ARCHITECTURAL FEATURES AND CONSTRUCTION TECHNIQUES OF KALASH HOUSES IN GURU VILLAGE, BIRIR, CHITRAL

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ALVEENA RAHIM

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ARCHITECTURAL FEATURES AND CONSTRUCTION TECHNIQUES OF KALASH HOUSES IN GURU VILLAGE, BIRIR, CHITRAL

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ABSTRACT

ARCHITECTURAL FEATURES AND CONSTRUCTION TECHNIQUES OF KALASH HOUSES IN GURU VILLAGE, BIRIR, CHITRAL

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Master of Science, Conservation of Cultural Heritage in Architecture
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The Kalash community is the smallest minority of Pakistan with a current population of 4,184 (PPAF, 2015) residing in the northern district of Chitral. A special case, Kalash are the only living Indo European civilization that have not adapted to any larger institutionalized religious system and still follow their pre-Islamic rituals, social customs and traditions. With the present crisis of globalization, the Kalash are going through a phase of change where the need to conserve their culture and identity is more important than ever.

Hence, “Guru village” an example of authentic Kalash architecture, with natives still residing among the housing units in Birir Kalash Valley, is selected as the main study area for this thesis. The thesis focuses on the understanding of the architectural features and especially construction techniques with emphasis on construction technique of the houses. The thesis aims to create reliable and comprehensive information that can solve the construction problems faced by these houses, hence protecting and preserving original techniques of Kalash settlement within the region.

Literature review is done covering history of Kalash, the valleys and their architecture. Information is gathered by visiting the village with observations made on the spot and the original structures sketched and photographed to determine the current status. 17

old houses are surveyed of which 8 are surveyed from exterior while 9 are studied with interior and exterior. Thus, the information gathered from the site survey and literature studies is analyzed collectively to evaluate the architectural features and the construction techniques of the houses.

Keywords: Kalash, Architecture, Traditional Houses, Construction Techniques, Documentation, Pakistan

ÖZ

GURU KÖYÜNDEKİ KALASH EVLERİNİN MİMARİ ÖZELLİKLERİ VE YAPIM TEKNİKLERİ, BİRİR, CHİTRAL

Rahim, Alveena
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Kalaş topluluğu, kuzeydeki Çitral bölgesinde yaşayan 4,184 nüfusu ile (PPAF, 2015) Pakistan'ın en küçük azınlığıdır. Kalaş toplumu, daha büyük kurumsallaşmış dini sisteme uyum sağlamayan, hala İslam öncesi ritüellerini, gelenek ve göreneklerini takip eden ve varlığını sürdüren tek Hint Avrupa uygarlığıdır. Mevcut küreselleşme kriziyle Kalaşlar, kültürlerini ve kimliklerini koruma ihtiyacının her zamankinden daha önemli olduğu bir değişim aşamasından geçmektedir.

Bu nedenle, Birir Kalaş Vadisi'nde hala yerel halkını barındıran ve özgün Kalaş mimarisinin bir örneği olan “Guru Köyü” bu tez için ana çalışma alanı olarak seçilmiştir. Bu çalışma, evlerin yapım tekniğinin üzerinde durarak, mimari özelliklerin ve yapım tekniklerinin anlaşılmasına odaklanmaktadır. Bu tez ile Kalaş evlerinin karşılaştığı yapı sorunlarını çözebilecek güvenilir ve kapsamlı bilgiler yaratmayı ve böylece bölgedeki Kalaş yerleşiminin özgün tekniklerinin korunmasını hedeflemektedir.

Kalaş tarihini, vadilerini ve mimarisini kapsayan literatür taraması yapılmıştır. Köyü ziyaret ederek yerinde yapılan gözlemler ile bilgi toplanmış, mevcut durumun belirlenmesi amacıyla özgün yapıların çizimleri hazırlanmış ve fotoğraflanmıştır. Böylece, saha araştırmasından ve literatür çalışmalarından toplanan bilgiler, evlerin

mimari özelliklerini ve yapım tekniklerini değerlendirmek için toplu olarak analiz edilmiştir.

.

Anahtar Kelimeler: Kalaşlar, Mimari, Geleneksel Evler, Yapım Teknikleri, Belgeleme, Koruma, Pakistan

To my Family

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LIST OF ABBREVIATIONS

AKRSP	Agha Khan Rural Support Program
ICH	Intangible Cultural Heritage
IUCN	The International Union for Conservation of Nature
HKCA	Hindu Kush Conservation Association, UK
KISP	Kalash Indigenous Survival Program
KEPS	Kalash Environmental Protection Society
KP	Khyber Pakhtunkhwa
PPAF	Pakistan Poverty Alleviation Fund
SRSP	Sarhad Rural Support Program
UNESCO	The United Nations Educational, Scientific and Cultural Organization

CHAPTER 1

INTRODUCTION

The Kalash community is the smallest minority of Pakistan with a current population of 4,184 (PPAF – Indigenous Peoples Planning Framework, 2015) residing in the northern district of Chitral (for further information regarding the location of the city and villages see maps in Appendix E). Situated in the midst of a Muslim majority population, the three valleys of Kalash of Bumburet, Rumbur and Birir are excellent examples of preservation of a community which is distinct in its ethnicity, language, religion and culture. A unique case, Kalash are the only living Indo European civilization that have not adapted to any larger institutionalized religious system and still follow their pre-Islamic rituals, social customs and traditions (Cacopardo, 1991). Thus, being labeled as Kafir, "pagan", by their neighbors and western visitors which is belittling to the rich culture of the people. Kalash rural architecture symbolizes the lifestyle of the community, directly impacting every sphere of their life and representing the skill and craft of the people through the centuries.

The Kalash are one of the tribes of Kafiristan (Biddulph, 1880), the name given to the area stretching from the east of Panjshir Valley of Afghanistan to the north of Pakistan covering the mountain range area of Hindu Kush and reaching to the western Karakoram (Elphinstone, 1842, p. 375), (see Map E.1 in Appendix for map). It was the event of Durand line[1] designation in 1893 separating India and Afghanistan that

[1]The Durand agreement signed by the Afghan Amir Abdur Rahman Khan and British in 1893, demarcated the border between Afghanistan and the British occupied India. Under the Amir's rule, Kafiristan area housing the last independent polytheistic communities was forcefully converted to Islam.

resulted in Kalash being subjected to British Empire rule. This saved them from the forced conversion of other Kafiristan tribes by Amir of Kabul, changing the name of the area from Kafiristan to Nuristan (Cacopardo & Cacopardo, 1989). It should be noted that even though Kalash culture is not identical to Kafiristan tribes, as each followed its own system, there are many similarities noted by scholars. A certain cultural homogeneity that prevailed, giving them all a collective identity (Cacopardo, 1989, 2016; Fussman, 1972; Morgenstierne, 1961, 1965, 1973; Strand 1973).

Figure 1.1. Location of Historic Kafiristan, as the area inside Pakistan inhabited by Kalash. Historic Kafiristan [Digital image]. (2009, February 02). Retrieved May 10, 2019, from http://www.zum.de/whkmla/histatlas/centrasia/kafiristan.gif.

With only some traces of Kafir culture left in Nuristan, it is the Kalash who are the sole survivors of a pre-Islamic cultural fabric existing in the Hindu Kush. It is alarming that the topographic and demographic information on Kalash shows that "the Kalash valleys" have shrunk from an area 6000 sq. km to 300 sq.km. in a time spanning over the past 7 centuries (The International Union for Conservation of Nature-IUCN, 2008). With the current crisis of globalization, they are going through a phase of

change where the need to conserve and document their culture and identity is more important than ever. Thus, Kalash houses provide the perfect opportunity to document a tangible part of the culture as an example of authentic Kalash traditions and architectonics, with special regards to construction techniques that are a characteristic of the region. This thesis, in this respect, aims to document, evaluate and understand the architectural features and construction techniques of the traditional houses. This will not only be helpful for any future interventions carried out in the area with regards to conservation but also establish a basis for future research.

1.1. Problem Definition

Pakistan is located on the western side of South Asian sub-continent with its topography ranging from the high Karakoram and Himalaya, to the desert of Thar and Cholistan and ending at the coastline of Arabian sea (see Map E.2 in Appendix for larger map). This provides a series of varying climatic zones that have to be catered while answering the form of rural habitat that will be built. It is this climatic variation and availability of natural resource in that environment that shapes multiple forms of vernacular architecture of Pakistan.

Kamil Khan Mumtaz (1975) in his report, surveyed the various regions of Pakistan to understand and document the traditional forms of rural architecture. Dividing the country into five zones, the author also associated climate and material availability to the construction system dictated within a region. Even though the author does mention that the regions of the further north could not be studied, he still presents cases from the lower north west frontier. Especially in the area of Swat, which is surrounded by Pine forests, timber becomes an essential component of construction with stone masonry used for exterior walls. In the sloping sides of the valley, these houses are built partially into the hill forming stepped cluster of terraced roofs.

In the case of Kalash architecture, to understand the influence of surrounding dwellings, both the houses in Chitral and the neighboring area of Nuristan in Afghanistan (formerly Kafiristan) have to be considered. As discussed before even in

the context of Chitral, local material, climate and topography play a crucial role in developing the formation of a house. A typical house of Chitral can be divided into three categories; Bipush or Kho House, Plain Area House and Terrace Area House (Hassan, 1980). Even if the spatial organization changes, features like courtyard, verandah and construction materials remain the same. The houses are built with stone and mud with timber bracing as reinforcement.

The Kho house usually has the Bipush room, a store, an outside kitchen and a verandah (see Fig. 1.2). The Bipush is special as in incorporates all the activities of a house, with every space given a designated purpose (Hassan, 1985). This room is lighted by a square smoke hole in the middle of the diamond shaped wooden ceiling resting on five wooden columns (see Fig. 1.3). Plain area houses have rooms in a linear arrangement with verandah in front and courtyard in the back (see Fig. 1.4). Terraced houses are small with verandahs in front and the open space of roof serving as courtyard for the house (see Fig. 1.5). In this case the entrance of one house can serve as a passage for the other houses in the row as well (see Fig. 1.6). Thus, for such dwellings, it is not the lot but rather the exterior wall of the building that serves as a boundary of the house (Hassan, 1985).

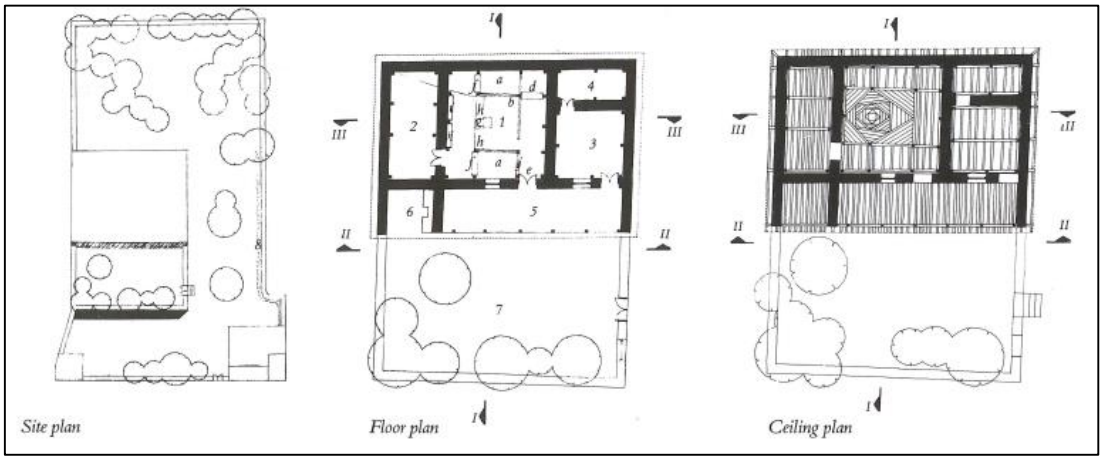


Figure 1.2. Bipush House in Chitral. Reprinted from "The Indigenous Architecture of Chitral" by I. Hassan, 1985, Mimar: Architecture in Development, 1(17), 74.

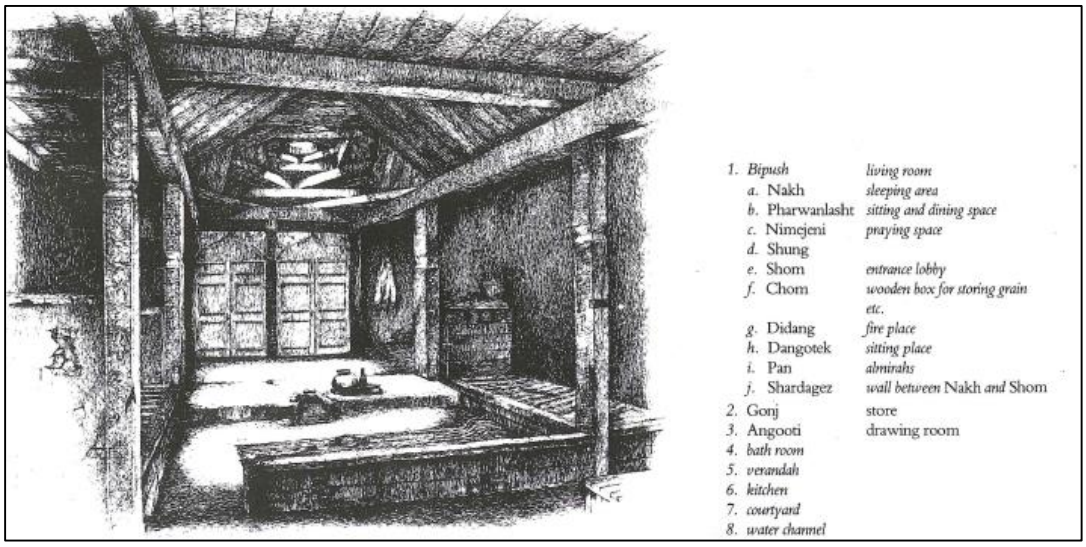


Figure 1.3. Interior of Bipush House in Chitral. (Reprinted from Hassan, 1985, p. 74)

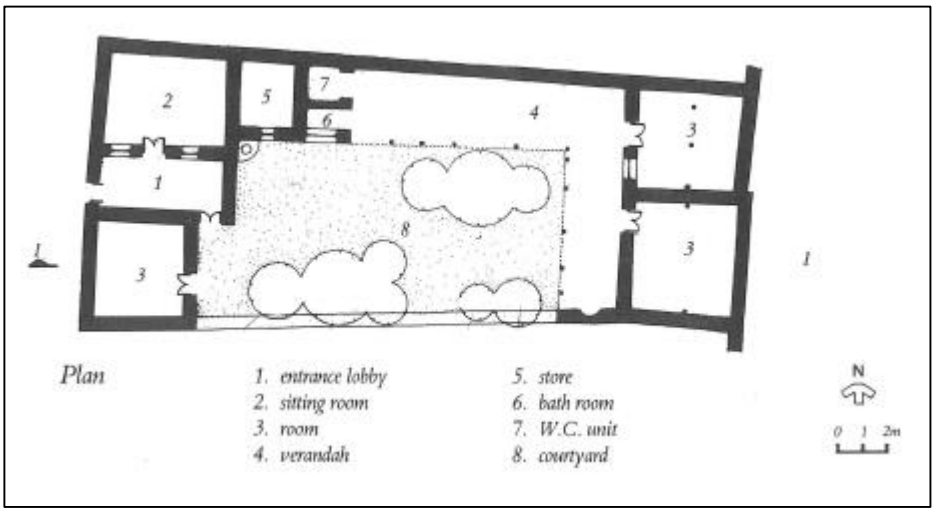


Figure 1.4. Plan of Plain Area House in Chitral. (Reprinted from Hassan, 1985, p. 76)

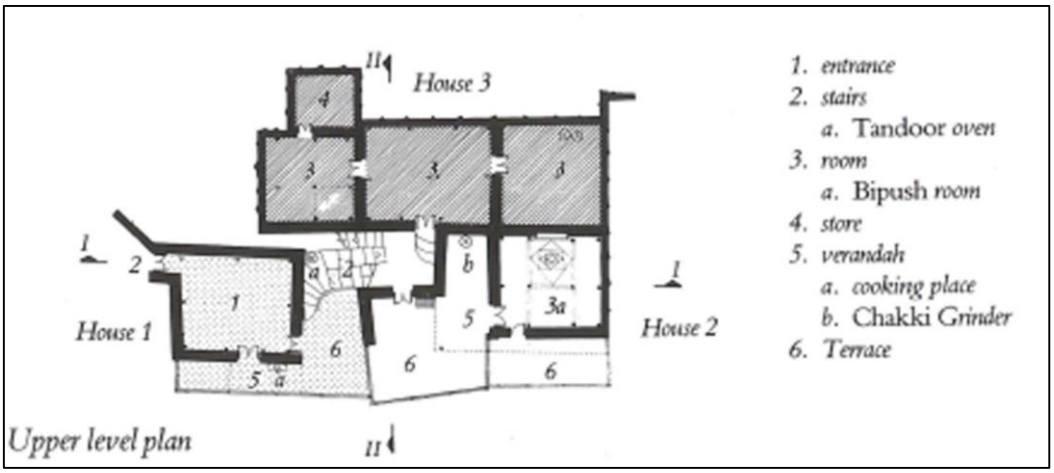


Figure 1.5. Plan of Terraced Area Houses in Chitral. (Reprinted from Hassan, 1985, p. 75)

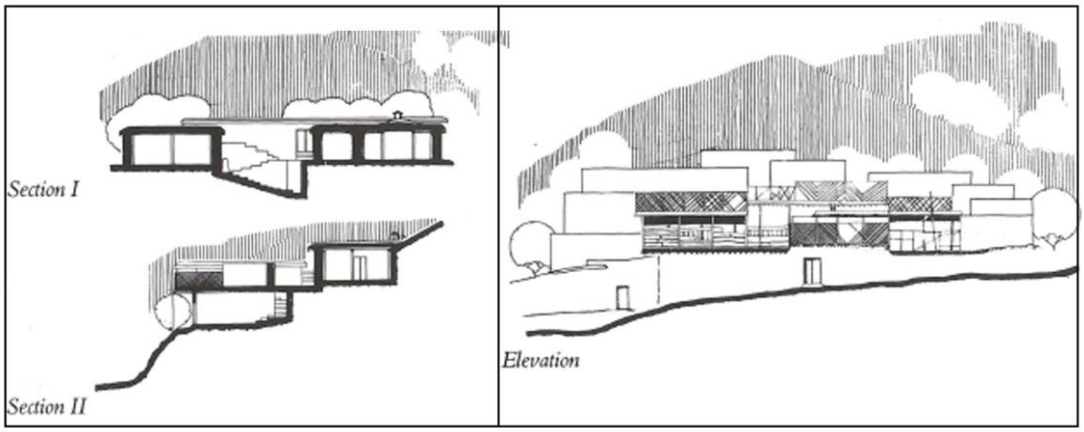


Figure 1.6. Sections and Elevation of Terraced Area Houses in Chitral. (Reprinted from Hassan, 1985, p. 75)

Discussing the domestic architecture of neighboring Nuristan, the first description in literature of a Kafir house is done by Eliphstone (1815) based on the account of one *'Moollah Nujeeb'* - a man sent by him to Kafiristan in 1809. He defines them as wooden dwellings with cellars for storage of house items. One peculiar habit discussed by the author is their use of chairs, stools or a raised pedestal for sitting and even in the house a wooden bench being fixed on the wall with lower back.

Later on, the house is described by Sir Robertson in detail (1896), a simple apartment which could be a rectangular or square built by using timber and rubble stones dipped in mud mortar. The timber construction elements are morticed together at corner of the house to form wooden frames stacked above each other. These frames are kept nine inches apart with rubble stone masonry and mud mortar filling. Mud plaster covers the exterior and interior sides of the walls. In the center of the room is a square hearth with four wooden columns placed at corners and a smoke hole in the middle of the diamond shaped wooden ceiling (see Fig. 1.7). Large wooden beams supporting the roof are placed on these columns extending ahead to the verandah (Robertson ,1896). A bigger house can be two or even three storey. The upper floor is used for living by the family, called *"ama"* and provides the only entrance to the house. The lower floor for the cows and storage is only accessible by a trap door in the corner of the *ama* (Edelberg, 1990).

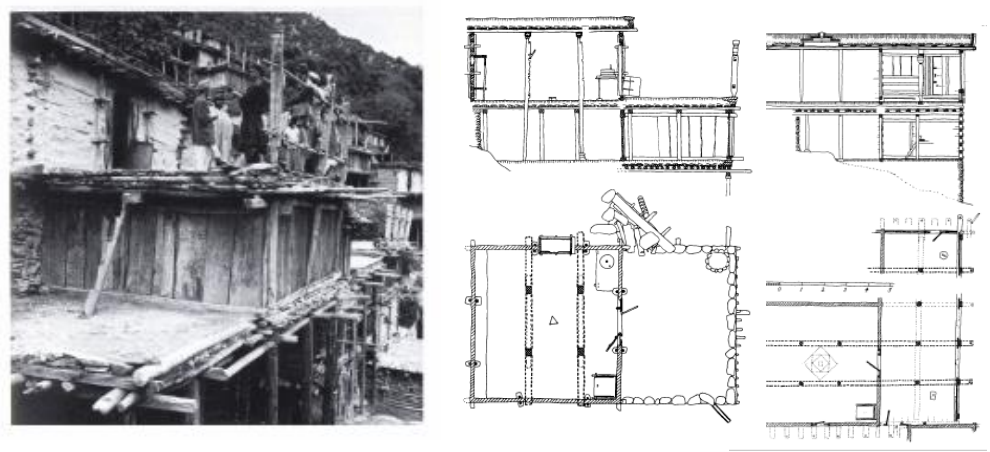


Figure 1.7. A typical Traditional Nuristani House in the different parts of the region before 1900. Reprinted from "Nuristani House" by L. Edelberg, 1974, Cultures of the Hindukush; selected papers from the Hindu-Kush Cultural Conference, 120-123.

It should be noted here that it was only after the event of Durand line in 1893 that attention shifted towards Kalash as the sole representative of the Kafiristan culture (Cacopardo, 2016). Hence, the studies on Kalash have been done on global scale as scholars have traveled from far and experienced the culture first hand. Still the main

focus has either been on the intangible aspects like religion, lifestyle, festivals and language; or their origin and connections to other civilization.

Some key studies do provide perspective on the tangible aspects like the temples and houses. A direct account of the Kalash house is given by Schomberg (1938) in his book "Kalash and Glaciers" whilst travelling the region. In 1956, Halfdan Siiger, a Danish explorer also provides brief information about the houses. Later John Harrison (1995, 1996) gives a more holistic view of a typical Kalash house with sketches and drawings. Yet a comprehensive and detailed study primarily documenting the architectural features and construction technique of the houses is not present. The traditional houses are a unique representation of Kalash lifestyle and craftsmanship combining social needs with construction practices, and thus need to be conserved. It is important that the houses be evaluated properly after examination of the original structural, constructional and architectural characteristics. Only then can any conservation intervention proposal be compatible.

Realizing the potential of the rural architecture of Kalash, the thesis aims to fill this gap, by a proper evaluation, documentation and understanding of the traditional architectural features and construction techniques of the traditional houses. This will not only be helpful for any future interventions carried out in the area with regards to conservation but also establish a basis for future research on the construction technique and architecture in surrounding settlements that also carry precious cultural value. Hence, "Guru village" an example of authentic Kalash architecture with natives still residing among the housing units in Birir Kalash Valley, is selected as the main study area for this thesis (Information regarding the selection criteria of houses in Guru Village is provided in 1.2. Aim and Scope).

1.2. Aim and Scope

Amongst the three the Kalash valleys present, Birir is the remotest (Kalash Indigenous Survival Program-KISP, 2002) presenting an obsolete Kalash lifestyle, keeping many of its ancient traditions and ceremonies still alive (Siiger, 1956) (see Map

E.3 in Appendix for location of the villages on larger map). As the other two northern valleys have more similarities and historically considered twins; Birir is considered as the southern cultural center mentioned in traditional songs and prayers with a slightly differing culture (Cacopardo,1992). Guru Village, the oldest and most dramatic of the villages in Birir (Harrison,1995), provides an opportunity to study the traditional settlement pattern with the stacked arrangement of the houses against the slope. Since the lifestyle of the people has not changed much, the houses in the settlement have survived with little changes in general.

Additionally, the area is crowded and demolishment of one building block will cause a rift among all the others. This has kept many of the houses in their original state, especially the lower ones which serve as the support for the houses built on top of them. Even though, there are a few instances where a house has been fully demolished and the structure reconstructed, but in most cases if the house is too small for the family, the new building block is built on the other side of the river while the original house is handed down to one of the sons and left untouched. For this reason, the historic settlement of Guru Village was selected as the study case.

The thesis will focus on the documentation, evaluation and understanding of the architectural features and the construction techniques of the houses in Guru village of Birir Kalash Valley in Pakistan. It aims to create reliable and comprehensive information that can help in providing compatible solutions against the conservation problems faced by these houses, thus protecting and preserving the historic texture of the Kalash settlement within the region. The thesis also focuses on documenting the important terminologies related to construction and architecture in the local language of the people, *Kalashwar*, which is still the common means of communication within the community.

Guru Village is located on a sloping terrain, and an example of the terraced pattern of rural architecture. The slope influences the location of the houses, their orientation and the form of the pathways within the settlement. Thus, the documentation of the

houses is carried out from the lowest point of the slope up to the point where the houses end.

The traditional houses in Guru Village are grouped into two, according to the information gathered from the literature, their general façade configurations, façade components and their qualitative and quantitative characteristics. The houses, belonging to the second group, are reconstructed after the demolishment of the original house. These houses use local material but the spatial configurations and architectural features have changed. The group is not included in this study as it does not represent the architecture of traditional Kalash house.

The first group, the main focus of this study, are buildings dated to earlier periods and have similar characteristics. These are the oldest examples of Kalash houses in Birir Valley. The houses demonstrating the most representative characteristics of this group and having readable construction techniques are examined in detail, considering their load bearing systems, as well as plan and façade elements. In total, the main study area has 34 building units out of which 25 are houses, 2 are from 2nd group (reconstructed) and 6 are new buildings. 17 old houses are surveyed of which 8 are surveyed from exterior while 9 are studied with interior and exterior. No ruins could be found to help in documentation of the invisible section of the houses. Visual documentation, by means of photographs, sketches, drawings, and observation were noted down whenever necessary. For the proper evaluation of the construction technique of the traditional houses, a systematic process was defined and followed (for further information, see 1.3. Methodology).

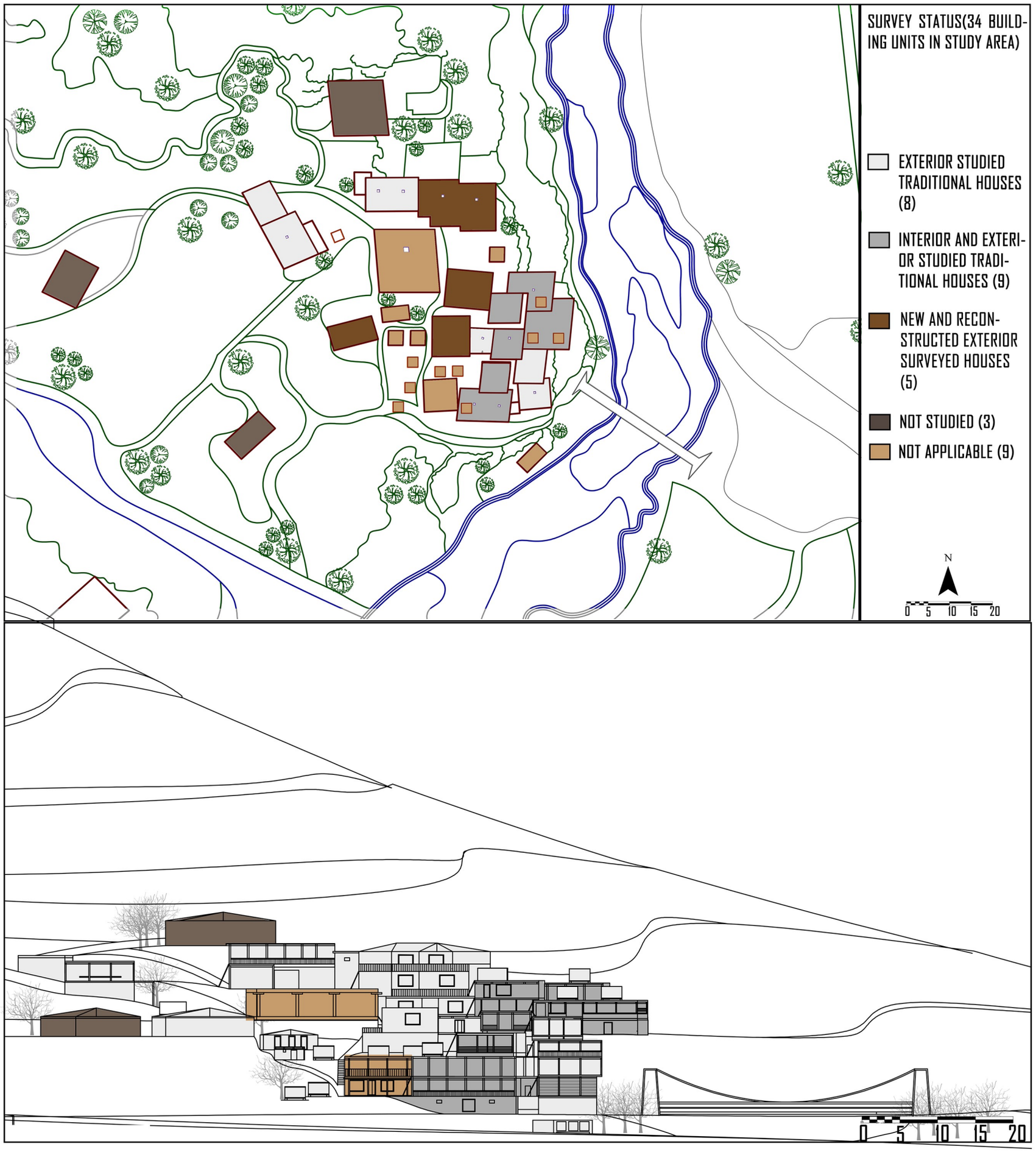


Figure 1.8. Survey status of Guru Village (Drawn and modified by author)

Information was gathered by visiting the village with observations made on the spot and the original structures studied to determine their current state. Thus, in this context, the formation of the structures, facade features and spatial plans are subjected to evaluate the architectural features and the construction techniques of the houses.

1.3. Methodology

The main steps followed in this study are: 1) Pre-Site Survey, 2) Site Survey 3) collection and analysis of the written and visual materials in the relevant literature, 4) On site documentation, 5) analysis, 6) evaluation, and 7) conclusion steps.

Birir has only one vehicular access to the outside world while the other parts of the valley are only accessible by foot. With the area facing heavy snowfall in the winters, it is mostly cut off in the month of December, January and February. With consideration to this site constraint, survey was carried out in the month of June and July with multiple visits to the village.

Firstly, a pre site survey was carried out between 24.06.2018 and 30.06.2018. With no existing map of the area, the site map sketch drawn by John Harrison (1995) and Google Earth Image (accessed on 20.06.2018) were used. In this study the drawing and the image were compared with the situation on site and the accuracy was checked again by talking to the residents. General photographs were taken of the houses and the surrounding buildings. As stated earlier the houses in authentic form, providing good information about the construction techniques and architectural features, were determined. Locations of these houses are defined and the results of these observations are presented later in Chapter 2 (for further information, see App. D).

In the second stage, the site survey was conducted, between 10.07.2018 and 25.07.2018. The main goal was to study the architectural features and construction technique of the selected houses. The study was done in phases as firstly the house plans and elevation were sketched from the lower ground level moving to above ones. Since the houses were stacked, sketches were also made to understand the relationship

of the houses to each other on site scale. The buildings of the village were numbered and the houses that kept their authentic form and provided good information about the construction techniques and architectural features, were selected.

In the next phase, dimensions were taken by hand of the houses to help in drawing of the scaled plans later on. Visual documentation was also done with brief interviews with the residents. Construction details providing maximum understanding, from floor up to the roof, were documented by the use of photographs, sketch drawings, measurements, and written observations. Nine houses were properly documented for this purpose and for the comparison of the architectural features present. Since the houses are located on a sloped terrain, the back side is embedded in the cliff while foundations of the buildings are hidden and so the only information being provided is by the overall side profile of the stacked buildings viewed from afar. Even though during site visit, the local Kalash Masons still working in the area could not be talked to. They were interviewed in the later stages of the thesis and provided information about the original construction techniques and traditional tools that were used (for further information, see App. C). The information has been used in Chapter 2 and 3.

In the next step, the written and visual materials related with Chitral, Kafiristan and Kalash Settlement in general, were collected and examined. The construction technique used in the northern side of Pakistan was also studied to compare with Kalash. The literature survey covered the following topics:

i. Kalash
ii. Geographical, historic and architectural features of the Kalash valleys and Birir specifically Guru Village
iii. Traditional houses of Kalash and their social life.

Literature review was done on the history of Kalash and the Valley of Birir to understand the relation to the people with their living habitat and environment. The daily life of a Kalash was also studied from written documents and interviews with the residents of the 9 detailed studied houses. The geographical features, settlement

pattern, social, demographical, economic structure and also important projects carried out in relation to the preservation of Kalash culture were also studied.

To define the architectural features of the Kalash houses in Guru Village, the information gathered from the literature review was compared to the information from site. This is used collectively in analysis phase and presented in Chapter 2.

In the documentation step, the site plan was drawn with reference to Google image and information noted on site. With the site plan combined with the contours of the area, taken from Google Earth, a scaled model on Rhinoceros 3D software was built which had the approximate heights of the buildings that were noted during site survey. This provided an approximate site elevation, section and block model that could define the location of the houses and their setting on the sloped terrain. The buildings units were numbered from lower houses to the above one as seen in the figure 1.9.

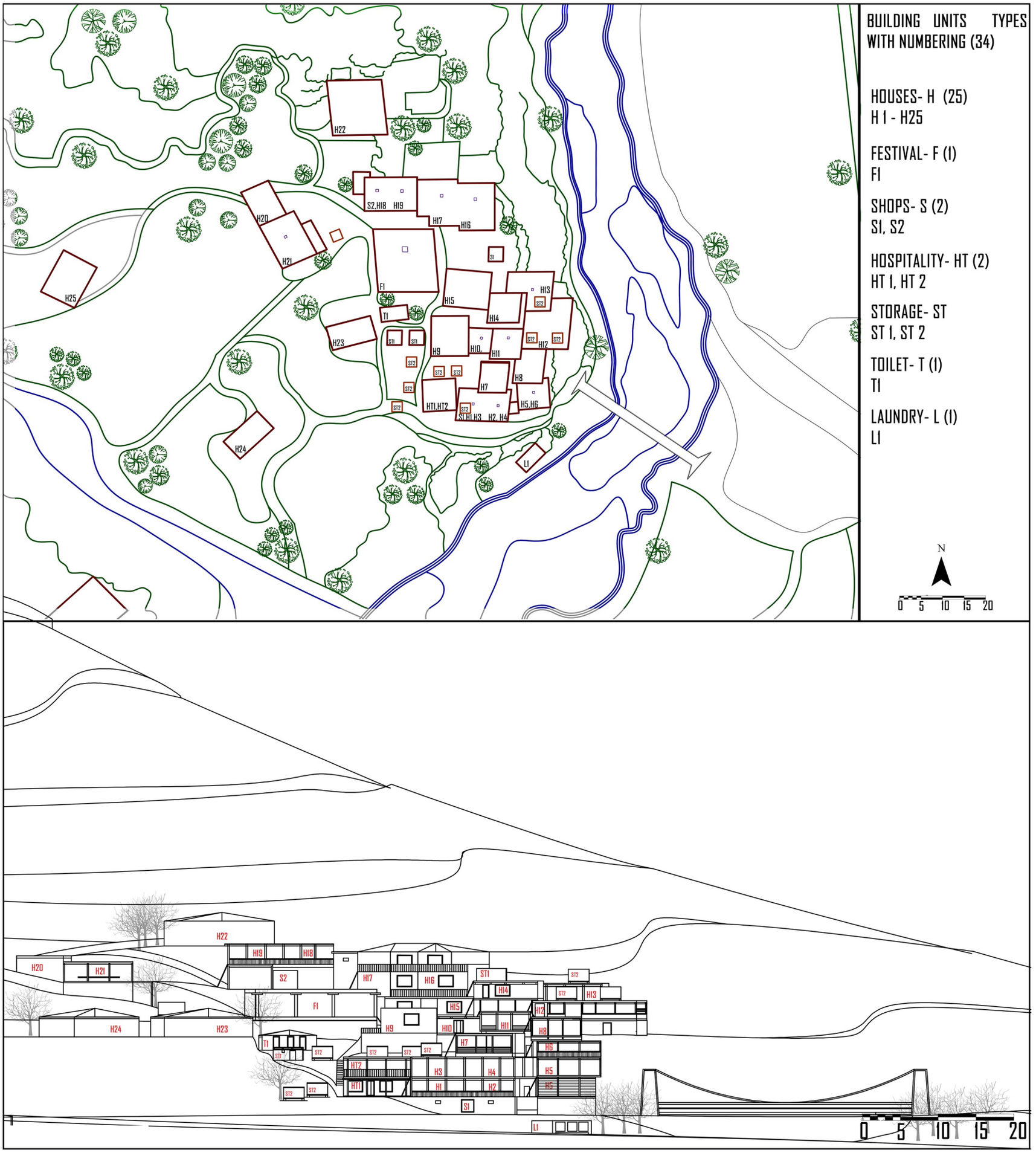


Figure 1.9. Numbering of units in Guru Village (Drawn and modified by the author)

By the use of photos and sketches the drawings prepared in the site survey were drawn in AutoCAD following a systematic manner and include floor plan, reflected ceiling plan, section, isometric view, perspective view and system sections having all necessary details (see Fig. 1.10). Photographs were also provided to show the architectural features and construction details of the houses. Nine houses studied in detail were documented using this system and presented in Appendix B, and used both in Chapter 2, 3 and 4.

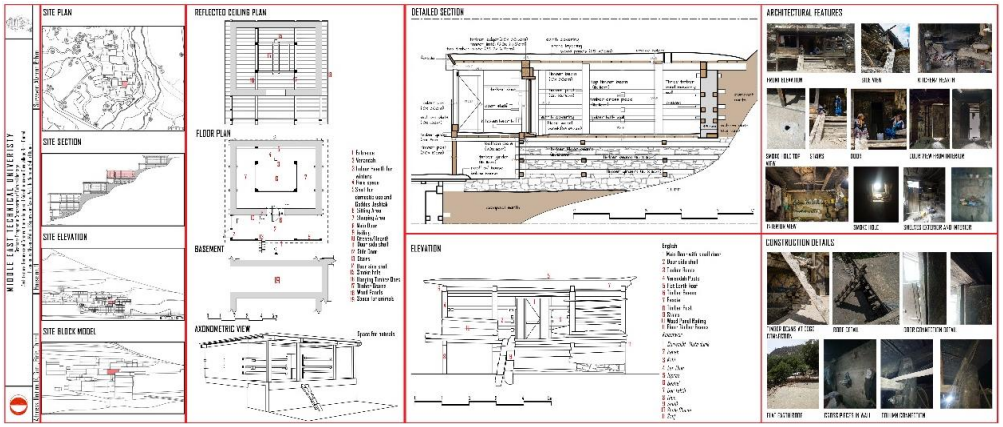


Figure 1.10. Documentation sheet format

In the next stage, after the analysis of documented houses and literature information the architectural features of the traditional houses were defined. Similarly, the construction techniques, material availability, joinery details and finishing were also analyzed step by step for the built form, to help in defining the elements and joinery details.

In the sixth step, methodology defined by Filliz Diri in her thesis “Construction Techniques of Traditional Birgi Houses” (2010) was followed and thus, information collected throughout these documentations was tabulated in a systematic manner with study of each structural element, to see typical and unique construction details used in traditional Kalash houses. These also defined the architectural features and construction details of traditional Kalash houses. The results are the basis of the thesis and fulfill the gap regarding the study of architectural features and construction

techniques of the traditional Kalash houses in Birir. The results of the table, the literature study and the information gathered from the interviews with the Kalash Mason were all evaluated and compared together and discussed in Chapter 4. In the last step, main conclusions obtained at the end of this study were drawn in Chapter 5.

CHAPTER 2

HISTORY OF KALASH AND ARCHITECTURAL FEATURES OF TRADITIONAL KALASH HOUSES IN GURU VILLAGE

The Chapter will deal with the historical, social and economic characteristic of Kalash and Kalash Valleys, with emphasis on Birir, from the information gathered by a variety of sources. To understand the Traditional Kalash House in Guru Village, it is firstly important to study the historical perspective, the social life and the geographical features of the area that have shaped the architectural features and construction techniques of the houses. This information is compared with the information gained from the site to define the Architectural Features of Traditional Kalash Houses in Guru Village.

2.1. History of Kalash and Kalash Valley Birir

The Kalash[2], also known historically as Black Kafirs- "Siah Posh" (Siiger, 1956, p. 12), reside in three valleys west of Chitral, Pakistan. Situated in the midst of a Muslim majority population, the three valleys of Kalash: Bumburet, Rumbur and Birir are the last representation of polytheism in the Hindu Kush range and also of the pre-Islamic Cultural fabric within the area (Cacopardo, 2011), (see Map E.1 in Appendix for map). This mountainous area stretching from east of Panjshir valley in Afghanistan to the North of Pakistan was predominately non-Islamic and it was only in the 16th Century that Islam started spreading across the region.

[2] The study conducted in Bumburet valley of district Chitral, Pakistan by Sheikh, Chaudhry and Mohyuddin (2014) highlighted that the local responded to the question of religion by referring to themselves as Kalash. Thus the term serves as a religious as well as cultural value. The Kalash are regarded as a minority under the law of Pakistan due to their religious difference and enjoy certain privileges. This assertion on religious identity results in certain rituals and festivals which emphasize the beliefs of the Kalash tribe both socially and culturally (Sheikh, Chaudhry & Mohyuddin, 2014).

However, majority of the area remained uninfluenced till the early 19th Century, occupied by independent polytheist tribes, and thus given the name *Caferistan* or "the land of the infidels" by their neighbors (Elphinstone, 1842, p. 375; Rennell, 1792, p. 164). After the event of Durand line, the Kafir tribes on the side of Afghanistan were forcibly converted to Islam but the ones on the side of Chitral, called Kalash who were subjected to the British rule, continued to practice their religion, customs, traditions and culture (Cacopardo & Cacopardo, 1989). Even though the culture of Kalash was not identical to the Kafiristan region, a cultural homogeneity prevailed (Cacopardo, 1989, 2016, Fussman, 1972; Morgenstierne, 1961, 1965, 1973; Strand 1973;]).

Sadly, the written accounts on Kalash are more recent as opposed to the independent tribes of Hindukush on the Afghanistan side which were far more studied and documented by the western visitors and researchers. Biddulph (1880), writing about the tribes of Hindukush, does not mention them while Robertson (1896, p. 48-52), who passed through the Kalash village of Bumburet, revealed that they were not truly an independent Kafir tribe as they were still under the Mehtar (King) of Chitral's rule. Thus, the history of Kalash follows an uncertainty with no written sources, archeological evidences or inscriptions to trace the origin. Nevertheless, in such situations, it is on the grounds of linguistic research and oral traditions that are relied upon. The main language in the region of Chitral is *khowar*, the language of the Kho tribe while Kalasha/Kalashwar is spoken by the Kalash. One of the earliest works done on Kho and Kalash language is by Morgenstierne (1932,) who mentions that Kalasha and Khowar are strongly related and both belong to the "first wave of Indo-Aryan immigrants from the south" and "the Ka1asha inhabited the lower part of the Chitral valley before the expansion of the Khos. According to their own tradition, they originally came from a country called Tsiyam, situated somewhere towards the south, and on their way they stayed for a few generations in Waigel" (p.51).

Tsiyam is repeatedly mentioned in Kalash oral traditions as a country left by Shalak Shah and his people, who came and invaded Chitral. Shalak Shah is considered the greatest Kalash ruler and succeeded by his sons who divided Chitral into four zones

and ruled; Chitral Fort and surrounding, Drosh, Gairet and Birir, Bumburet and Rumbur and the Lutkoh Area (Siiger, 1956, p. 33). This occupation of the whole area of Chitral, from eastern Kafiristan (now Nuristan) to the Gilgit region, by the Kalash was also described by an account of a Kam from Kafiristan tribe to Roberston (1896, p. 159). This oral tradition is accepted by the Khos as well who claim that the rule of the Kalash ended in the hands of Rais Mehtar in 1570 and then passed to Kator Dynasty. Thus, the Kalash rule can be traced back to the 1500s (Siiger, 1956, p. 33).

Even though the oral traditions talk about the movement of Shalak Shah from Tsiyam, questions do remain about the location of Tsiyam. With the strong link between the Khowar and Kalash language, the onsite researches strongly indicate that the Kalash did not migrate from faraway lands but rather from close neighboring regions with Tsiyam possibly being Upper Chitral (Cacopardo, 2011, p. 61). The linguistic studies also strengthen this assumption and so, the idea of Kalash coming from a faraway land are disapproved and the oral tradition of movement from Tsiyam is rather a refuge from maybe the expanding Khowar population (Cacopardo, 2011, p. 61).

Thus, with the later surveys and studies carried out in the region (Cacopardo A., 1991; Cacopardo, 2011, 2016; Cacopardo & Cacopardo, 1989, 1992), it can be affirmed that the Kalash did not come from a different place but were residents of the region[3]. The mention of movement by the people in the oral traditions, could be more under the pressure of the growing Muslim population. As mentioned earlier, both Kalash and Khowar language belong to the greater Indo-Aryan group of languages (Trail & Cooper, 1999) and did not come from Central Asia across Hindukush but from Indo-Aryan immigrants from the South (Morgenstierne, 1932, p. 51). It is not only linguistic

[3] One of the biggest misconception that exists about the Kalash is the claim regarding Greek ancestry which was wrongfully claimed at that time by many tribes of the region and even the people of former Kafiristan. This has been disapproved by many researches and surveys. Specifically, Cacopardo (2011) in his article "Are the Kalasha Really of Greek Origin? The Legend of Alexander the Great and the Pre-Islamic World of the Hindu Kush" discusses the theories in detailed and dismisses the claims. In another article (2016), he further goes into detail investigation of the Kalasha ritual system, extends the comparison to other components and aspects of the Indian world, while providing at the same time some new data suggesting ancient Iranian influences.

connections of *Kalashwar* and *Khowar* to *Sanskrit*, but also many ritualistic similarities with the Vedic cosmology that further attest to this origin reality. Following this information, according to the study of Mallory in 1989 on Indo-Aryans (as cited in Cacopardo, 2011, p. 61), their presence in Chitral could date back to 2nd millennium.

History of Kalash Valley Birir

In the past Kalash existed not only in the three valleys of Bumburet, Rumbur and Birir but also in other small valleys of Chitral like Jinjeret Kuh and Urtsun which have now fully converted to Islam. From the data collected by Captain Gourdon in 1904, a British political agent to Chitral, quoted by Mosgenstein in his 1965 study (as cited in Cacopardo A., 1991, p. 275), the number of Kalasha- speaking communities were;

Rumbur valley- 20 families
Bimboret valley- 59 families
Birir valley- 48 (401 persons)
Jinjiret Kuh- 3 families
Suwir- 26 families
Urtsun- 15 families
Kalkatak- 16 families
Lawai- 27 families

But now majority of the Kalash population only exists in these three valleys with Bumburet being considered the center of the Kalash culture and tourists flocking to it. However, studies have revealed that there must have been two Kalash cultural spheres in the region with the northern being Rumbur and Bumburet while the southern being Birir, Jinjeret Kuh and Urtsun (Cacopardo & Cacopardo, 1989, p. 353). Even more so, Birir has many distinctive features with the celebration of Prun festival, which now only occurs in Birir, and the absence of Goddess Balmain, for whom a festival is celebrated in the other two valleys. In many ways, the culture of Birir is the final representation of obsolete Kalash lifestyle with practices that are not seen in the other

valleys (Carlo, 2007: 44; Siiger, 1956, p. 13). Due to its drier weather, grape harvesting is common and wine making is a part of the tradition, with the vats for crushing the grapes always kept outside of the village (Cacopardo & Cacopardo, 1989, p. 361). The wine making process is a custom of Birir with ceremonies specifically related to the practice.

The valley of Birir is mentioned in detail by Schomberg (1938, pp. 191- 200) as a narrow rocky terrain with cliffs and trees creating the silhouette and a stream flowing through the middle of the valley (see Fig. 2.1). There were many agricultural lands and lots of cultivation, thus giving an appealing content impression of the valley. Fourteen wooden effigies were placed in a row along the hillside on top of Guru Village facing the opposite side of the valley. These effigies are not present now with only shrubs growing in their locations.

There are two important Kalash God sanctuaries only present in Birir which are described by historians. One is *Praba Dur*, a sacred sanctuary with a small altar of two carved horse heads and high masts where autumn festival is carried out (Siiger, 1956, p. 19). The other is *Verin Dur*, for God Verin, which also has an altar with two wooden horse heads and offered wine during autumn (Schomberg, 1938, p. 194; Siiger, 1956. p. 20).

Schomberg (1938) visits two of the villages in Birir i-e Biyu located at the highest altitude and Guru (see Fig. 2.2) which he describes “Gurul was a pleasant village but very congested, as the houses were all crammed together on the side of a small hill or ridge. They were projecting flat platforms in front of each, for squatting on, narrow dirty streets, and eaves, beams and rafters all jammed together and pressing into each other” (p. 199).

He also mentions the presence of a large number of *pasti*, small independent wooden storage units, used to store grains and other important things of the owners. The purpose was not only to keep safe from the smoke of the hearth in the rooms but also to keep the wealth of oneself hidden from the rest. Even though two *Jeshtaks* (festival

space) are mentioned by Schomberg in Guru village, now only one exists. He describes an old one, with black carved pillars and a platform projecting over it and the hill which was in need of much repair. The second one was newer and had been decorated with horns and boughs but not elaborated in any other way (Schomberg, 1938, pp. 199,200).

