and Urbanism, National University of Iran (Sh. Behesh'ti).
- Mohammad Khani, Daryush & Qehreman Samimi
1991 Report abstract- *Regional Planning of Sistán*, Ábádi, 1st Year, No. 2.
- Moltaja, Mohammed Ebrahim
1993-94 *Sakh'tmanhai-e geli az deruz tá emruz*, Sakh'teman magazine, No. 35.
- Mousavi, Sayed Askar
1997 *The Hazaras of Afghanistan: a historical, cultural economic and political study*, St. Martin's Press New York.
- Najimi, Abdul Wasay
1988 *Herat: the Islamic city*, Scandinavian Institute of Asian Studies/ Curzon Prress Ltd.
- Náeil, Hussain
1975/ 1364 *Sáyah Rushanháy-e az Vaz'a-e Jáme'ay-e Hazara*, Public Press, Kabul, 1st Edition.

- Nouvelles
1933 *Recherches Archeologiques a' Bamiyan*, Les Editions, G. Van Oest.
- Olgay, Victor, & Aladar Olgay
1963 *Design and Climate*, Bio climatic Approach to Architectural Regionalism, Princeton University Press.
- Pepper, Simon
1971 *Housing Improvement: goals and strategy*, Lund Humphries, Architectural association, London.
- Perotti, German
1996 *From Self-help to Participative Planning*, Department of Architecture and Town planning, Royal Institute of Technology, Stockholm.
- Pierre, Von Mies
1990 *Elements of Architecture (from form to place)*, Van Nostrand Reinhold, London/ New York.
- Ragette, Friedrich
1973 *Architecture in Lebanon*, American University of Beirut, Lebanon.
- Rapoport, Amos
1969 *Housing, Form and Culture*, Prince Hall Inc., Engle Wood Cliffs, N.J.
- Rapoport, Amos
1977 *Human Aspects of Urban Form*, Pergamon Press, Oxford, New York, Toronto, Sydney, Paris, Frankfurt.
- Sammut, Raymond
1990 *Human Behaviour and the Built Environment*, Department of Architecture, University of Malta, Malta.
- Schwerdtfeger, Frederick W.
1982 *Traditional Housing in African Cities*, John Willey & Sons.
- Shahristani, Ali Akbar
1993/ 1372 *Poets of Hazara*, Adab, Faculty of Literature and Humanities, Kabul, No. 3, Year 21st.
- Sibtain, Seyed
1983 *To Build a Village*, The Australian Council of Churches, Sydney.
- Stanley, Hallet Ira & Rafi Samizay
1980 *Traditional Architecture of Afghanistan*, Garland Press, New York.
- Strauss & Corban
1990 *Basis of Qualitative research*, Sage Publication, London.
- Szabo, Albert & Brenda Dyer Szabo
1978 *Preliminary Notes on the Indigenous Architecture of Afghanistan*, Department of Architecture, Graduate School of Design, Harvard University.
- Szabo, Albert & Thomas Barfield
1991 *Afghanistan an Atlas of Indigenous Architecture*, University of Texas Press, Austin, 1st edition, 1991.
- Temirkhanov, L.
1980 *Tárikh-e Mili-ye Hazara-e Moghol*, Persian translation, Tanzim-e Nasl-e Nau-e Hazara-e Moghol, Quette.
- Turner, John F. C. & Robert Fichter

- 1972 *Freedom to Build, Dwellers control of the housing process*, the Macmillan Company, New York, Collier-Macmillan Limited, London.
- Vestbro, Dick Urban
1975 *Social Life and Dwelling Space, an analysis of three house types in Dar Es Salaam*, Department of Building Function Analysis, College of Architecture, University of Lund.
- Zia, Abdul Halim
1992/ 1371 *Khák Máday-e Monáseb-e Sákh'tománi*, UNCHS (Habitat)- Kabul/ UNESCO- Quetta, Quetta, Pakistan.
- 1990/ 1369 *Atlas-e Bozurg-e Jahán*, Institute of Military Geography Press, Tehran.
- 1985/ 1364 *Atlas-e Mahalát-e Afghanistan*, Central Administration of Statistics, Ministry of Planning.
- 1984 *Atlas of Democratic Republic of Afghanistan*, Institute of Military Cartography of Warsa/ Central Administration of Geodesy and Cartography, Kabul.
- 1991 *Bamiyan, Ghazni, Parwan, Uruzgan and Wardak provinces: A Socio- economic Profile*, Unidata, Genewa.
- 1994/ 1373 *Deqqat der Taráhi (Ráhnámáy-e Monáseb Sázi-e Banáhá va Fazáháy-e Shahri beráy-e Ma'lulin)*, Persian translation by Mehdi Bábáye Ahari, 1st Edition, United Nations & Architectural and Technical Consulting Organization of Tehran City.
- 1974/ 1373 *Estehkám Bakh'shiy-e Sázháy-e Ghayr-e Mohandesí*, Housing Foundation, Tehran.
- 1990 *Housing Research and Design in Sweden*, Swedish Council for Building Research, Stockholm.
- 1992/ 1371 *Planning and Implementation of Wooden Buildings*, Persian translation by Mohammad Ebrahim Sajudi and Mohammad Alizada Hesari, UNIDO & Centre for Construction and Housing Research, Tehran.
- 1990 *Provinces of Afghanistan by Region*, Unidata, Mapping Service Peshawar, Pakistan.
- 1993 *The Meaning and Use of Housing*, Avebury, Aldershot, Brookfield USA, Hong Kong, Singapore, Sydney.
- 1993 *The Meaning and Use of Housing*, Avebury, Aldershot, Brookfield USA, Hong Kong, Singapore, Sydney.
- 1978 *The role of Housing in promoting social integration*, Department of Economic and Social affairs, United Nations, New York.
-

1984/ 1363 *The Social Impact of Housing: Goals, Standards, Social Indicators and Popular Participation*. Persian translation by Abbas Mokh'ber, United Nations & Centre for Economic and Social Documents and Publication Centre for Economic and Social Documents and Publication of the Budget and Planning Organisation, Tehran.

SUMMARY

Traditional Housing and Settlement

The focal point of this study is traditional housing and how to improve traditional housing from a developmental perspective. The objective of this study is to step-up the slow process of transforming and changing the traditional houses in order to, on the one hand to ensure the traditional houses and settlements comply with other development take place in the community, and on the other hand, to meet the rising demand for houses to be built. For this purpose traditional housing in Central Afghanistan-Hazarajat is applied as a case study, which is richly illustrated with documentations, drawings, maps, photographs and diagrams.

This study is a valuable contribution and a comprehensive plan for traditional housing and settlement of the most problematic issue of an undeveloped country like Afghanistan. It is expected this study besides registering the spectacular traditional houses and settlements of this region, it could meet the rising demand of architectural design as well.