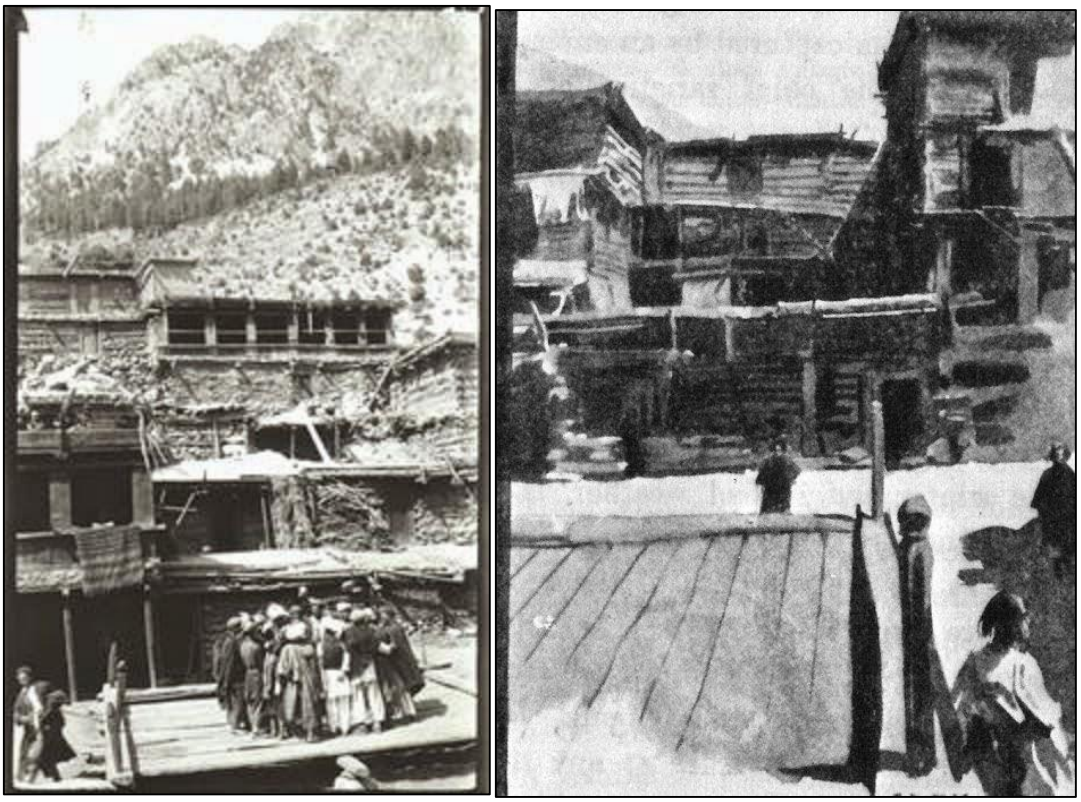


Figure 2.1. Villages in Kafiristan. Reprinted from The Kafirs of the Hindukush, by G. Robertson, 1896, Lawrence & Bullen Ltd Significance.

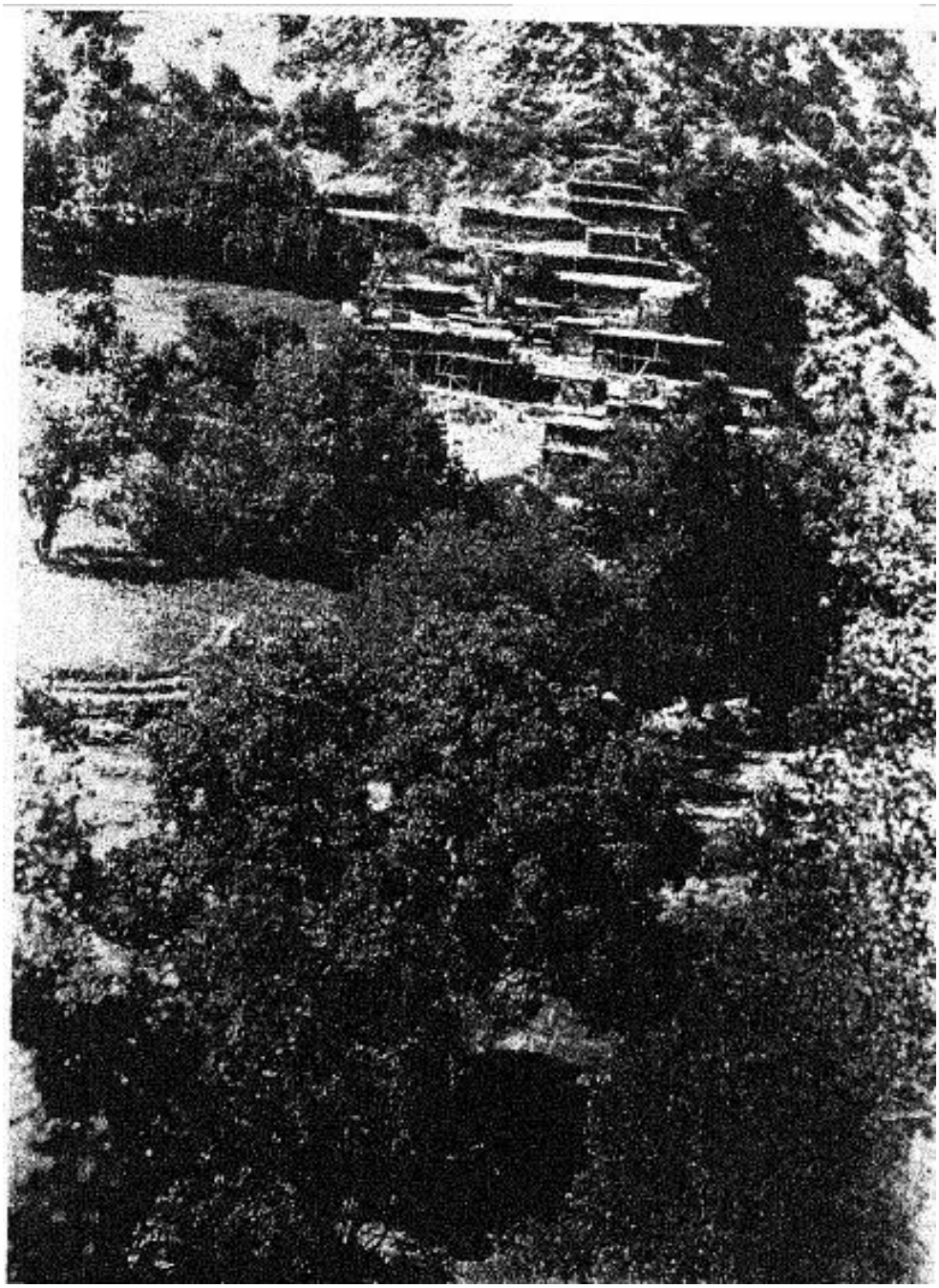


Figure 2.2. Guru Village of Birir in 1930s. Reprinted from Kafirs and Glaciers (203), by R. C. F. Schomberg, 1938, London: Martin Hopkinson Limited.

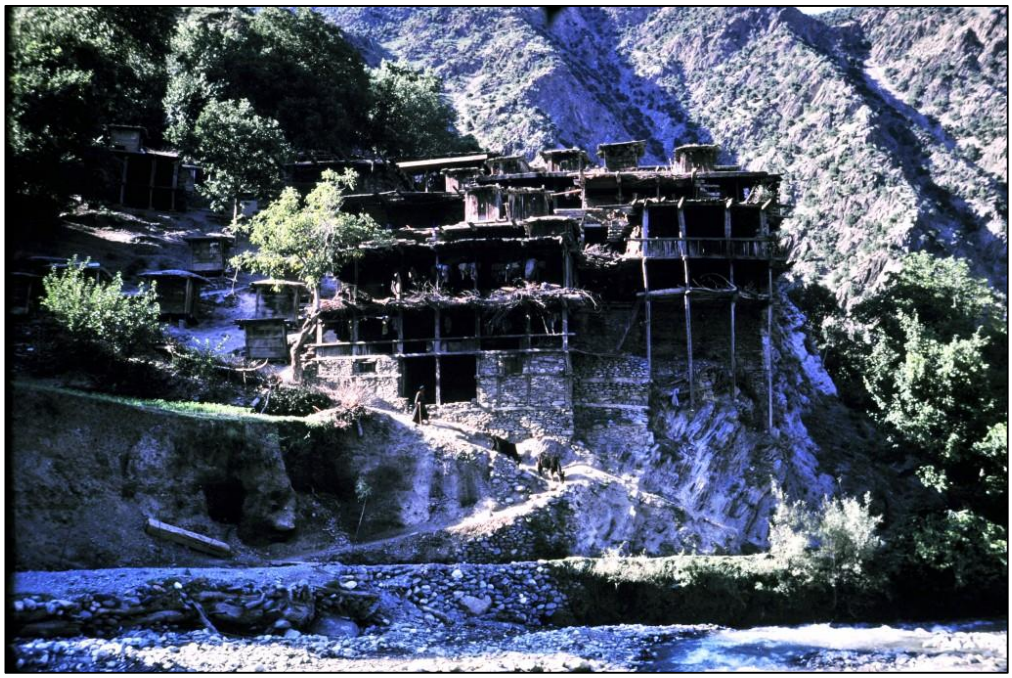


Figure 2.3. Guru Village of Birir in 1980s. Reprinted from The Kalasha of the Hindu Kush (78), by M. Lines, 2014, Lahore: Le Tropical Printers.

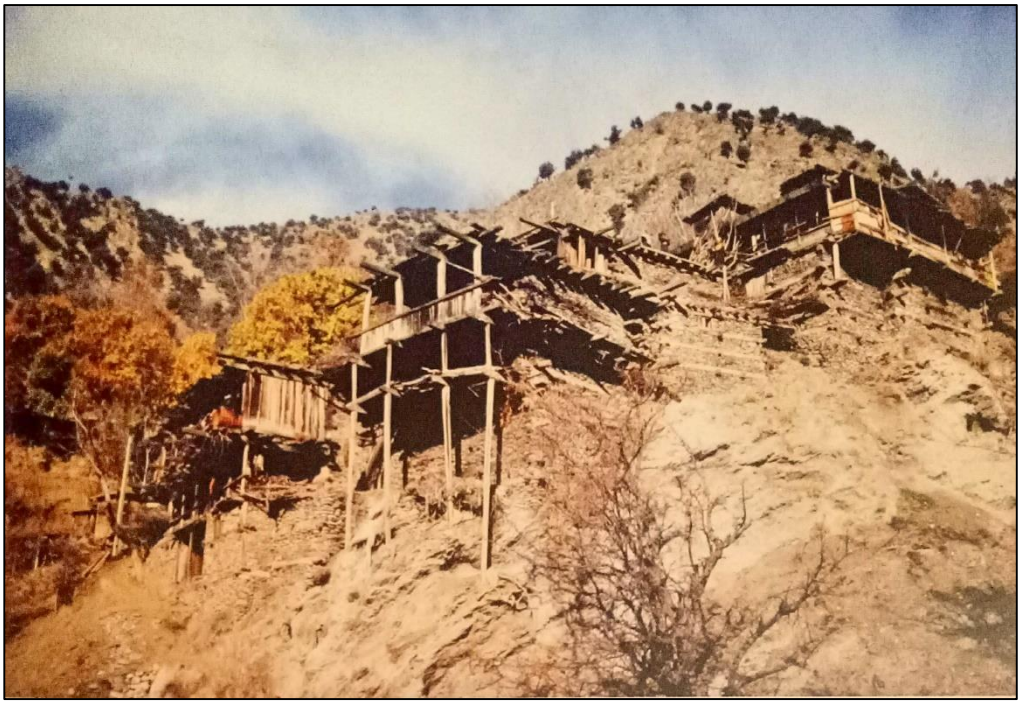


Figure 2.4. Guru Village of Birir in 1980s (Reprinted from Lines, 2014, p. 79)

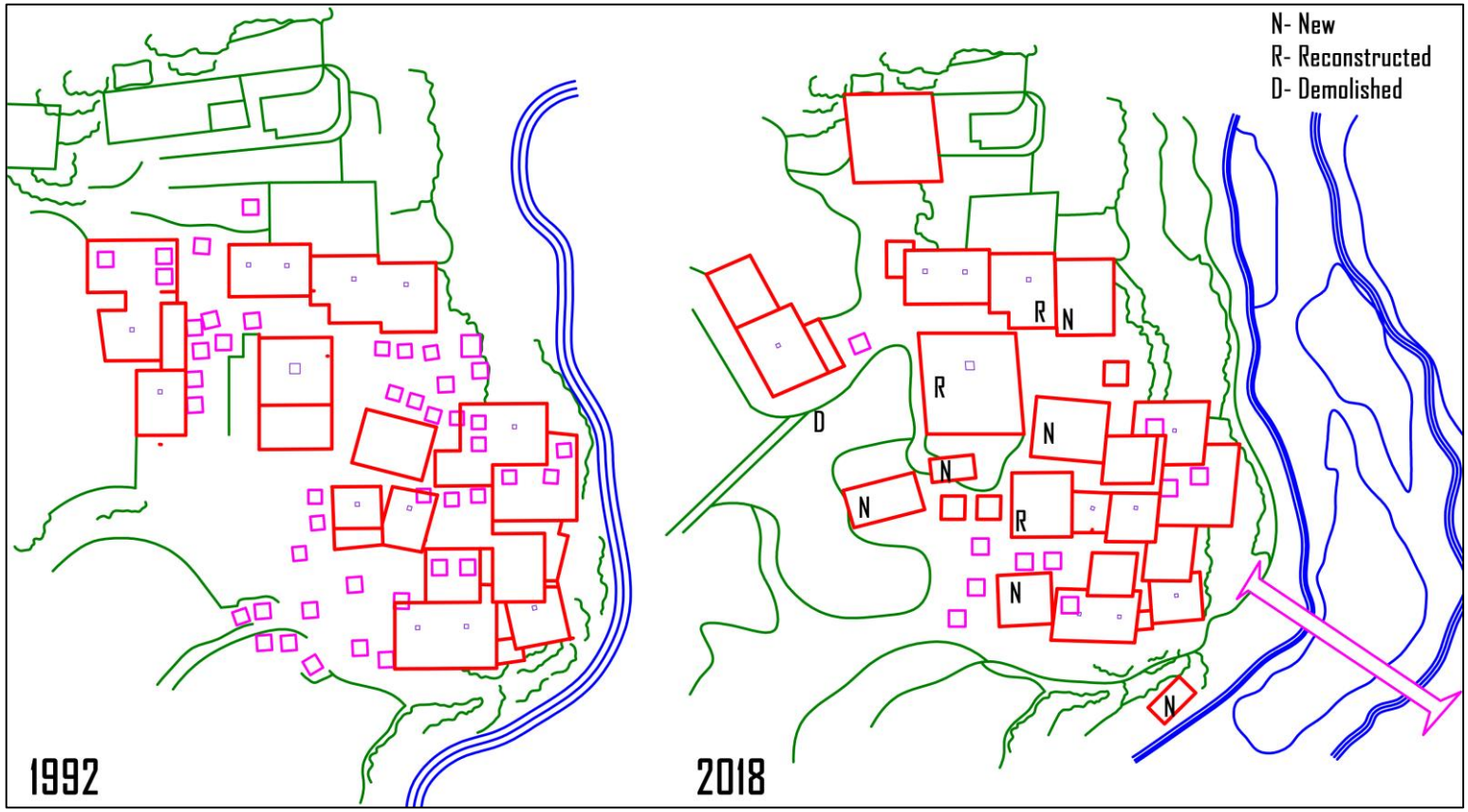


Figure 2.5. Comparison of Site plan of Guru Village of Birir drawn by John Harrison in 1992. Reprinted from Himalayan buildings: Recording vernacular architecture (16), by J. Harrison, 1995, Islamabad: British Council) with the Site plan drawn by author in 2018.

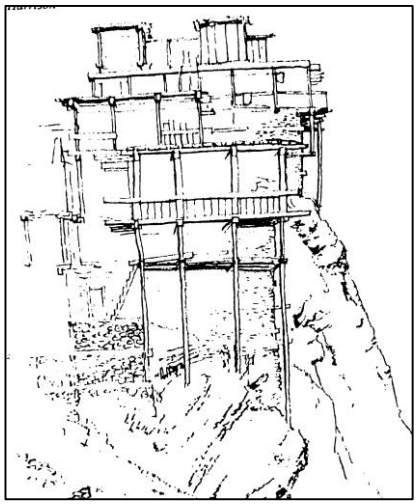


Figure 2.6. Sketch Guru Village drawn by John Harrison in 1990. (Reprinted from Harrison, 1995, pp. 16,17)

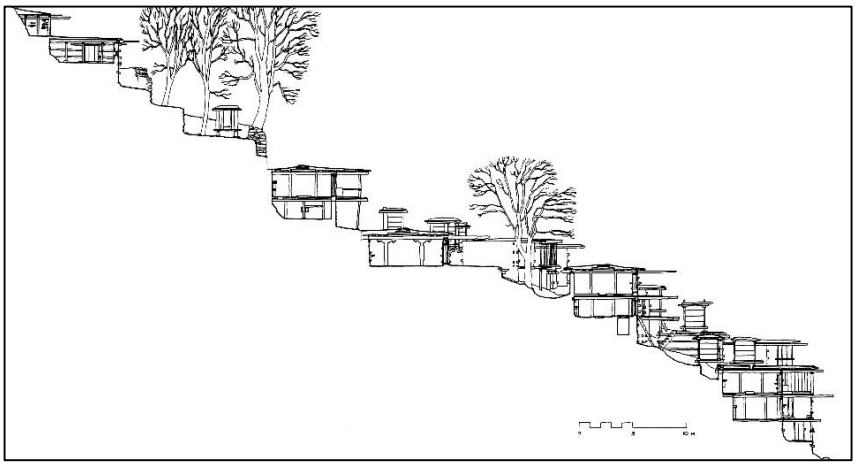


Figure 2.7. Section of Guru Village drawn by John Harrison in 1990. (Reprinted from Harrison, 1995, pp. 16,17)

Figure 2.8. View of Guru Village located on a steep cliff in 1995. Photo: Troben Stroyer. Reprinted from Natural Resources and Cosmology in Changing Kalasha Society (9), by M. Fentz, 1996, Kopenhagen: NIAS Books.

2.2. General Features of Guru Village in Birir

2.2.1. Geographical Features and Settlement Pattern of Guru Village

Birir valley lies in the southern-most tip of Chitral at a distance of 34 km and is easily accessible viz Ayun. Birir is a narrower valley as compared to Bumburet and Rumbur and opens toward Gahirat (35º 40 N 71º 45 E) at 1360 m elevation. Birir River passes through the middle of the valley and flows into Kunar River which is a tributary of Kabul River. Birir is a more obsolete example of Kalash lifestyle as many of the ancient customs related to grape cultivation and wine making are still evident in the culture (Siiger, 1956, p. 13).

Figure 2.9. Location of Chitral in Pakistan retrieved from Google Maps (accessed 10-08-2018)

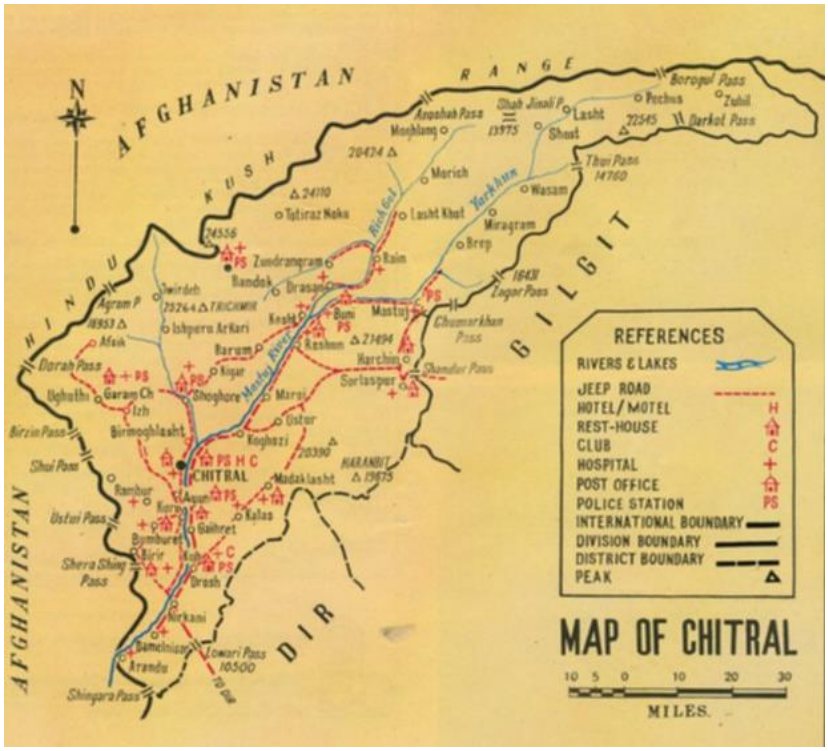


Figure 2.10. Map of Chitral in 1981. (Brenegar, E. 2009. Chitral Map in 1981. Retrieved May 10, 2019, from http://www.flickr.com/photos/edbrenegar/3685666301/in/photostream/).

The Kalash valleys are rich in natural resources, with the use restricted not only to domestic needs but also for economic benefits. As the area does not have many means of employment, it is the agricultural growth that is sold; cultivated crops like maize, wheat, bean and potato, or fruits like walnuts, almonds, chilgoza, apples, mullberries and in Birir grapes, generating income for the family. The covered area by forests for the Chitral district, including the Kalash valley, is estimated to be 41,949 hectors (Ajaz, 2007, p. 98). These are controlled by the Forest Department of Chitral with the villagers living in the surrounding region exercising some rights. The main forests covering the Kalash area are Pine (*Pinus wallichiana*), Chilghoza (*Pinus gerardiana*), Deodar (*Cedrus deodara*) and broad leaf species like Oak (*Quercus incana*) (Ajaz, 2007: 97) (see Fig. 2.11, 2.12).

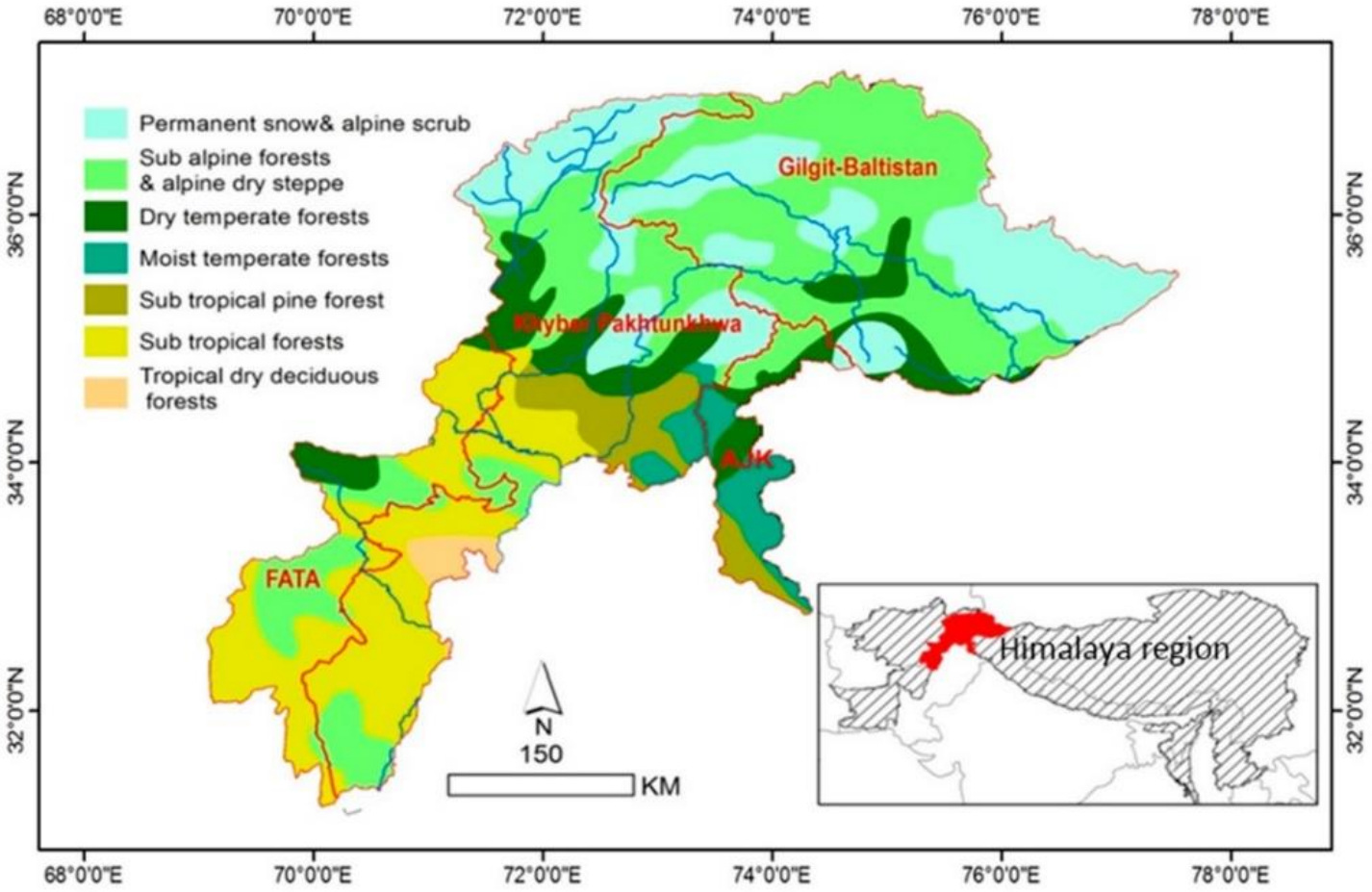


Figure 2.11. Forest types in Chitral and its close Vicinity. Reprinted from "Mapping Deforestation and Forest Degradation Patterns in Western Himalaya, Pakistan" by F. M. Qamer et al., 2016, *Remote Sensing, 8*(5), 3.

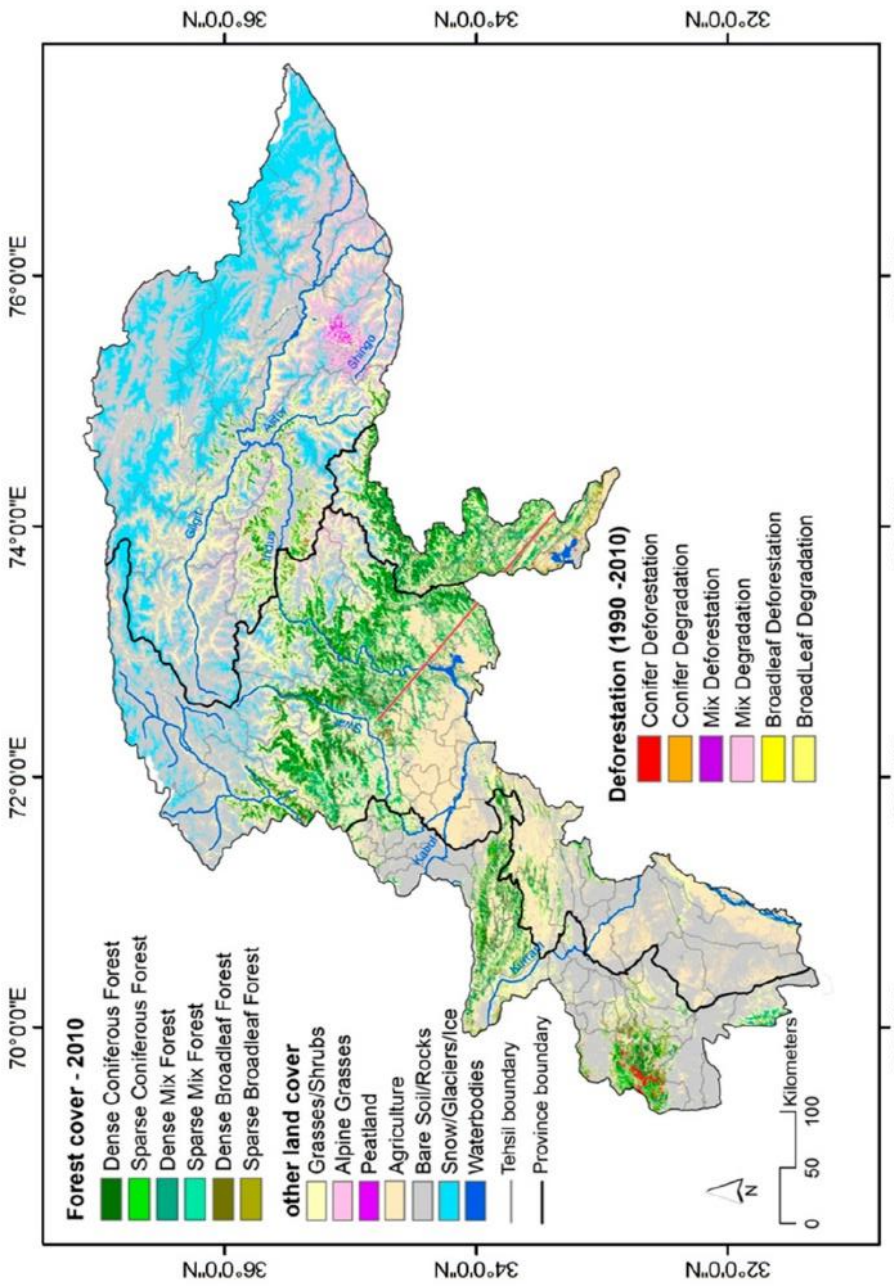


Figure 2.12. Land cover distribution of Chitral and its close Vicinity (Reprinted from Qamer et al., 2016, p. 4)

The climate of the area is typical of high elevation region without large bodies of water to regulate the temperature. The summers are mild and agreeable with average maximum temperature between 23ºC to 27ºC and minimum 1ºC to 2ºC. In winter the valleys are in grip of cold northerly wind and hazard. The extreme minimum temperature recorded in the valleys is -4.8 to -15ºC, in the month of January and February. Snowfall is quite frequent from December to March. These valleys receive an average rainfall between 700 mm to 800 mm.

Birir has six village settlements; Guru, Aspar, Gasguru, Girubel, Kat and Biyum (see Fig. 2.13). These are placed at a distance from each other with the Birir river flowing in front. The vehicular road is built next to the Birir River and since the villages are all placed at heights, the houses are only accessible via foot or animal. Guru is considered the most "Kalasha Village" of the valley, with average number of people in a single house is 8, while Aspar is the most Islamized (Carlo, 2007).

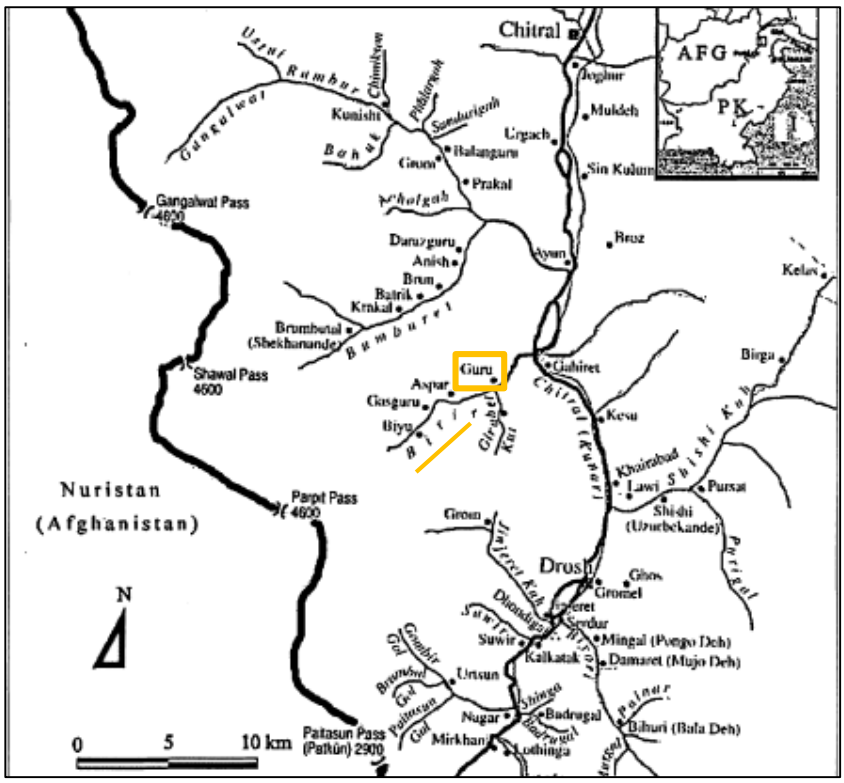


Figure 2.13, Map of Southern Chitral modified by author. Reprinted from "The Prun Festival of the Birir Valley, Northern Pakistan, in 2006", by P. D. Carlo, 2007, *East and West, 57*(1/4), 45.

Figure 2.14. Google Earth View of Guru Village in Birir Valley (accessed 10-08-2018)

Guru Village is located on a sloping terrain and regarded as the oldest part of the valley, reflecting a terraced pattern of rural architecture of Kalash. There is one road providing access to the village, also acting as the main vehicular axis within the village (see Fig. 2.14). The pedestrian pathway continues throughout the village connecting traditional commercial area on the south of the Birir River, reaching across to the hospital and school buildings (see Fig. 2.15). Indigenous houses are located on the north of the Birir River (see Fig. 2.16) and area is surrounded by agricultural lands.

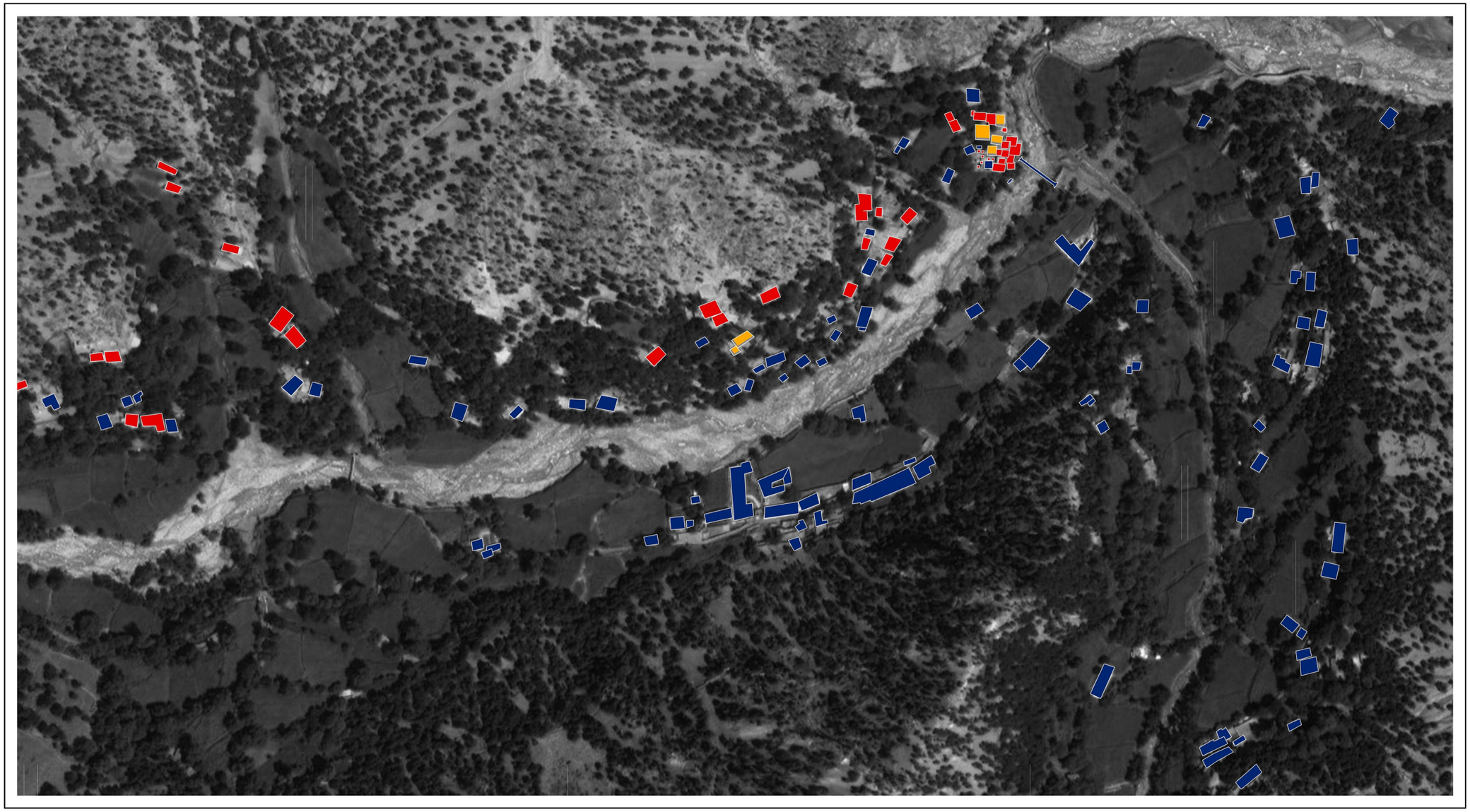


Figure 2.15. Study of categories of buildings in Guru Village (Drawn and modified by the author)

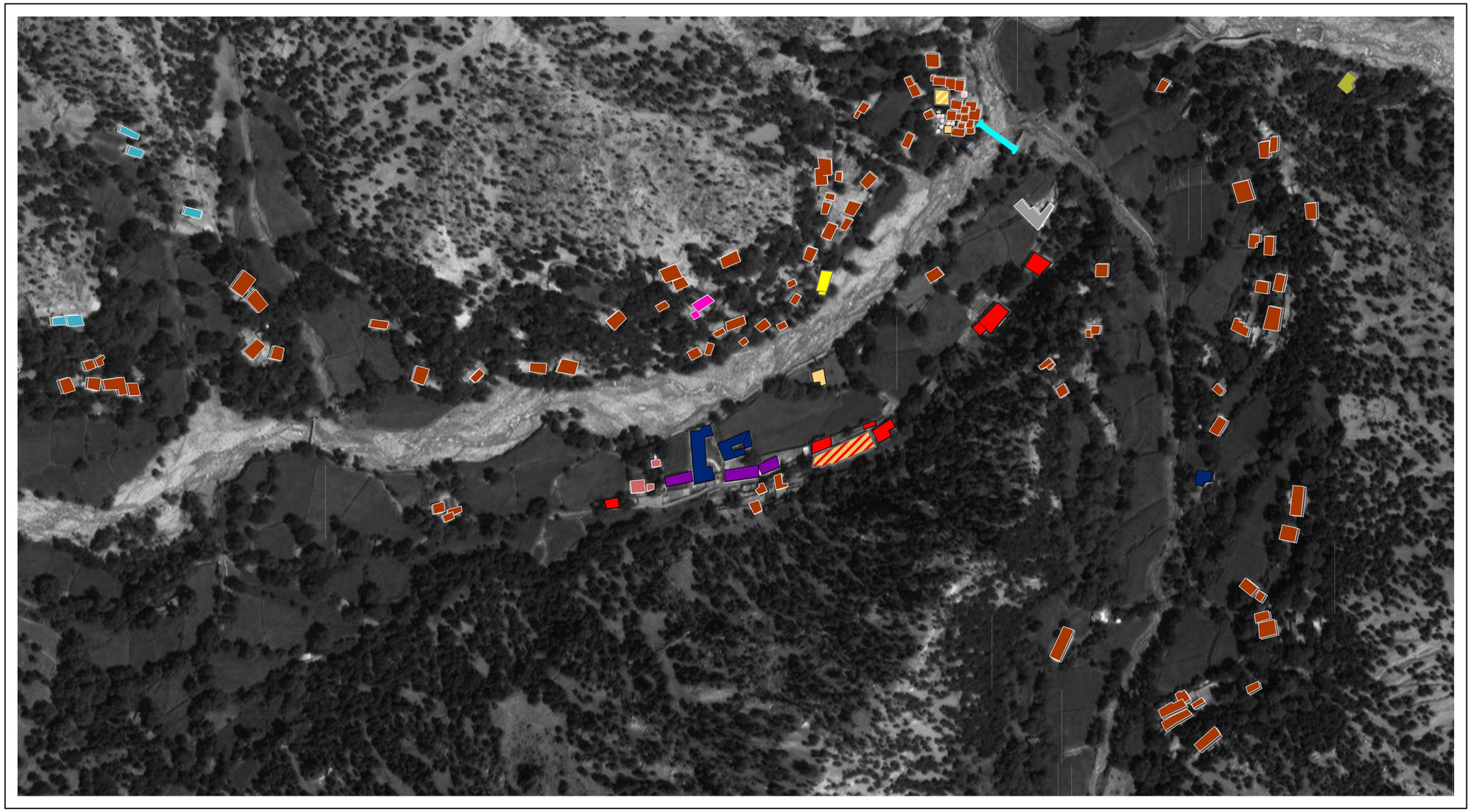


Figure 2.16. Study of current use of buildings in Guru Village (Drawn and modified by the author)

The steep topography affects the location of the houses, their orientation and the form of the pathways within this settlement. The pathways are narrow, sloping, and sinuous shape (see Fig.2.21). Some pathways are built with stairs and stepped platforms to reduce the pitch of the steepness (see Fig. 2.17). Streets are usually covered with rubble stone to save from mud in rain (see Fig. 2.18).

From the analysis of open and built up area in Guru Village (see Fig. 2.22), it is apparent that the urban pattern of the settlement is dictated by the area of the topography and the need to conserve abundant land for agriculture. The houses are clustered on top of each other and arranged in rows and attached along the contour line, while pathways are provided on top of the roofs or in the space available in between. Taking advantage of the slope of the cliff, the rows of houses are built in a stepped pattern and do not block the view of adjacent level houses (see Fig. 2.19, 2.20).

Most of the buildings in Guru Village are traditional houses which are built with traditional technique and materials (see Fig. 2.23). The use of the buildings in the village has remained the same especially for the residential units. It is only the basement stores of two houses that have now changed to small shops since no other commercial activity is present on this side of the river (see Fig. 2.24). With regards to functionality and construction technique, three major categories of buildings can be defined;

Traditional (Use of traditional technique and material for construction with traditional plan scheme): Residential, Residential with ground floor store, Pasti/ Storage (see Fig. 2.23, 2.24)

New (Built with new technique and material and change in plan scheme): Residential, Inn, Storage, Toilet, Laundry, Bridge (see Fig. 2.25)

Reconstructed (Built with new technique but traditional material): Residential, Residential with ground floor store, Festival Space (see Fig. 2.26)

In Guru Village, only the buildings at the lowest level are 3 storey (see Fig. 2.28). It is the availability of space that decides the construction of basement which would function as a storage unit. In either case, the roof line of the houses in front is kept lower as to not block view of the adjacent row houses, placed at a gradual height because of the cliff slope (see Fig. 2.27). Most of the residential houses are two storey with a ground floor and basement while many houses have only one floor. Since most of the houses are attached in rows and placed in a stepped manner, the overall view of the village from far comes off as a multi-storey building with platforms breaking the facades (see Fig. 2.29).

The open areas surrounding the village are mostly under private ownership and used as agricultural lands. On the lower level terraces, crops are grown and irrigated by streams (see Fig. 2.31). On higher altitudes, the availability of natural resources like shrubs, trees and small pastures fulfill herds (see Fig. 2.32, 2.33). Especially in summers, herds are taken to even higher pastures and brought back during winters and kept in house basements. The pathways connecting the houses are used by the villagers, the river banks and the steep cliff side are all under public ownership (see Fig. 2.35, 2.36). Even though there is no designated parking lot but the area next to the bridge is used for parking cars (see Fig. 2.37, 2.38).

It should be noted that for the house ownership, it is not the lot boundary but rather the covered area by the house that defines the ownership. Throughout history, the lands have been owned by patrilineal lineage groups dating back to conquest of the land (Siiger, 1956, p. 15). Fields, houses and animals are private property owned by families while the high pastures are collectively owned (Cacopardo, 1989, p. 318)

The houses are built over the sloping topography as contiguous houses, balconies hanging on low cantilevered beams and rich woodwork. As the houses were built in history for communal living and specially in a location where cultivable ground was inconsiderable, the houses were piled on top of each other (Robertson, 1896, pp. 478,479). Even though the configuration of Kalash houses in Guru village is

dependent on the topography but it cannot be ignored that such location also provided protection from enemies which was a vital consideration for settlement in the past.

Figure 2.17. View of Valley Pathways

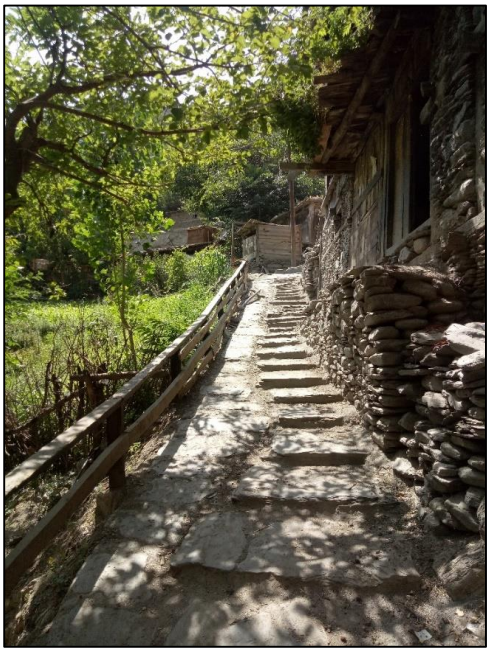


Figure 2.18. View of Entrance Pathway to Guru Village

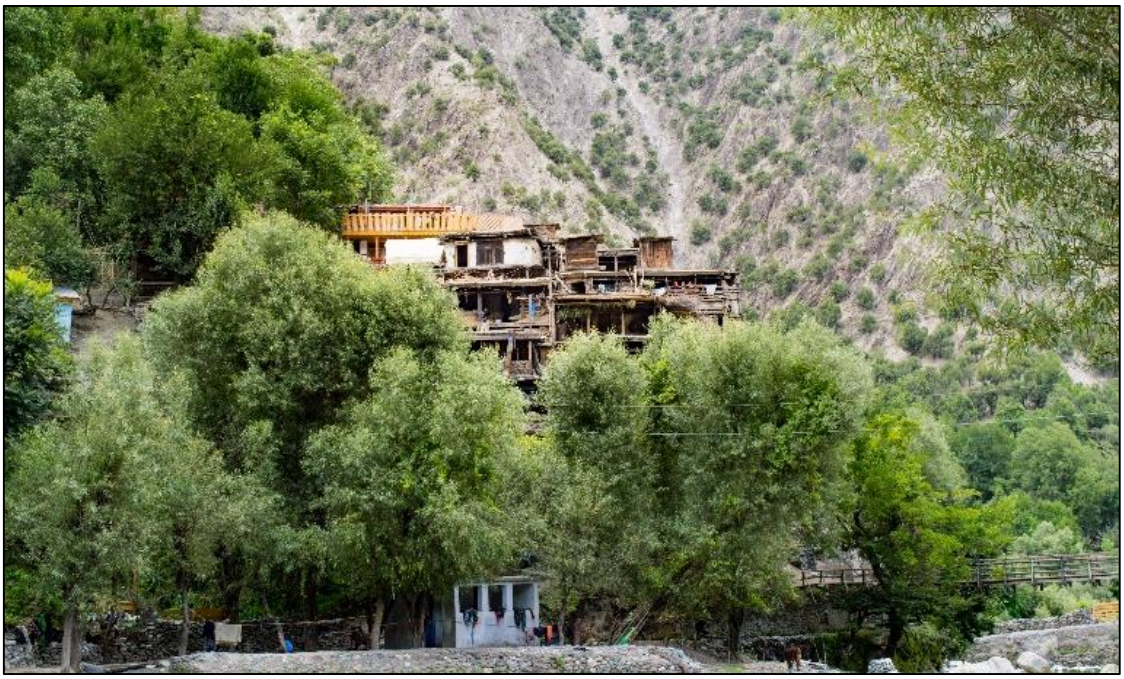


Figure 2.19. Present front view of the village

Figure 2.20. View of side areas of Guru Village

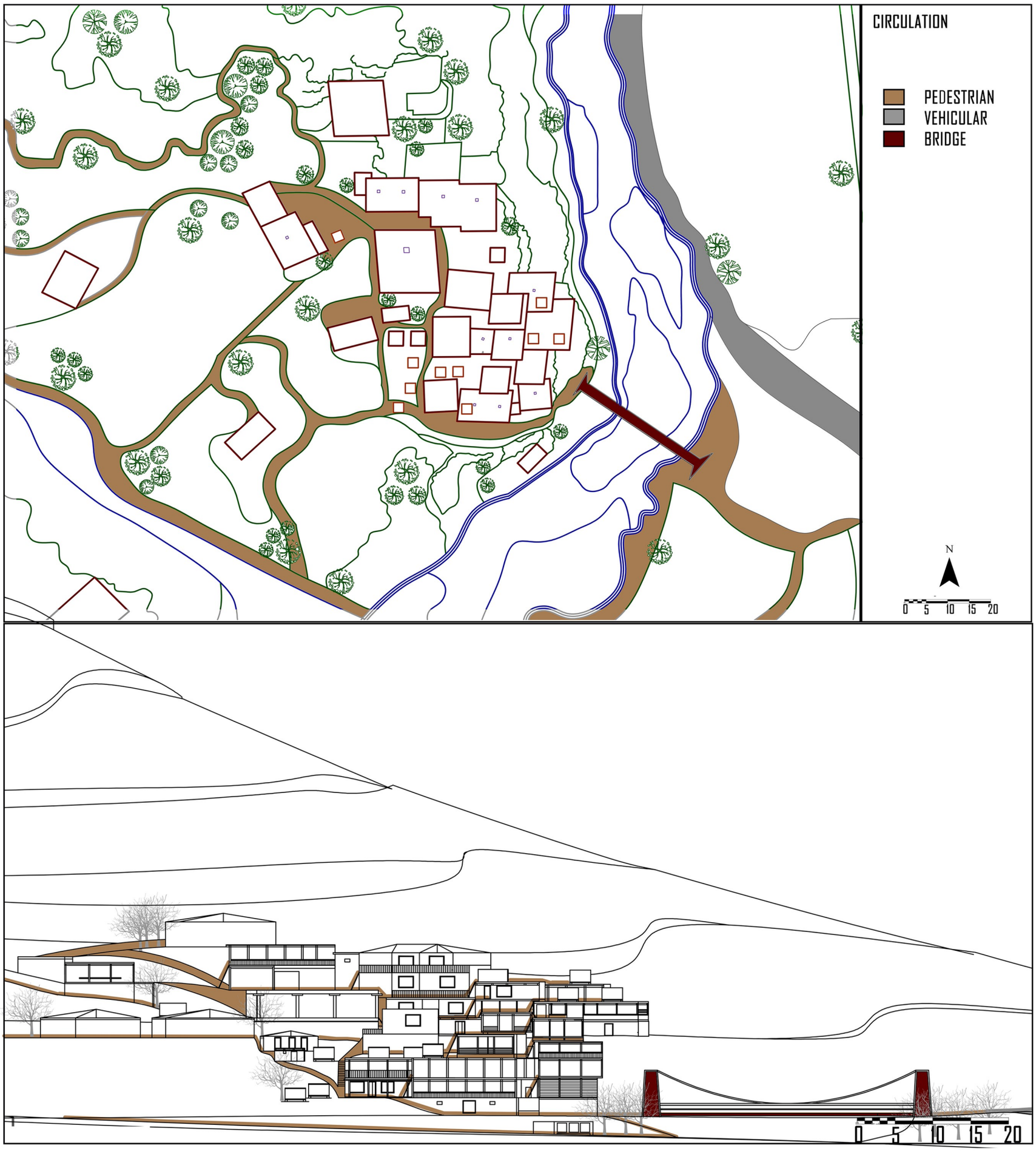


Figure 2.21. Study of circulation in Guru Village (Drawn and modified by the author)

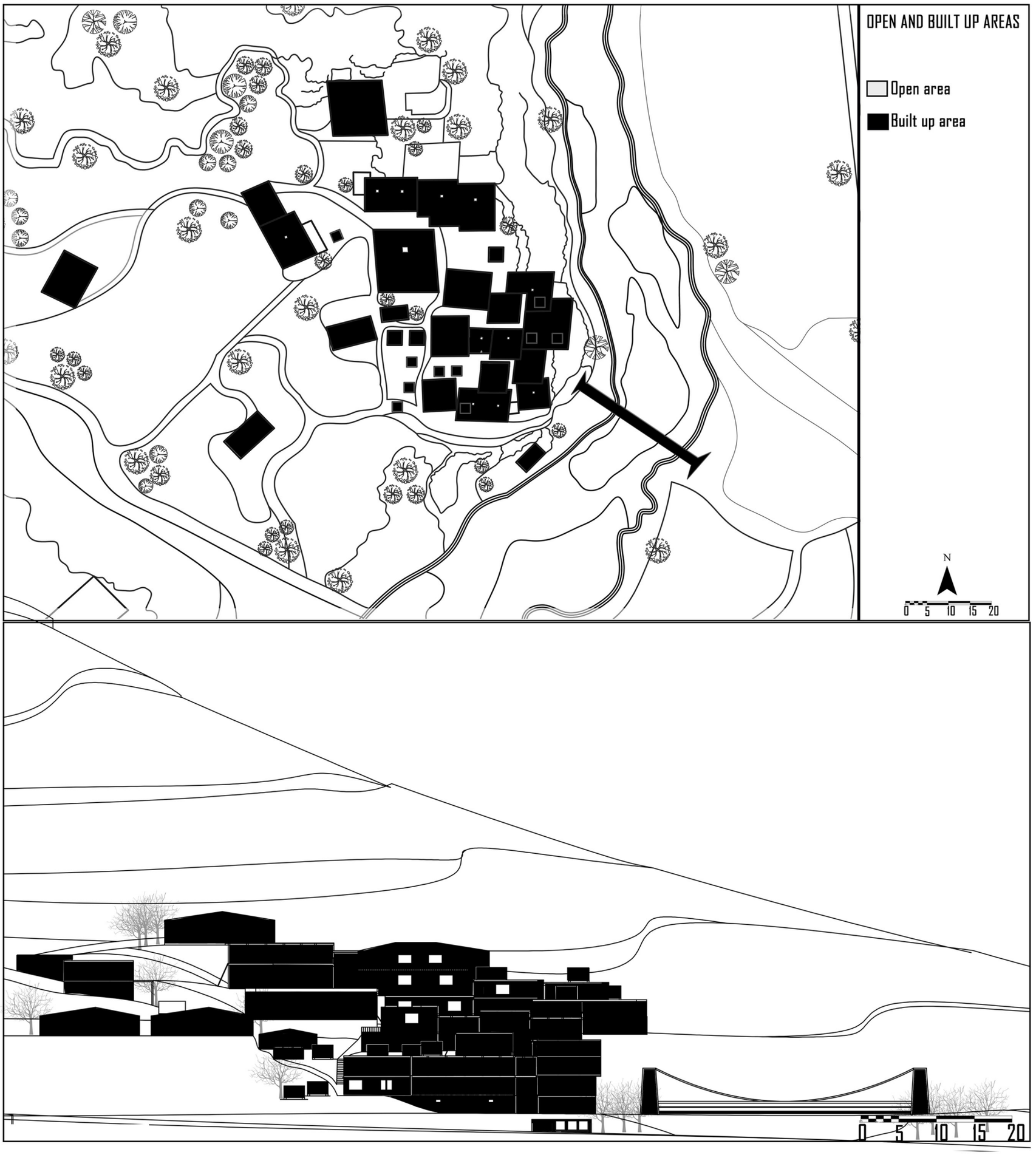


Figure 2.22. Study of open and built up area in Guru Village (Drawn and modified by the author)

Figure 2.23, Traditional buildings in Guru Village

Figure 2.24. Traditional buildings in Guru village

Figure 2.25. New residential buildings in Guru village

Figure 2.26. Reconstructed building in Guru village

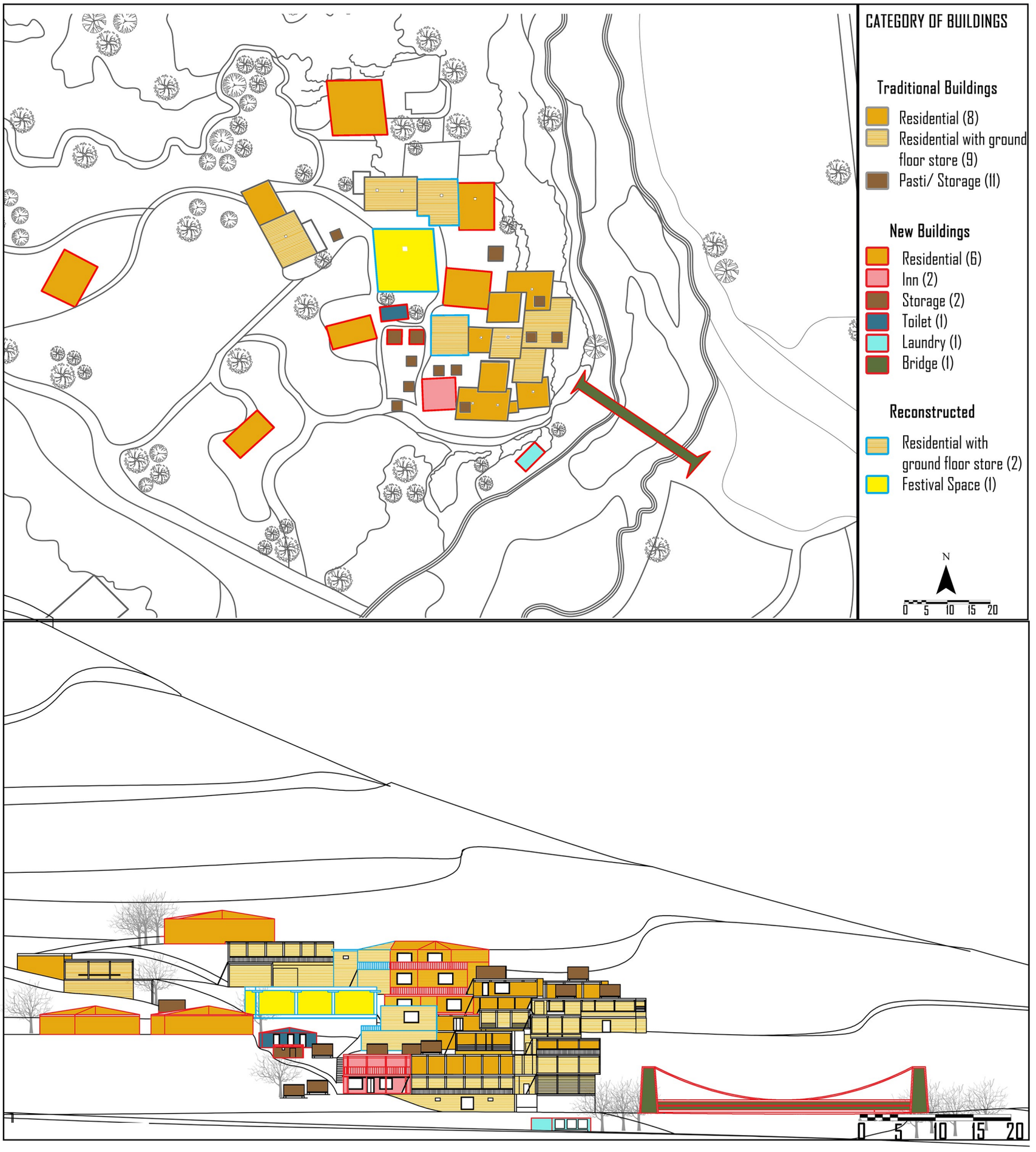


Figure 2.27. Category of Buildings in Guru Village (Drawn and modified by the author)

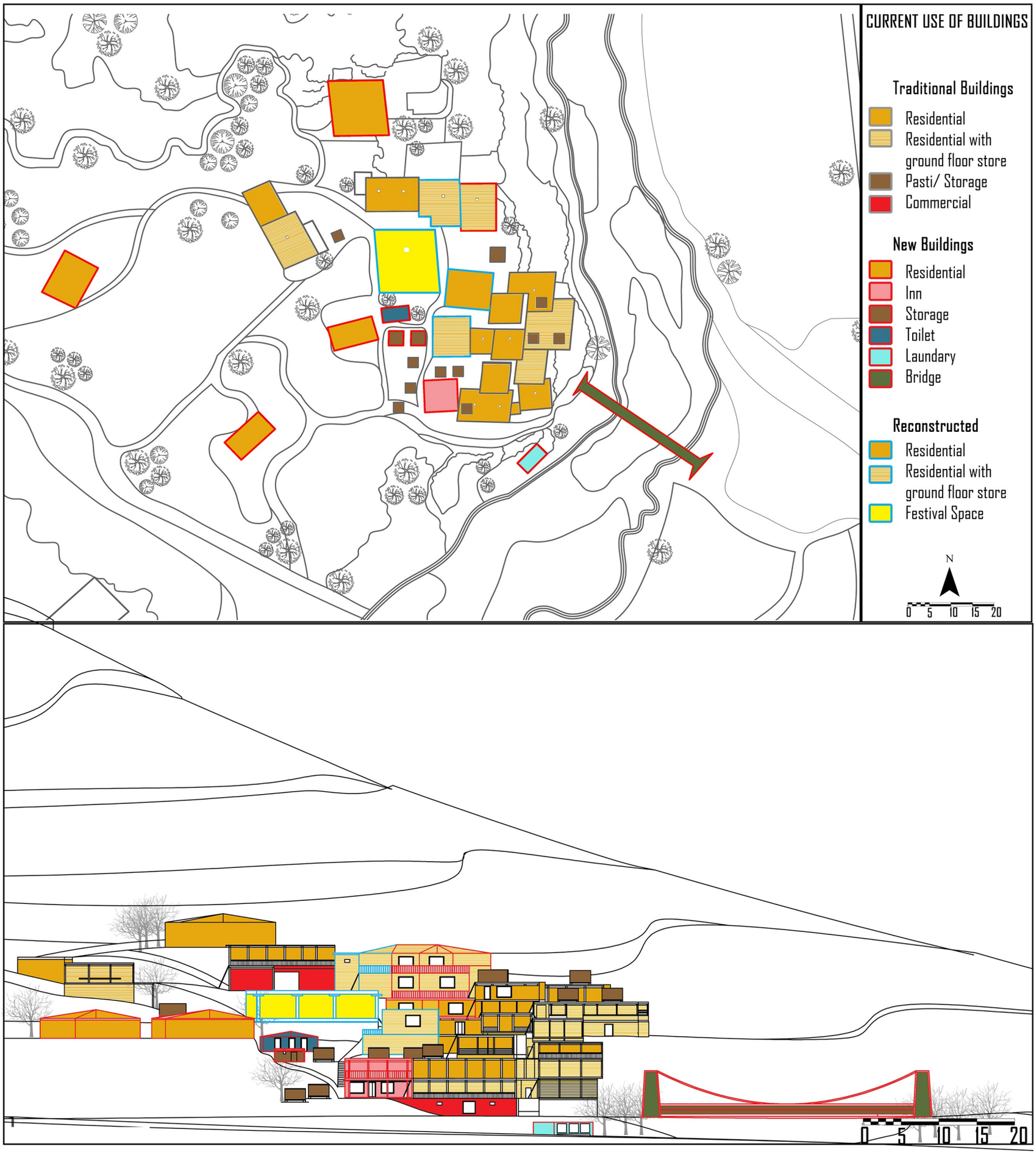


Figure 2.28. Current use of Buildings in Guru Village (Drawn and modified by the author)

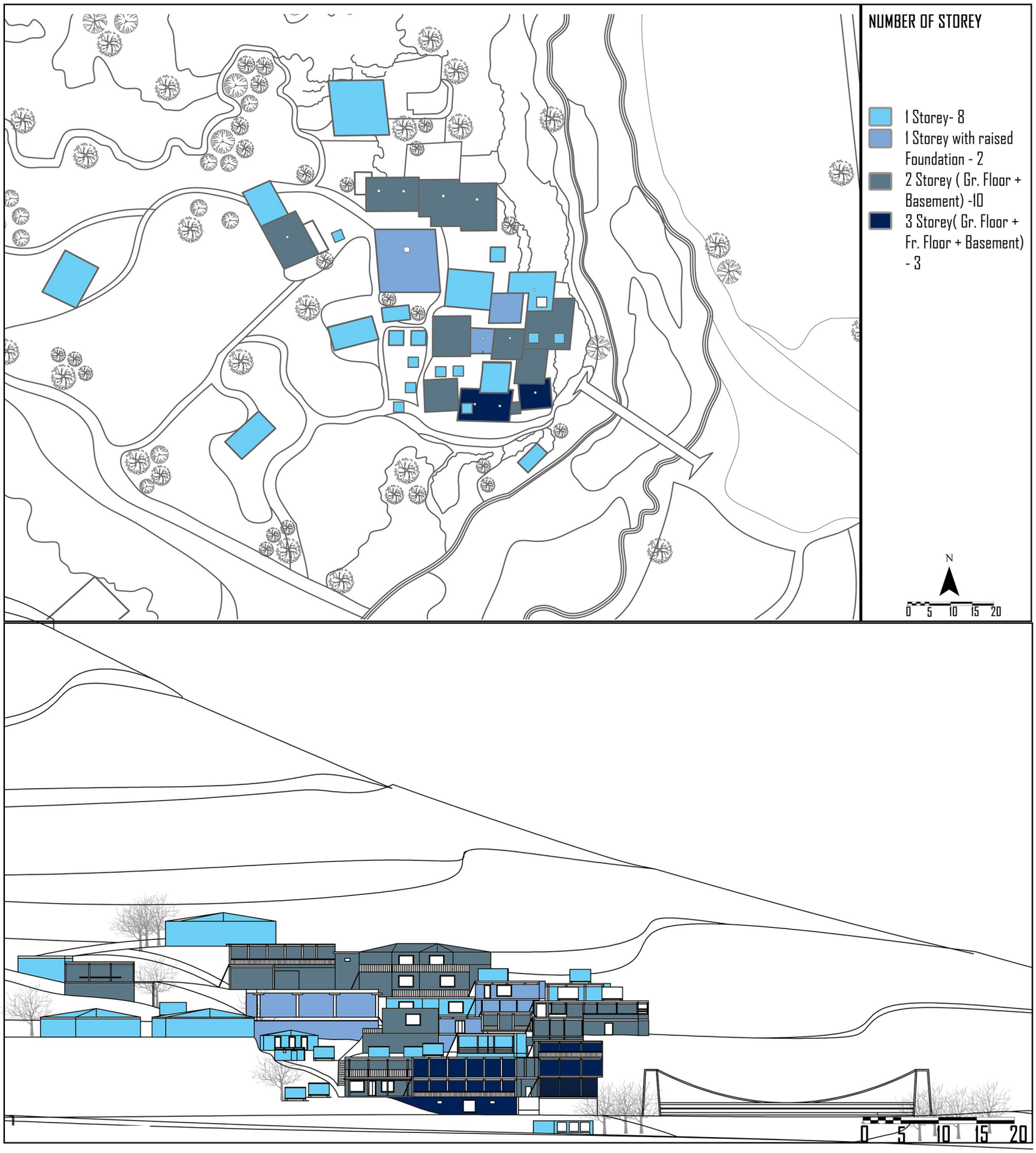


Figure 2.29. Number of Storey in Buildings of Guru Village (Drawn and modified by the author)

Figure 2.30. View of the Valley from the Roof top of Guru Village.

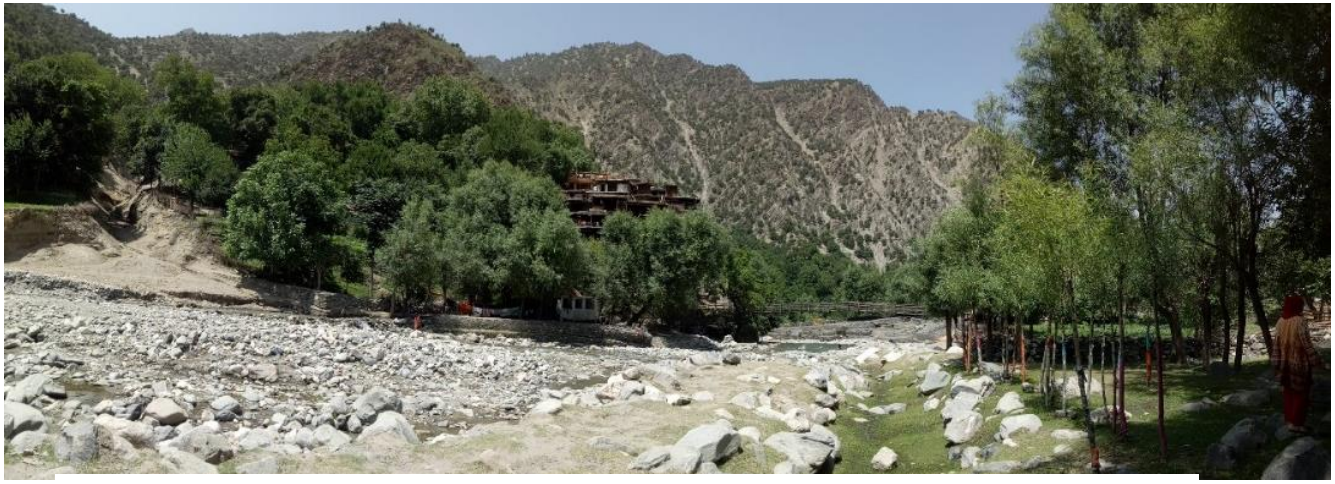


Figure 2.31. View of the Guru Village and Birir River.

Figure 2.32. Mountain cliff on top area of Guru Village and agricultural lands in Birir

Figure 2.33. Dry river creek in Guru Village and River pools in Birir River

Figure 2.34. Private agricultural lands in Guru Village

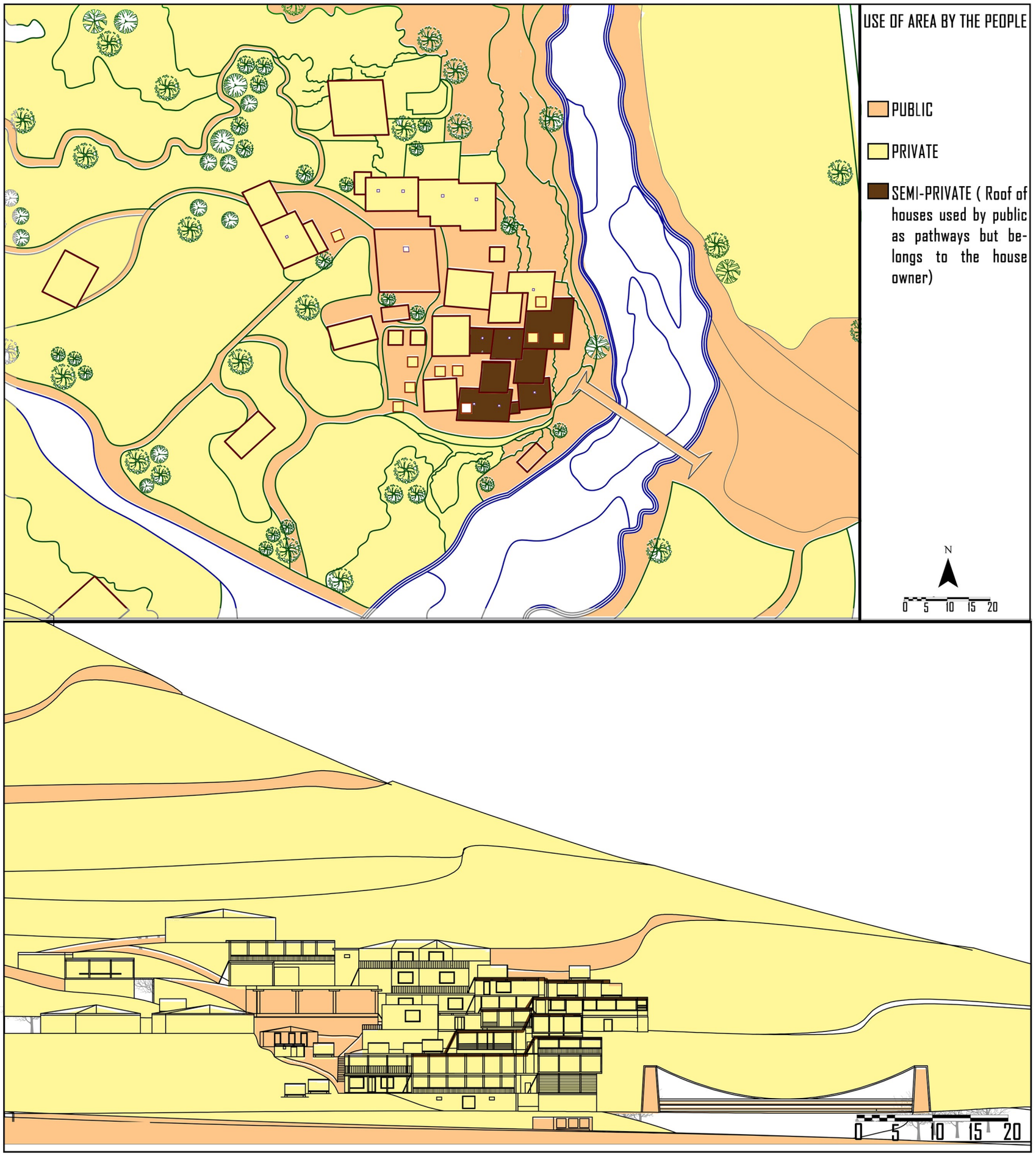


Figure 2.35. Use of area by people of Guru Village (Drawn and modified by the author)

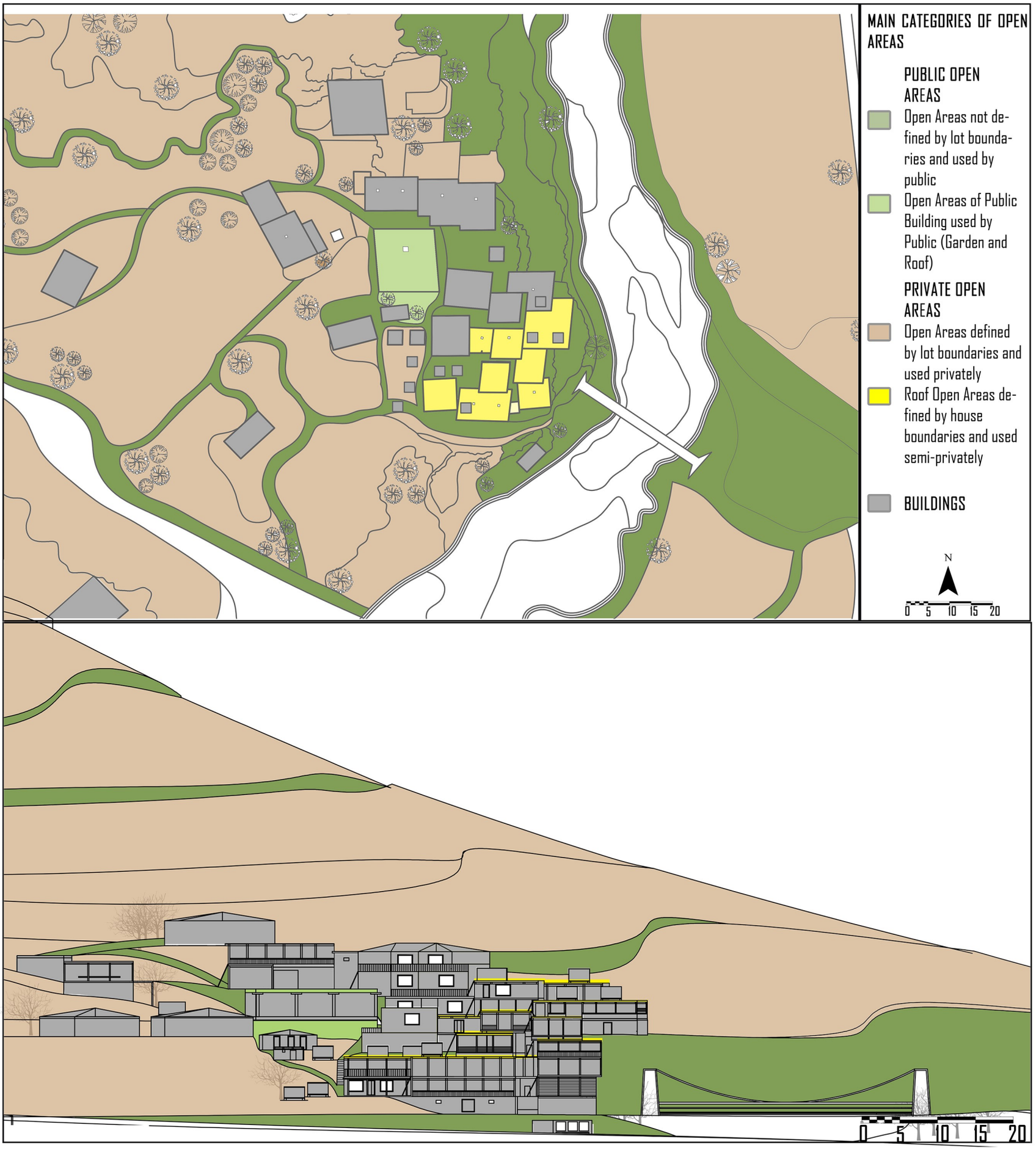


Figure 2.36. Main Categories of Open Areas in Guru Village (Drawn and modified by the author)

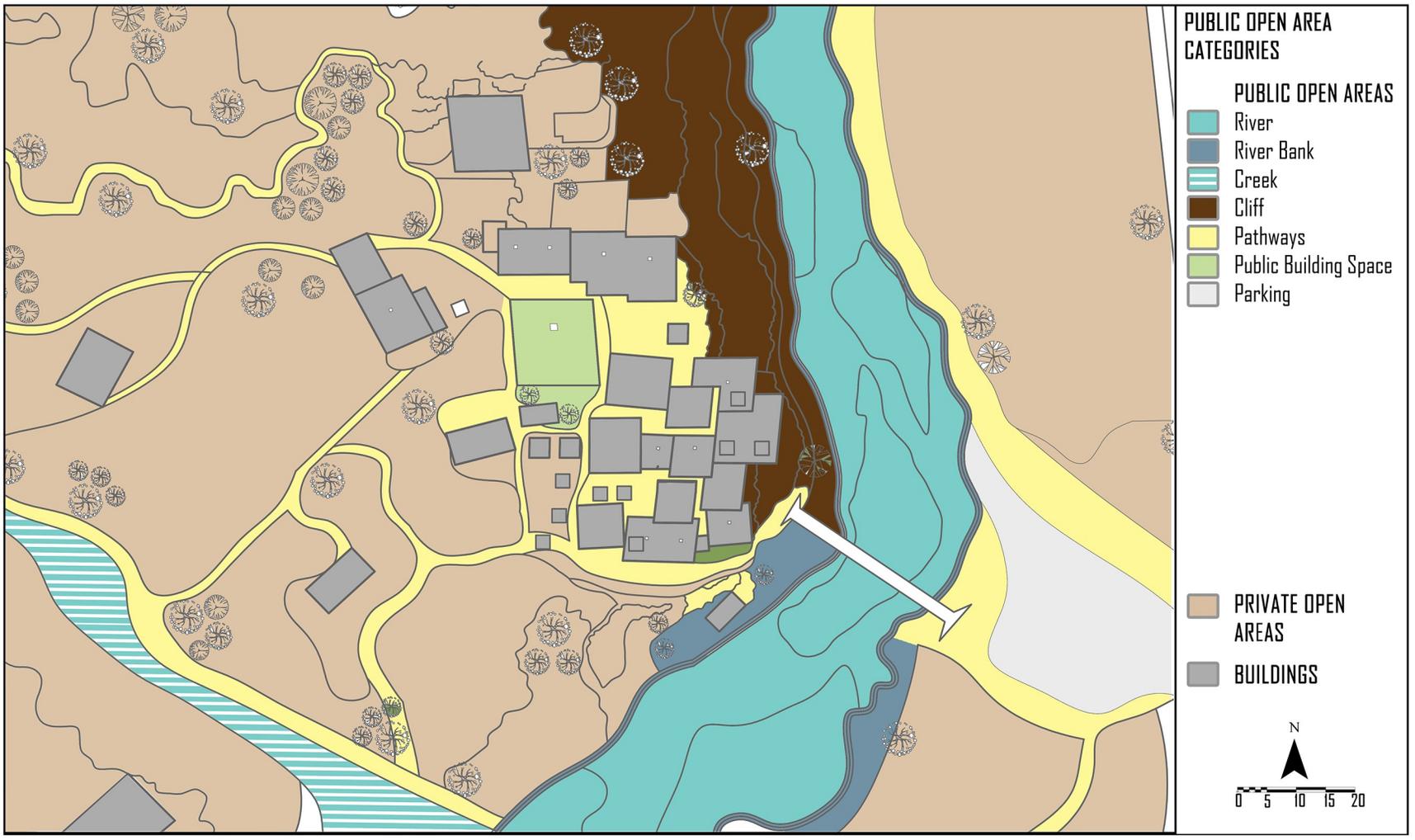


Figure 2.37. Public Open Area Categories in Guru Village (Drawn and modified by the author)

Figure 2.38. Open Area Functions in Guru Village (Drawn and modified by the author)

2.2.2. Social, Demographical and Economical Structure

Understanding the Constitution of Pakistan, 1973, and the country's legal framework, there is no definition for Indigenous Peoples. Instead tribal people and minorities are recognized and provided right. Pakistan has also been part of the UN Declaration on the Rights of Indigenous Peoples, 2007 and accepts the ILO Convention on Indigenous and Tribal Populations, 1957, and the International Covenant on Civil and Political Rights, 1966 (PPAF, 2015). This has caused many issues, as the administrative rights of Kalash community falls under multiple government institutions, such as the Ministry of Religious Affairs & Inter Faith Harmony, the Federal Advisory Council for Minorities Affairs and the Minority Committees at district and local levels, and the Minority Welfare Fund. It was in only 2017 that the provincial court recognized the people as a separate and religious group. With Wazir Zada Khan, the first Kalash to have the reserved minority seat in the provincial assembly, Kalash finally have a voice on a government platform (Elinepa, 2019).

The population of Chitral has been gradually rising from 80,000 in 1951 to 447,362 in 2017 (census, 2017). This number includes the people of Kalash as well, making up 1% of the entire population of Chitral. Even though the current number of Kalash people in Consensus of 2017 has not been disclosed by the government documents but according to the data provided of Ayun Union Chitral and (Kalash) Valleys Development Programme (AVDP), a local NGO, the Kalash population is currently 4,100 people (Zahiruddin, 2019).

According to the extrapolated data regarding the population in the Kalash villages done by PPAF (2015), the population of Birir is 4235 which included 3215 Muslims and 1020 Kalash. The following figure (see Fig. 2.39) and table (see Table 2.1) were provided for the fifteen villages where the Kalash traditionally resided;

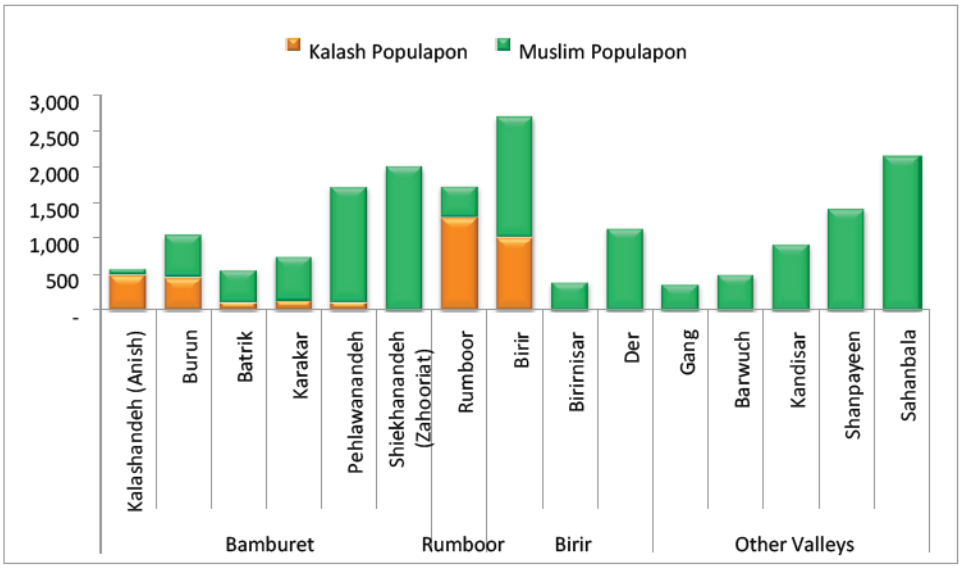


Figure 2.39. Kalash population in Chitral District. Reprinted from Indigenous People Planning Framework (17), by Pakistan Poverty Alleviation Fund (PPAF), 2015, Islamabad.

Table 2.1. *Kalash population in the fifteen Kalash Villages in Chitral District*

	Village	Valley	Muslim Population	Kalash Population	%age of Kalash Population
1	Kalashandeh(Anish)	Bamburet	88	494	84.86%
2	Burun		594	460	43.66%
3	Batrik		451	112	19.95%
4	Karakar		623	129	17.17%
5	Pehlawanandeh		1,609	112	6.53%
6	Shiekhanandeh (Zahooriat)		2,005	2	0.08%
7	Rumboor	Rumboor	437	1,291	74.69%
8	Birir	Birir	1,688	1,016	37.58%
9	Birirnisar		389	2	0.39%
10	Der		1,138	2	0.13%
11	Gang		363	2	0.42%
12	Barwuch		495	2	0.31%
13	Kandisar		921	2	0.16%
14	Shanpayeen		1,413	2	0.11%
15	Sahanbala		2,153	2	0.07%

Note: Reprinted from Indigenous People Planning Framework (18), by Pakistan Poverty Alleviation Fund (PPAF), 2015, Islamabad.

Even though Chitral is an agrarian society, with livestock part of the domestic life, the cultivated area is 22,552 hectares which is only three per cent of the total land area. As half of the district is located on high altitude, only one crop cycle can be harvested. According to estimates, around 80% of the people do not own as much cultivatable land to sustain their families fully (Hussain, 2017). Even in the case of Kalash community, the economy is based on agricultural lands, employment and livestock. To understand the poverty level in the Kalash community, study was carried out by PPAF (2015) under the following criteria (see Fig. 2.40) with the statistics found as (see Fig. 2.41);

Well to do	Better off	Poor	Very Poor	Destitute
Above 50 kanals of land	15 or above kanals of land	At least 5 kanals of land	Have no land	Have no land
Three persons in the household are employed	One or two persons in the household are employed	No person in the household is employed	No person in the household is employed	No person in the household is employed
50 cattle	25 cattle	5 cattle	One cattle	No cattle
Rs. 1.0 million cash money	Rs. 0.5 million cash money	Rs. 10,000 cash money	Rs. 1,000 cash money	No cash money

Figure 2.40. Five categories to divide the economical state of Kalash households (Reprinted from PPAF, 2015, p. 22)

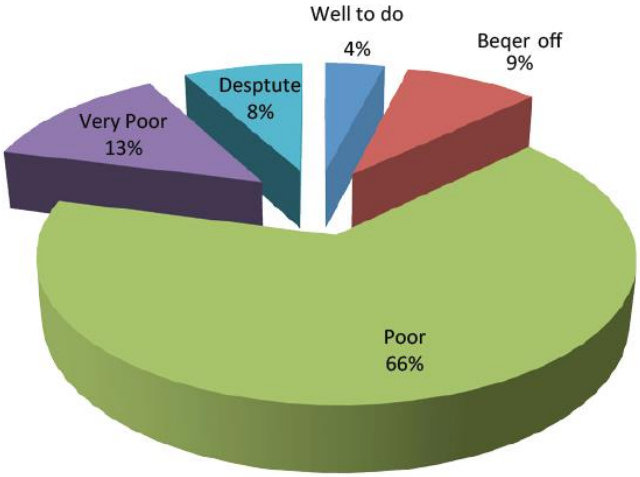


Figure 2.41. Kalash household economic situation in Chitral District (Reprinted from PPAF, 2015, p. 22)

In terms of spending, the men take hold of all the major decisions taking place in the family while the female may spend on their clothes, accessories and other domestic stuff. In terms of generating income, it is the women who do more work by taking part in fieldwork and some also selling their handmade crafts to tourists, besides completing their domestic duties. Never the less, the Kalash community is the poorest in the region and various civil society organizations such as the Kalash Foundation, the Pakistan Red Crescent Society, the Greek Volunteers, the Helvetas Swiss Inter-cooperation Pakistan, the Hindu Kush Conservation Association, UK / Kalash Environmental Protection Society (HKCA & KEPS), the Kalash People Welfare Society, the Ayun & Valleys Development Programme, and Pakistan Poverty Alleviation Fund (PPAF) and its Partner Organizations such as Agha Khan Rural Support Programme (AKRSP) and Sarhad Rural Support Programme (SRSP) have been active for community led development of Kalash people.

One of the most respectable social activist for the Kalash, Maureen Lines was the founder of HKCA and KEPS. She traveled from United Kingdom across the Kalash valleys in 1980s and from 1986 onwards lived in the valley of Birir amongst the people as a doctor. Thus, many of the projects carried out by her organization are for Birir

valley and have helped the village people tremendously. Some of the prominent projects completed by the organization for Birir valley are given below:

Table 2.2. *Prominent projects done in Birir Valley by HKCA & KEPS*

S.no.	Project Description	Year	Location	Fund By	Organization
1	WATER PIPELINE FOR BIRIR BASHALI	1996	Guru Village, Birir	Austrian Govt	(HKCA & KEPS)
2	RETAINING WALL FOR GURU VILLAGE	1996	Guru Village, Birir	ODA	(HKCA & KEPS with AKRSP)
3	CONSERVATION TRAINING	1997	All Kalash Valleys	WWF	(HKCA & KEPS)
4	ENVIRONMENTAL AND EDUCATIONAL AND HEALTH PROJECT	1998	Birir/Rumbur	UNESCO	(HKCA & KEPS)
5	REBUILDING A BASHALI HOUSE	2002	Birir	Dutch Gonv.	(HKCA & KEPS)
6	LATRINE PROJECT	2004-05	Birir	Australian Govt.	(HKCA & KEPS)
7	RETAINING WALL/BRIDGE	2011	Birir	Finnish Embassy	(HKCA & KEPS)
8	BUILDING A HIGH SCHOOL	2012	Birir	HKCA	(HKCA & KEPS)
9	RE-DOING OF STEPS IN GURU VILLAGE	2014	Guru Village, Birir	Pakistan Govt	(HKCA & KEPS)

Note: Table modified from data made available by HKCA (List of Projects, 2017)

With the PPAF supported activities undertaken by two of its Partner Organizations, i.e., AKRSP and SRSP, in three Kalash Valleys – namely Bamburet, Rumboor and Birir of Chitral District many projects have taken place. Some of the major projects done specifically in Birir are:

Table 2.3. *Prominent projects done in Birir Valley by AKRSP*

S.no.	Project Description	Year	Location	Fund By	Organization
1	ROAD PROJECT	2002	Birir	PPAF	(AKRSP)
2	HYDAL PROJECT	2009	Birir	PPAF	(AKRSP)

Note: (Reprinted from PPAF, 2015, pp. 55,56)

UNESCO (2011) completed its project to map the cultural assets of two provinces in Pakistan; Khyber PakhtunKhwa (KP) and Punjab. The aim was to develop a national database that is accessible to public on their website. Chitral is also included on the list and cultural assets, ranging from landscapes to monuments are all mentioned. Recently, the Kalash tradition called Suri Jagek (observing the sun), "traditional meteorological and astronomical practice based on the observation of the sun, moon and stars in reference to the local topography", was included in the list of Intangible Cultural Heritage in Need of Urgent Safeguarding (UNESCO, 2018). However, none of the Kalash villages or traditional buildings till now have been nominated for the world heritage list.

Currently, project titled "Strengthening the Resilience of Kalash Communities through protecting & Promoting their Cultural Heritage" is underway by UNESCO in collaboration with the KP government of Pakistan and Swiss Agency for Development and Cooperation (UNESCO,n.d.). The project aims to have community led activities prioritizing heritage management and tourism regulation for maximum economic growth for the Kalash people.

Since 2016, projects in relation to the rehabilitation and improvement of Kalash valley have been announced by the Provincial Government of KP but it is only now that the bidding has been completed. Around 15 projects are listed with all three Kalash valleys included (Government of Khyber Pakhtunkhwa, 2016). For Birir Valley, not much information is provided besides the names of the projects as listed below:

- Renovation & improvement of Bihal Birir Jeshtak Han Temple
- Renovation & improvement of Mahandeo (Temple) Birir
- Renovation & improvement of Aspar Birir Jastikhans (Temple)
- Renovation & improvement of Warian Birir
- Improvement & Rehabilitation of Residential Area at Guru Village Birir

2.3. Architectural Features of Traditional Kalash Houses in Guru Village

As discussed earlier, the strategic selection of the location for the housing very much defined the systems that could be used to build the multiple housing units. This, in some cases, also defined the house sizes; meaning how many units can be built, how large projection can be provided or if a basement could be constructed. Nevertheless, a Kalash house still follows a modular system of planning with distinct architecture features that come together to overall shape the village representing the identity of the Kalash rural architecture. The traditional rural forms were dictated by the response of the people to their agrarian lifestyle, available local building materials and cold climatic conditions.

For the understanding of architectural features of traditional Kalash houses in Guru Village, 17 old houses were surveyed of which 8 are surveyed from exterior while 9 are studied from interior and exterior. Visual documentation, by means of photographs, sketches, drawings, and observation were noted down whenever necessary. The information obtained from the documented examples (see Fig. A.1-A.7) was analyzed via drawings, photographs and literature review.

As the settlement pattern of the village was discussed in the previous chapter, for detail analysis of the architectural features, the house units are studied separately from a single to two-unit combination. During the study, plan, façade, massing and system section of all 9 houses are drawn in scale while the houses surveyed from exterior are also used to identify façade elements. The architectural features are discussed under the following headings while the construction systems and techniques will be presented in detail in Chapter 3.

2.4.1. Daily Life of Kalash and Traditional Kalash House

2.4.2. Mass Characteristics

2.4.3. Facade Characteristics

2.4.3.1.Façade Order and Typology

2.4.3.2.Façade Elements and Ornamentation

- Door
- Timber Construction Elements
- Shelves
- Symbols
- Railing
- Balcony
- Stairs
- Pasti

2.4.4. Plan Scheme

2.4.4.1.Spatial Configurations and Functions

2.4.4.2.Interior Architectural Elements

- Shelves
- Hanging poles
- Partition walls
- Smoke hole

2.3.1. Daily Life of Kalash and Traditional Kalash House

To understand the daily life of the Kalash, it is important to know the ideology of the culture of the people. The Kalash are agriculturalists and pastoralists but the dichotomization of the environment into “pure” and “impure dictates the division of the work and even social structure of the community (Parkes,1987, p. 638). There is an extreme division of work based on gender as livestock husbandry has paramount importance and ritually more significant thus falling under male category work (see Fig. 2.9). The women work more towards domestic domains and on agricultural grounds. They are always dressed in the embroidered black frocks while the men wear normal clothes e.g *Shalwar Kameez* (see Fig. 2.42).

The black long dress is a distinctive feature of a Kalash woman and a part of her identity and culture (Maggi, 1998, pp. 153,154). The elaborated details on the frock are done by the women themselves and the ornamented headdresses, called *kupa*, are also skillfully decorated with beads and sea shells. They also wear jewelry such as colorful necklaces and earrings but the headdress is more precious and no celebration is complete without adorning one (Siiger, 1956, p. 14). The whole attire is a traditional representation of a Kalash woman, distinguishing her from the rest with the craft of sewing and embroidery passing from generation to generation (Maggi, 1998, p. 152).

	Pure (ōnjeṣṭa)	Impure (*prāghata*)
I	Mountains & Pastures	Lower Valleys
	Juniper	Onions & Garlic
	Holm Oak	*Rhoŋ* Diestuff
II	Markhor	Cattle
	Goats	(Sheep)
	Honey-bees	Hens & Eggs
III	Altars	*Bašāli* House
	Goat Stables	Graveyard
IV	Men	Women

Figure 2.42. Showing the categories of Pure and Impure in Kalash Culture. Reprinted from "Livestock Symbolism and Pastoral Ideology Among the Kafirs of the Hindu Kush" by P. Parkes, 1987, Man, New Series, 22(4),74.

The women take care of the children, tend to house chores, weave clothes and daily irrigate the fields while keeping check of the crops (see Fig. 2.43). Constructing water channels for the fields, creating agricultural terraces by removing boulders, ploughing the land and putting seeds is done by the men (see Fig. 2.44). In the harvesting season men also take part and work together with the women.

Husbandry, which is purely done by the men, includes goat herding along the mountain slopes or on high mountain pastures during summers (Cacopardo & Cacopardo, 1989, pp. 317,318; Schomber, 1938, p. 90). The number of goats and sheep kept by a family represent their wealth and status in the community and could be sacrificed as offering to Gods or in rituals such as funerals and feasts (Maggi, 1998, pp. 98,99). Thus, for a well sustained herd, the men follow a cycle of migrating to the high altitudes pastures and staying there for months making cheese and eating the dairy products while the herds graze the lush green grasslands. These pastures are located closer to the Afghan frontier at some distance from the Kalash valleys and distributed according to the claims of the villages, being handed over from generation to generations as a group or communal property (Parkes, 1987, p. 643). This act of living in faraway mountains, with only fellow men to depend on, develops a sense of

comradery between the male clans further solidifying the pastoral ideology as more valuable and pure. This would not be possible if only agriculture was the prime focus, as it divided the family more, with the ownership to lands being individualistic.

These two domains of Kalash life; pastoral and domestic, define the social structure even in spatial parameters, as the pastoral represents the high mountains for the men while the domestic is confined to the lower valley for the women (Parkes, 1987, p. 652). So much so, that women are not even allowed to milk or go near the stables where the goats are kept while most of the hard labor on ground is left to them (Schomberg 1938, p. 90).

Presently, not all men go for herding as circumstances have changed, with many Kalash boys opting for education to get jobs or run small tourism businesses by opening shops. Also there are many Kalash builders, carpenters, masons and workers who are working in the business of construction. With many NGOs working in the region, Kalash men are also involved in workshops and societies. Recently, Wazir Zada in 2017 became the first Kalash member of the provincial assembly to represent the community.

In the case of women as well, the girls are educated in schools and also complete higher education. There are many Kalash women teaching in schools and also some working in the village hospitals. The woven clothes and many of the handicrafts they make, are being sold by them to tourists, generating more money for the household.

Figure 2.43. Women working in her house in Guru Village

Figure 2.44. Women preparing wool (Reprinted from Lines, 2014, p. 89)

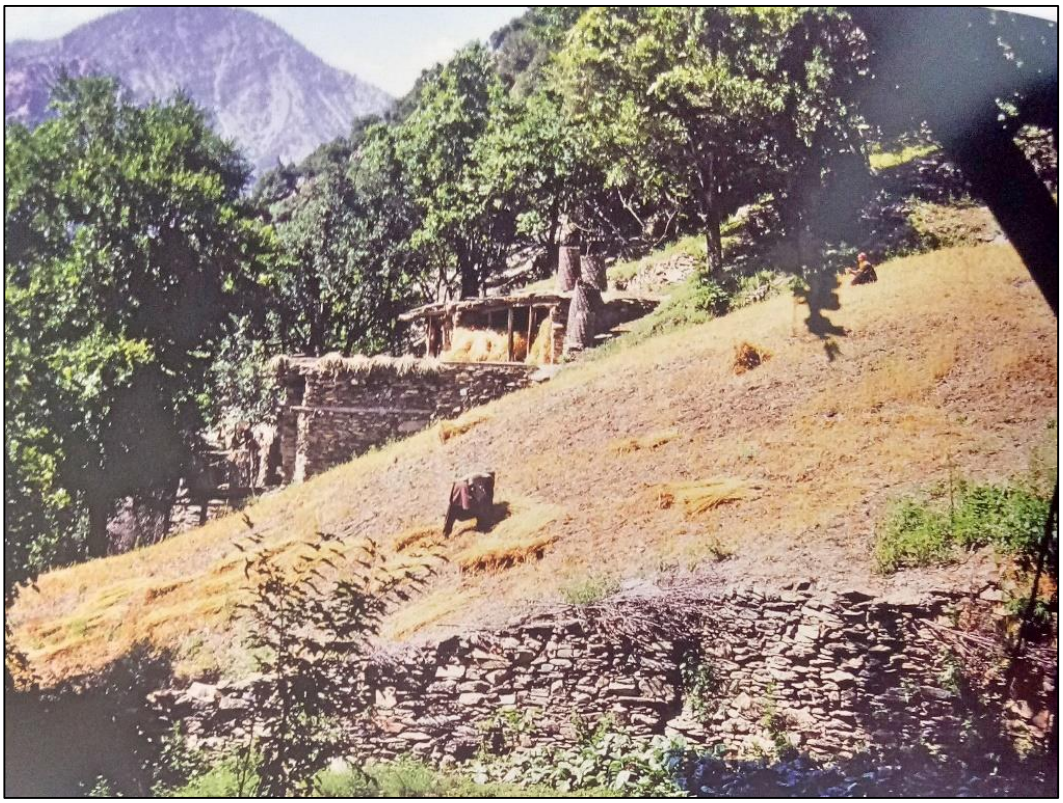


Figure 2.45. Men working in the fields (Reprinted from Lines, 2014, p. 104)

Traditions have always played a vital role in the life of a Kalash and their display within a space is symbolic of Kalash culture. Believing in a variety of Gods, Kalash people follow various traditions with regards to each. Every lineage group in the Kalash village have their own *Jeshtak Han*, a roofed temple that has carved four wooden pillars and ornamented roof hole called *Kumbapur* (see Fig. 2.46). A *Jeshtak Han* is a festival space that is part of every settlement and women also have access to it (Siiger, 1956, p. 16).

Figure 2.46. Old Jeshtak Han of Guru Village in 1980s ((Reprinted from Lines, 2014, p. 104) and The new reconstructed Jeshtak Han in 2018

Another special building constructed for *Disini* (goddess of Fertility) is called *Bashalani* where only pregnant woman and girls on their first period can live while other members of the society are forbidden. Special offerings are made and food is sent from the village to the house as homage to the Goddess. It is social place, only for the women, where they can rest and spend their time relaxing without worrying about house chores (Maggi, 1998, pp. 166-168). *Bulimain* (Divider of Riches) is another God for whom celebrations are carried out for a period of 40 days lasting along the month of December and January. Due to the harsh winter climate, Kalash carry out the festivities confined inside of their houses, enjoying the stored food and entertaining themselves through wine and music. (Sheikh, Chaudhry & Mohyuddin,2014).

Another space is marked in the valley named as *"Deradur"*, for the sacrifices of cows and bulls, in the name of the God *Mahadeo* (God of Promise). From the 18th to 25th August *"Ucaw"* festival is celebrated where the people come together and enjoy. Believing in fairies named as *"Suchi"*, the Kalash people relate two places, *"Katsair"* and *"Shingmu"*, with the presence of these fairies. (Sheikh, Chaudhry &

Mohyuddin,2014). *Prun* festival, only celebrated in Birir is a five-day celebration held around autumn time when the grapes are ripe (Carlo, 2007, p.45). The grapes are harvested and the wine made is offered to God *Praba*. The festival involves lots of dancing and drinking with goats sacrificed to the God (see Fig. 2.47).

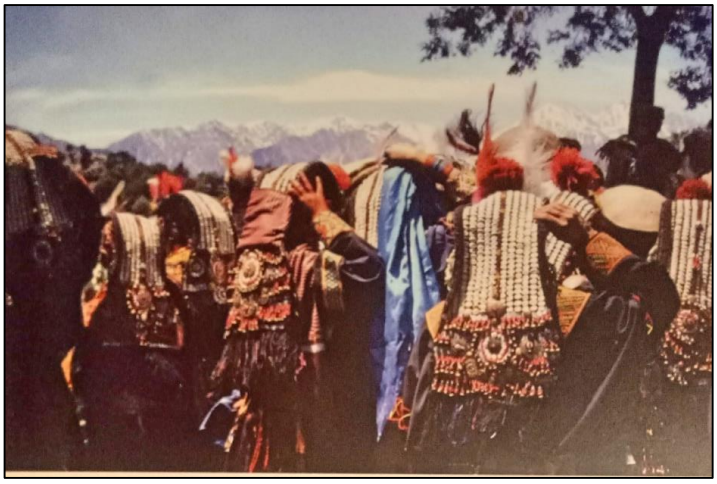


Figure 2.47. Women adorned in their headdresses for festival (Reprinted from Lines, 2014, p. 69)

Figure 2.48. Women dancing during festivals (Reprinted from Lines, 2014, pp. 68)

Traditional Kalash House

Even though Sir Robertson (1898) provided a detailed description of a house in previous Kafiristan region, he did not study the Kalash houses in British colonial side of the border. Understanding that the Kafiristan tribes did share a homogenous identity which translated into many customs, traditions and buildings techniques in Kalash residing villages too but the first direct account of a Kalash house comes from Schomberg (1938, p. 69-71). He describes the traditional house as a two storey building, consisting of an upper floor having one square or rectangular room with a verandah in front of it and storeroom on the lower floor. Underground corn bins were often found below the living room floor (see Fig. 2.49).

The structure of a typical Kalash house is based on timberwork, with flat stones placed in the middle of the timber bands (Siiger,1956, p. 14). Internal decoration is minimum; occasionally some carving on a post or shelf. What decoration there is, it is obscured by thick encrustations of soot from the open fire. A ladder is used to climb from the lower floor to the verandah, which is closed on the side by a door acting as the entrance to the house. The veranda of the house is a common and characteristic form of Kalash vernacular architecture, providing full view of the valley (Harrison,1995, p. 21) (see Fig. 2.49). Depending on the season, in summers cooking and eating are done next to the fireplace in the verandah while the stone lined hearth is placed in the middle of the room during winters. There is a smoke hole in the ceiling that allows the smoke to pass as no windows are found in the room. Cooking and eating take place around the fire pit.

For sleeping, beds are crowded on the side aisles. Directly facing the door is the shelf or cupboard that carries domestic items and altar for Goddess *Jeshtak* (see Fig. 2.51). The space between the two end columns and these shelfs is considered the purest in the house and nearest to the mountain side away from the valley (Harrison, 1995, p. 16). It cannot be stepped upon by any women or else the house will be cursed (Schomberg, 1938, p. 70). Similarly, no one is allowed to sleep in this space and all

of the domestic items are to be gathered in the evening and placed in this space for purity.

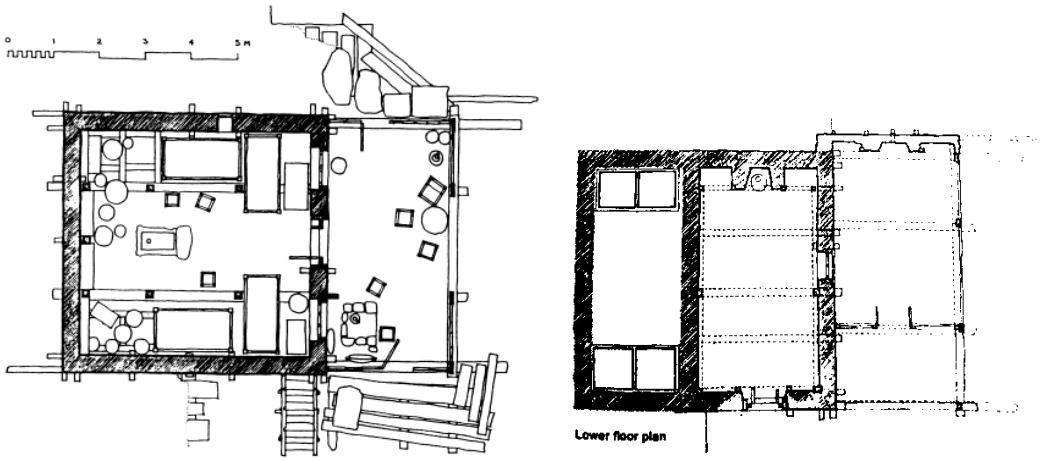


Figure 2.49. Floor plan of a typical Kalash house in Brun Village, Bumuret. Reprinted from "Kalash Buildings" by J. Harrison, 1990, Paper presented at the 2nd International Hindukush Cultural Conference, 353.

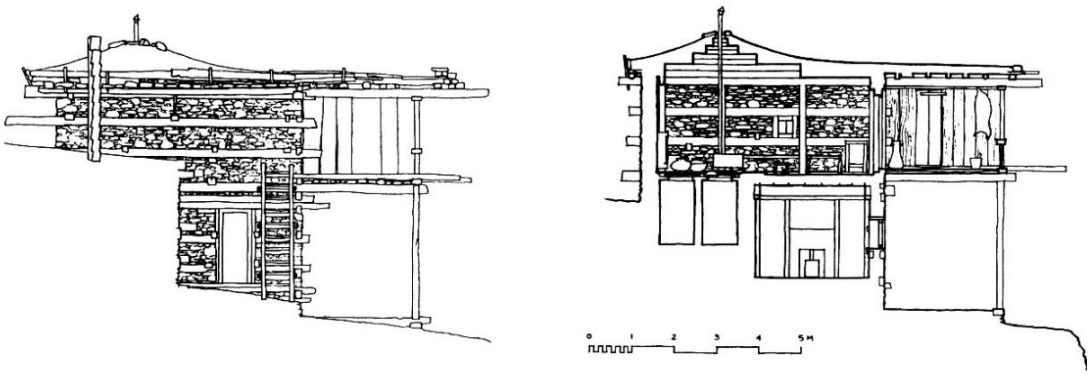


Figure 2.50. West Elevation and Cross section of a typical Kalash house in Brun Village, Bumburet (Reprinted from Harrison, 1996, p. 352)

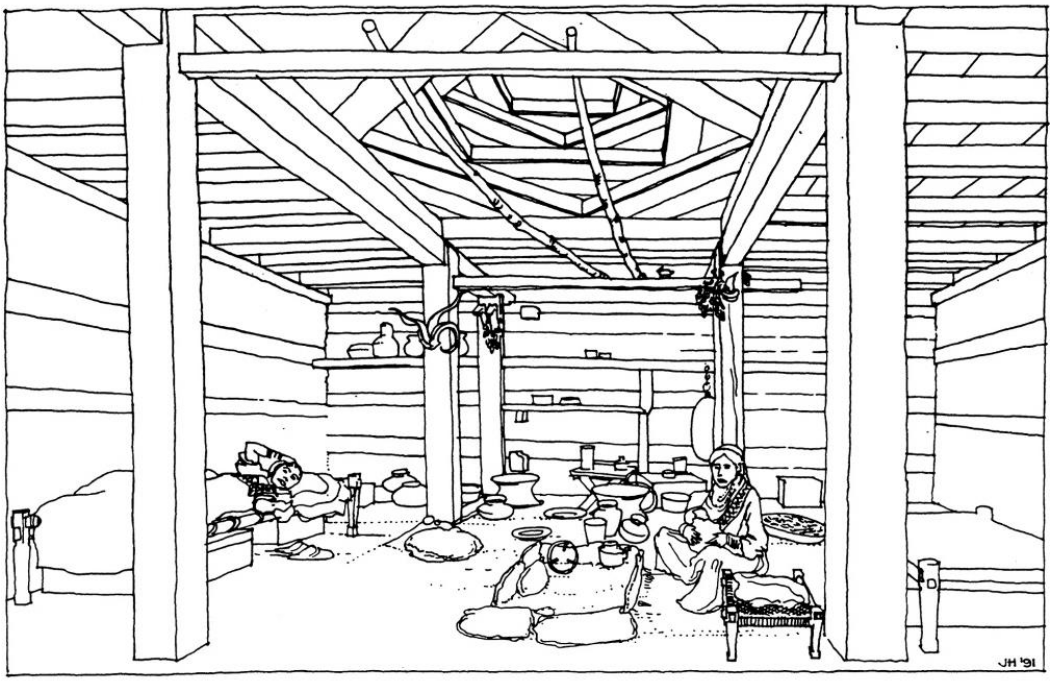


Figure 2.51. Interior view of typical Kalash house (Reprinted from Harrison, 1995, p. 16)

Architectural decoration is reserved for the front of the house, where a display of intricate details indicates a man's wealth and status in the community (see Fig. 2.52). Little carving is done today due to high cost but a number of fine house fronts remain in Bumburet. Balcony columns are carved with a cable design representing wild goat horns and ingeniously jointed over the handrail (see Fig. 2.53), carved sun discs on the lower panels are symbols of rank (Harrison, 1996, p. 350).

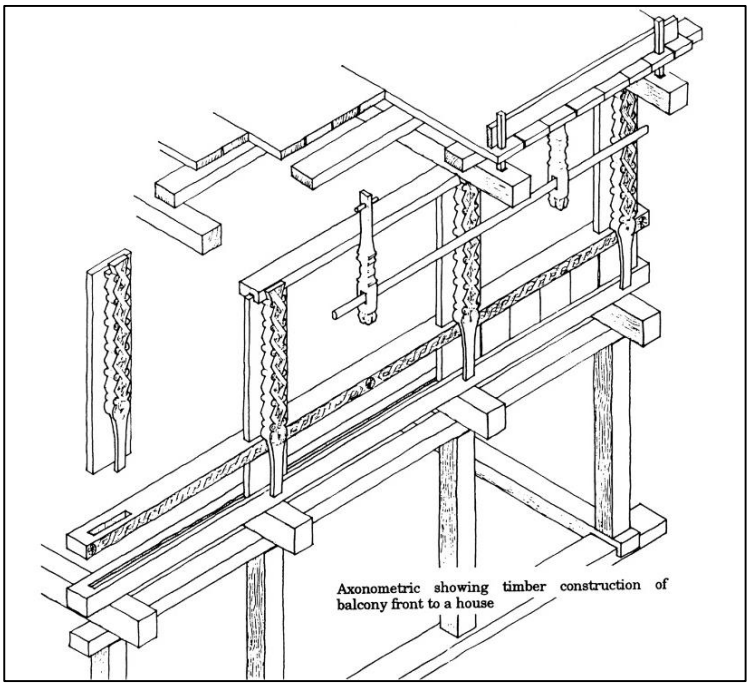


Figure 2.52. Axonometric view of Kalash house Verandah (Reprinted from Harrison, 1995, p. 19)

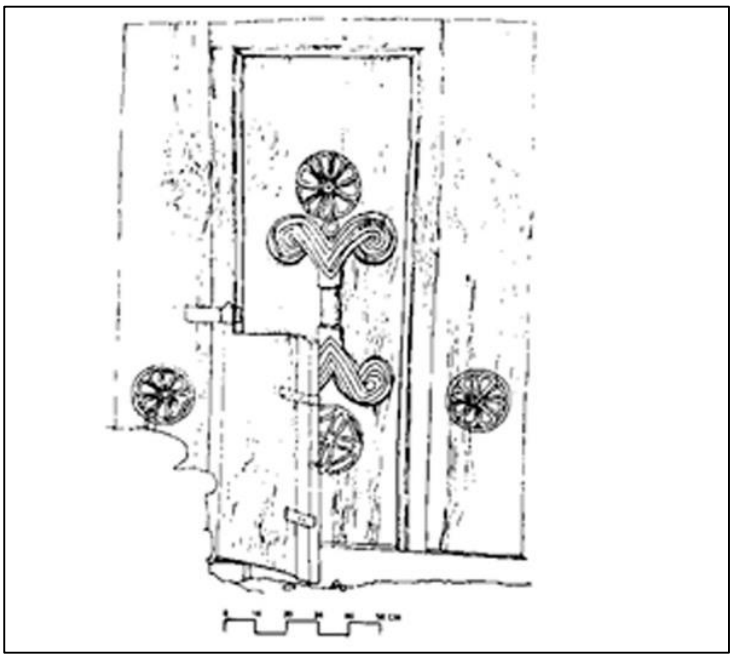


Figure 2.53. Carved Door of Kalash house (Reprinted from Harrison, 1996, p. 356)

2.3.2. Mass Characteristics

The building mass refers to the three-dimensional form, constituting the structure and overall expression of the building viewed from the outside. In the case of Guru Village, the pathways and house form are dependent on the topography, with the pathways deciding the entrance of the building. The massing of the Kalash house has a direct impact on the shape, sizes, visual appeal and functionality of the interior spaces with its orientation always towards the sun and view of the valley (see Fig. 2.53).

A single Kalash house has a compact rectangular form where the geometry of the house follows linear straight lines. Even though the back side of the house is rarely visible, with it facing the cliff surface and filled with compact earth, the rectangular nature of the house form is still readable. The form can be regarded as a box but the semi-open verandah in front allows the mass to look less bulky. With the beams and the flat roof projecting ahead, the building mass is further broken down. In some cases, the verandah is supported by timber posts only, presenting a semi hollow mass (see Fig. 2.55).

In case of one room house, the semi open verandah is aligned in front of the closed room giving it the width which is in balance with the length of the house. If a basement is provided, the placement is under the verandah and it combines with the foundation form under the room to keep the rectangular mass relation intact. The size of the house is not big and up to human scale, as the height of the form is small in comparison to its planar dimensions.

With the flat roof, the rectangular form of the house is even more legible and a distinct characteristic of a Kalash house. In one of the cases, the basement is placed directly under the room of the house, allowing the verandah to be cantilevered. Even as such, the rectangular massing is still evident and the form visually balanced.

In two room houses, which can be owned by one family or two separate, the overall rectangular configuration remains the same. Here also, the verandah is shared and placed in front of the rooms increasing the width in relation to the overall length. In case of basement, it is placed under the verandah and adds to the overall rectangular mass. In one of the rare cases, the combined house no. 3 and 4 were placed directly on top of combined houses no. 1 and 2 with a small shop, or traditionally a storage space underneath, (see Fig. 2.53). Even though the height of the individual floors was small, the overall size of the whole unit was big but still rectangular.

The volumes of the room and verandah of the single houses can range from 100 -110 sq. meter while for two room houses with verandah, it can vary from 180-205 sq. m. House no. 12 has the biggest volume of 325 sq. m. as verandah is built in L form taking into account its edge location on the cliff (see Fig. 2.55). The height of the houses ranges from 2.1- 3m (in case of no basement) and 3.8 to 4m (with basement) while it goes up to 4.4m when two house floors are placed on top of each other (see Fig. 2.54).

All of the house masses express a unified character in relation to each other and their surroundings. With the cliff in the background, the horizontal massing of the houses is emphasized, as the flat roofs divide the overall forms and the houses are still readable as a series of discrete units. Thus, even with the cluster massing, the visual dominance is decreased and interest is generated, creating a picturesque scenery (see Fig. 2.54).

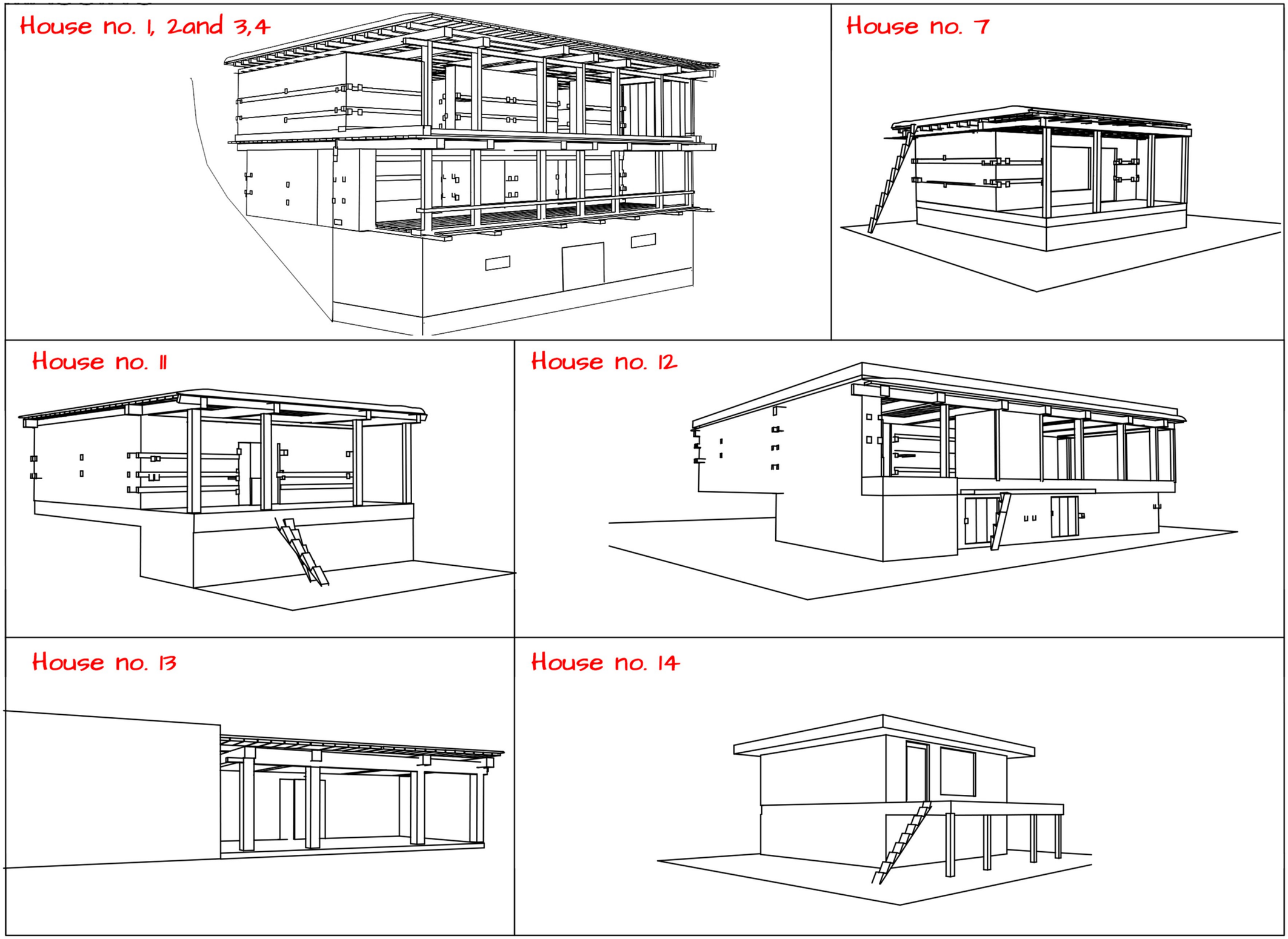


Figure 2.54. Massing of studied houses

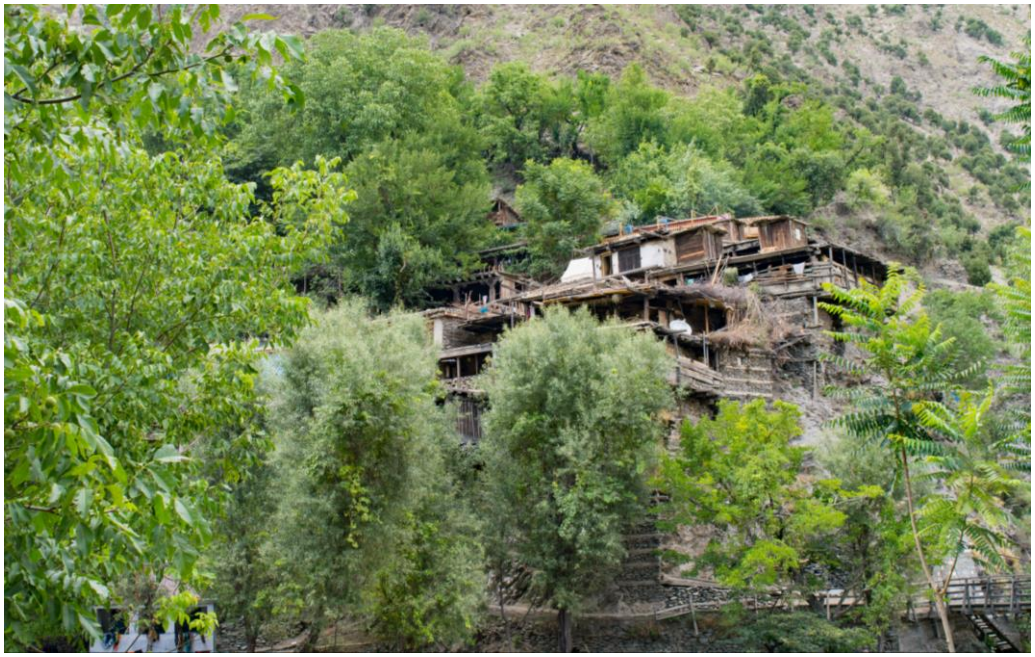


Figure 2.55. Massing of houses in Guru Village with the cliff in the background

2.3.3. Facade Characteristics

The façade is the front side of the building and the most evident part of the house. In Kalash houses it is the only elaborated wall, with all the elements coming together to give it a distinct character. The main attribute that affects the façade of a Kalash house is the house size and number of rooms, be it a single room house or the combination of two. Secondly, the placement of elements like door and hearth also become the defining feature of the house. Lastly, in the traditional house the verandah is a necessity, and its treatment with railing, timber posts and additional balcony projections all come together to further emphasize the façade. It should be noted that in case of Kalash architecture, it is also the visible construction elements like timber beams, lintels, girder, posts and timber bands in wall that also become part of façade design.

2.3.3.1. Façade Order and Typology

The façade order is defined as the assembly of the building elements coming together to form the façade. In Kalash house, the location of the architectural elements is highly dependent on the construction scale of the house. The roof and floor beams, the verandah posts, door, kitchen hearth, timber bands in the masonry wall and their joinery, all define the order of the façade and its typology.

In a single room Kalash house, the façade typology is defined by the overall size of the front wall which ranges from 6m to 6.7m. The placement of the main room door is always in the middle and a shelf of 22 x30cm is directly next to it at 1m height (see Fig. 2.56). The hearth can be placed on either sides of the door while the other side is mostly used for sitting or can have the exterior door with timber wall, in cases of entrance to the verandah being from that side rather than from the front (see Fig. 2.56). The timber beams, carrying the roof, are connected to the timber verandah posts and protrude out allowing the flat roof to hover over the whole form. These timber posts with the railings partially block the view of the façade wall and become a prominent feature for the overall presentation of the house from outside.

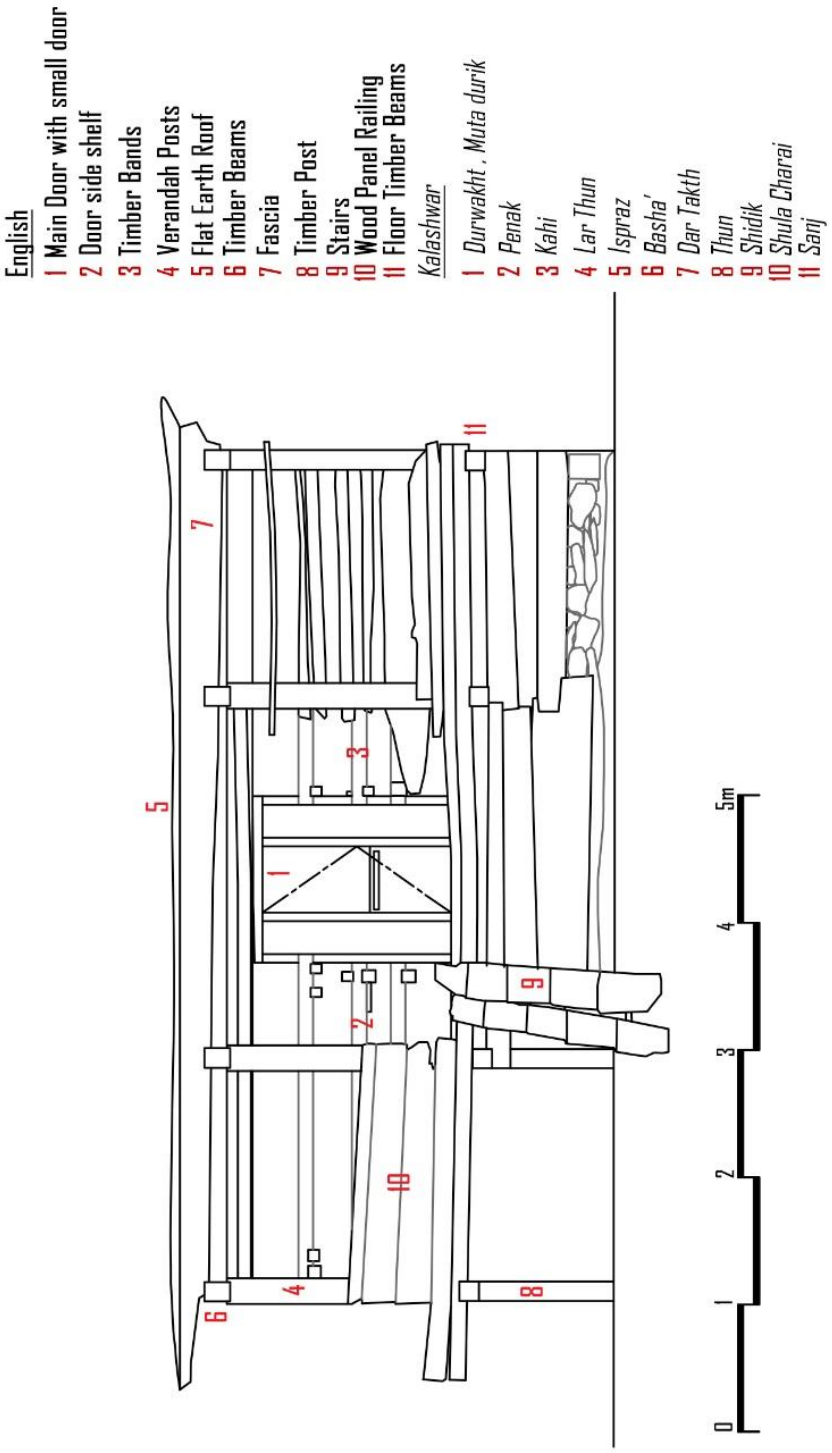
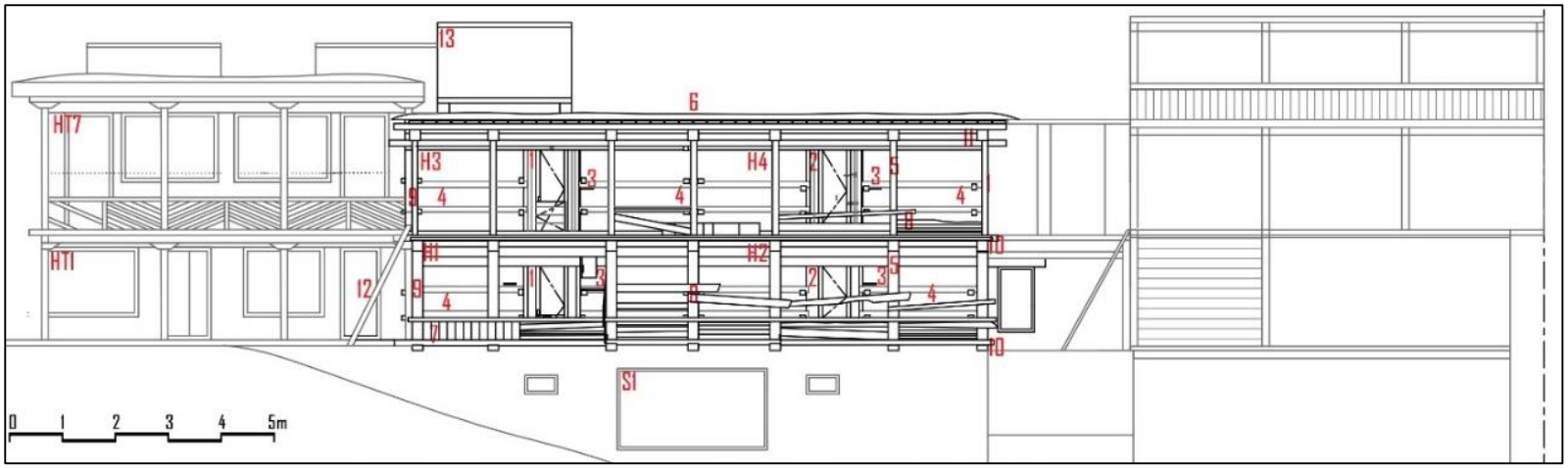


Figure 2.56. Façade of House no.7

In case of two room houses, the entrance to the verandah varies depending on the connecting pathway, as one could enter from the side or from the front. Nevertheless, the façade typology still depends on the front wall which ranges from 10.5-11m. With the two rooms sharing the interior wall, the main doors are placed in the middle of the adjacent rooms with the shelf of 22 x30cm directly next to it at a 1m height (see Fig. 2.57). In this case, the hearth is placed in the middle of the whole façade wall and shared by the two families in case of separate houses. The timber beams from both the rooms project out and connect to the verandah posts and extend ahead. The floor beams also extend ahead of their connection resting on masonry wall or lower timber posts. A balcony can also be supported by to these cantilevered beams.



English	*Kalashwar*
1 Main Door with small door	1 *Durwakht , Muta durik*
2 Main Door with no small door	2 *Durwakht*
3 Door side shelf	3 *Penak*
4 Timber Bands	4 *Kahi*
5 Verandah Posts	5 *Lar Thun*
6 Flat Earth Roof	6 *Ispraz*
7 Railing with vertical panel and sitting panel	7 *Charai, Niskein K'at*
8 Wood Panel Railing	8 *Shula Charai*
9 Timber Post	9 *Thun*
10 Floor Timber Beams	10 *Sanj*
11 Roof Timber Beams	11 *Basha'*
12 Stairs	12 *Shidik*
13 Pasti/ Storage Unit	13 *Pasti*

Figure 2.57. Façade of House no.1,2,3 and 4

In two single room houses, where the façade has been altered, new elements have been added and the placement of the door is changed. As the traditional houses in Guru Village did not have windows, these examples have window located in the middle of the front wall and the door has been shifted to the edge, changing the overall traditional façade typology of the Kalash house (see Fig. 2.58).

Figure 2.58. Façade of House no.7 (left) and House no. 14 (right)

2.3.3.2. Façade Elements and Ornamentation

Architectural decoration is reserved for the front of the house, where a display of intricate details indicates a man's wealth and status in the community. Little carving is done today due to high cost. Even though in Guru Village verandah posts were not carved or decorated but in other Kalash villages there are a few examples of carved posts with cable design representing wild goat horns and ingeniously jointed over the handrail; carved sun discs on the lower panels are symbols of rank (Harrison, 1990, pp. 18, 19) (see Fig. 2.18, 2.19).

The Kalash skill of carving symbol on wood surfaces is called as *"Cot"*. These symbols can be influenced by surrounding natural elements or geometric patterns (Intangible Cultural Heritage-ICH, 2016). *Cot* can be regarded as an artistic expression of Kalash with reference to an object, God, pattern or nature and thus varies in design. Mostly it is done on Cedar wood.

Another practice of carpentry that is local to Kalash is called *"Gandaw Karik".* It is the making wooden sculptures, symbols and even house utensils used by the locals. These are done by the skillful carpenters called *"Tarkan".* Fresh wood from the forest is used and carved to make the form before the drying of the wood. The product dries with time and if the sculpture has religious significance an offering is made to the forest and tree (ICH, 2016)

With the façade typology dependent on the façade elements and their composition, the elements are discussed in detail below:

- **Door**

In Guru Village, the only opening in original façade wall is the main door, as no windows were found. The doors are completely timber elements and may have ornamentation done on the surface through carving or by placement of other wooden symbols (see Fig. 2.59). This provides the only connection of the room from the outside verandah and a skillful adaptation to the local climatic conditions. There are a variety of doors that are used in the houses depending on the space they are attached to.

Main Room Door

In traditional Kalash houses, in many cases, the main door, called *"Durawkth"* in Kalashwar, is the only opening in the wall allowing not only access but also sunlight and air ventilation. It is a solid piece of timber shaped by an axe. The handle placed in the middle can have ornamentation which are mostly cable design. In some of the houses a half door called *"Muta Durik"*, opening in the opposite direction, is also attached to it. This door is mostly used to keep the small children inside the room or keep them out. As goats could be kept in verandah as well, the small door is a barrier and still allows the ventilation in the room. The doors are mostly left bare but in some cases decorated with intricate carvings in zigzag showing the shapes of sun representing God and Goddesses (see Fig. 2.59).

Figure 2.59. Main room door of House no. 21 with carved symbols (left) and Small door attached to Main Room Door of House no.1 with wooden symbols on the wall (right)

Basement Door, Exterior Door and New Door

As the height of the floor decreases for the basement, the door height is also reduced to 1m. Other than that, the construction system and material is similar to the main room door (see Fig. 2.60). The door handle can have elaborate cable design carving to decorate the door as the basement is used for storage or goats which are prestigious in the Kalash culture.

Figure 2.60. Basement door of House no. 21 and Basement door handle with cable design of House no. 12

The exterior door connects the verandah to the pathways and acts as entrance to the whole building. This was mentioned by the villages that traditionally just wooden panels could be placed to block the entrance but now exterior door is added to act as a proper gateway to verandah and provide privacy (see Fig. 2.61).

Figure 2.61. Exterior door of House no. 20

In two of the studied example, a new door was observed that connected the room to verandah. Placed at the edge of the façade wall, the door had one panel and hinged to the door frame and painted a specific color upon wishes of owner (see Fig. 2.62).

Figure 2.62. New door of House no.14

- **Timber Construction Elements**

In case of Façade, the timber construction elements have a strong impact on the façade wall. Firstly, the timber top plate, timber lintel and timber ledger, which are the horizontal load bearing elements, are all visible. The wooden surface is left bare and covered with soot and dust because of time (see Fig. 2.63).

Figure 2.63. Timber Construction Elements in façade wall of House no.3 and 4

Even if mud plaster thinly covers the surface, the timber beams in the stone masonry, called *"Kahi"* are still visible on the wall as imprints or untreated. Especially at edges of joinery, the cross sections of beams extend ahead 12-15cm and seen. In case of two room houses, the joinery of the timber beams in middle wall to the façade wall also has the cross section of beams protruding out. These are visible elements and break the flat surface of the wall (see Fig. 2.63).

The verandah timber posts, called *"Thun",* are also load bearing elements and the roof beams directly rest on top of them. The timber beams, called *"Basha"* extend ahead of the connection and are left untreated. Even though in other villages there are examples of the timber posts being carved but none of the houses in Guru Village had this feature. The surfaces of the posts are left bare but the multiple timber posts placed in vertical order add character to the façade. The posts also break the façade form in frames adding more interest (see Fig. 2.64).

Figure 2.64. Verandah Timber Posts in façade of House no.11

- **Exterior Shelves**

The most common shelf that is present on the façade wall is the door side shelf called *"penak"* (see Fig. 2.65). The villagers mentioned that in the past, the deity statue was placed on top of it but now it is used mostly for domestic items. The side shelf is a timber piece of 22 x30cm can be place 1-1.2m high from the floor. Other shelves attached are also visible, especially timber panel placed horizontally close to the kitchen hearth in verandah (see Fig. 2.66).

Figure 2.65. Door side shelf in façade of House no.21

Figure 2.66. Kitchen and Door side shelf in façade of House no.1 and 2

- **Symbols and Ornamentation**

In the Kalash houses, multiple symbols are placed in front of doors for good luck and blessings of God and Goddesses. In two of the houses, horse shoe was placed on top of door frame to wish anyone entering the room luck (see Fig. 2.67). Similarly, other symbols made of wood are hanged in front of the doors (see Fig.2.67). Carving with a cable design, representing wild goat horns, ingeniously jointed over the handrail can be seen in Guru village too (see Fig.2.69). Carved sun discs which are symbols of rank can also be seen on door (see Fig.2.68).

Figure 2.67. Symbols on door called *"Aspala"* (left) and *"Chotala"* (right) of House no.1 and House no. 2

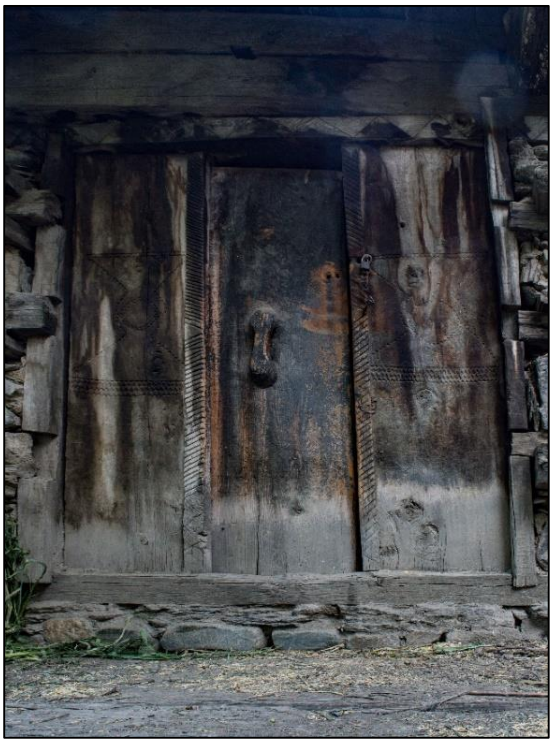


Figure 2.68. Sun Symbol on door of House no. 21

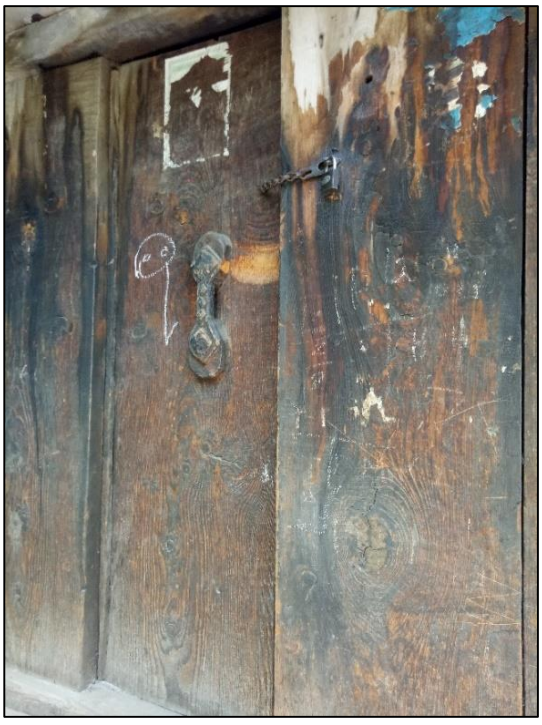


Figure 2.69. Carved *Pasti* Door Handle Design

- **Railing and Balcony**

The railing, called *"Charai",* is essential part of façade and partially encloses the verandah. In most of the studied houses, a horizontal timber panel of 5cm thickness at 45cm height is attached to the verandah posts, acting as a railing and used by the residents to sit (see Fig. 2.71, 2.72). To cover the space below, either timber panels of 5cm width are added in vertical direction or a whole block of timber panel is attached between the verandah posts (see Fig. 2.70). Random timber planks are also nailed to the verandah posts to further provide safety as the houses are placed at extreme height on the cliff. The attachment of timber planks arbitrarily to the verandah posts by nails is common in the traditional houses, as it is the cheapest method and timber planks of random sizes are readily available.

New railing designs are also visible in the village with crisscross thin timber panels nailed to long timber supports which are attached to the verandah posts (see Fig. 2.73). Thin vertical panels with gaps is also a design which is evident with the surfaces painted bright colors (see Fig. 2.73). In one of the studied houses, the new railing addition had a unique detail with timber panels attached in horizontal direction with gaps cut out (see Fig. 2.74). These new designed railings take attention away from the façade and stick out far more.

The side facing the valley are mostly furnished with verandahs which are open in front. The balconies are formed by the extension of the floor timber beams which cantilever ahead and have wood panel covering. The beams of the roof structure are also extended and allow roof to act as shading for the whole verandah. Both cases of balconies with and without railing are seen (see Fig. 2.75). The balconies are mostly used for keeping animal fodder or growing pot plants.

Figure 2.70. Big timber panel as railing and addition of random timber planks in House no.12

Figure 2.71. Sitting panel as railing in House no.12

Figure 2.72. Vertical timber panel railing in House no. 19

Figure 2.73. Railing with crisscross design (Hotel Room 1 and 2) and Railing with painted vertical thin panels with gaps in House no. 16

Figure 2.74. Painted railing of vertical thin panels with gaps in House no. 7

Figure 2.75. Projected Balcony without railing in House no. 1 and 2 and Balcony with railing in House no. 12

- **Stairs/ Ladder**

In Guru Village portable stairs or ladders, called *"Shidak",* are present that connect the many levels of the contagious houses. There are four types present; Ladder, Linear Tree Trunk Stair, Linear Tree Log Stair and Broader Tree Trunk Stair. Any one of these can be placed next to the house and become overall part of the façade. The stairs can either connect the lower level to the verandah of the house or used to climb on top of the roof.

Ladder: Ladder is a timber frame with notches at intervals where wooden strips are inserted and act as steps (see Fig. 2.77).
Linear Tree Trunk Stair: This is the most commonly used staircase connecting the floors (see Fig. 2.76).
Linear Tree Log Stair: This is mostly used by animals for taking them to basement stores (see Fig. 2.77).
Broader Tree Trunk Stair: This is the oldest staircase type mentioned by the locals (see Fig. 2.78).

Figure 2.76. Linear Tree Trunk Stair used in House no. 11

Figure 2.77. Ladder used in House no. 3 (left) and Linear Tree log Stair used in House no. 12 (right)

Figure 2.78. Broader Tree Trunk Stair used in House no. 21

- ***Pasti***

For storage many locked *"Pastis"* are scattered around the village, carrying inside grains, domestic items and dried nuts or fruits. *Pasti* are small independent rectangular wooden buildings which not only used to keep Kalash belonging safe from theft but also away from the smoke and smell of the house. The extended joinery beams are used by villagers for sitting and the roof of the *Pasti* is also used for drying fruits and vegetables. *Pasti* is a pure space and thus it is kept faraway from impure spaces like graveyard and *Bashali* (the female only area). The interior of the *Pasti* can have shelves and hangers. In Guru village, multiple *Pastis* are kept and either located on the roof of the house owner or close to it on an empty land. In some cases, the door handle of *Pasti* are carved and have cable design (see Fig. 2.79, 2.80)

Figure 2.79. Pasti in Guru Village (left) and *Pasti* with ornamented handle (right)

Figure 2.80. *Pasti* located on the roof of house in Guru Village

2.3.4. Plan Scheme

In Guru village, the traditional house called *"Dur"* consists simply of one square or rectangular room with a verandah in front of it. It measures from 5.8m x 6m to 6.7m x 7m and can either be single storey or two storey. The ground floor is always used by the family as a living space and the basement is utilized for storage or keeping animals. In case of one story only, portable square storage units, *"pasti"*, placed on the roof or outside the house, are used for storing grain and other essentials while goats are kept in house verandahs. The construction technique of the traditional Kalash houses will be discussed in the next chapter.

2.3.4.1. Spatial Configuration and Functions

The identity of a traditional Kalash house is its spatial configuration which expresses itself not only in term of spatial arrangement but also how it is legible in three

dimensional form. With consideration to harsh winters, the houses are all orientated south-west allowing more sunlight to penetrate through the verandah. Considering ground floor of Kalash house, the space is firstly divided into two major parts; the room and the verandah with each given defined functions (see Fig. 2.83). Even from outside this division is legible as the room is a closed space built with stone masonry walls while the verandah is semi-open and constructed of timber frame (see Fig. 2.84).

The room is further divided into three aisles by the placement of four timber posts. To emphasize this division more, a 35cm high timber wall is placed between the posts from either two sides or three sides (see Fig. 2.86), secluding the middle space into a square sitting area. With a door opening in the middle of the room, this creation of pocket spaces allows for more functions to be defined and a hierarchy to be introduced within them. It cannot be ignored though, that the placement of the four posts in the room is not only for spatial division but also a need for carrying the load of beams and heavy roof. Nevertheless, they are treated as important elements of the room by the locals.

This spatial configuration does not change, as the planning scheme is repeated throughout the traditional Kalash houses. Thus, even in the Kalash houses of Guru Village, the customary plan is repeated with the houses being built by the local village folks for themselves and to live as a community. This required the houses to be modest and present a sense of equality. In the two studied houses where the door is shifted to the edge (House no. 7 and 14), the arrangement of spaces still remains the same. In the case of two room house, the verandah is shared while the two rooms both have four posts dividing the spaces within and following the same spatial arrangement.

The two major spaces, the room called *"Dur"* and the verandah called *"Lar",* have specific functions defined for each. The veranda of the house is a common and specific form of Kalash house, providing full view of the valley, allowing sunlight and space for social activities (see Fig. 2.83). This serves as buffer zones both for climatic reasons and provision of privacy. Depending on the season, in summers cooking in

done on the hearth located in the verandah called *"Ingrok"*. Entrance to the house is also through the verandah. A ladder is used to climb from the lower floor to the verandah, closed on the side by an entrance door called *"Durwaza"* (see Fig. 2.84). The shelves located in the verandah are called *"Penak".* In the verandah there are many seating elements for Kalash as they do not like sitting on the ground. Even a simple timber plank, raised by placement of stone underneath can be used for sitting. But mostly, small square timber stools with leather strips interlaced for sitting are used, called *"Hanak"* (see Fig. 2.95). The verandah can have a small projection acting as a balcony called *"Kat'har"* which is used mostly for keeping fodder (see Fig. 2.85).

The single room has multiple functions defined for each space and the pattern has been followed through Kalash history (see Fig. 2.81). The space in the middle of the posts is designated for sitting and small partition walls, connected from the posts, further define the boundaries. For sleeping, beds are crowded on the side aisles and the space is called *"Shien"* (see Fig.2.86). The wall directly facing the door has the shelves or cupboard that carry domestic items and altar for Goddess *Jeshtak* (see Fig. 2.86). The space between the two end columns and these shelfs, called *"Madeer",* cannot be stepped upon by any female or else the house will be cursed. Similarly, no one is allowed to sleep in this space and all the domestic items, after use, are gathered in the evening and placed there. Any domestic item left outside of this space at night is not used and destroyed. In winters a stone lined hearth is placed in the middle of the room called *"Dur Ingrok"*. For two room houses, the functionality of the spaces remains the same for each room and the verandah with the kitchen hearth is shared (see Fig. 2.82).

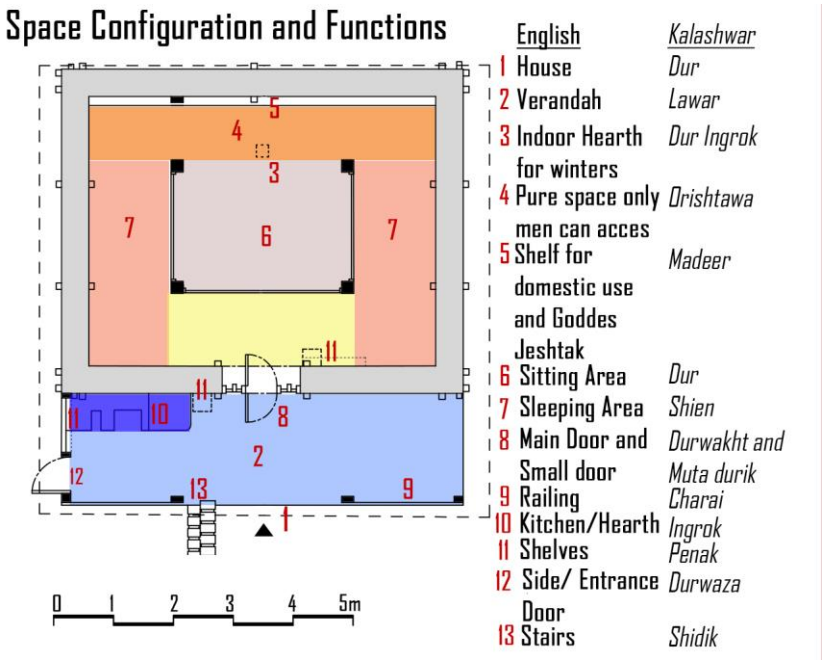


Figure 2.81. Spatial Configurations and Functions in Single Unit House

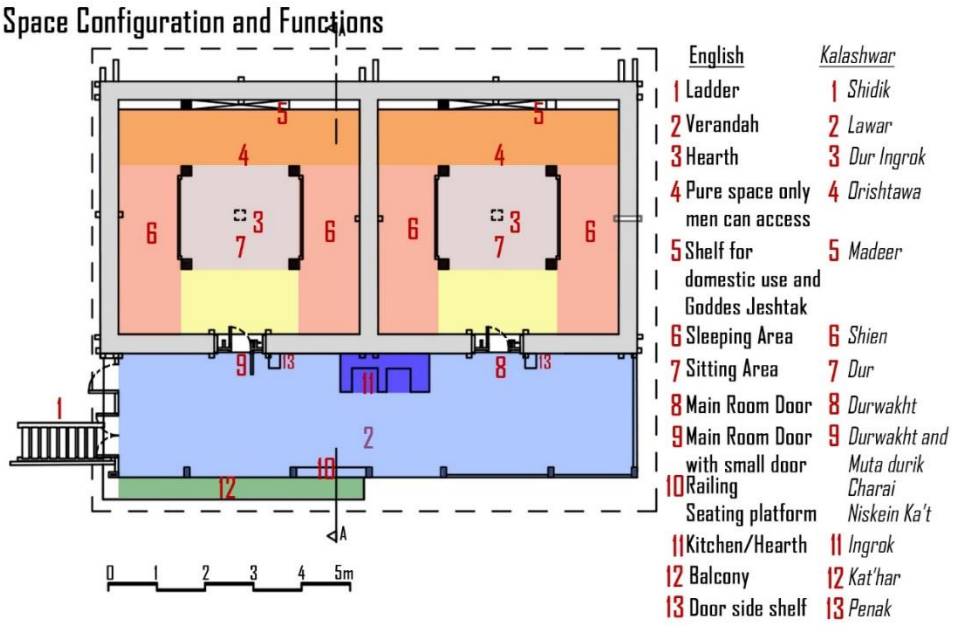


Figure 2.82. Spatial Configurations and Functions for two room house

Figure 2.83. Verandah called *"Lar"* shared by House no. 1 and 2

Figure 2.84. Entrance to House no. 3 and 4 through Verandah Exterior Door called *"Durwaza"*

Figure 2.85. Projected Balcony from Verandah called *"Kat'har"* in House no. 12

Figure 2.86. Sitting area of House no. 1 called *"Dur"* and Pure space in between shelves and back posts called *"Madeer"*

2.3.4.2. Interior Architectural Elements

- **Interior Partition Wall**

In the main room, to separate the living space from the sleeping aisles, a 35cm high timber wall is placed between the posts. These are connected either from two sides or three sides (see Fig. 2.87), secluding the middle space into a square sitting area. This is a common feature of the traditional house and also used to rest the backs of the family members when seated.

Figure 2.87. Timber partition walls inside room of House no. 1

- **Roof Smoke Hole**

The roof smoke hole is located in the middle of the room or shifted a bit further back and at a distance of 1.5m from the back wall. It allows light to enter the room and also provide ventilation (see Fig. 2.88). Especially in winters, the hearth is located underneath it and a pipe is connected from the hearth to the roof for allowing smoke to pass through. Since the smoke hole is square in shape, stone plates with carved circular holes are placed on top of them on the roof for making the connection to pipe easier (see Fig. 2.89). During rainy season, the smoke hole is either covered by a timber planks or a plastic sheet to not let water seep in. With the roofs being used as

pathways by people especially children, as a precautionary measure log of wood or stone boulders are placed on top to mark the place (see Fig. 2.90).

Figure 2.88. Roof smoke hole in House no. 14 and House no. 11

Figure 2.89. Roof smoke hole top view with stone plate (left) and Roof smoke hole covered by timber planks (right)

Figure 2.90. Roof smoke hole marked by a timber log in House no. 4

- ***Kurambur***

"Kurambur" is the term used for the square roof void with timber panels placed at angles. Even though it could be observed in any of the houses of Guru Village and thus could not be measured, it is present in some of the houses from other Kalash villages. In Guru Village, the *Jeshtak* Han (Festival building) had the *kurambur* (see Fig. 2.91).

Figure 2.91. *Kurambur* of the *Jeshtak Han* in Guru Village (Photo by author)

- **Hanging bars**

Hanging bars are horizontal timber circular cross section poles that are connected between the interior timber posts and can have more timber bars resting on top (see Fig. 2.93, 2.94). They are present 15-20 cm below the roof beam and fitted between the small notches carved. They provide more space for hanging stuff in the room and even placement of domestic objects between the two bars. All the traditional Kalash houses have them as a solution for lack of space in the rooms especially for hanging clothes and items. The reflective ceiling plans of the houses provide more information about the placement of these elements (see Fig. 2.94, A.1-A.7)

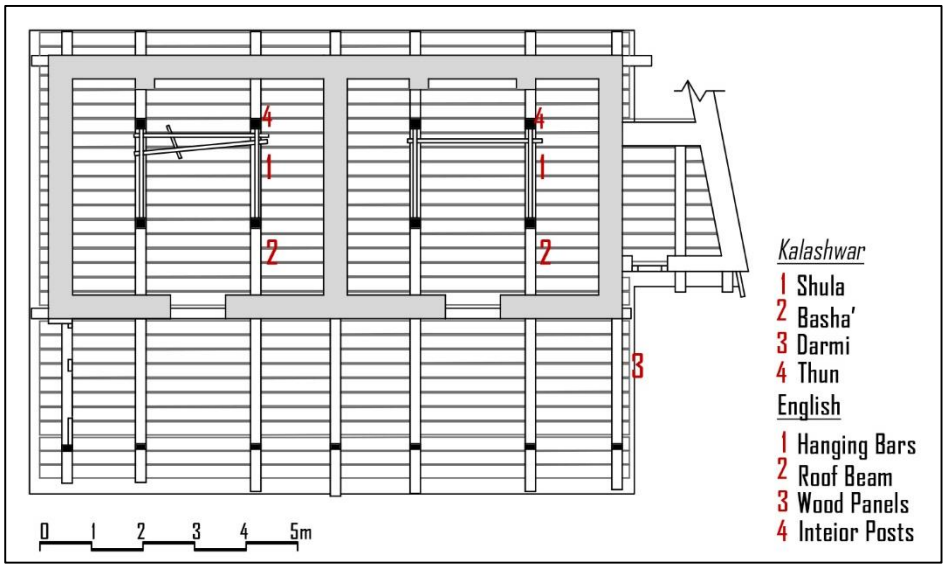


Figure 2.92. Reflected Ceiling Plan of House no. 1

Figure 2.93. Hanging Bars in House no. 1

Figure 2.94. Hanging Bars in House no. 11

- **Kitchen Hearth**

The kitchen hearth used in summers is located in the verandah and called *"Ingrok"* (see Fig.2.95). There can be two or three stoves depending on house size. The smaller stove is used for pots and kettles. The other gap is wider and mostly used for cooking bread on a concave disc shaped pan called *"tao"*. Since there is no ventilation or chimney for the verandah hearth, the back wall is covered with black soot.

For winter season, a stone lined hearth is placed in the middle of the room or under the smoke hole in the ceiling that allows the smoke to pass as no windows are found in the room (see Fig. 2.95). Nowadays the stones are surrounded by a tin sheet for safety. Cooking and eating take place around the fire pit as it also keeps the room warm during the cold winters.

Figure 2.95. Verandah kitchen hearth called *"Ingrok"* and stool called *"Hanak"*

Figure 2.96. Kitchen hearth inside room called *"Dur Ingrok"* in House no. 4

- **Interior Shelves, Cupboards, Niche and Bee Hive Niche**

The most important shelf is located on the opposite wall of the main room door and either covers the whole wall or only the middle area (see Fig. 2.97). In most cases it is present in two levels and supported by timber crosspieces and timber supports protruding out of the wall. Traditionally, this served as a space to keep religious effigies of *Jeshtak* God and domestic use items. Even now the shelves are used for keeping house items but no religious effigies could be seen. According to the residents, now instead of shelves on the main wall, timber cupboards consisting of multiple shelves are installed (see Fig. 2.98). Corner shelf are also found close to the main room door (see Fig. 2.99).

Niche is not a common element and the only found in one house, behind the gap of the main room door (see Fig. 100). In two of the houses, on the exterior of the side wall, a small niche was specially created and covered with a timber plank to keep bees. This is traditional element and called *"machi goghu mal"* functioning as a bee hive (see Fig. 101).

Figure 2.97. Shelf on the wall opposite entrance door in House no. 12

Figure 2.98. Cupboard on wall opposite entrance door in House no. 14

Figure 2.99. Corner Shelf in House no. 3

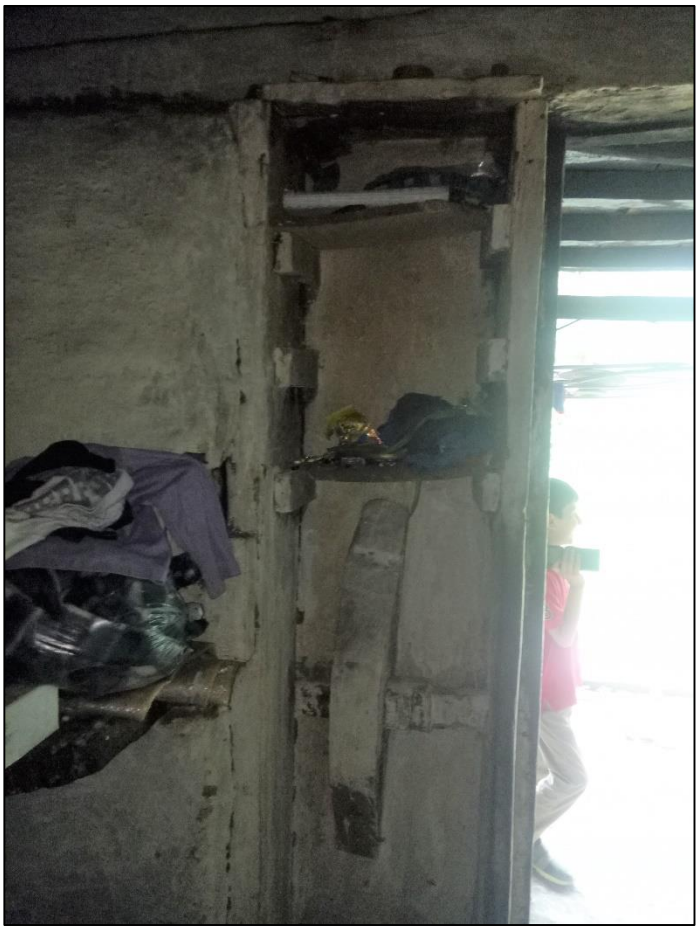


Figure 2.100. Niche behind the main room door in House no. 3

Figure 2.101. Bee hive found on side of wall in House no. 7

CHAPTER 3

CONSTRUCTION TECHNIQUES USED IN TRADITIONAL KALASH HOUSES IN GURU VILLAGE

In this section, aiming to define local constructional features of Kalash houses in Guru village, the results obtained at the end of site survey of 17 traditional are given out of which 8 are surveyed from exterior while 9 are studied with interior and exterior. No ruins could be found to help in documentation. During the study, plan, façade, massing and system sections of the 9 houses are drawn. For the structural points where the construction system changed, the details were measured and drawn, and this system was repeated from foundation to roof. Following the system defined by Filiz Diri (2010) in her thesis, a code is assigned to each detail node where cross-sections differ (see Fig. 3.1). Among the total 16 houses, the cross section of the 9 houses were studied in detail with emphasis on the points where the application technique changed (See App. A, B). For the aim of defining the features of the construction techniques used in Guru Village, information obtained from the documented examples were tabled (see Fig. B.1) and

1. detail types for each point were determined,

2. usage frequency of these types were examined.

Information obtained at the end of the assessment of the table is given here and in this way, the construction techniques used in Kalash houses are defined. The details were given in the order from foundations to roof and then to architectural elements, as seen in below:

Foundation

Masonry Wall

Classification of Masonry Walls according to Timber Bands in wall

- One Timber Band Wall
- Two Timber Band Wall
- Three Timber Band Wall
- Masonry wall with timber Beams and Posts

Interior and Exterior Timber Walls

Timber Posts

- Interior Timber Posts
- Verandah Timber Posts

Roof and Its Architectural Elements

- Roof Smoke Hole
- Fascia
- Chimney

Horizontal and Vertical Connections

Architectural Elements

- Doors and Windows
- Stairs
- Railings and Balcony
- Shelves, Cupboards, Kitchen Hearth and Stools
- Pasti

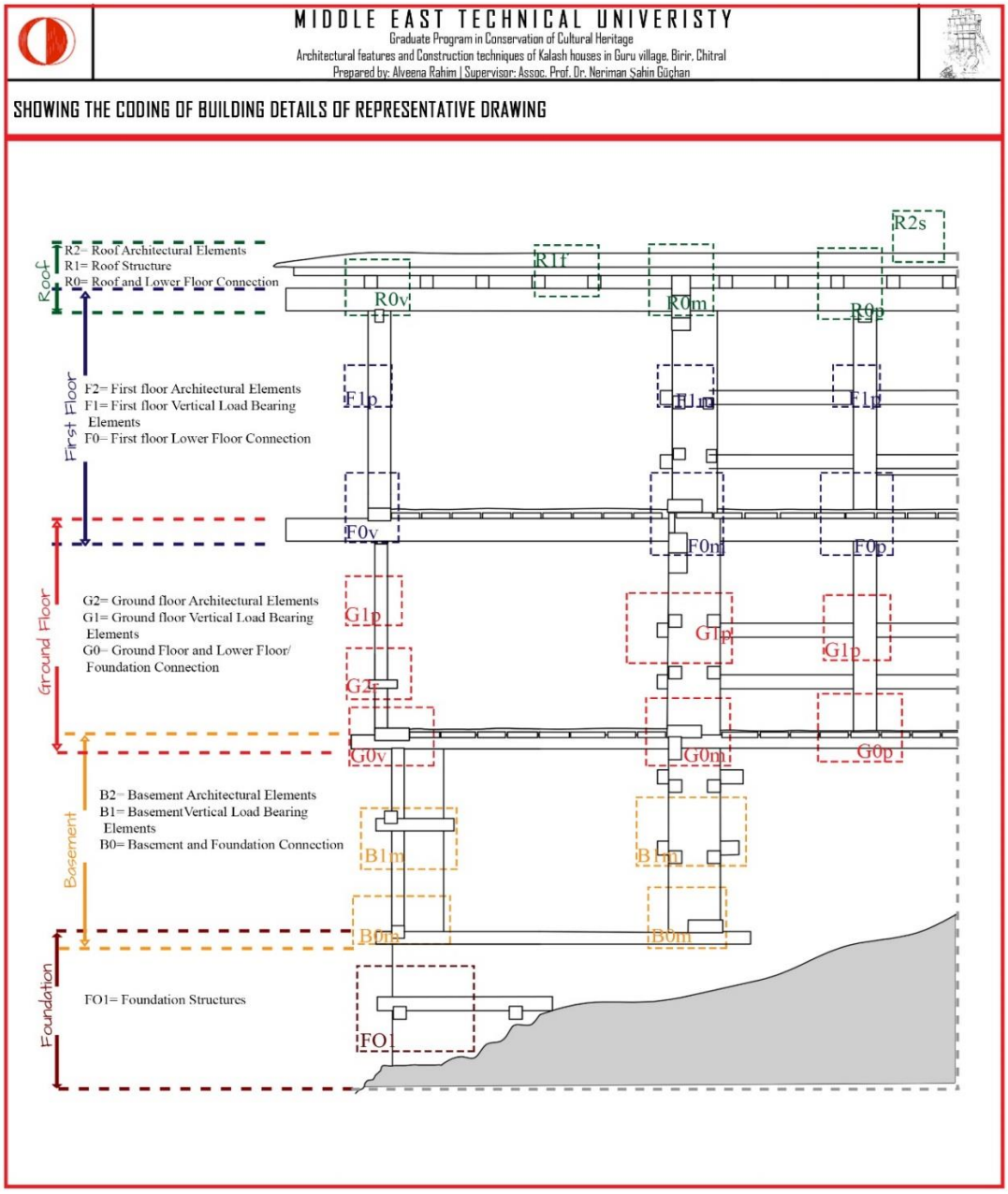


Figure 3.1. Showing the coding of building details of representative drawing

3.1. Local Craftsmen and Available Local Materials

According to the construction tradition, the construction technique of Kalash houses is composed of stone masonry, called *"Bat Dig'ha",* and timber frame, called *"Kahi Thar",* (see Fig. 3.1). The foundation of these house, called *"mermut"* in Kalashwar, is constructed in rubble stone masonry with timber beams and girders and continued with timber bands and stone masonry for the ground floor of the house. Use of wooden stilt work is also a prominent feature of the Kalash architecture and constitutes the Verandah of the house. The houses have flat roofs made of wood covered with stone layer and compact earth. A government permit is now required to fell timber, and the huge roof beams are carried to site by hand. Labour is either provided by the family building the house or workers called *"Mezdur"* under the guidance of a Mason called *"Misri".* Carpenter, called *"Ustad",* is usually hired for the woodwork. The windows and doors are completely wooden structures and opened depending on the occupant's requirements. Typically, Kalash houses have small size windows or no windows at all. This provides a skillful adaptation to the local climatic conditions.

The material used for construction are stone, called *"Bat",* and timber, called *"Shula".* and both are locally available. Stones are cut from the mountains by use of hammers and the rubble stones found within the Valley are also used. The valley has many forests surrounding them, making timber cheap and accessible. The terminologies related to construction elements used by Kalash in their language are marked in the figure (see Fig. 3.1). The tools used for construction are axe, hammer, spear, blade and knife. The name of these tools in Kalashwar are as follows;

Axe: *Bardokh*

Hammer: *Bedir*

Blade: *Phelik*

Spear: *Barma*

Knife: *Katar*

From the interviews with the builders in Guru village, it was noted that the Kalasha system of units for the measurement is called *"Drigai Toluni"* where *Drigai* means length while *Toluni* means unit. In *Drigai Toluni* either human body is taken as reference point or a standard sized rope i.e. (12 *Hust* to 24 *Hust*) is used as a measuring tool (ICH, 2016). The units that Kalash use are explained as follows (ICH,2016):

a) *Hust*(arm): distance from the tip of middle finger and the elbow of an average adult human arm. 1 *Hust* is equal to 45cm.

b) *Rajuk*(rope): equal to 12 *Hust* which is 5.4m and measured by rope.

c) *Jist* palm of a hand): distance from thumb to tip little finger of stretched average adult human hand. It is roughly equal to 15cm.

d) *Angu*(finger): distance between middle finger and index finger of an average human hand pressed together.

e) *Guzar*(yard): distance equal to 91.5cm

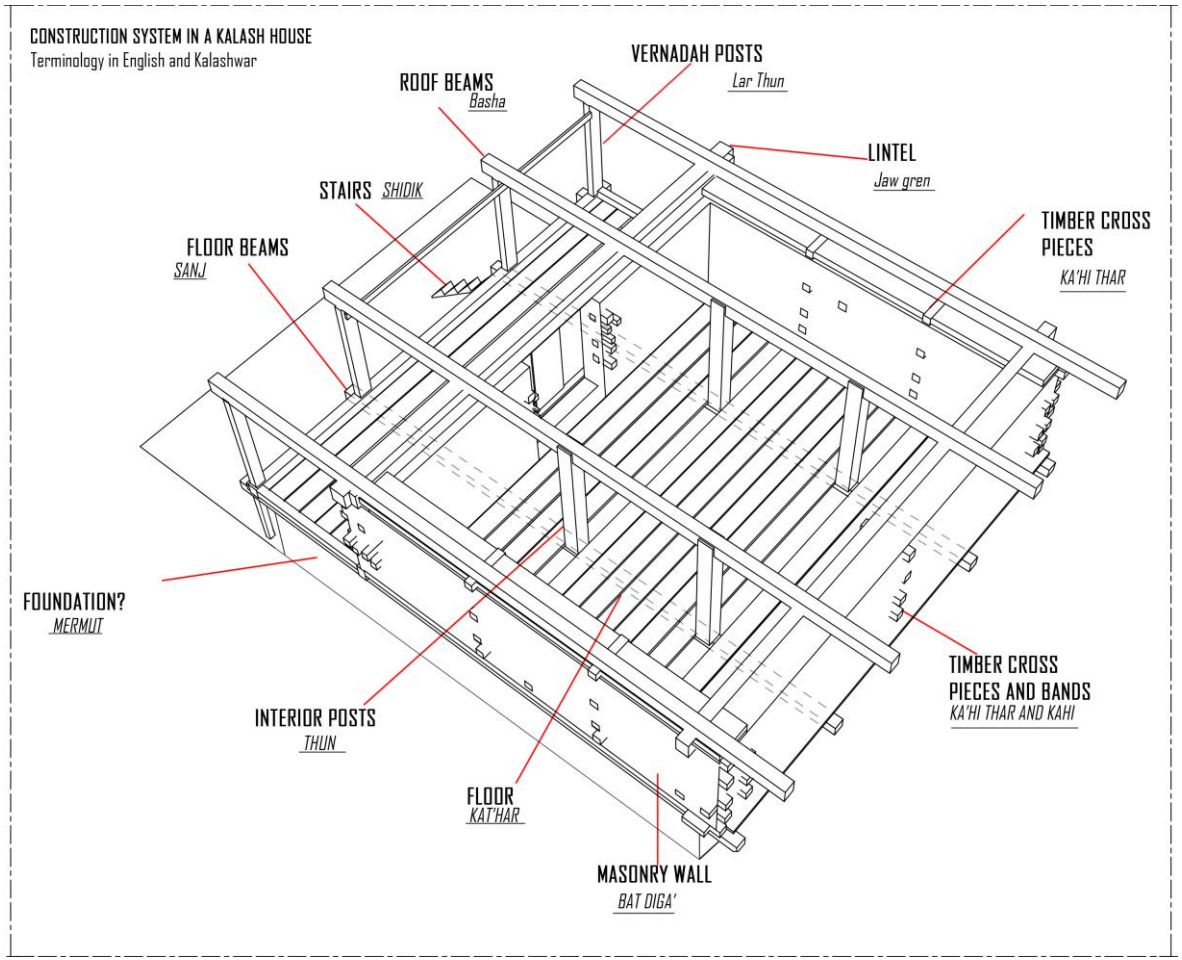


Figure 3.2. Exploded view of Construction System in Kalash house with English and Kalash terminologies

3.2. Foundation

As mentioned before, Guru Village is located on a sloping terrain, with houses stacked on top of each other forming a terraced pattern. Even though the foundation ruins could not be found, interviews with the residents and builders, observations made on site from the different viewing points of the village and photographic documentation did provide an understanding of how the foundations were constructed and formed the base for the houses to be built upon.

As the site section was studied via the contours provided by Google Earth, it was noted that the houses were built on higher grounds that the surface of the cliff (see Fig. 3.3). The local builders also pointed it out that because of the complicated topography it was important to firstly create a stable base area for building. With the abundantly available material, stone from the close river bank and timber logs from the forests, stone terraces of dry stone masonry with timber beams and girder, acting as bands were constructed (see Fig. 3.4, 3.5). These acted as foundations for the buildings. The timber verandahs were supported by timber posts that either were placed on such stone terraces or the roof of the building below.

For the construction of these foundations, the evident factor is the placements of the timber beams and girders and the distance between the horizontal levels. With reference to the height of the stone terrace required, the stone masonry was repeated multiple times with the beams recurring at the varying height distance but less than 90cm (see Fig. 3.8). For the number of girders to be used, the beam length decided how many girders will be placed.

Four possibilities were seen. In the first case where beam length was less than 3.6m, two girders were placed connecting the front and end of the beams together through halving joints. In the second case where the beam length increased to 4.5 and above, three girders were used with two connecting the beams at the edges and one placed in the middle. In the third and final case, where beam lengths were 7m or more, four girders were used with one at both edges and two placed at distance of 3m from the

edge girders. For the joinery of the girder to the beam, halving joint was used at the edges with notches on both elements 3cm deep (see Fig. 3.6). For the girders connected at the middle of the beam, dado joint was used with the beams having a 3cm notch.

Figure 3.3. Stone foundation system of houses 5,6, 8, 12 and 13

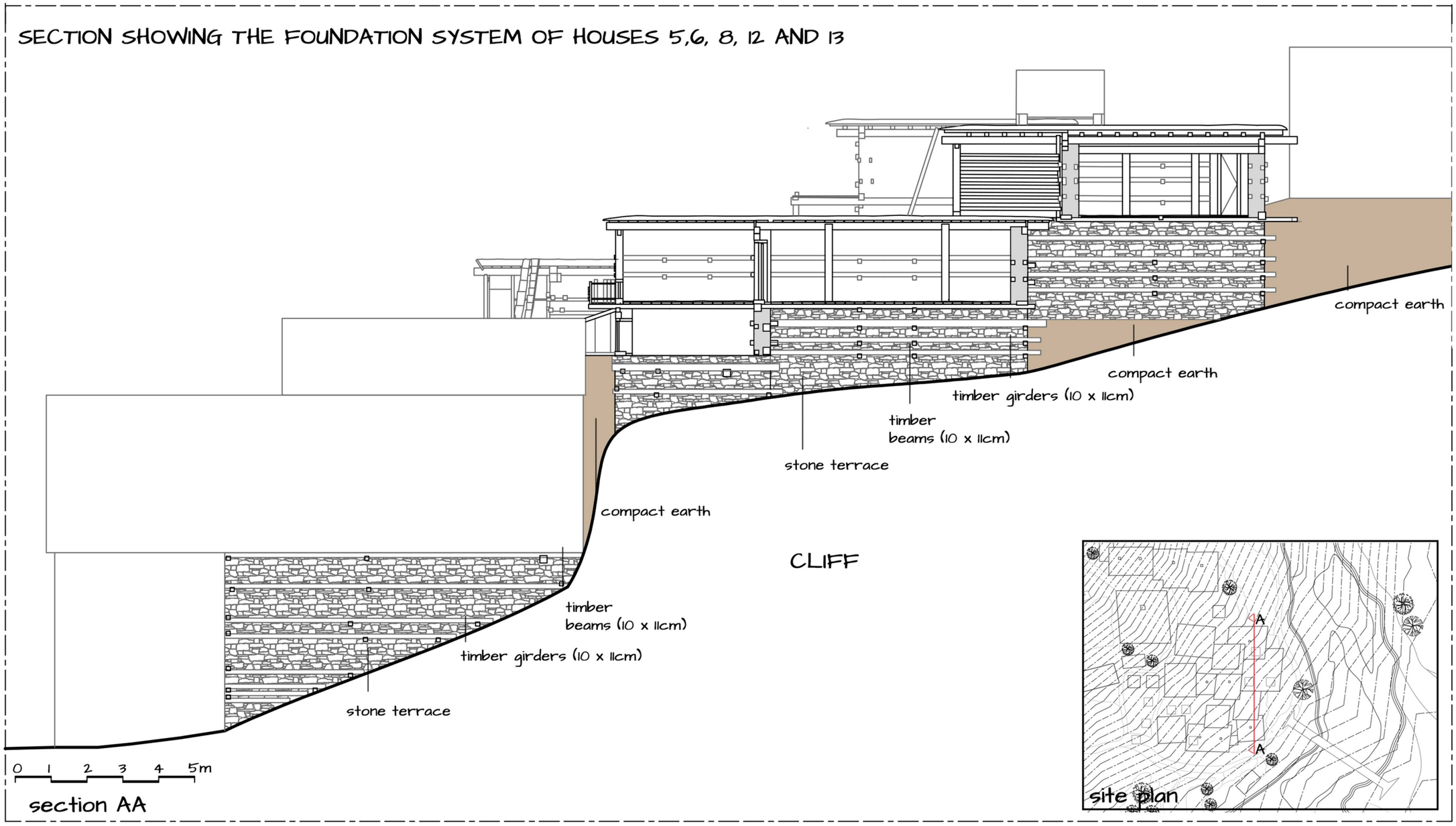


Figure 3.5. Section showing the foundation system of houses 5, 6, 8, 12 and 13

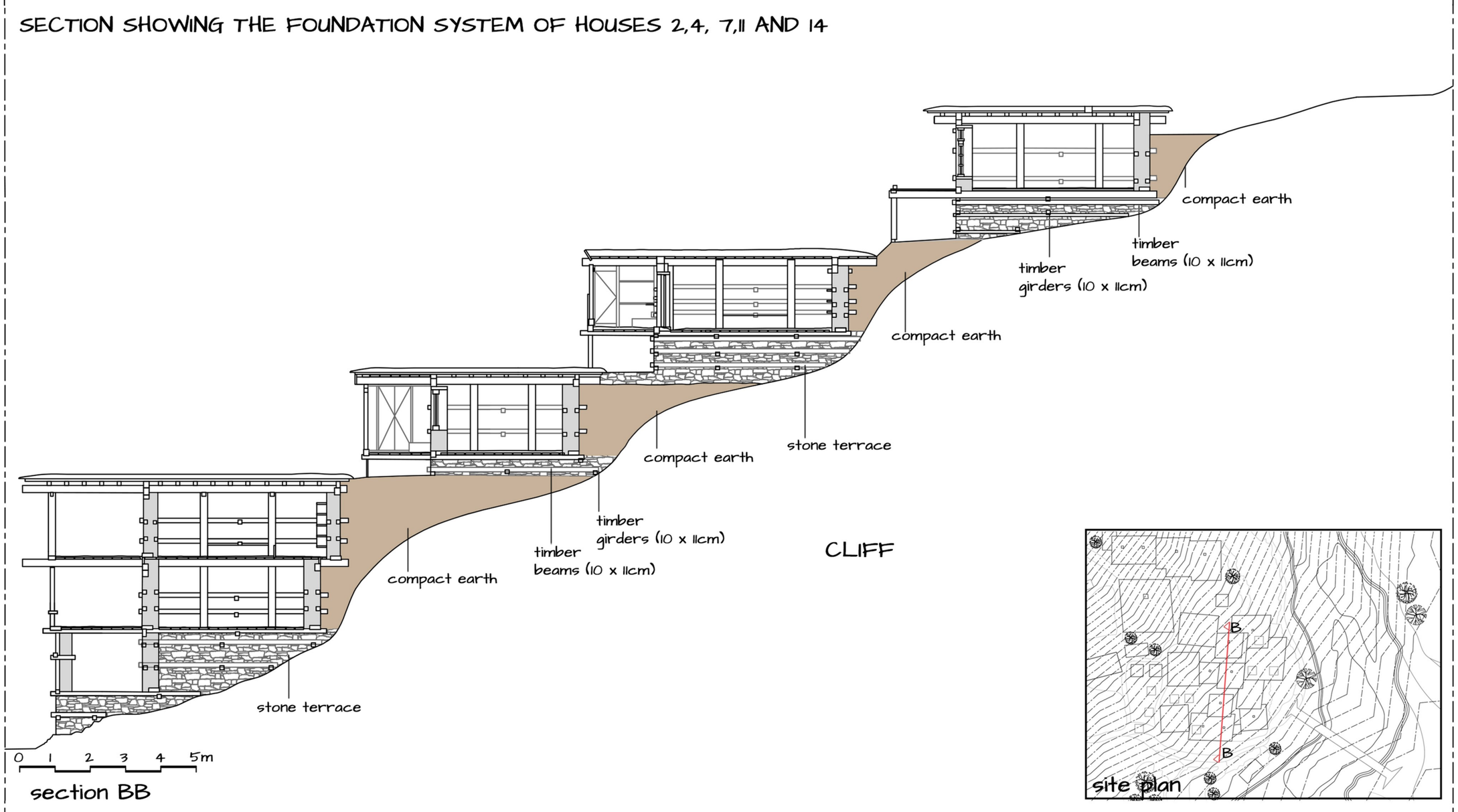


Figure 3.4. Section showing the foundation system of houses 2,4, 7, 11 and 14

Figure 3.6. Joinery detail at edge of the girder and beams

Figure 3.7. Stone Retaining walls with Timber beams (left) and timber girders at the base of the village (right)

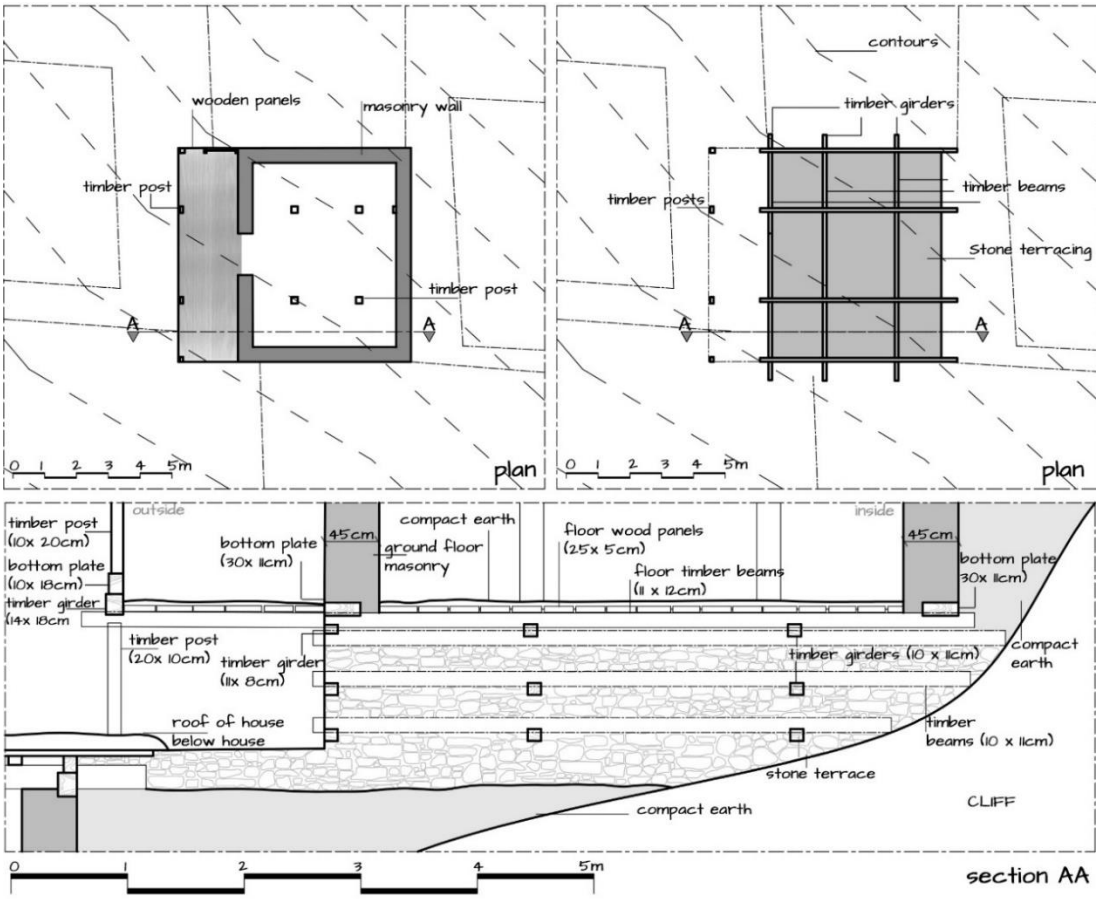


Figure 3.8. Floor Plan, Foundation Plan and Section of stone terrace foundation for House no. 11

From the documentation of girder and beam in a stone foundation of one of the studied house, it was observed that timber beams (10x 11cm) and girders (10 x11cm) used, were placed at interval 25 cm height. The timber beams were placed below the girders and had 3cm deep notches to allow joinery to girders. The top timber beams and girders from the substructure were connected to the superstructure (see Fig. 3.8) while the whole foundation formed a flat surface for the house construction. The dry stone masonry for the foundation consists of rounded stones obtained from river beds and slopes. Compact earths fill the gap behind the house and cliff.

3.3. Masonry Walls

Stone masonry walls form the major structure of the houses. The walls are 45cm thick with two timber beams placed on same level and spaced at 20cm from each other. With the stone masonry walls raised together till 45-50cm, the first beam set are placed above the bottom plate of the wall. The stones used are locally available from the river and broken into smaller pieces with hammer if required. The stones are medium sized mostly flat or oval shaped with mud mortar acting as the binding material (see Fig. 3.11). Mud mortar was a vital part for the building of the stone masonry, mentioned by the Kalash builders. As the shape of the stones were irregular and construction process was rushed, the mud mortar not only bonded the stones together but also filled the gaps to keep the buildings insulated from the harsh winters.

The thickness of the masonry walls for both interior and exterior in the surveyed houses was 45cm. The only thickness difference of the walls observed was in the house 3 and 4, which are directly placed on top of house 1 and 2, where the wall thickness decreased to 38cm. For the start of construction of the walls, on top of the timber bottom plate corner stones are placed, bigger than the rest of masonry stones, and then the walls are collectively raised to height 45-50cm with the timber beams placed on top. These timber beam sets are placed on the same raised level of all the walls and connected through joints at edges, thus, forming a timber band. Based on the number of timber bands in a wall, there are three types;

One Timber band wall

This wall is used in basements where height less than 1.5m is required. The distance of the timber band from the bottom plate is 45cm and 37cm from the top plate or lintel (see Fig. 3.9).

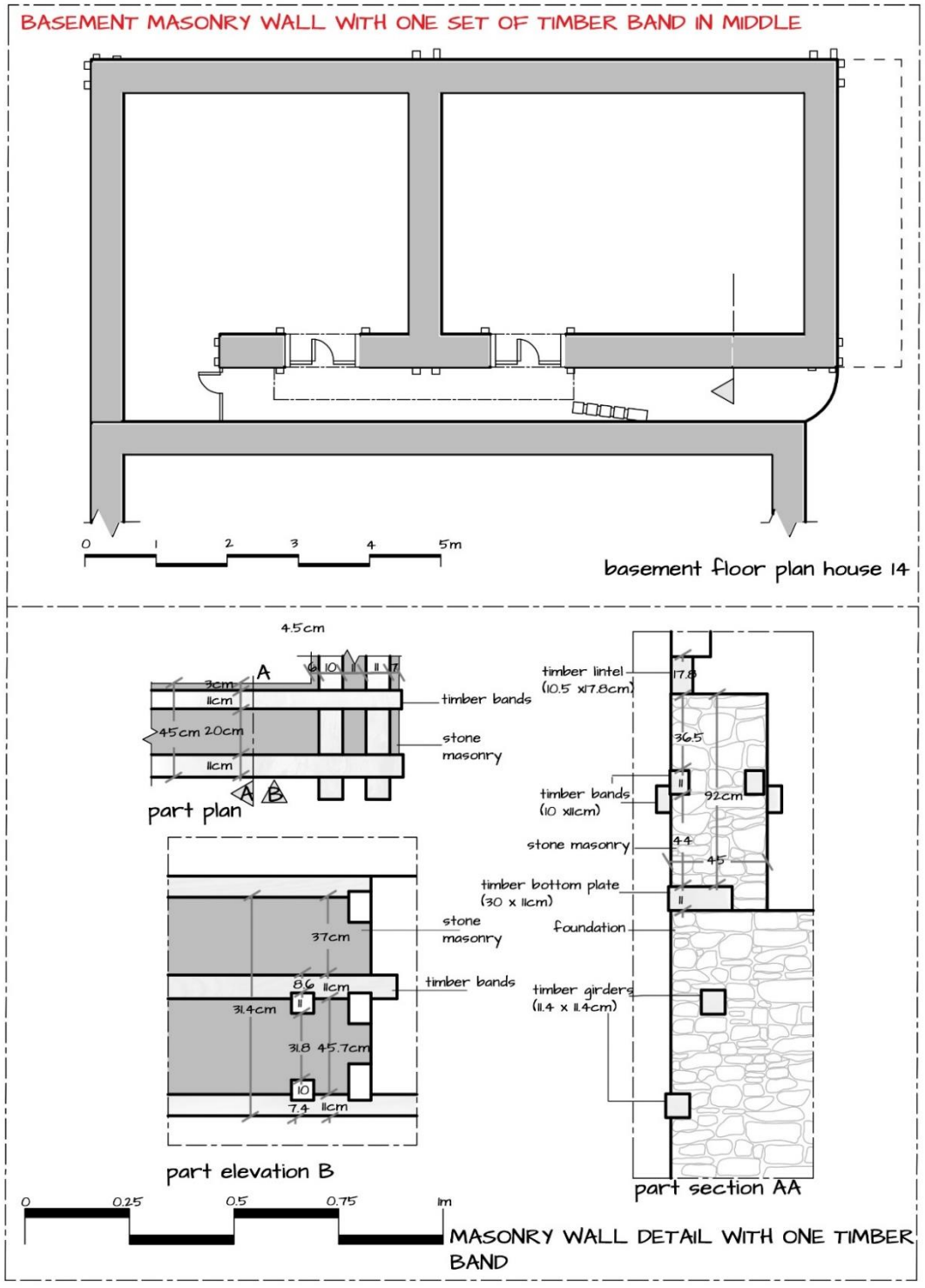


Figure 3.9. Floor Plan, Part Plan and Sections of masonry wall with one set timber band in House no. 12

Two Timber band wall

This wall is used in ground floor construction where the masonry walls height range from 1.7 to 1.8m. The first band is placed at a distance of 45cm from bottom plate (see Fig. 3.12). The next band is either placed at a distance of 30cm to 40cm so that the distance from the lintel can be 60cm to 80cm or the interval between the bands is 60cm to 80cm, keeping the distance from lintel 30cm to 40cm.

Figure 3.10. Two timber band wall in House no. 10

Figure 3.11. Two timber band Stone masonry wall in House no.2 (left) and 6 (right) with Mud Mortar

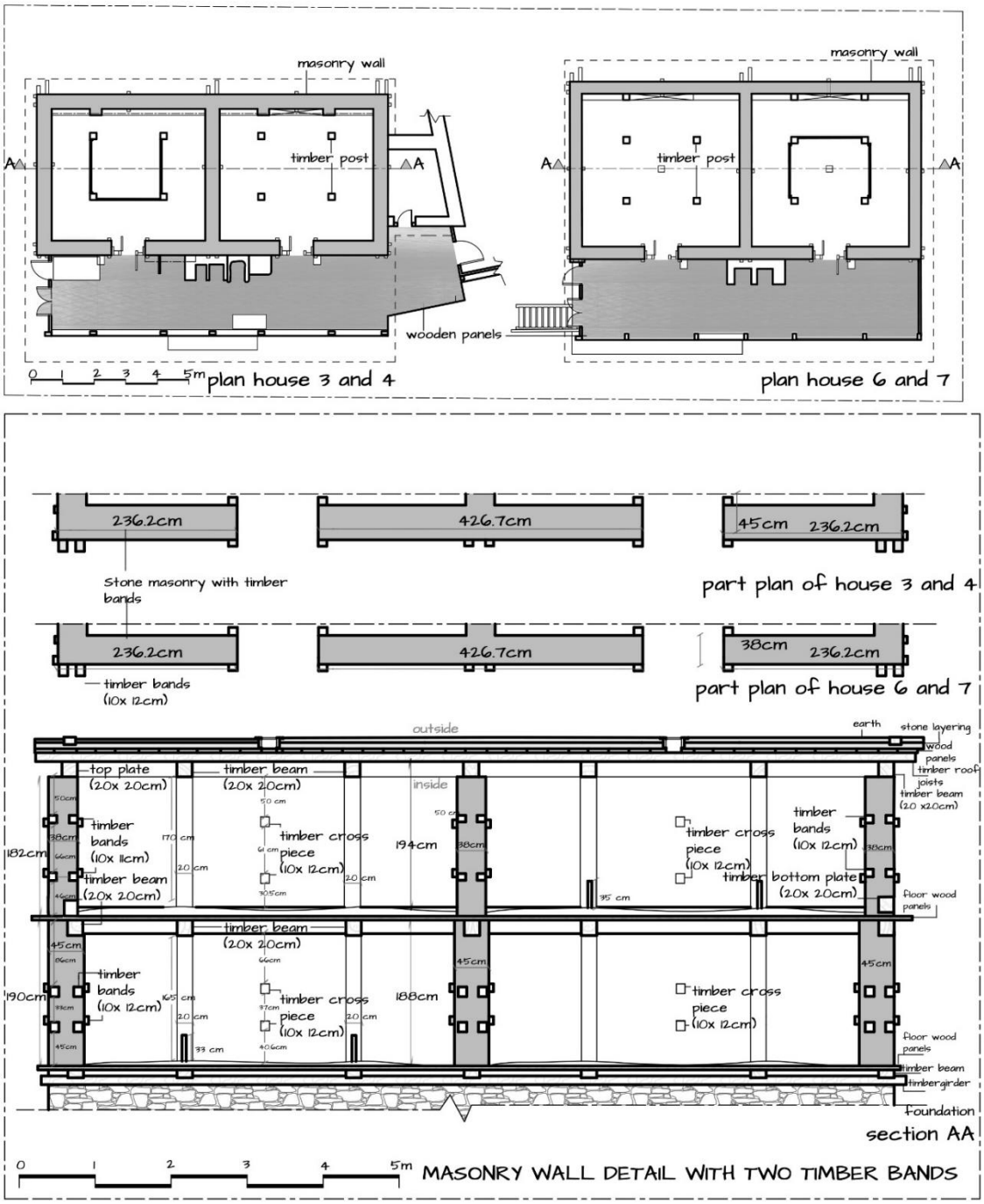


Figure 3.12. Floor Plan and Sections of masonry wall with two set timber band in House no. 1,2 below House no. 3,4

Three Timber band wall

This wall is also used in ground floor constructions where the masonry wall height is 1.8m. The first band is placed at a distance of 45cm from bottom plate (see Fig. 3.12). The next two bands are placed at an interval of 30cm to 40cm distance while the distance from the lintel is 45-50cm.

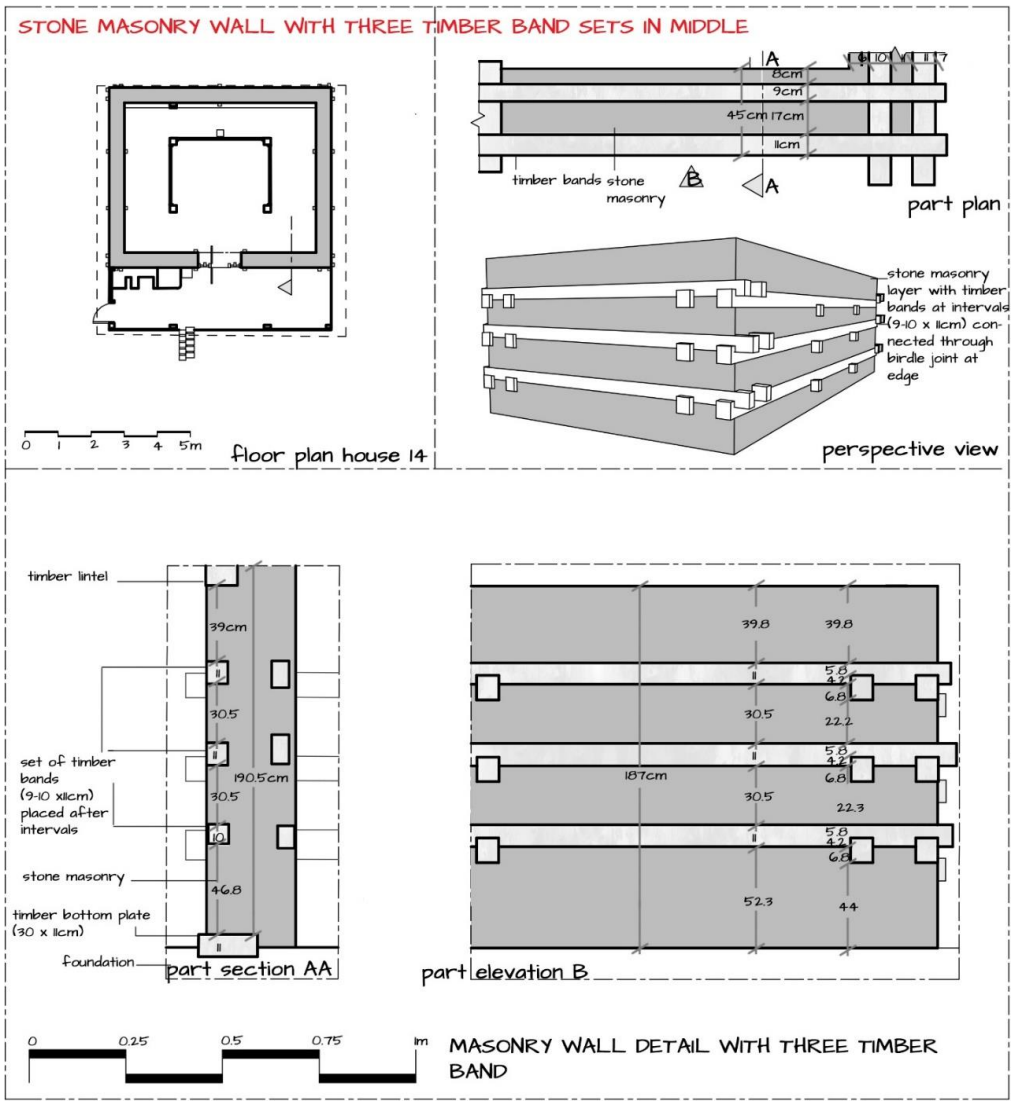


Figure 3.13. Floor Plan, Part plan, part section, perspective view and part elevation of masonry wall with three set timber band in House no. 11

Figure 3.14. Example of Three timber band wall in House no. 21 (left) and 13 (right)

Wall with Horizontal and Vertical Timber Elements

Only in one case, a stone masonry wall with both horizontal and vertical timber elements was found. The wall was located on the lowest part of the settlement and supported the wall next to the cliff surface (see Fig. 3.16). The construction details are provided below (see Fig. 3.15).

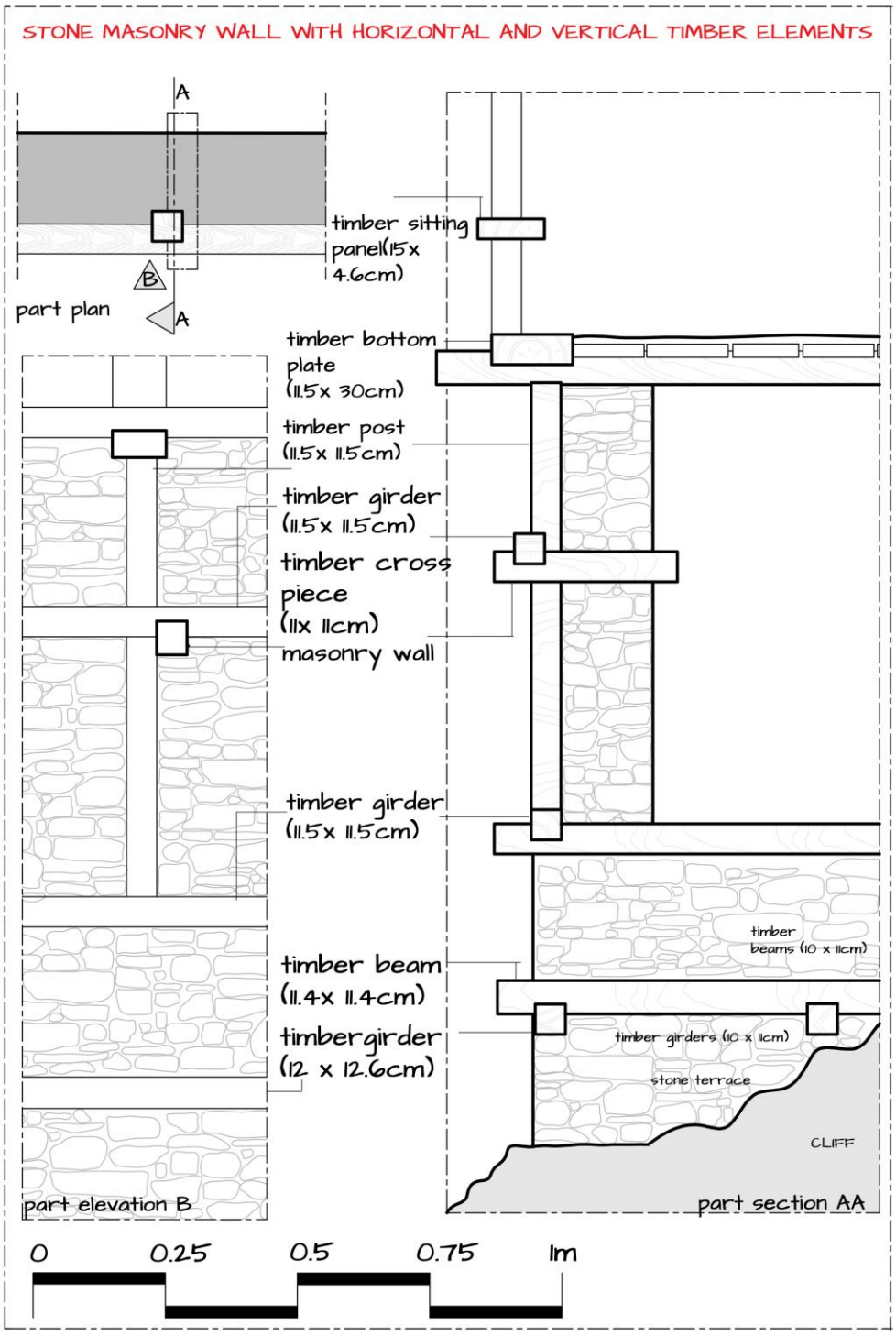
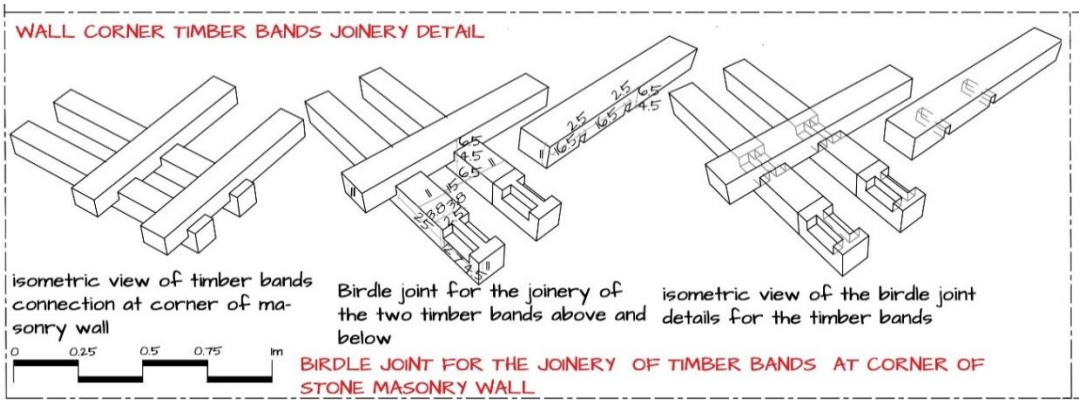


Figure 3.15. Construction details of Stone Masonry wall with Horizontal and Vertical Timber Elements

Figure 3.16. Stone Masonry wall with horizontal and vertical timber elements

The timber beam used are mostly rectangular or square shaped ranging from 10-12cm. In rare cases, anomalies such as beam of 20cm can be used as wall band. Timber beams are usually cut from logs available from the forests. The face of these timber beams protruding out of the walls are not treated and left as natural. The beam set are connected together at corner via bridle joint (see Fig.3.17, 3.18). The notch details are given in the figure while the depth of notch is 2.5cm. The bridle joint provides further strength to the connection.



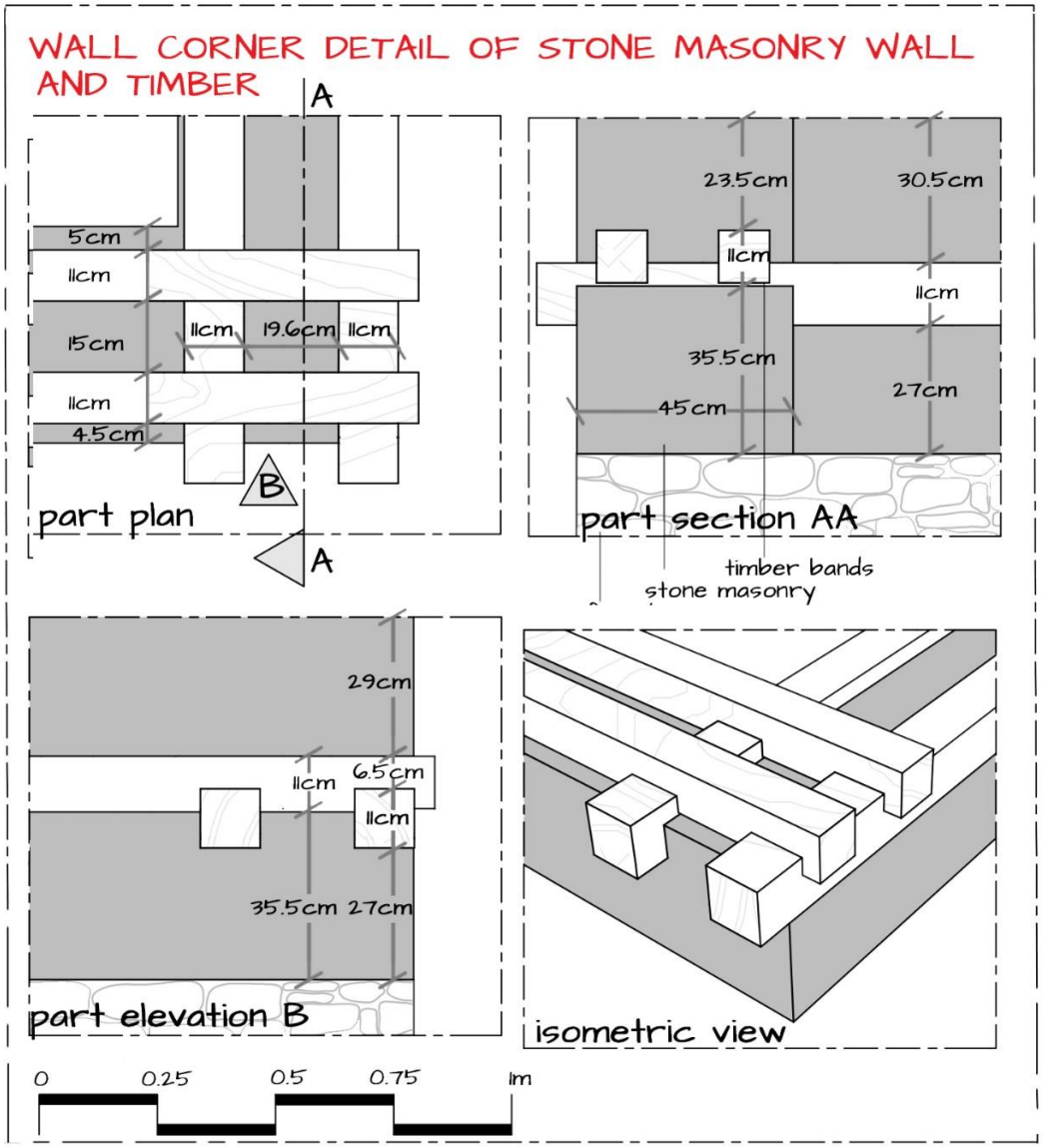


Figure 3.17. Joinery detail at corner of walls

Figure 3.18. Joinery detail of timber beams at corner of walls and visibility of notches.

Timber cross pieces are used to hold the timber beams and stone masonry wall together (see Fig. 3.19). Both cases, where the timber cross pieces being placed above or below, is observed. In one case (House 13) cross pieces were placed both above and below the beams. Depending on the length of the house masonry wall, the number of cross pieces placed on the beam can vary. In houses with wall length less than 5m, one cross piece was observed. In houses where the length of the room increased to 5m or more, two cross pieces with 1.5m space between them are placed (see Fig. 3.20). As the Kalash builders mentioned, the number of cross pieces can be more than two in the beam as well if the builder required and material was available. This made the walls stronger and stable.

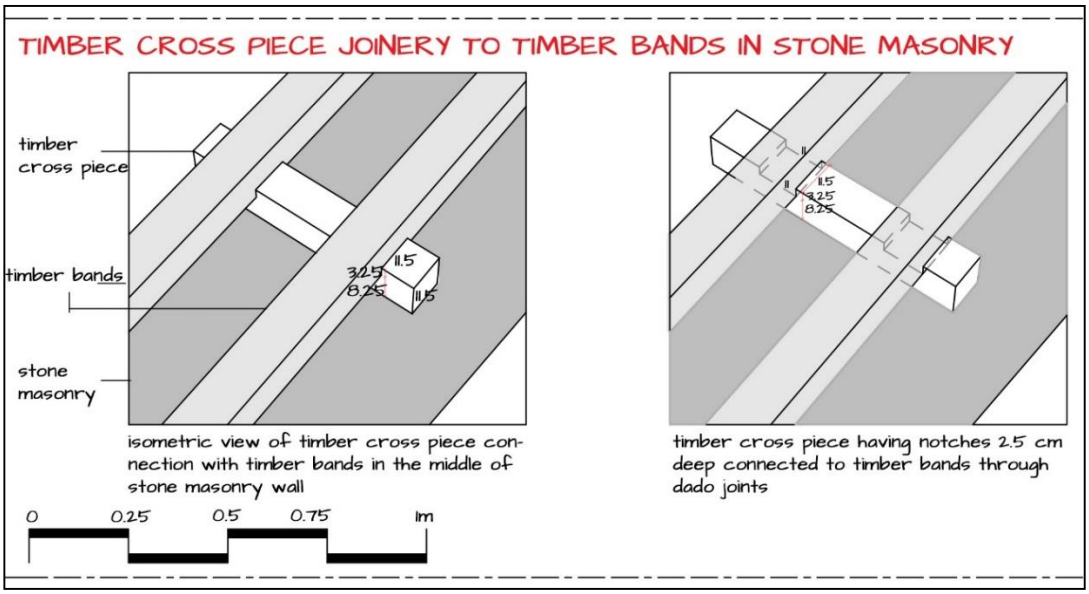


Figure 3.19. Joinery detail of the cross pieces in the timber beam of the wall

Figure 3.20. Joinery detail of the cross pieces in the timber beam of the wall (House no. 26 and 9 respectively).

In houses where two rooms are present, the timber beams of the interior wall are connected to the exterior wall's timber bands via dado joint, with notches 2.5cm deep present on the timber beams of the interior wall (see Fig. 3.21, 3.22).

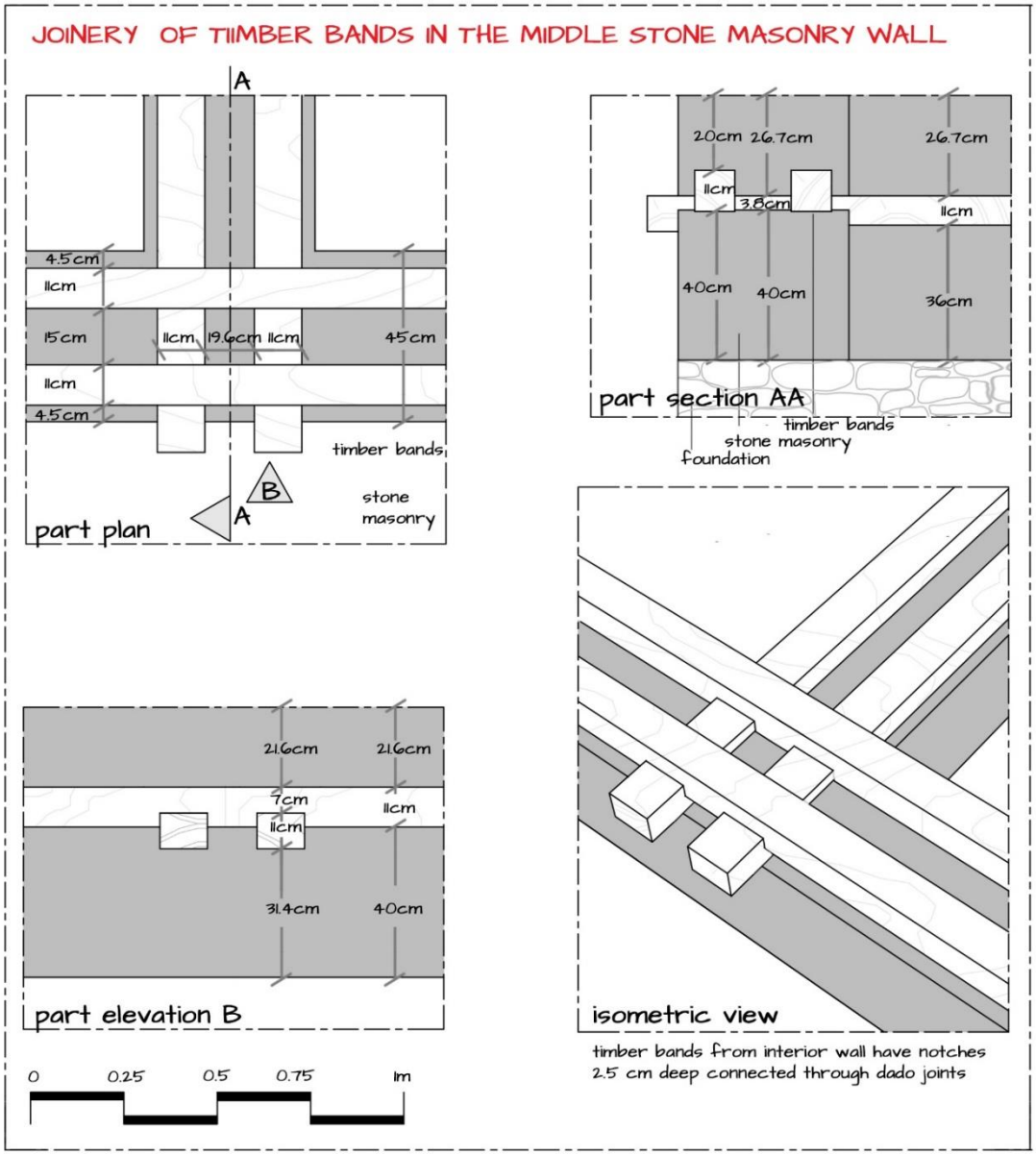


Figure 3.21. Joinery detail of timber beams in interior wall with exterior wall.

Figure 3.22. Joinery detail of timber beams in interior wall with exterior wall in House no. 6,7 (left) and 3,4 (right)

In terms of the finishing texture, the walls have mud plaster layer on the interior walls and facade wall facing the verandah (see Fig. 3.23). The other side walls are left bare, with the stone masonry visible.

Figure 3.23. Mud Plaster in interior wall of House no. 1 and Facade of House 1 and 2

3.3.1 Beehive Niche located in Masonry Wall

In two of the houses, on the exterior surface of the side wall, a small space was specifically created and covered with a timber plank to keep bees. This is called *"machi goghu mal"* and functions as a bee hive. Even though one of it was destroyed, the rubble showed the gap created above the timber beam of the wall (see Fig.3.24). A still functioning bee hive (120 x 15cm) with two entry points of (5 x 2.5cm) was found in house 7 and covered by shade to protect the bees from heat.

Figure 3.24. Rubble of the bee hive found on side of wall of House no. 20

Figure 3.25. Bee hive found on side of wall on House no. 7

3.4. Interior and Exterior Timber Walls

Timber walls are not part of the load bearing structure but only used as partitions. The interior timber wall is 35cm high and usually attached to the timber post via inserting it in the notches on the side of the post or directly nailed to the edge. For the exterior timber wall, there are two methods of building it and as told by the Kalash builders both are now built by nailing the timber planks. For first method, in the vertical direction, timber panels (25 x 5cm) are nailed to the beams and bottom floor plate of the verandah to shape a partition wall (see Fig. 3.26). Another method is the nailing of the horizontal timber panels to two timber posts of 5x5cm thickness and mounting this next to the stone masonry (see Fig.3.26).

Figure 3.26. Timber wall with horizontal panels in House no. 3,4 (left) and Timber wall with horizontal panels in House no. 11

3.5. Timber Posts

In a Kalash house, timber posts are also a major part of load distribution. The interior of the rooms has four timber columns dividing the square or rectangular room in three aisles. Timber beams in the roof and floor are connected to these posts, overall bearing

the load of the structure to flow from roof to the foundation. The verandah timber columns also carry the load of the timber beams to the floor beams and then to foundation. Two types of timber posts are found in the house structure;

Interior Timber Posts

Verandah Timber Posts

3.5.1. Interior Timber Posts

The four interior timber posts are an evident element of a Kalash house but the purpose is not only aesthetic but also structural, as they function as vertical load bearing elements with the stone masonry wall. The load from the roof of the room is divided amongst the posts and the masonry walls by the connection of the timber beam to the posts thus decreasing the distance of support points for the beam (see Fig. 2.27). There were two houses with two rooms where two columns were present in one of the room. House 12 owner mentioned that the two columns had been removed later when the room was restored while House 13 had an extra store added later which was supported by these two posts.

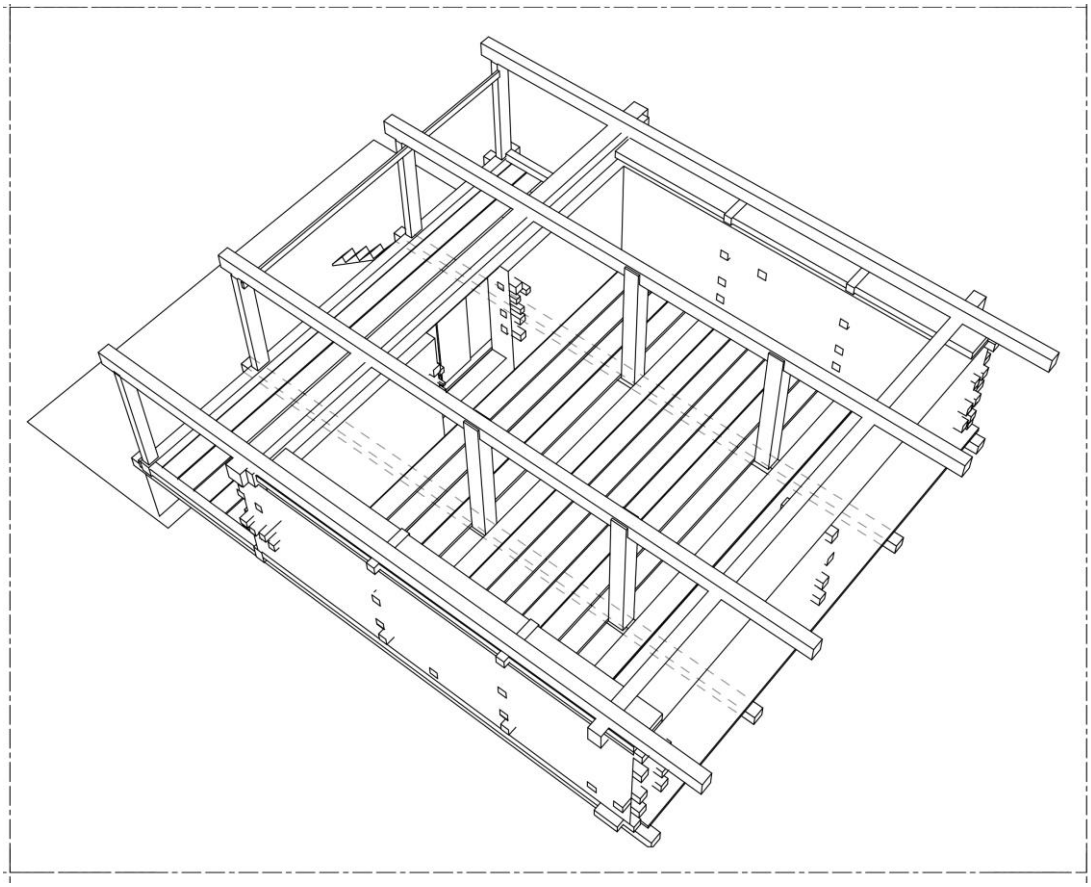


Figure 3.27. Exploded view of the construction system in a single unit Kalash house with Interior Timber posts and Masonry Walls sustaining the load

The connection of the interior timber post to the floor beam is by butt joint. However, there are two types of detail joinery with respect to the timber posts connection to the roof beam.

- Detail 1: Butt Joint

In this detail, the post is connected to beam via butt joint and no intermediate elements are present (see Fig. 3.28, 3.29). The height of the timber post ranges from 1.7-1.8m while the thickness of the square post is 20cm.

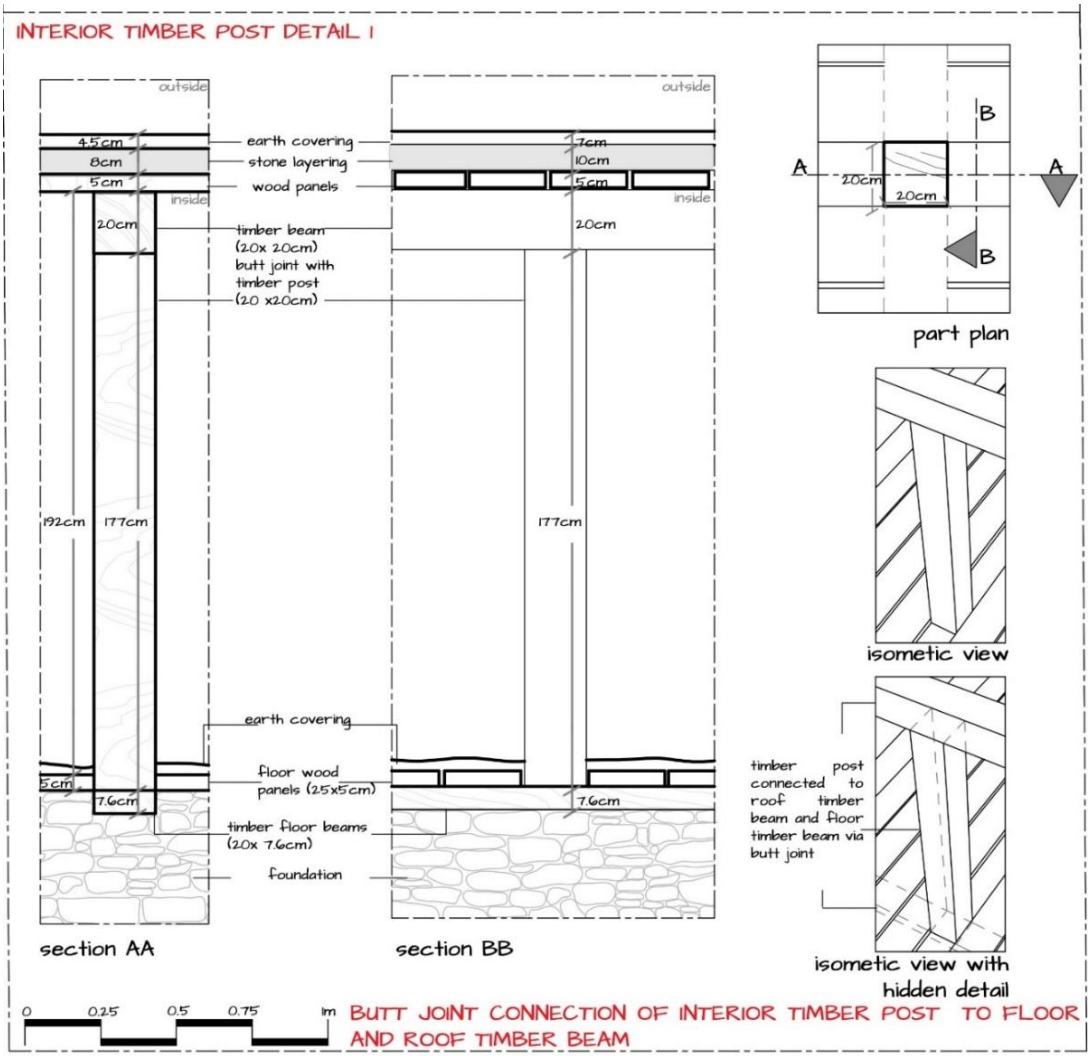


Figure 3.28. Detail Joinery type 1 as observed in House no. 1.

Figure 3.29. Detail Joinery type 1 in House no. 3 (left) and in House no.17 (right)

- Detail 2: Dado Joint

In this detail, post is connected to beam via dado joint and the notch is present on the column allowing the roof beam to pass through present (see Fig. 3.30, 3.31). The height of the timber post ranges from 1.8-2m while the thickness of the square post is 20cm with the notch at the top being 15x15cm. In this case the thickness of the beam is decreased to 15cm and it passes though the post.

Figure 3.30. Detail Joinery type 2 in House no. 11

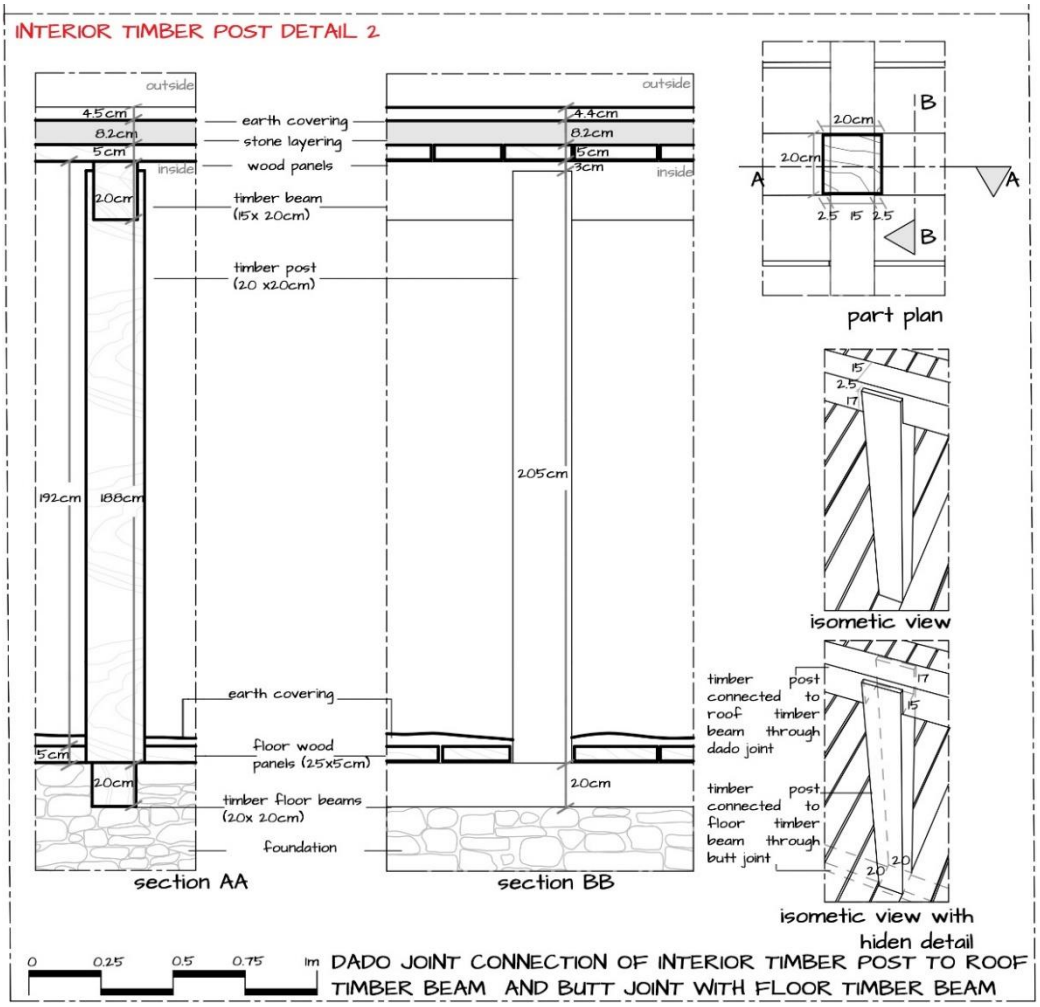


Figure 3.31. Detail Joinery type 2 as observed House no. 1

3.5.2 Verandah Timber Posts

The verandah timber posts are a defining feature of Kalash house façade and also carry the load of the roof. The flat roof resting over the verandah is supported at one end by the stone masonry and at the other by the timber posts. The bottom of the timber posts directly rests on a girder that connects the floor beams beneath together (see Fig.3.33) on resting directly on ground. There are four types of detail joinery with respect to the timber posts connection to the roof beam.

- Detail 1: Butt Joint

In this detail, post is connected to beam via butt joint and no intermediate elements are present (see Fig.). The height of the timber post ranges from 1.6-1.7m while the thickness of the post varies from 10-12 x 15-20cm.

Figure 3.32. Detail Joinery type 1 in House no. 1,2 (left) and 20 (right)

- Detail 2: Timber girder below beams connecting timber posts together

In this detail, the timber posts are connected to each other via a timber girder (10 x 11.5cm) that passes through the notch (10 x 12cm) on top edge of the post (see Fig.). The height of the timber post ranges from 1.8-2m while the thickness of the varies from 10-12 x 15-20cm.

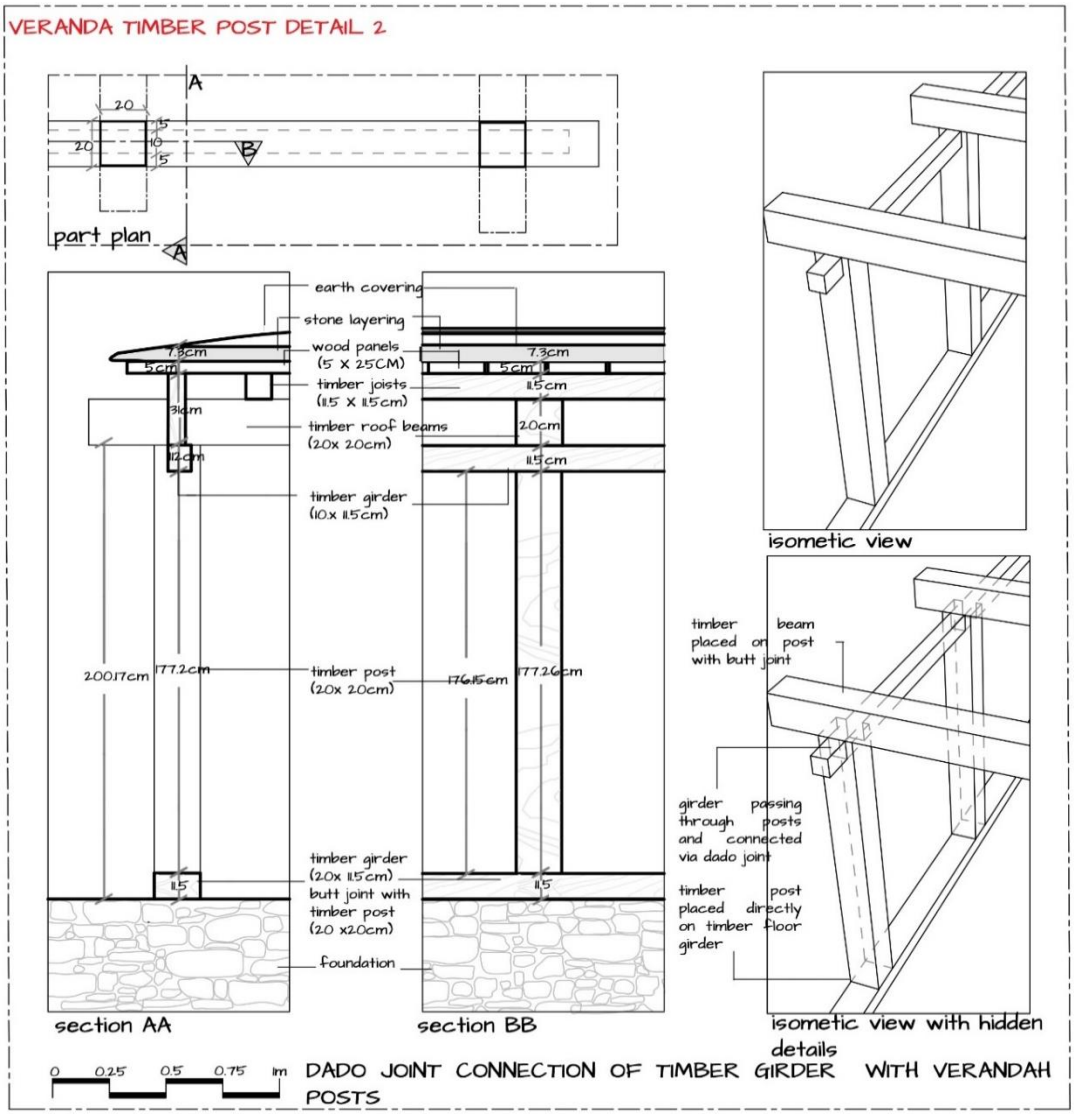


Figure 3.33. Detail Joinery type 2 as observed in House no. 13

Figure 3.34. Detail Joinery type 2 in House no. 3,4 and 13 with the bottom of Post resting on Timber Girder

- Detail 3: Butt Joint with a Capital

This type of joinery for post beam is currently being used in the Kalash valleys as told by the local people. The beams are resting on a girder which is placed on the capital of the post (see Fig. 3.35. 3.36). This detail was seen in one of the studied houses.

Figure 3.35. Detail Joinery type 3 in House no. 7

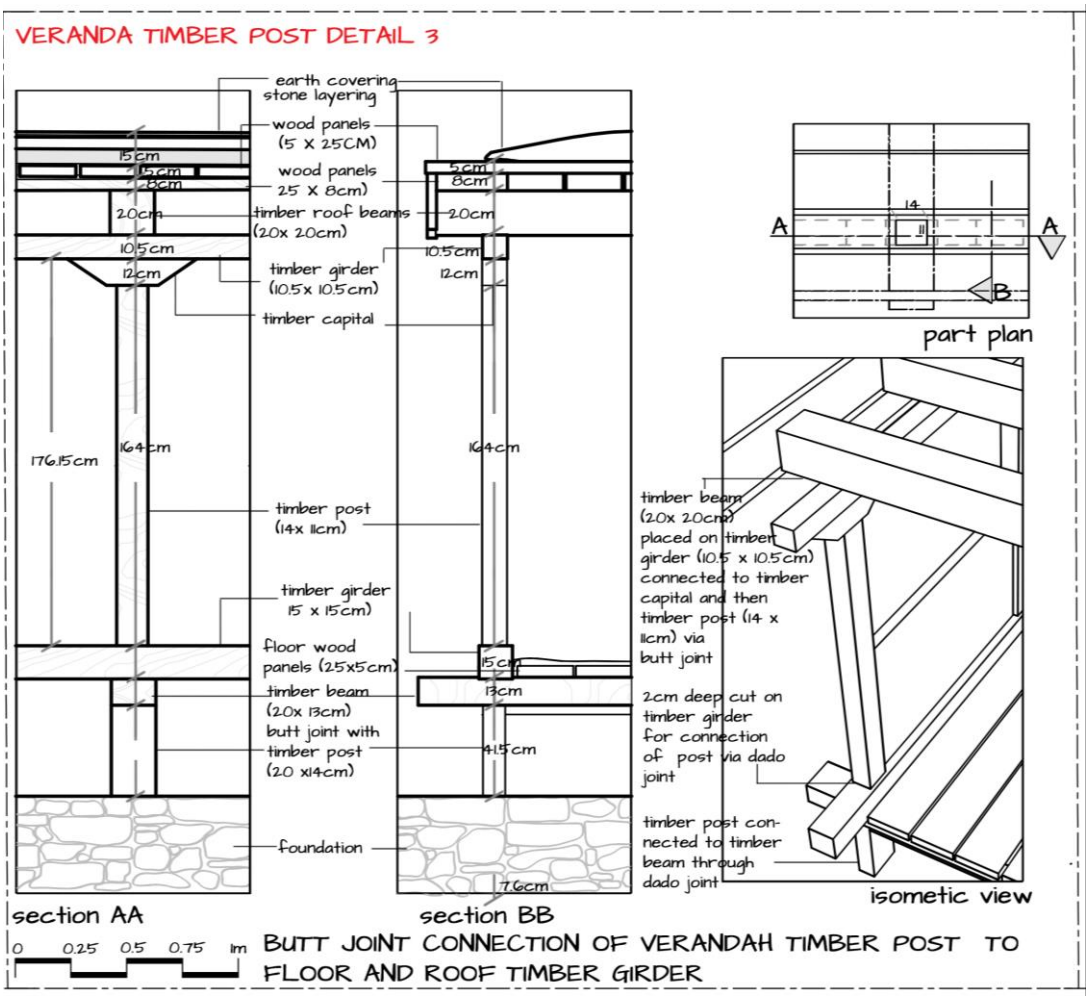


Figure 3.36. Detail Joinery type 3 as observed in House no. 10

- Detail 4: Dado Joint

In this detail, post is connected to beam via dado joint and the notch is present on the column allowing the roof beam to pass through present (see Fig. 3.37). In this case the thickness of the c is decreased to 15cm and it passes though the post. This detail was seen in one of the houses.

Figure 3.37. Detail Joinery type 4 in House no.6

3.6. Roof and its Architectural Elements

The flat roof structure is one of the most defining and apparent feature of the house. As the houses are stacked on top of each other because of the steep contour; the flat roofs create space not only for movement and access to other houses but also for use by the owners themselves for keeping goats or drying grains. In all the traditional houses of Guru Village, the roof structure was flat and the roof load was transferred through timbers beams to the stone masonry walls and timber posts (see Fig. 3.38).

Figure 3.38. Flat roof structure of the houses in the villages.

For the construction of the flat roof, layering is done. Starting from the timber beams, two detail methods are applied while the materials used remain the same;

- Detail 1: Flat Roof without roof joist

Following a layering process, after the placement of the roof timber beams on the posts and masonry walls, wood panels (2.5 x 25cm) are placed perpendicularly to the beams. On top of the panels a ring of flat stones is placed with thickness of 15cm and then covered by a layer of earth (see Fig. 3.39, 3.40). This earth layer is pressed as hard as possible by hammering or making animal walk to exert extra pressure. Overall the thickness of the roof layer is 30cm excluding the roof beam. In case a fascia is attached, two beams (11x11cm) placed on top of wood panels, are connected via dado joint to the fascia.

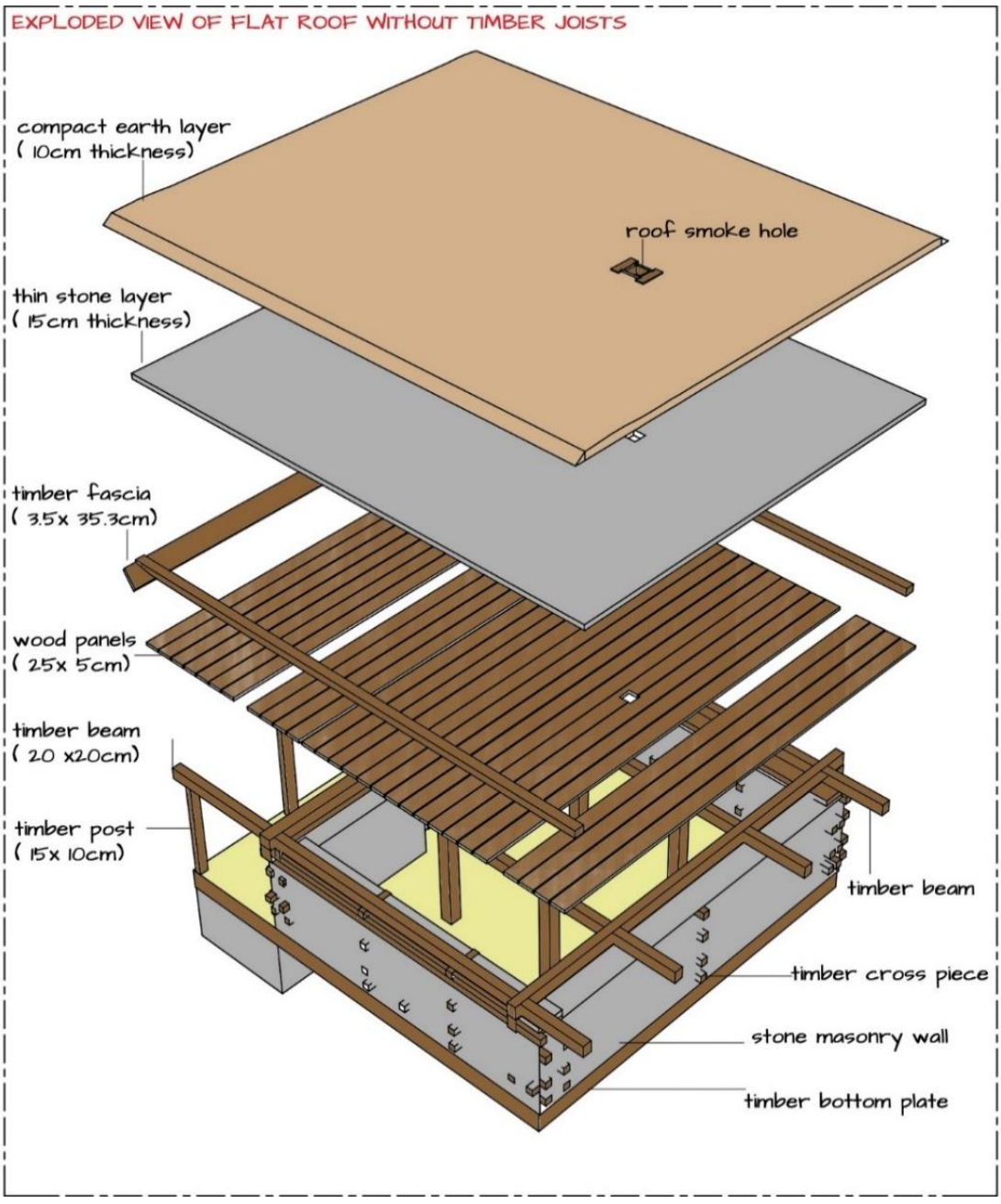


Figure 3.39. Exploded isometric view of the flat roof structure without roof joists

Figure 3.40. Flat Roof without roof joist in House no. 3,4 (left) and House no. 12 (right)

- Detail 2: Flat Roof with roof joist

Similar to the above detail, after the placement of the roof timber beams on the posts and masonry walls, timber joists (11.5 x 11.5-15cm) are placed on the timber beams perpendicularly and spaced 35-40cm apart. On top of the joists, perpendicular to their direction, wood panels are placed and covered by a ring of flat stones, with thickness of 15cm and then a layer of earth (see Fig. 3.41, 3.42). The earth layer is pressed to form a compact even cover for the whole structure. By the placement of joists, the height of overall structure is increased.

Figure 3.41. Flat Roof with Roof joist in House no. 14

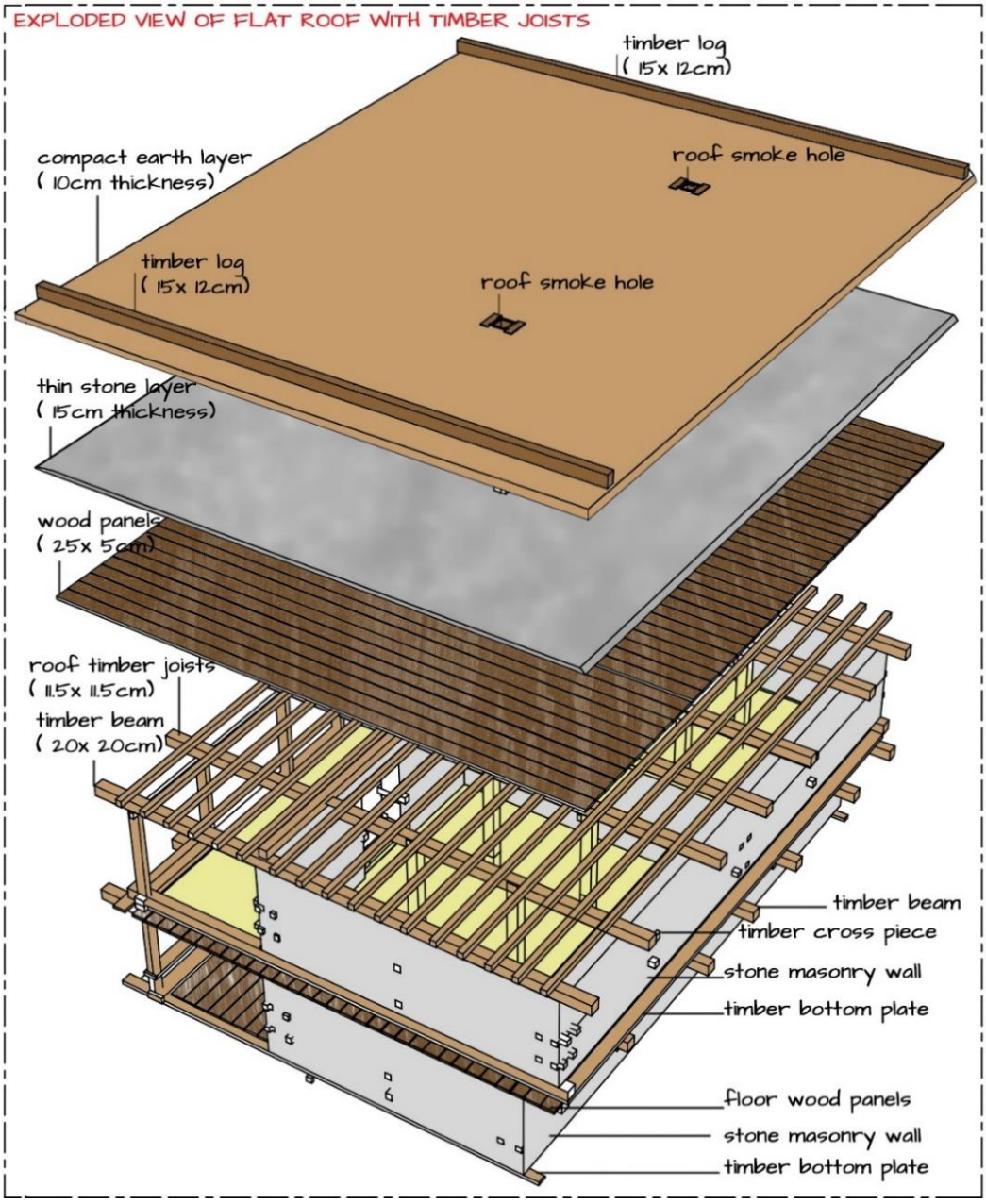


Figure 3.42. Exploded isometric view of the flat roof structure with roof joists

- Roof Smoke Hole

The roof smoke hole is the only ventilation void in the room besides the door. For the construction of the smoke hole, a square 20 x 20cm is marked in the roof structure by

cutting the wooden panels and removing the stone and earth layer. Later timber planks are attached from all four sides keeping the stone and earth layer out. These planks are connected to the timber panels on the roof through dado joint (see Fig. 3.43). The roof smoke hole is usually covered by a stone lid with a circular hole or a wooden cage is placed to mark the location (see Fig. 3.44).

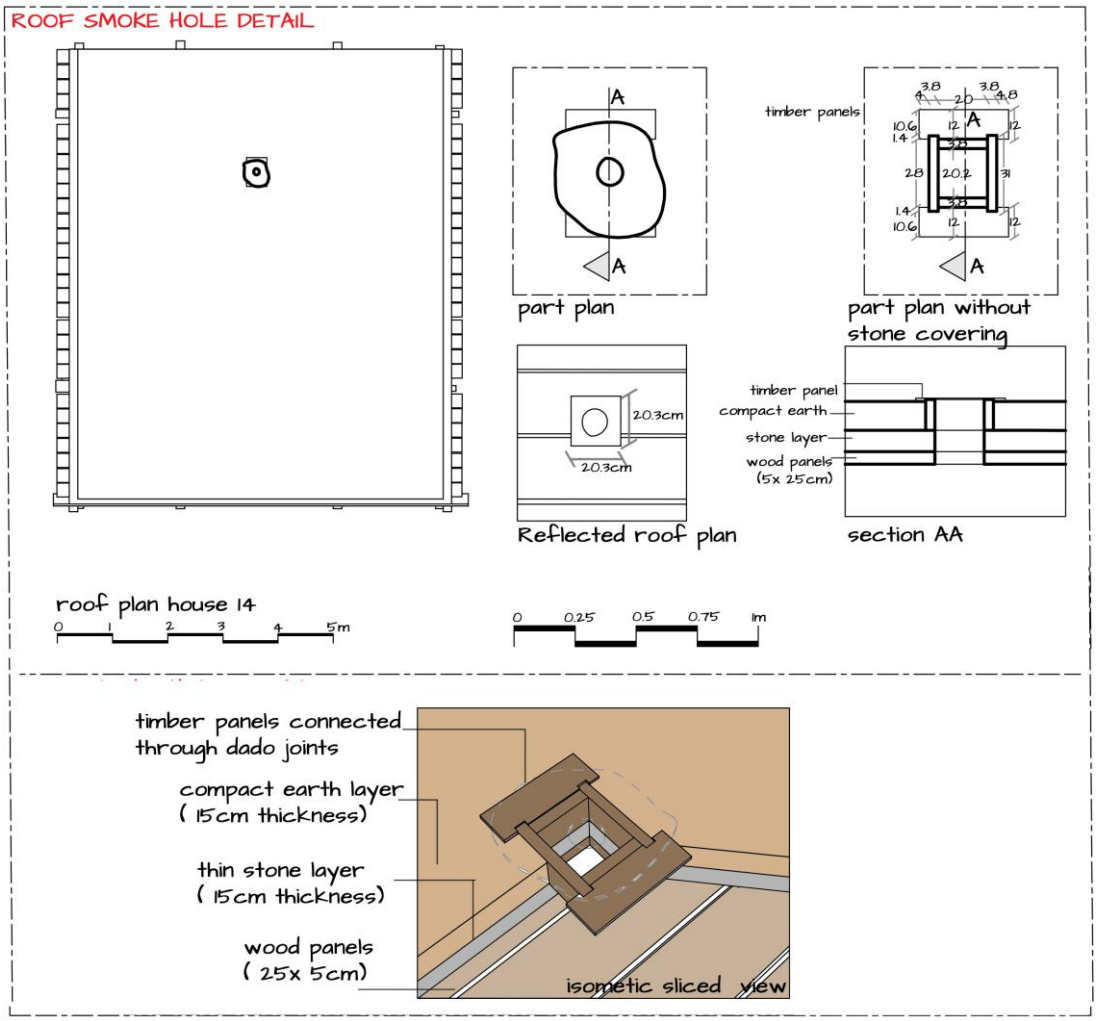


Figure 3.43. Roof Plan, part plan, reflected roof plan and section of roof smoke hole as observed in House no. 14

Figure 3.44. Roof smoke hole in House no. 3 (left) and House no. 14 (right)

- Fascia

It forms the outer surface of the roof structure and visible to the observer (see Fig. 3.45). To attach the fascia, it is connected to two logs (11x11cm) placed on the roof structure and the roof timber beams below via dado joint through the notches on the fascia.

Figure 3.45. Fascia in House no. 11 (left) and House no. 13 (right)

- Chimney

Chimneys are not common as hearth are used for cooking, so only one traditional house had a fireplace with a chimney which according to the residents was later addition. The chimney was not properly constructed but rather the void from the

fireplace was extruded 12cm from the ground and then covered by a thin stone slab and a tin sheet.

Figure 3.46. Chimney in House no. 12

3.7. Horizontal and Vertical Connections

There are multiple transition details from one floor to another in terms of horizontal and vertical load distribution. The bottom wall plates have a cross section of 30 x 11cm while the wall timber beams range from 10-12cm. As mentioned before, there are no intermediate elements for the connection among the timber elements of the structure as different timber joinery methods are used.

The timber beams are always placed as two in the walls and span at a length of 2-5m for a single housing unit. In case of two housing units the timber beams can span to 7-12m with two beams connected by lap joint if single beam cannot cover the distance. For support in the middle of the beams, timber crosspieces are also connected (see Fig. 3.20). These horizontal wall timber beams are repeated vertically after intervals, depending on the wall height or timber available. They act as bands giving extra strength to the stone masonry and keeping it intact. The cross-section dimensions of

these timber beams change between 7 and 12cm. These timber beams are allowed to stick out of the walls 15-30cm after the joinery and the surface is left untreated.

To support the floor wood panels, timber beams spanning 6-12.5m are placed at a repeated distance of 1.5-2m of the covered area. The cross-section dimensions of these timber beams change between 8 and 12cm. In one of the house (house 17), the floor timber beams had cross sections dimension 25cm.These beams extend ahead of the joinery point for about 30cm and visible.

- Detail 1: Transition from Masonry to Masonry

In the examples where the masonry wall system continued for at least two floors, the main construction system does not change but the wall thickness from ground floor to the first floor decreases from 45cm to 30cm. The ledger supporting the beams of the ground floor supports the bottom wall plate of first floor (see Fig. 3.47). In case of transition from basement to ground floor the wall thickness does not change.

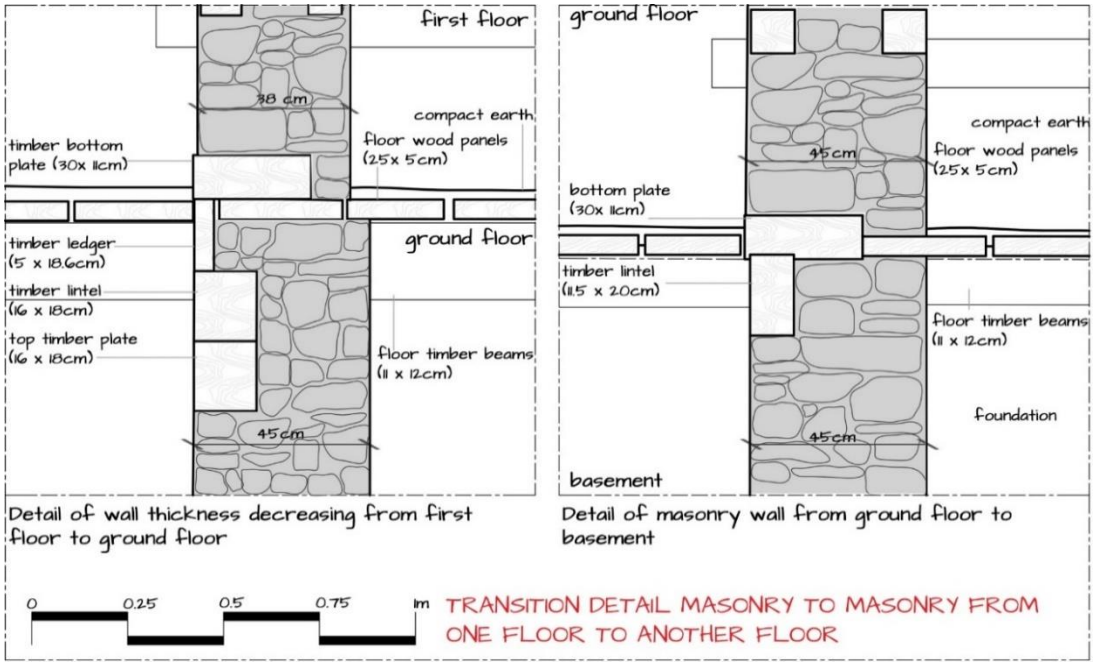


Figure 3.47. Transition from masonry to masonry

- Detail 2: Transition from Timber Post to Masonry

In houses where the basement is placed directly underneath the verandah of the ground floor, the floor beams are supported on the timber lintel and top timber plate of the basement masonry wall (see Fig. 3.48). In this case, the verandah posts are placed on the timber girder which connects all the verandah posts.

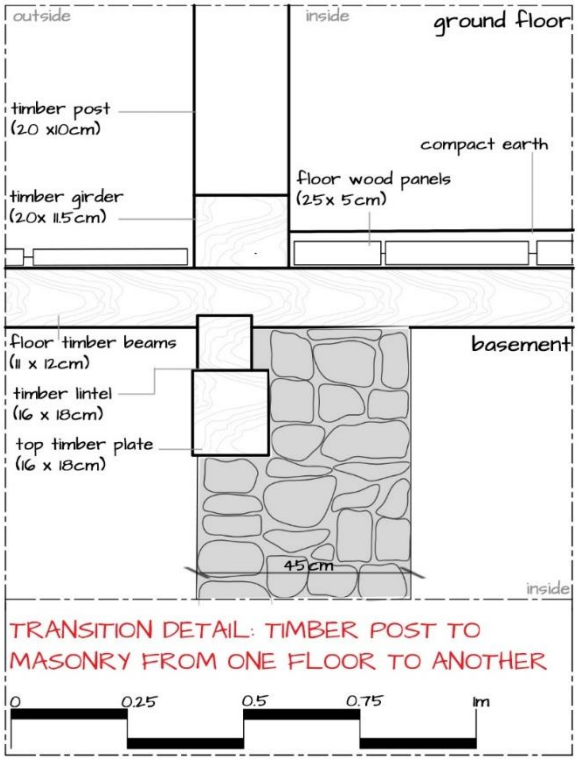


Figure 3.48. Transition from Timber Post to Masonry

- Detail 3: Transition from Timber Post to Timber Post

In some of the houses, there are two details for the transfer of load from timber post to post. For two floor building, the interior posts are placed on top of each other with a timber beam in between and load is transferred directly (see Fig. 3.49). In the other detail, the verandah timber post transitions to lower timber post. The verandah post is firstly supported by bottom plate and girder which are connected to the floor beams.

Notches (2.5cm) are present above and below the floor beam where the girder and the lower timber posts insert. The lower timber post transfers the load directly to the ground (see Fig. 3.49)

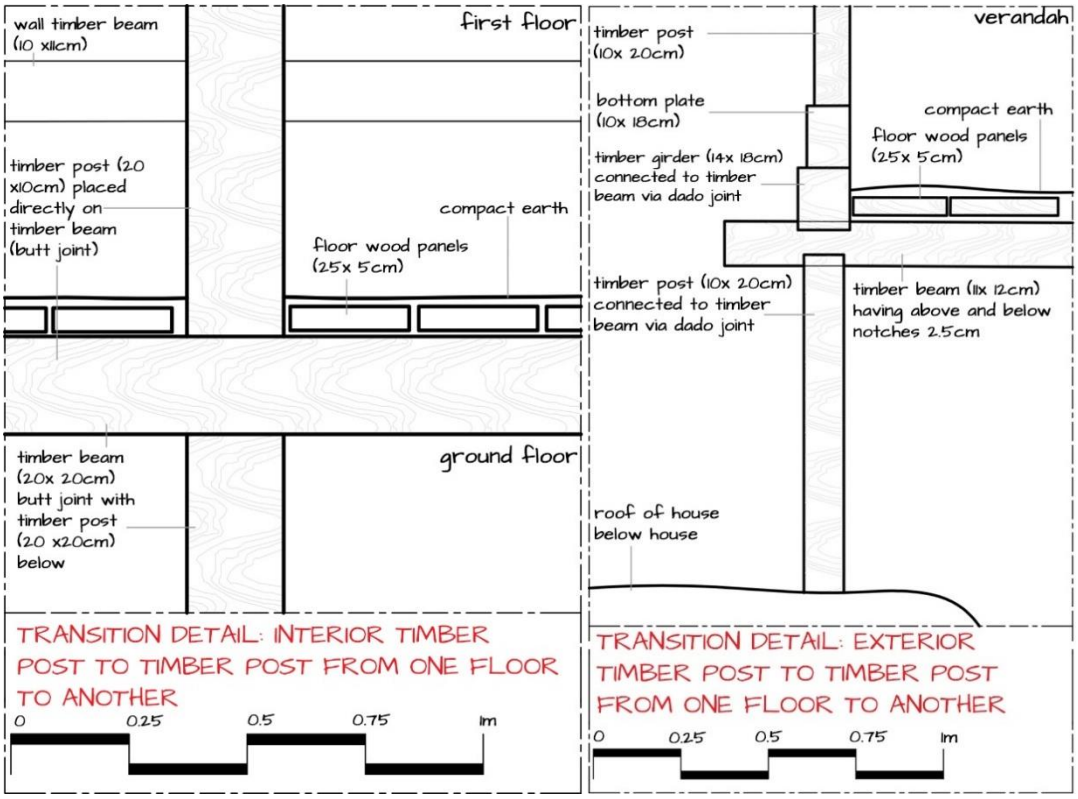


Figure 3.49. Transition from Timber Post to Timber Post

- Detail 4: Transition from Roof to Stone Masonry Walls

For the transition of load from roof to masonry wall, the detail changes depending on the type of roof structure. In the building where the roof system does not have roof joists, the ledger is thinner (5 x18.6cm) while the thickness of the lintel and top timber wall plate increases (see Fig. 3.50). In the back wall the roof load is transferred from beam to the ledger (16x 20cm), lintel (16x 18cm) and the masonry wall (see Fig. 3.51).

For the detail where roof joists are present, the size of the ledger is increased to support the wood panels placed above it (see Fig. 3.50) and for the back wall as well the dimensions of the ledger change (11x 18cm) to transfer roof load to lintel and then the masonry wall (see Fig. 3.51).

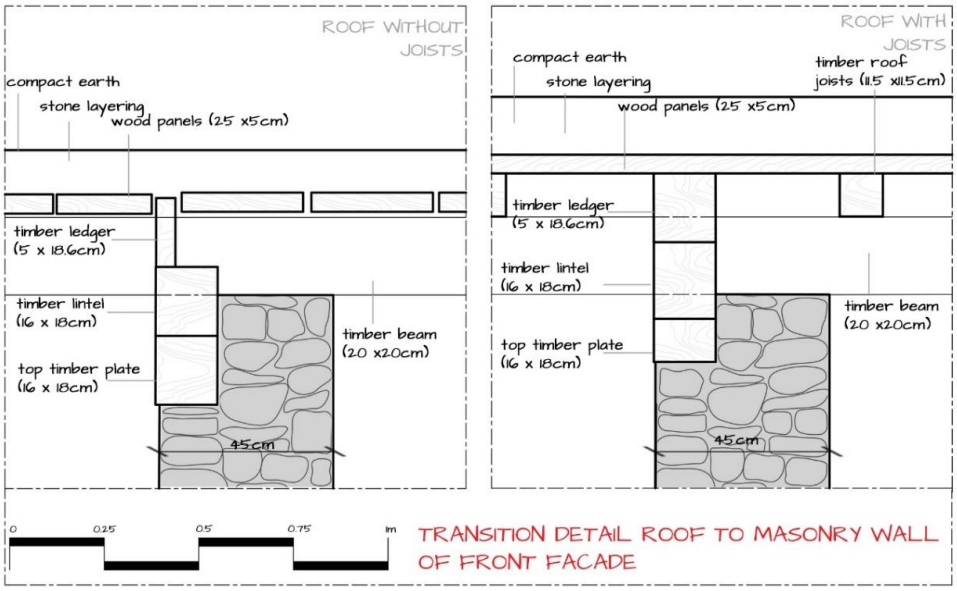


Figure 3.50. Transition from Roof to Front Stone Masonry Walls

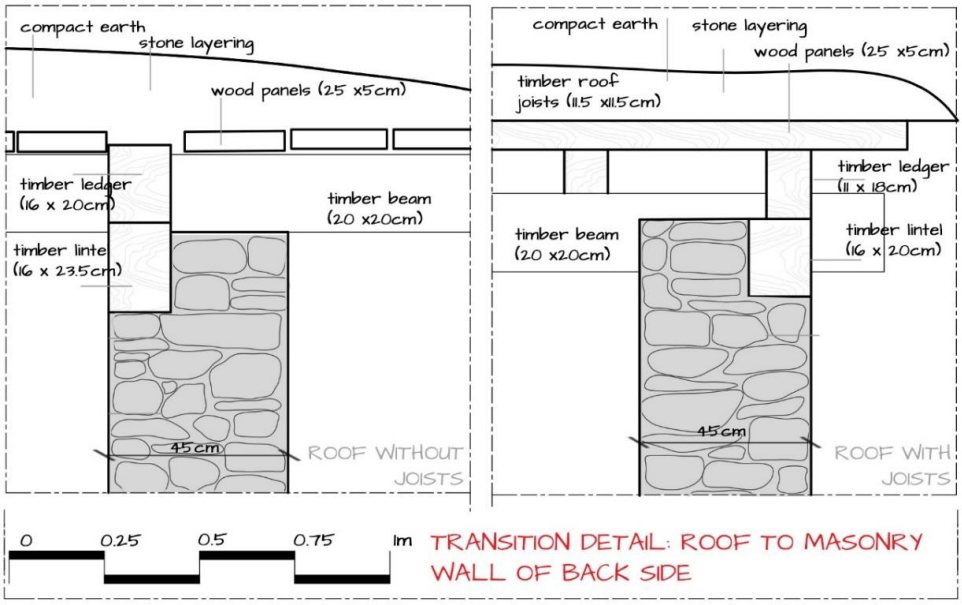


Figure 3.51. Transition from Roof to Back Stone Masonry Walls

- Detail 5: Transition from Interior Post to Foundation

For the transition of load from interior post to foundation, the interior timber post is placed via butt joint on the floor timber beam and connected to the foundation girder via dado joint with the girder having a notch 3cm deep (see Fig.).

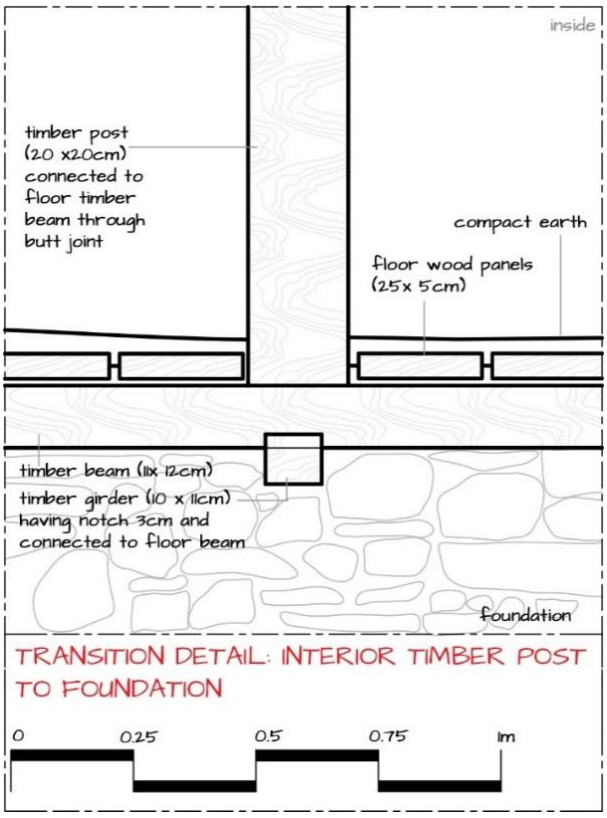


Figure 3.52. Transition from Timber Post to Foundation

3.8. Architectural Elements

3.8.1. Doors and Window

- Main Room Door and Main Room Door with Half Door

In traditional Kalash houses, the most commonly used door is the solid piece timber door with three parts division fitted in the door frame and attached to the stone masonry walls. The whole structure is shaped by an axe alone. There are no hinges

but small projections from the upper and lower edges that are made to revolve around notches in the door frames. It is the middle part of the door that opens inwards and fastened by a wooden bolt from the inside. This wooden bolt has vertical slits and to shut the door it passes through the grove cut in the timber door frame and into the socket of the moving door panel (see Fig. 3.53, 3.54). Even though, now a small chain and a hoop attached to the exterior for the door are used to lock from outside, traditionally the method to close the door from outside was different. Just above this wooden bolt a round hole was present which was cut through the timber door and acted as the key hole.

The key, as told by the villagers, was a wire with almost 2.5cm thickness and in the form of a hook. It was passed through this key hole and connected to the vertical slits of the bolt and pushed it front or back depending on closing or opening the door respectively (see Fig. 3.55). The handle of the door is also a unique feature as it is placed in the middle of the opening door panel. It a solid wood structure carved out of the solid timber door and not attached to the surface. The handle can have ornamentation which are mostly cable design. There is another element attached to the door which was visible in many of the houses. A half door of 55cm height is attached to the frame of the middle panel door and opens outward (see Fig. 3.56).

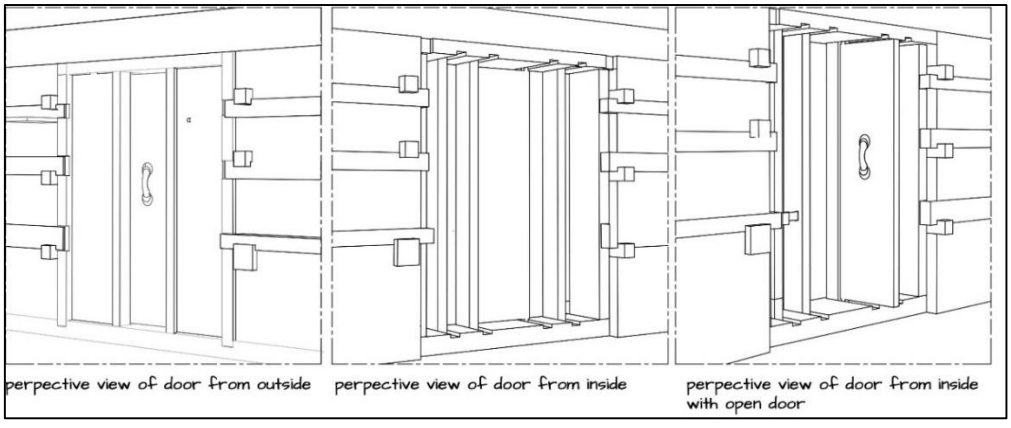


Figure 3.53. Perspective view of Door detail

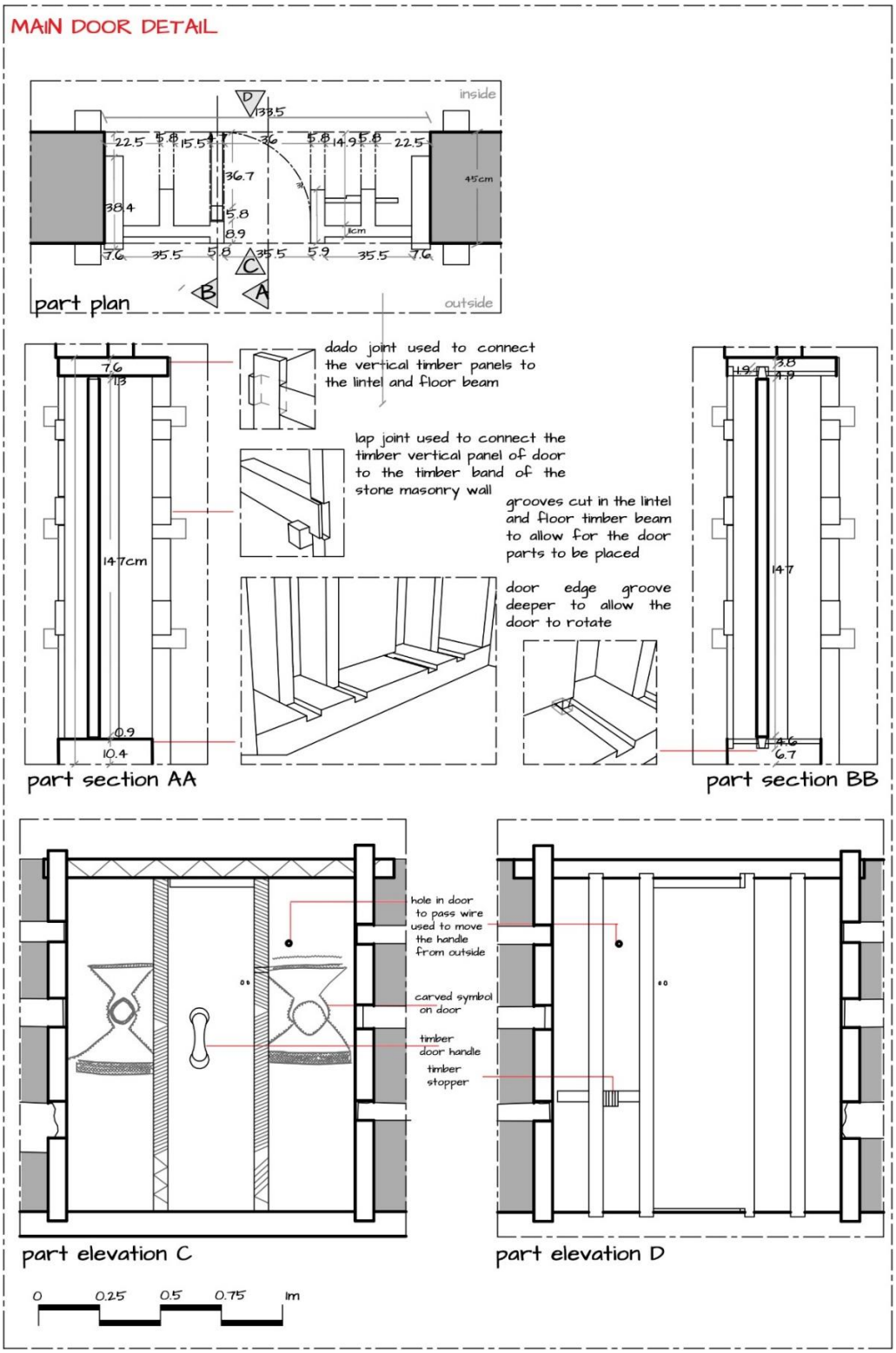


Figure 3.54. Main Room Door Details

Figure 3.55. View of door from interior and the detail of wooden bold with notches in door frame and socket in door

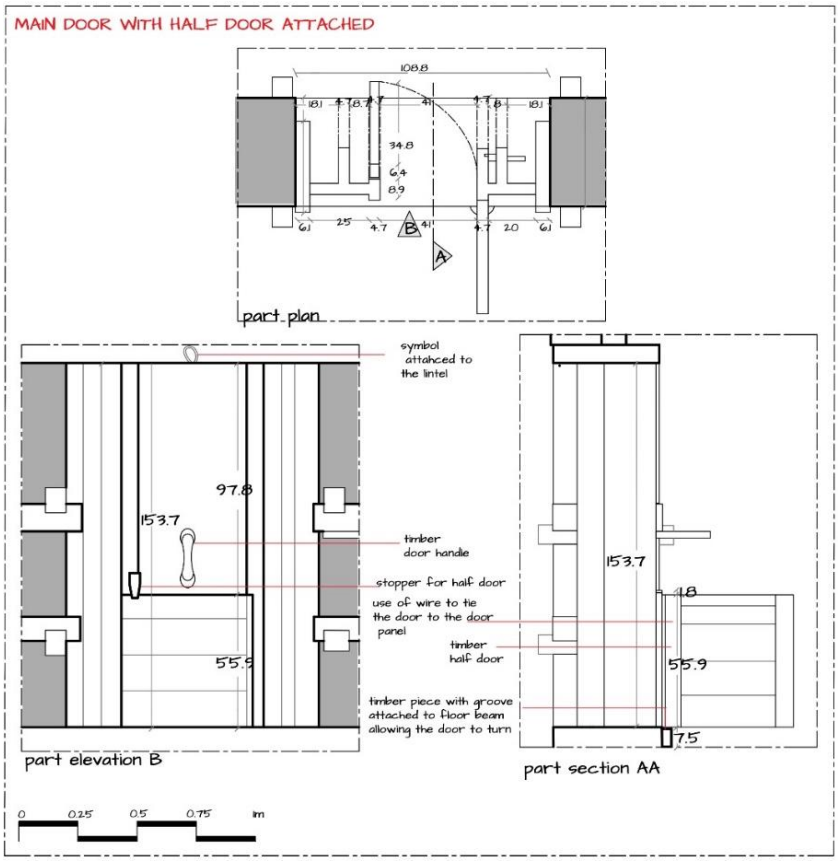


Figure 3.56. Main Room Door with Half Door Details

- Basement Door, Exterior Door and New Door

The construction system for the basement door is similar to the main room door with the door being solid wood and shaped by an axe. As the height of the floor is lower, the height of the door is reduced to 1.03m (see Fig. 3.57, 3.58).

The exterior door has two timber panels that are hinged to timber walls attached to stone masonry on one side and verandah post on the other (see Fig. 3.59). A small handle in horizontal direction is nailed to one of door panel and a chain hoop is added for locking. From the interior side an extra stopper is nailed that closes the door.

The new door are additions to houses which are narrower (90 x 160cm) and have one shutter. They are hinged to the door frame (8cm thickness) and placed at the edges of front façade (see Fig. 3.60).

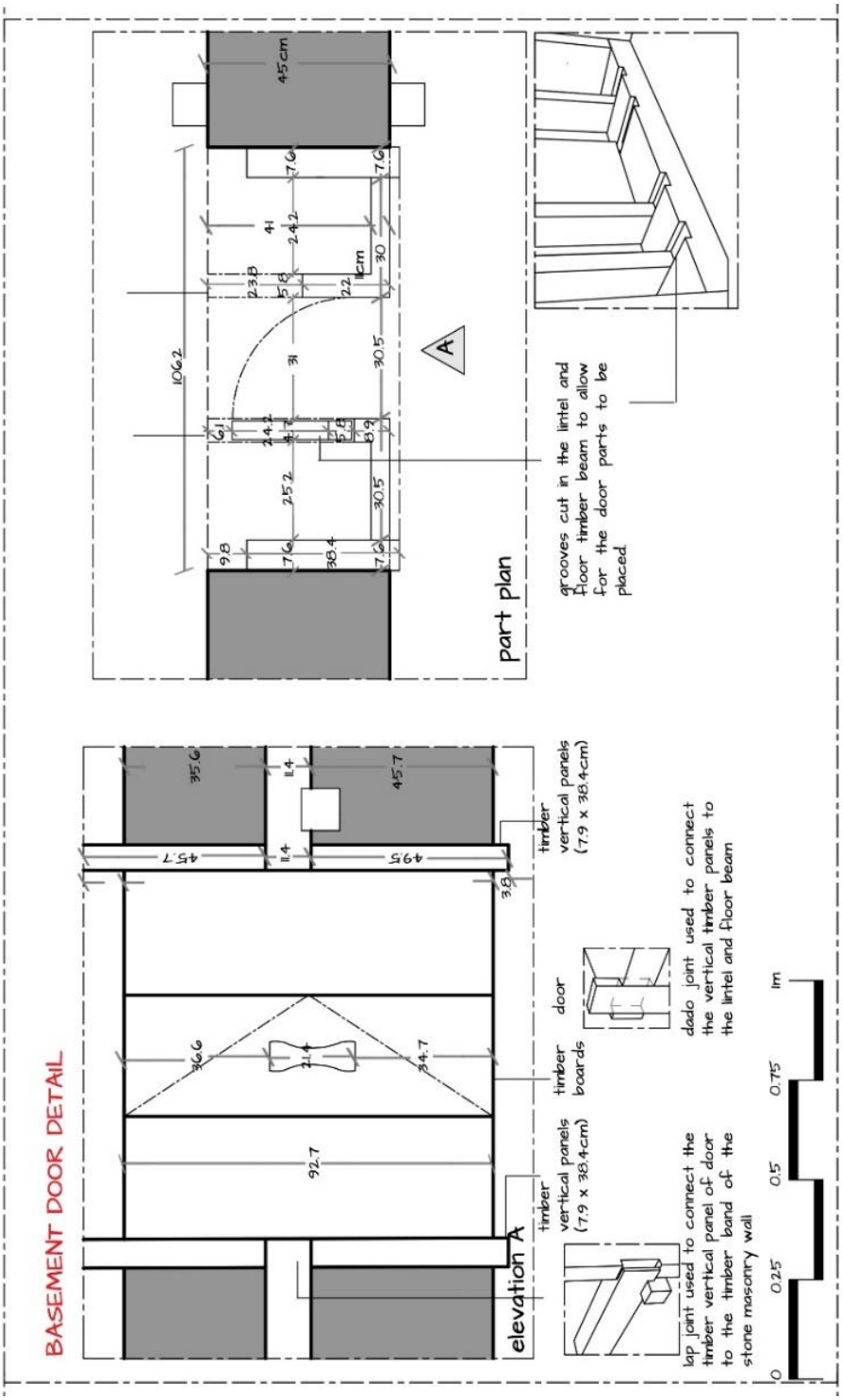


Figure 3.57. Basement Door Details

Figure 3.58. Basement door in House no. 12

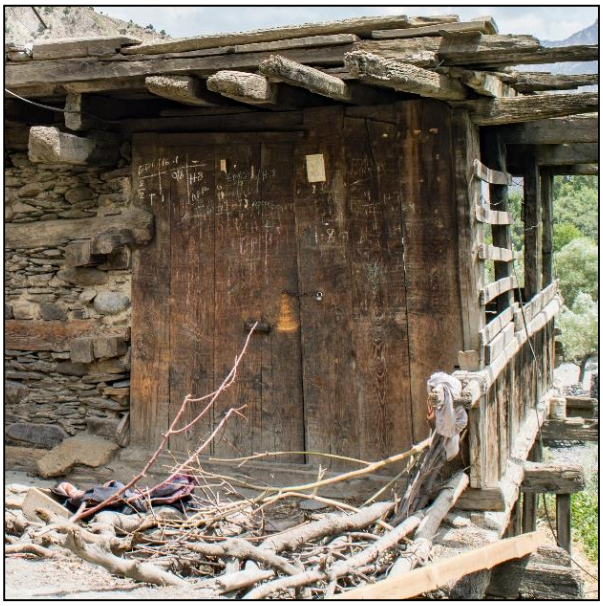


Figure 3.59. Exterior door in House 6

Figure 3.60. New door in House no.14

- Window

None of the traditional Kalash house main rooms in Guru Village have a window. Only the two store rooms of house no. 1 and house no. 2 had small windows. It is 75x 50cm is size and divided into three timber panels with two side panels inserted into the notches (4cm) of the above timber frame (see Fig 3.61). The side shutters are fixed while only the middle wooden shutter is removable and replaced depending (see Fig 3.62).

In two of the houses, where changes had been made to the façade, a new framed window is placed in the middle of the wall. The window is divided into smaller planes and had glass inserted. A window screen is also attached in front (see Fig. 3.62).

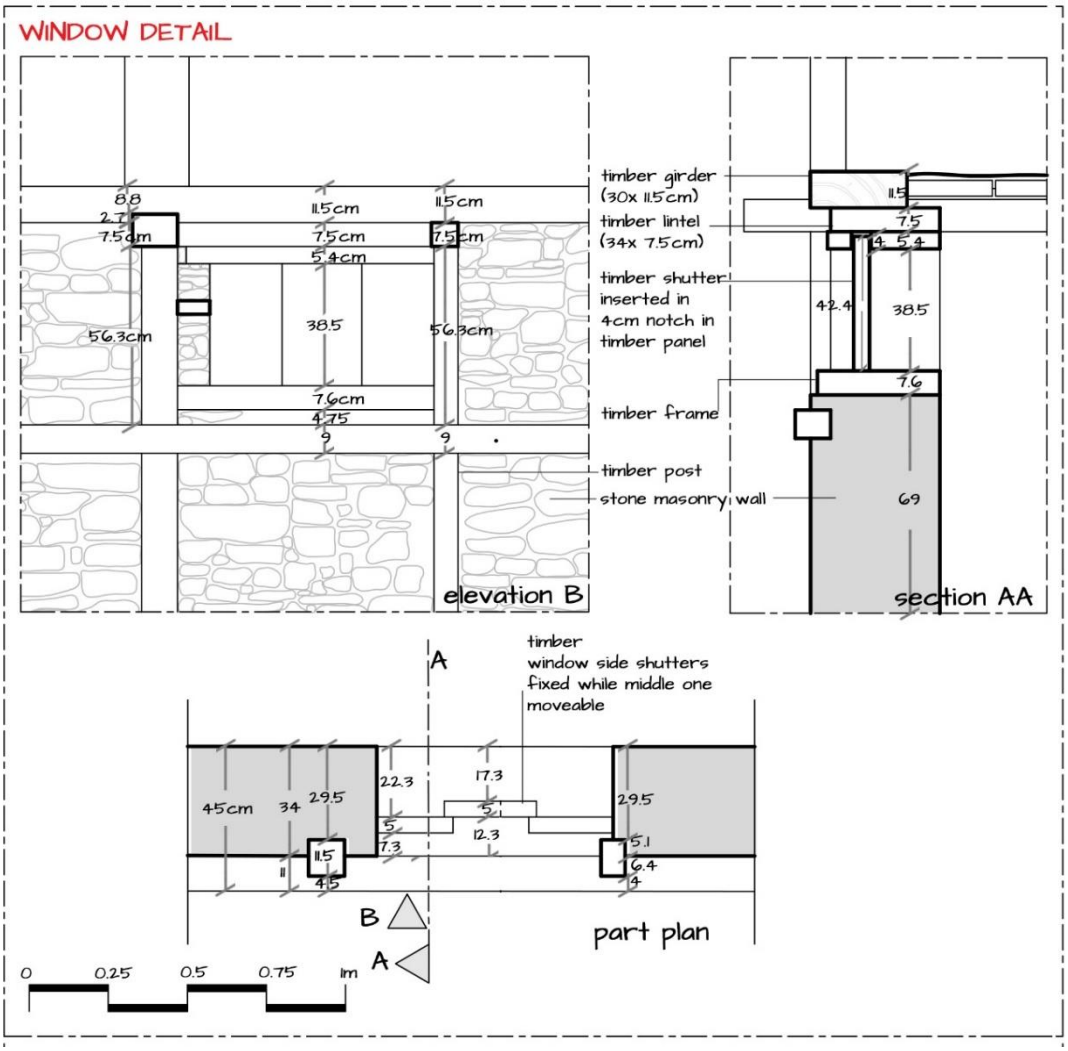


Figure 3.61. Window Construction Details

Figure 3.62. Traditional Window in Guru Village (left) and a new window in House no. 14

3.8.2. Stairs

There are four types of Stairs used in Guru Village:

- Ladder: The ladder is a timber frame with notches at intervals where wooden strips are inserted and act as steps (see Fig. 3.63).
- Linear Tree Trunk Stair: This is the most commonly used staircase connecting the floors. By using axe, triangular pieces are cut out to form steps from the linear tree trunk (see Fig. 3.64).
- Linear Tree Log Stair: It consists of a linear timber log where steps are cut out by an axe. This is mostly used by animals for taking them to basement stores (see Fig. 3.65).
- Broader Tree Trunk Stair: This is the oldest staircase type mentioned by the locals. A broad tree trunk is used and rectangular chunks as cut out to form steps (see Fig. 3.65).

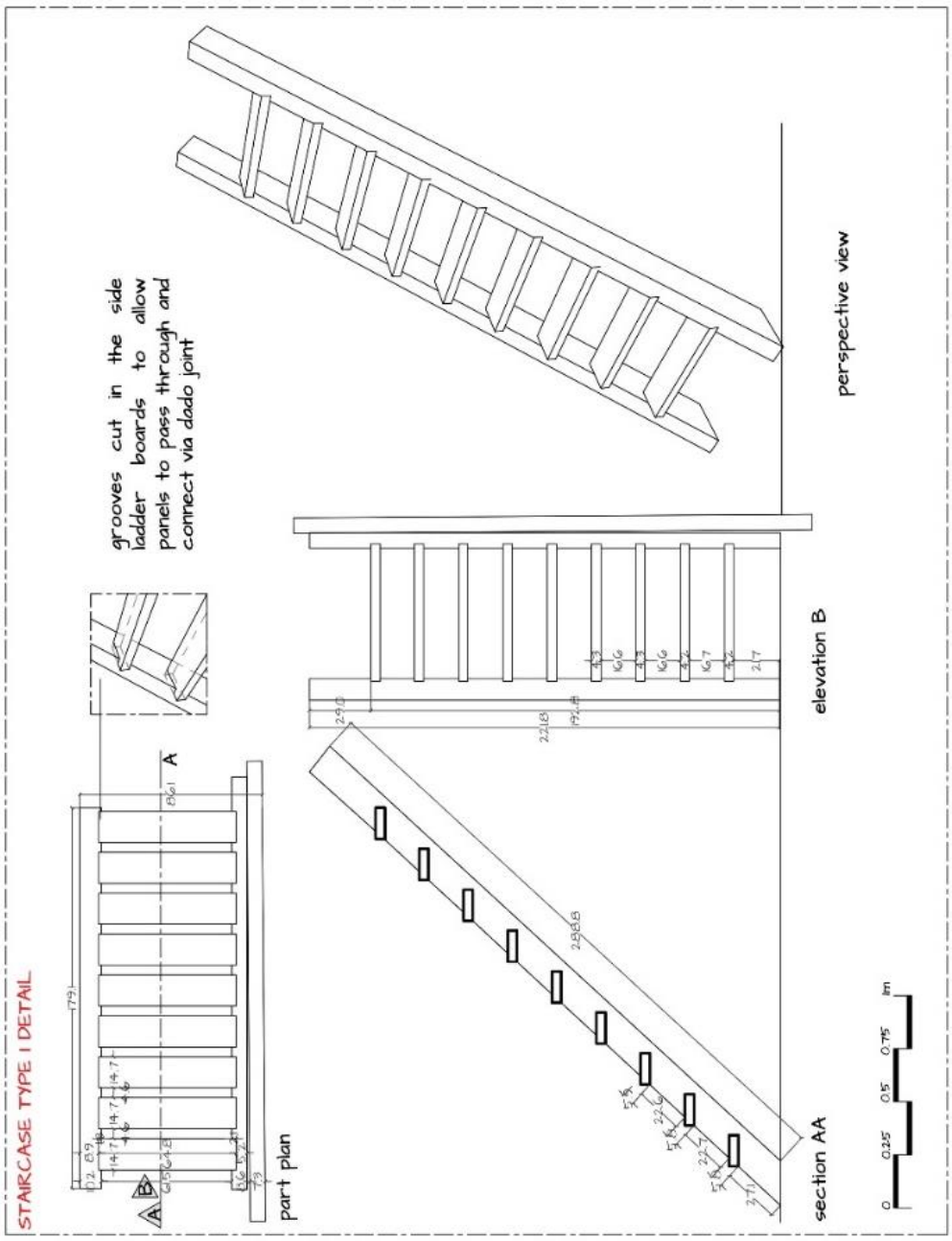


Figure 3.63. Ladder Staircase Details

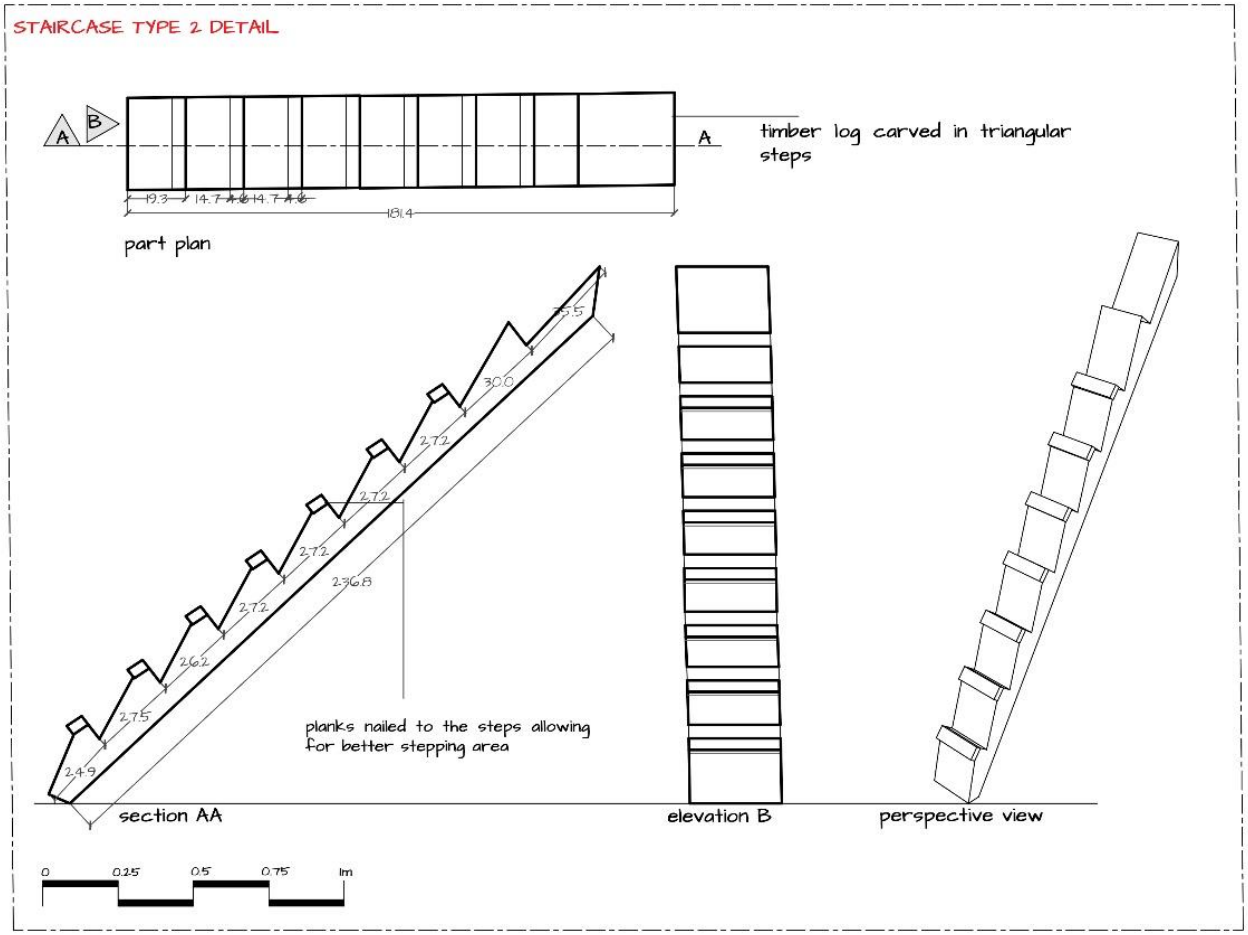


Figure 3.64. Linear Tree Trunk Stair Details

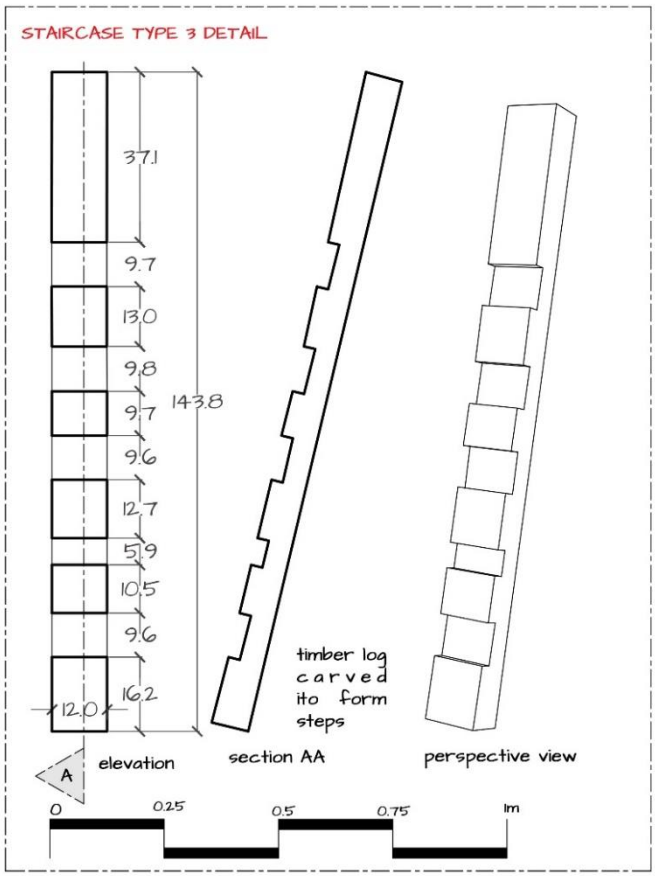


Figure 3.65. Linear Tree Log Stair Details

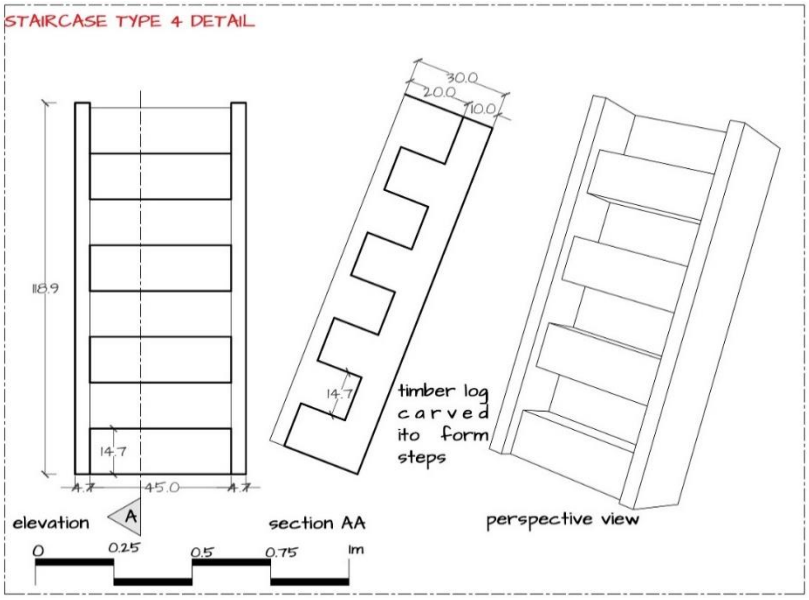


Figure 3.66. Broader Tree Trunk Stair Details

3.8.3. Railings and Balcony

In most houses, horizontal timber panel of 5cm thickness at 45cm height is attached to the verandah posts acting as a railing and used by the residents to sit (see Fig. 3.68). This seating panel is 15cm wide and has sockets to let the timber post pass through. Timber panels in vertical direction cover the space below and inserted into notches (2.5cm) present on the timber girder (see Fig. 3.68). Random timber planks nailed to the posts for safety also act as railing for the verandah wherever a proper railing cannot be constructed (see Fig. 3.67). New railing designs are also visible in the village with crisscross thin timber panels nailed to long timber supports which are attached to the verandah posts.

In two storey houses, the balconies are formed by the extension of the floor timber beams, cantilevering ahead and having wood panel covering. The beams of the roof structure also extended and allow the roof to act as shading for the whole verandah (see Fig. 3.69). Both cases of balconies with and without railing are seen.

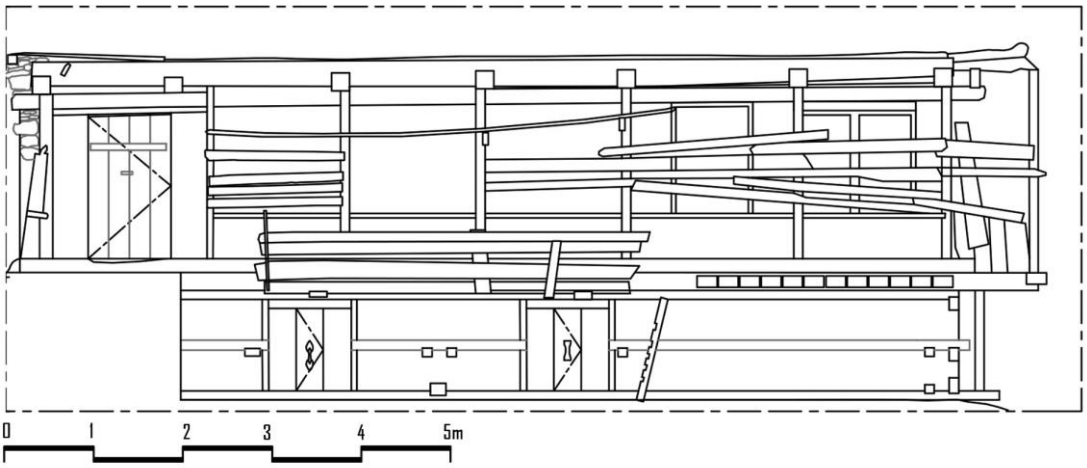


Figure 3.67. Balcony and Random Timber Plank Railing on façade of House no.12

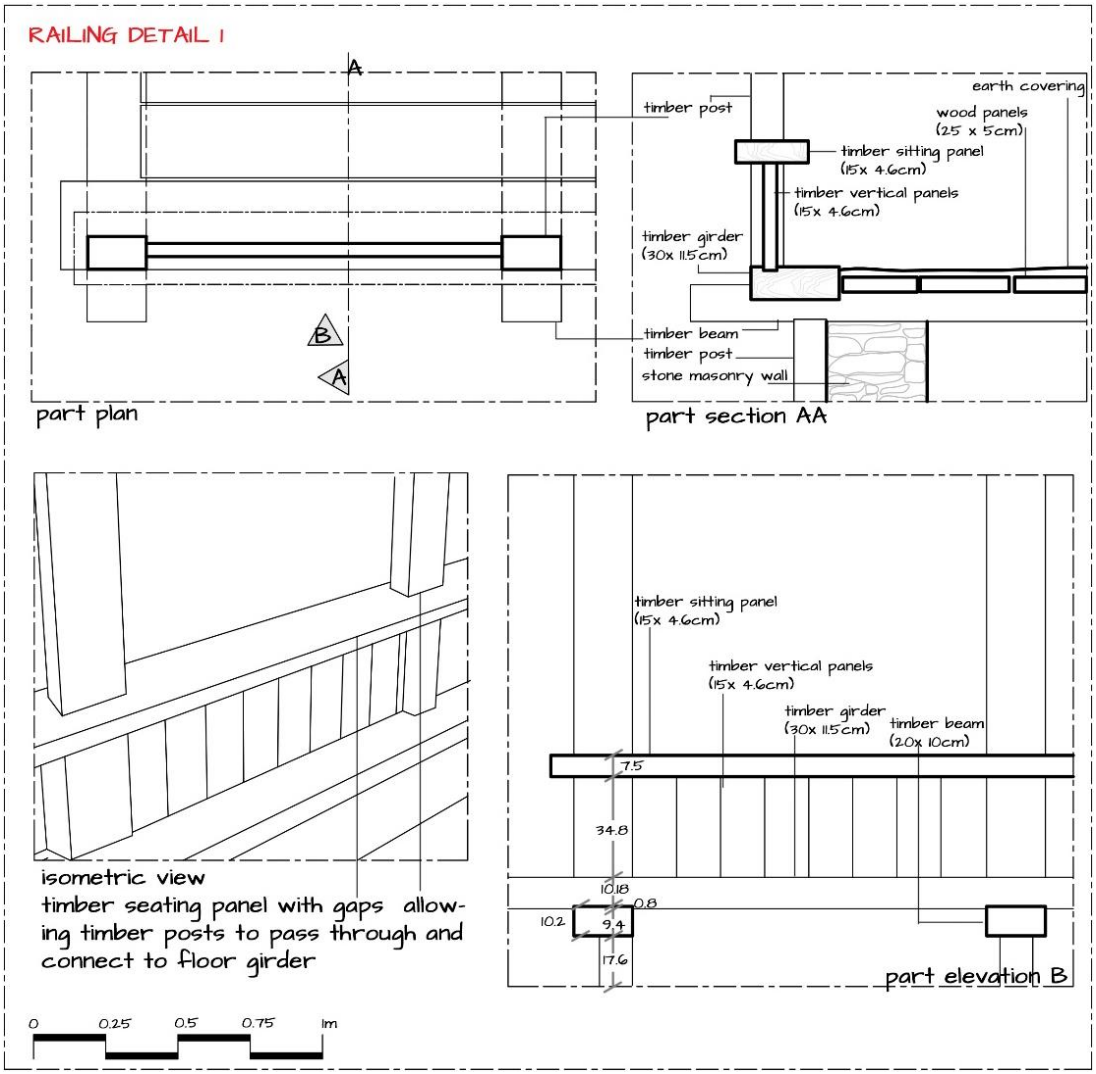


Figure 3.68. Railing Construction Details

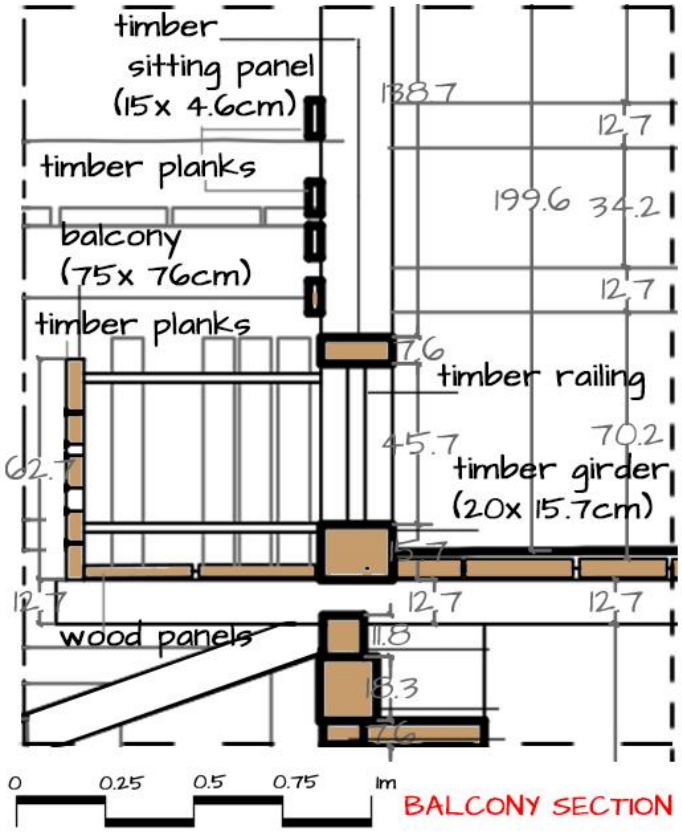


Figure 3.69. Balcony and Timber Plank Railing Construction detail

3.8.4. Shelves, Cupboards, Kitchen Hearth and Stools

In Kalash house there are multiple shelves on the façade and inside the room. For the façade shelves the most common are ones next to the door and kitchen. A small cupboard made of timber panels nailed together and then to the wall can also be seen (see Fig. 3.70, 3.71). The door side shelf is a timber piece of 22 x30cm can be place 1-1.2m high from the floor. It is usually inserted into the stone masonry (see Fig. 3.71). The kitchen shelf (20x 5cm) is located above the kitchen hearth and supported by the cross pieces in the wall (see Fig.3.70).

The common interior shelves are located in two places. The most important shelf is located on opposite wall of the main room door and either covers the whole wall or only the middle area (see Fig. 3.72). In most cases, they are present in two levels and supported by timber crosspieces and timber supports protruding out of the wall.

Another shelf is a later addition and located at the corner of the room. Timber supports are nailed to the timber bands in the wall and the timber shelf is balanced on it (see Fig. 3.73).

Nowadays to make more room for keeping the domestic stuff, instead of the interior wall shelf, cupboards are being installed which are made of timber panels in levels and divided by vertical timber posts (see Fig. 3.74). The big cupboard (72x 152cm), covering the middle of the wall, is raised 25cm and attached to the wall by nailing it into the timber beams present in the wall.

The kitchen hearth in the verandah is raised 20-30cm high and made of clay with two or three U shaped gaps for fire wood placement and acting as stoves (see Fig.3.70). The three gaps having varying size for the gaps depending on the usage. The smaller gap one ranges from 20-30cm width and can have a metal bar also fixed in the middle. This stove is mostly used for pots and kettles. The other gap is wider and can range from 40-60cm. An elevated side earth platform is used for cutting and working next to stove. The winter hearth is built inside the room as a stone lined hearth with tin layering around and directly underneath the roof.

In the verandah there are many seating elements for Kalash as they do not like sitting on the ground. Even a simple timber plank, raised by placement of stone underneath can be used for sitting. But mostly small timber stools with leather strips interlaced are used for sitting, called "*Hanak*" (see Fig. 3.75). The stools are square shaped, 40x40cm and raised about 20cm from the ground by four timber pillars. These timber pillars have sockets through which small beams of cross section 3cm pass through. The beams are them interlaced by narrow strips of leather in a crisscross pattern to create a seat.

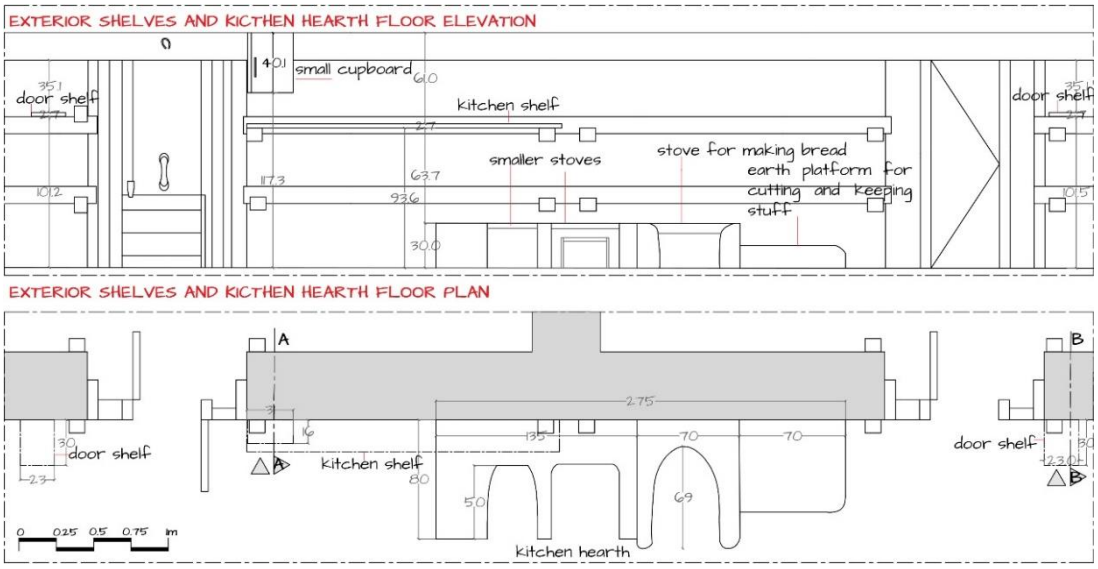


Figure 3.70. Shelf, kitchen hearth and cupboard location on the façade of House no. 1 and 2

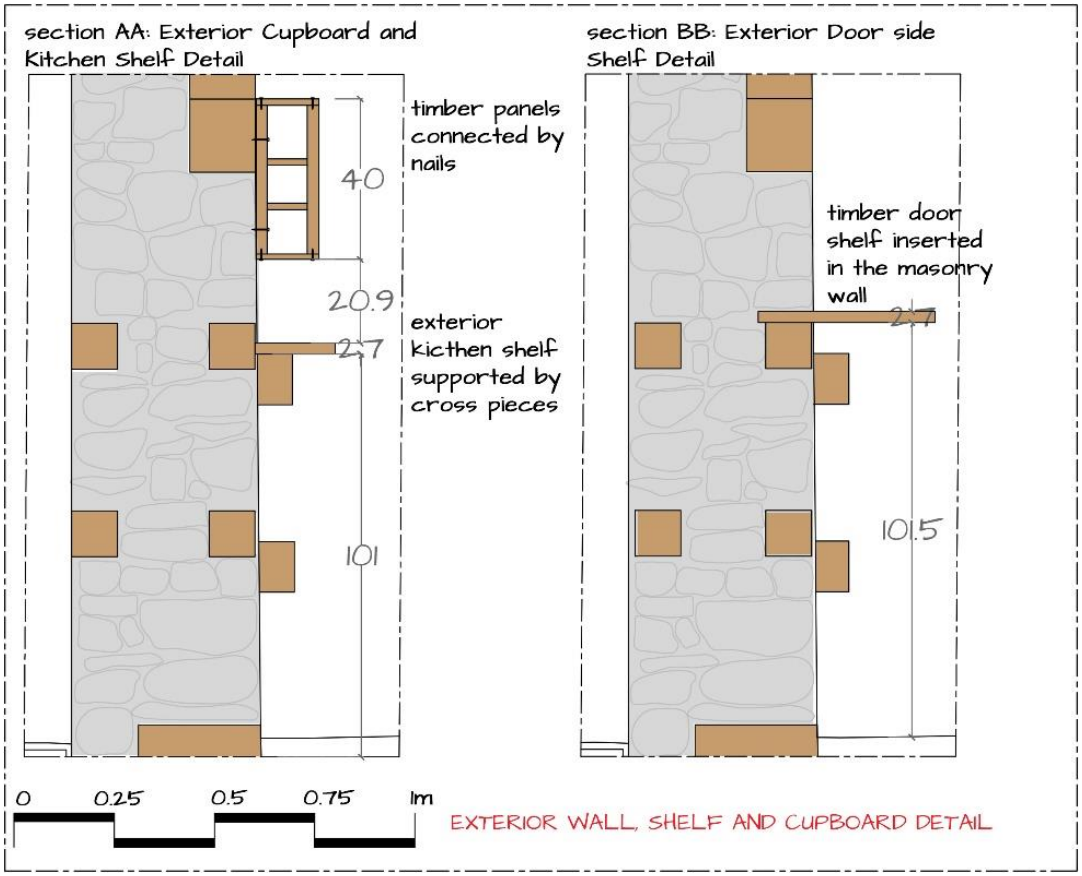


Figure 3.71. Section showing detail of shelves and cupboard of House no. 1 and 2

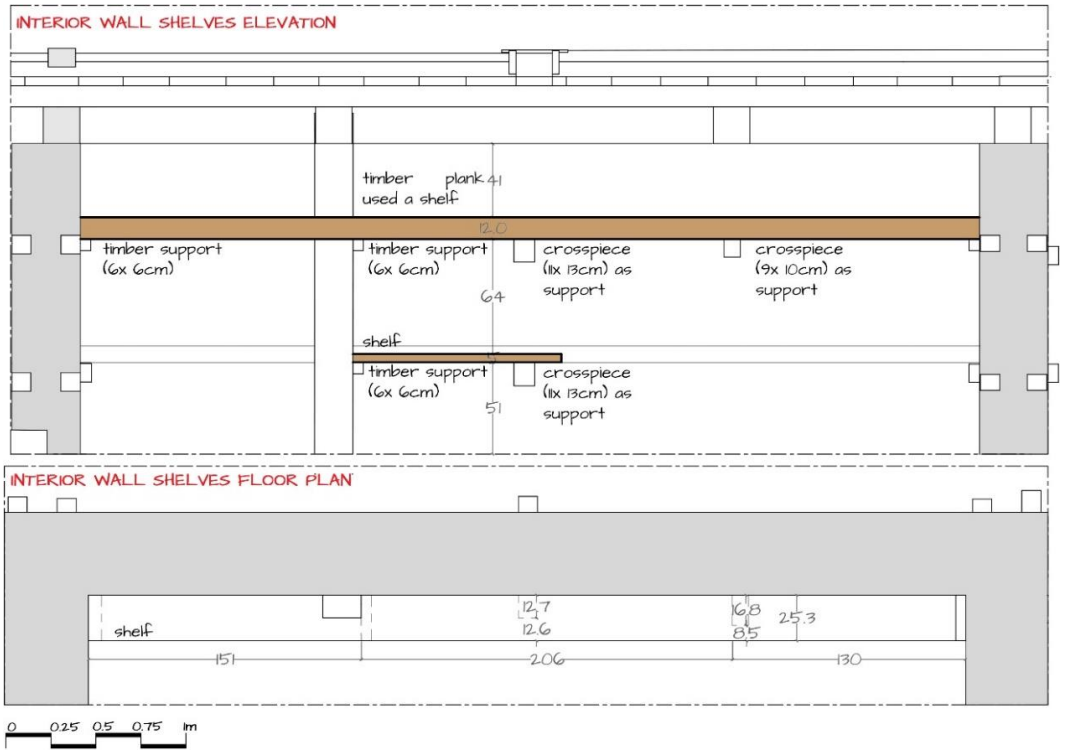


Figure 3.72. Interior Wall Shelves Details

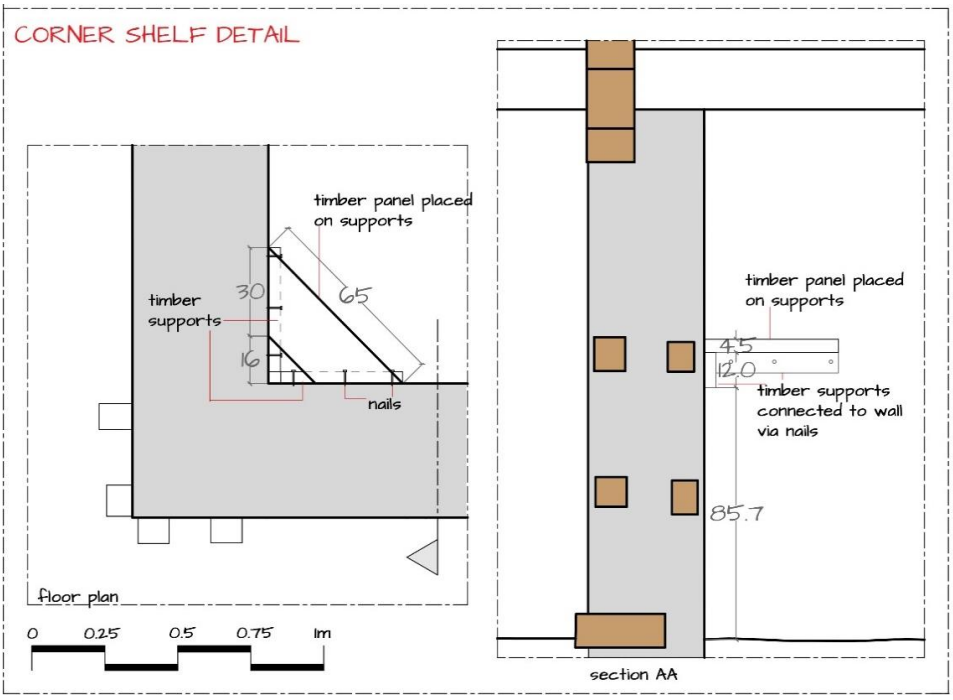


Figure 3.73. Corner Shelf Construction Details

Figure 3.74. Cupboard in House no.3

Figure 3.75. Small square stool used for sitting called "*Hanak"*

3.8.5. Pasti

The independent storage unit is usually made from cedar wood and constructed by timber joinery details. It is 1.8x1.8m in plan while the height reaches up to 2.3m. It is raised from the ground at around 30cm and can only be accessed via a door which is placed at the middle of the side wall. The construction of this door is similar to main room door with small projection, on top and bottom edge, rotating around the sockets in the above and below timber beams.

For the construction of a *Pasti*, firstly two sets of timber posts are connected by using two timber beams 8x 10cm, which pass through sockets of the posts located above the ground level of 20cm. To connect these two sets of timber posts, again two beams (23x 9cm) are used which have gaps that allow the timber posts to pass through. In this way the two set of beams are placed on top of each other in alternate direction and wood panels cover the floor space (see Fig. 3.76, 3.77). Grooves are made vertically on the timber posts and timber panels are inserted to form a timber wall and this is repeated on three sides. For the front side there are sockets present in the above and below beam where the timber vertical panels are inserted (see Fig. 3.78). Two beams (23x 9cm) in the same direction as the below ones, connect the posts again via the gap present in them. Wood panels cover the ceiling and compact earth with shrubs and stones covers this layer to save it from rain water. A shelf is inserted in the middle of the *Pasti* via groove (4cm) carved out on the wall timber panels. The beams above and below extend ahead of the structure (see Fig. 3.79). A wooden door handle is carved in the door panel and now a steel chain and lock is nailed to it.

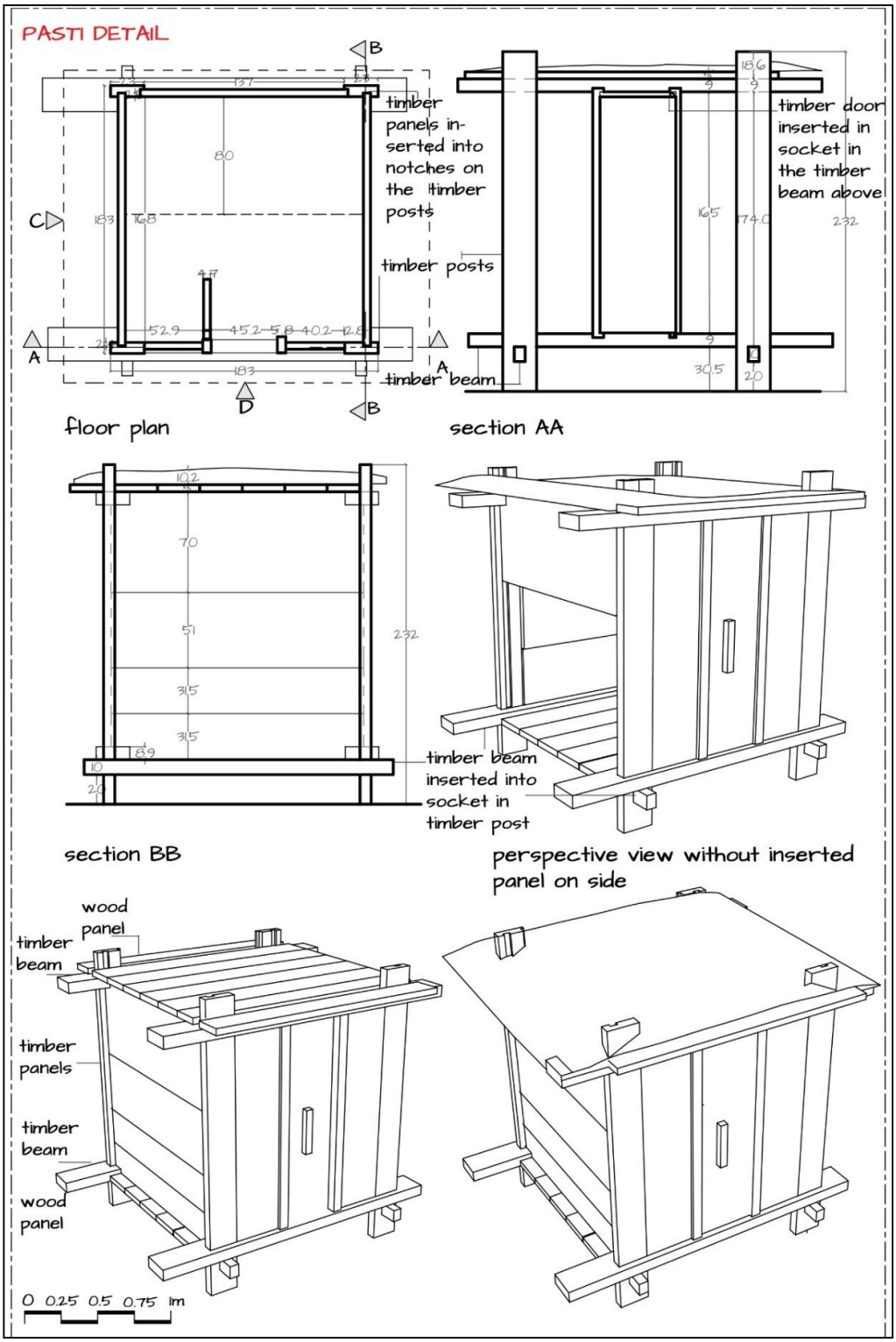


Figure 3.76. Construction Details for *Pasti*

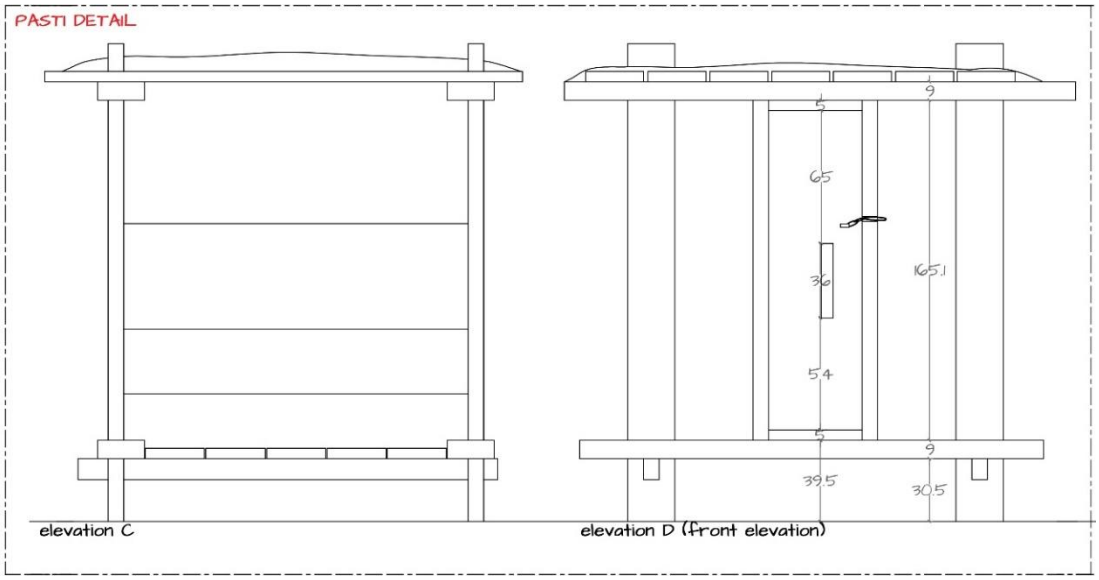


Figure 3.77. Front and side elevation for *Pasti*

Figure 3.78. Pasti in Guru Village

Figure 3.79. Pasti in Guru Village

CHAPTER 4

EVALUATIONS

4.1. Evaluating Architectural Features of Traditional Kalash House

The Kalash house is a unique example of architecture and construction used together as an expression of values, principles and belief of the Kalash people. The functions and spatial configuration of the house remain an expression of the local culture and lifestyle. The combination of spatial, formal, and constructive solutions made available through the ages (e.g., locally available materials, native craft men, and construction methods) influence the overall design of the house, connecting it to the site with a real social purpose. It can be concluded that the house keeps the people close to their environment, responds effectively to societal needs and acts as a representational architecture, enhancing regional symbolism through experiential and visual perception.

Considering the harsh winters, the Kalash houses have a minimum surface to volume ratio which improves the heat gain inside the rooms during daytime and minimizes the heat loss during nighttime. The houses, in addition, are compact and correspondingly without windows reducing heat loss from inside the house in winter. The amount of sunlight, cold, and wind accessing the rooms is controlled using wooden doors for the entrances. Furthermore, the roof of the house is extended to act as an overhang to protect the walls of the house from rainfall.

The terraced pattern of the settlement allows for the pathways to take form according to the terrain, developing a natural pattern with the surrounding vegetation. This adaptability of the pathways with the topographical constraints and physical conditions of the site makes for an experiential encounter with the village and the houses. Kalash settlement in Guru Village provides efficient solutions to the climatic

and topographic constraints of the region, also providing an economic advantage as they are constructed by using local materials.

Depending on the area available on the slope of the cliff, the houses are either single storey or two storey with a low ceiling basement. There is an also example of a three storey building unit, consisting of two houses on ground and first floor each and a basement underneath.

The verandah is a common and characteristic form of Kalash rural architecture, providing full view of the valley. This serves as a buffer zones both for climatic reasons and also to support privacy. These verandahs serve as a collector of cool air at night and a source of shade in the daytime.

Even though the same plan model is followed, the topography still plays a vital role in the configuration of the scale and size of the house taking into account the climatic conditions and availability of materials. As mentioned before, *Bashalani*, graveyard and laundry spaces are considered impure while the houses and festival areas are all regarded as pure spaces. Washroom are also considered impure and not attached to the housing units. Community washrooms, built at a distance from the houses, are shared by the villagers

4.2. Evaluating the Construction Process and Techniques of Traditional Kalash House

The evaluation of the information provided in the previous chapters is related to the interviews done with the builders to document and understand the construction process of a Traditional Kalash House. The construction process follows multiple phases as shown below:

- Assembly on Site

A Kalash who wants to build a house must first get permission from the village elders. As there is a steep topography in Guru Village, the area is then leveled by using compact earth and in case of a stepped down house in front, the back is filled with earth to reach the above level (see Fig. 4.1, Phase 1).

- Provision and Transport of Material

A stone type called *"Bat"* and timber called *"Shula"* are used as the main construction materials which are both locally available. Stones are cut from the mountains by the use of hammers and the rubble stones found in these areas are also used. The valley has many forests surrounding them, making timber cheap and accessible. Timber material used for the construction process in the Kalash valley comes from *Juniper, Deodar Cedar, Picea smithiana* and *Chilgoza Pine* (Hadi & Ibrar, 2014, pp. 1406-1407). Juniper being more durable is used commonly in the construction of beams, posts and door handles. *Deodar Cedar* is expensive and used for carving sculptures, effigies and making furniture. *Picea smithiana* and *Chilgoza Pine*, if available are also used during the building of houses.

The locally available material like stone and wood, belonging to the same climatic zone, fit perfectly into the local environment. The cost of building is also reduced as the energy involved in material processing and transportation is lowered. The use of wood material, in addition, improves the inside comfort conditions.

The main advantage of using wood for construction is that it is hard, resistant to moisture and has poor thermal conductivity. The use of the timber frame structure also provides a lighter construction, ensuring better seismic response during earthquake. The filling stone masonry walls on the upper and lower floors of the houses serve as great insulators and at the same time absorb and store heat and coolness.

Since the village is located on a steep mountainous area, the stones are carried in bags on a donkey's back. However, the huge roof beams have to be carried to site by hand. Under the supervision of a master builder, labor is provided by the family building the house or workers are hired but a carpenter will be hired for the woodwork. The Kalash carpenters are very skilled and have many of the typical tools like axes, hammers and spades at their disposal.

- Foundation

For measuring and leveling techniques strings are used. The typical single room house is measured around 5.5m by 5.5m or 5.5m by 6.1m. Starting with the foundation, a layer of stones is created to act as a base and then the timber beams and girders are placed at a horizontal distance perpendicularly connected via halving joints (see Fig. 4.1, Phase 2). With reference to the height of the stone terrace, the stone masonry is repeated multiple times with the beams and girders recurring at varying height distance but less than 90cm (see Fig. 4.1, Phase 3). The beam length determines how many girders will be placed. The dry stone masonry for the foundation consists of rounded stones obtained from river beds and slopes. Compact earths fill the gap behind the house and cliff.

- Floor Connections

The floor beams are placed above the foundation and connected to the girders via half joints. Bottom wall plates are placed from where the masonry walls start. The floor beams extend ahead and connect to the floor posts which will support the verandah above (see Fig. 4.1, Phase 4). In case of a basement, instead of the floor posts, masonry walls surround the space to act as storage with a door in the middle of the front facing wall. For building the flooring, wood panels are placed perpendicular to the floor beams and two beams on the sides press them down (see Fig. 4.1, Phase 5).

- Masonry Walls

Stone masonry walls form the major structure of the houses. The walls are 45cm thick with two timber beams placed on same level and spaced at 20cm from each other. With the walls raised together till 45-50cm, the first beam set are placed above the bottom plate of the wall (see Fig. 4.1, Phase 6). The stones used are locally available from the river. Mud mortar acts as the binding material. If required, traditional timber windows with three shutters are also inserted in the middle of the façade wall, between the timber bands (see Fig. 4.1, Phase 7). Timber cross pieces are placed above or below the two timber beams in the middle of the wall.

Depending on the number of timber bands in the stone masonry wall, three types of masonry walls are used in the construction of the house. One timber band masonry is only used in the basement of the houses. Either of the other two types can be used for the construction of the ground floor of the house depending on which material is available more. In the case of two timber band masonry wall the distance between the timber beams is increased and more stone masonry is used. For the three timber band masonry wall, the distance between the timber bands decreased and less stone masonry is used. Only in one case, stone masonry wall with both horizontal and vertical timber elements is observed. The wall is used in the construction of the basement located on the lowest level of the cliff and settlement.

For the connection of the timber beams at the corners of the stone masonry walls, bridle joint is used. Timber cross pieces are placed in the middle of the timber beam and used to hold the timber beams and stone masonry wall together. They are connected to the timber beam by dado joints. In houses where two rooms are present the timber beams in the interior wall are connected to the exterior wall's timber bands via a dado joint. The interior walls and the façade wall are usually covered with mud plaster and now lime plaster depending on availability.

- Timber Posts, Timber Walls and Architectural Elements

After the construction of masonry walls, the interior and verandah timber posts are placed (see Fig. 4.1, Phase 8). The interior of the room has four timber posts dividing a square or rectangular room into three aisles. Timber beams are connected to these posts by two details; butt joint or dado joint, transferring the load of the roof structure to the timber beams of the floor and then to the foundation. The verandah posts are placed on the timber girder that connects all the floor beams.

To divide the interior space of the room, a 35cm high timber wall is placed between the posts from two sides or three sides, creating a middle square space into a sitting area. Exterior timber walls are only used in the verandah as partitions with vertical timber panels nailed to the floor and roof beam. The exterior door consisting of two timber shutter is connected to them. Earth is filled in the gap between the back masonry wall and the slope. The room flooring is then covered by a thin layer of compact earth.

The facades of the houses facing the valley are mostly furnished with verandahs. These verandahs are formed by the extension of the floor timber beams which are further supported by wooden columns connected to the ground or the foundation. The beams of the roof structure also extend to the front and connect to the verandah timber posts, allowing the roof to act as a shading for these projections. There are four joint details used to integrate the verandah and timber beam; butt joint, dado joint, placement of capital on post and then connecting to beam or a timber girder connecting the posts. The stone masonry walls, interior timber posts and verandah timber posts are all vertical load-bearing element of the Kalash house

A basement, if needed, is placed underneath the verandah structure and consists of stone masonry walls with timber band and cross pieces. Since its use is a cellar or a stable, no extra element is used to cover the floor and the foundation and thus the earth surface is left as it is. For the ground floor, as the structure is outlined by floor timber

beams, wood panels are used to cover the floor surface and a thin layer of earth is also placed on top to provide an even finish.

The architectural elements like railing, shelves and cupboards are also constructed during this phase as the seating panel of the railing is inserted in the verandah posts (see Fig. 4.1, Phase 8).

Doors: The door opening is found in the middle of the ground floor and has three panels with one shutter opening. The traditional main door is a solid piece of wood and shaped by an axe alone. There are no hinges but small projections from the upper and lower edges are made to revolve in sockets in the door frames. The doors are fastened by a wooden bolt. In some cases, a small door opening in the opposite direction is also attached to it. The basement door is also constructed in a similar method but is shorter in height. The exterior door of the verandah consists of two timber panels that are hinged to the partition timber walls.

Windows: Traditional Kalash houses either have no windows or they have very small one which is closed by a wooden shutter. Nowadays new windows are installed which have wooden frames and glass panels installed and a wire screen covering them.

Bee Hive Niche: For the collection of honey, on the exterior surface of a side wall, a small void is created in the middle and covered with a timber plank. The bees are kept inside this niche.

Ornamentation and Decoration: Symbols, made out of wood, are hung on the doors. Traditionally, cable design is carved on the door handles and sun disc design is carved on door shutters.

Balcony: In some of the houses, balconies project ahead of the verandah because of the extension of the floor timber beams and wood panel flooring. These are used as extra spaces for keeping animal fodder.

Shelves and Cupboards: There are two exterior shelves that are common. One is next to the main door side and was traditionally used for keeping wooden effigies. The other is a horizontal shelf next to kitchen hearth.

Interior shelves are also of two types. One is located on the wall opposite the door opening. It either covers the whole wall in two levels or only the middle portion. Corner shelves are also constructed at the edge of the interior of the room.

Cupboards are not a traditional feature and now being constructed by using timber planks nailed together. Big cupboards are constructed on the wall opposite the door opening where traditionally shelves were placed. Niches are not common and only present behind the void of the door side panel.

Staircases: Staircases are made of timber and divided into four types according to construction technique. Broader tree trunk stair is the oldest and not carved nowadays. Linear tree log stair is used mostly by the villagers while linear tree log stair is used more to facilitate animals as they go down to the basement floor. Ladders are recent construction in the area and they are getting more common.

Railing: Railing are used in the verandah. In most cases, a horizontal timber panel is attached in between the verandah posts, which acts as a railing and used by the residents also to sit. For the space below, either vertical timber paneling is done or random timber planks are attached. New railing designs are getting more common in the village now.

Kitchen Hearth: The kitchen hearth used in summers is located in the verandah and made of stone layering with mud mortar and then fully covered by layer of mud. During winters, the interior kitchen hearth, made of dry stone stacking, covered on sides by tin or wood panels and connected to a pipe is used. The pipe passes the smoke from the room through the roof hole.

- Roofing

Roof beams are connected above the stone masonry and timber posts (see Fig. 4.1, Phase 9). For the construction of the flat roof, above the beams, joists are connected in the perpendicular direction and then covered by wood panels. The door is also inserted in between the bottom wall plate and lintel, in the middle of façade wall (see Fig. 4.1, Phase 10). Flat roofs without joists can also be constructed. The construction of the roof is very detailed with timber beams fitted by notch and pass system. For the setting of smoke hole, a square gap is cut out of the wooden panels (see Fig. 4.1, Phase 11). A layer of flat stones covers the wood panels avoiding the smoke hole gap (see Fig. 4.1, Phase 12). In the final step, earth is poured on top and trampled, then mixed with dry leaves and shrubs to protect it from rain water penetration (see Fig. 4.1, Phase 13). Timber planks are inserted in the gap forming the smoke hole. The smoke hole and the door are the only ventilation sources for the room. A fascia, in the form of a single timber plank can be connected to the outer surface of the roof structure.

- Finishing

While the exterior wall surfaces are left bare showing the stone masonry surface and timber beams placed along horizontal axis, the interior walls are covered with mud. A kitchen hearth is built in the verandah, the stairs and sitting elements added later to the verandah (see Fig. 4.1, Phase 13). If a two room house is required, the room is directly attached and the interior wall and verandah are shared. Architectural decoration is added to the front of the house which included wood carvings or symbols showing the prestige and wealth of the household.

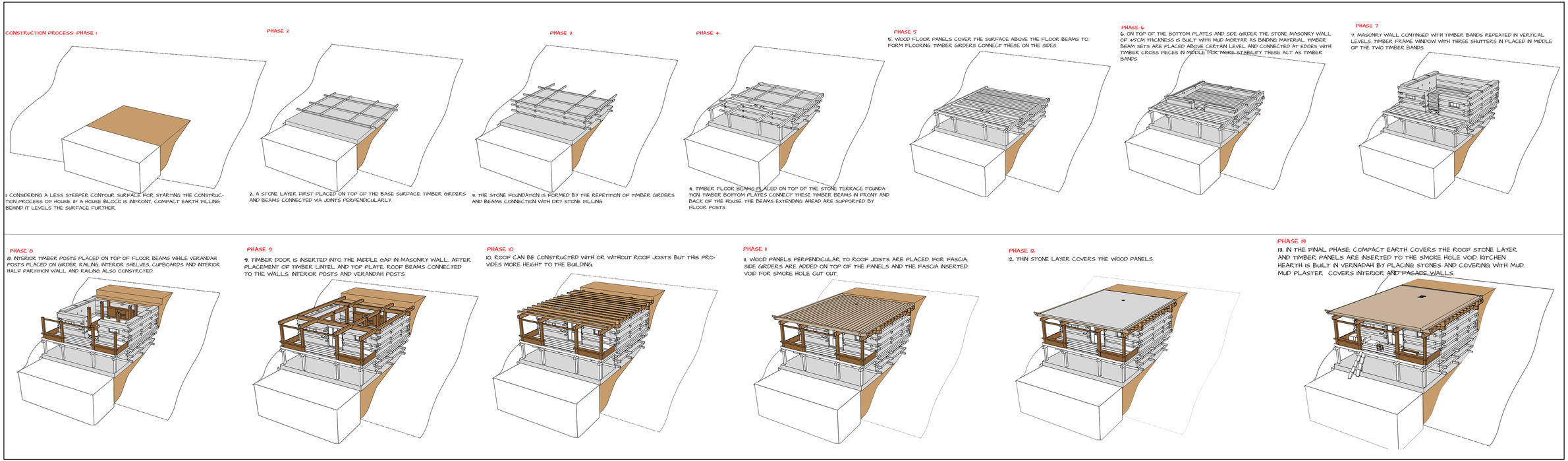


Figure 4.1. Hypothetical Construction Process of Traditional Kalash House

MIDDLE EAST TECHNICAL UNIVERSITY

Graduate Program in Conservation of Cultural Heritage

Architectural features and Construction techniques of Kalash houses in Guru village, Birir, Chitral

Prepared by: Alveena Rahim | Supervisor: Assoc. Prof. Dr. Neriman Şahin Güçhan

EVALUATION TABLE OF ARCHITECTURAL ELEMENTS AND CONSTRUCTION SYSTEMS

House Unit	FOUNDATION	BASEMENT	MASONRY WALLS				WALL ELEMENTS	TIMBER WALLS		TIMBER POSTS		ROOF		ROOF SMOKE HOLE	CHIMNEY	CEILING
	Stone Terrace Foundation with timber girders and beams	Storage Space	One timber band	Two timber band	Three timber band	Wall with hor. And vert. element	Beehive Niche	Interior Timber partition Walls	Exterior Timber partition Walls	Interior Timber Posts	Verandah Timber Posts	Roof structure without Joists	Roof structure with Joists			Wood Panels
1,2	✓	✓	—	✓	—	✓	—	✓	✓	✓	✓	✓	—	—	—	✓
3,4	—	—	—	✓	—	—	—	✓	✓	✓	✓	—	✓	✓	—	✓
5	✓	✓	—	✓	—	—	—	—	✓	—	✓	✓	—	—	—	✓
9	—	—	—	✓	—	—	—	—	✓	—	✓	—	✓	✓	—	✓
7	✓	—	—	✓	—	—	✓	✓	✓	✓	✓	—	✓	✓	—	✓
8	✓	—	✓	✓	—	—	—	—	✓	—	✓	—	✓	✓	—	✓
10	✓	—	—	✓	—	—	—	✓	—	—	—	✓	—	✓	—	✓
11	✓	✓	—	—	✓	—	—	✓	✓	✓	✓	✓	—	✓	—	✓
12	✓	✓	✓	✓	—	—	—	✓	✓	✓	✓	✓	—	✓	✓	✓
13	✓	—	—	—	✓	—	—	—	✓	✓	✓	—	✓	✓	—	✓
14	✓	—	—	✓	—	—	—	✓	—	✓	—	—	✓	✓	—	✓
18,19	✓	✓	—	—	—	—	—	—	—	—	✓	—	✓	✓	—	✓
21	✓	—	—	✓	—	—	✓	—	✓	—	✓	—	✓	—	—	✓
22	✓	✓	—	—	✓	—	—	✓	—	✓	✓	—	✓	✓	—	✓

House Unit	FLOORING	DOORS					WINDOW		STAIRS				BALCONY		RAILING	VERANDAH HEARTH	SHELVES		CUPBOARD		HANGING RODS	PASTI
	Wood Panels covered by Earth layer	Main Room Door	Main Room Door with half Door	Basement Door	Exterior Door	New Door	Old Window	New Window	Ladder	Linear Tree Trunk Stair	Linear Tree Log Stair	Broader Tree Trunk Stair	Balcony with railing	Balcony without railing			Middle Shelf	Corner Shelf	Middle Cupboard	Small Cupboards		
1,2	✓	✓	✓	—	✓	—	✓	—	—	—	—	—	✓	—	✓	✓	✓	—	✓	✓	✓	✓
3,4	✓	✓	✓	—	✓	—	—	—	✓	—	—	—	—	✓	✓	—		—	✓	—	✓	✓
5	—	—	—	—	—	—	—	—	—	✓	—	—	—	—	✓	—	—	—	—	—	—	✓
9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	✓
7	✓	—	—	—	✓	✓	—	✓	—	✓	—	—	—	—	✓	✓	✓	—	✓	—	✓	✓
8	—	—	✓	—	✓	—	—	—	✓	—	—	—	—	—	—	✓	—	—	—	—	—	✓
10	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	✓
11	✓	—	✓	—	✓	—	—	—	—	—	✓	—	—	—	✓	✓	✓	—	—	—	✓	✓
12	✓	—	✓	✓	✓	✓	—	✓	—	—	✓	—	✓	—	✓	✓	✓	—	✓	—	✓	✓
13	✓	✓	—	—	—		—	—	✓	—	—	—	—	—	—	✓	—	—	✓	—	✓	✓
14	✓	—	—	—	—	✓	—	✓	—	✓	—	—	—	—	—	—	✓	—	✓	—	✓	✓
18,19	—	—	—	—	✓	—	—	—	✓	—	—	—	✓	—	✓	—	—	—	—	—	—	✓
21	✓	✓	—	—	✓	—	—	—	—	—	—	—	—	—	—	✓	—	—	—	—	—	✓
22	✓	✓	—	✓	—	—	—	—	—	—	—	✓	—	—	—	—	—	—	—	—	—	✓

— Does not exist

___ Not Surveyed

Figure 4.2. Comparison between surveyed houses, load bearing systems and the architectural elements used in tradtional Kalash Houses in Guru Village

CHAPTER 5

CONCLUSION

The architectural features and construction techniques used in Kalash houses of Guru village are investigated and understood in detail, aiming to create reliable and comprehensive information that can be used as a reference to protect and preserve original Kalash settlement within the region. With the changes that have started taking place in the valleys, it is vital to conserve the rural architecture of the Kalash. Thus, the thesis is one of the first detailed study on the architectural features and construction techniques of Kalash houses and carries a primary importance for any future conservation decisions taking place in any of the villages. The thesis follows the proper method of documentation and collection of data with respect to the history, geographical location, social aspects, general characteristics of architecture and the typical construction technique. The information is evaluated together to define the peculiarities and commonalities that will have major impact on the advancing phases of study on the Kalash people and their culture.

It is realized that for correct examination of Kalash architecture, not only individual houses but rather the clusters that make up the settlement need to be evaluated together. The relation of each building with the environment and the other buildings is a substantial part of the character of the place. The village presents itself as a multi-functional space with the roofs not only covering the houses but also used as pathways and to dry vegetables and fruits. The concept is reflected in the single room house as well, where multiple functions are associated with the verandah and living room.

With the houses having a pure status in the culture of the people the utility spaces like, washroom and laundry spaces, are located far away as they are considered impure.

Currently the three washrooms and laundry space are shared by the community made up of 25 households. These are not enough and more washroom units need to be built.

Proposal for the improvement or conservation of the houses requires a more comprehensive research, which is beyond the scope of this thesis, but it should be noted that any technical detail or material proposed should be compatible with the original fabric of the Kalash house. With materials like brick, concrete blocks and steel sheets being used for the construction of new houses in the valley, they are not in harmony with the existing architecture and take away from the character of the place. Currently, there is no control mechanism on the construction being carried out in the area. Thus, there is a definite need to develop a system to monitor and establish a body that takes measures to preserve the authenticity of the valley.

This is a study done on the Kalash houses in Guru village, Birir but there is further need to analyze the rural architecture of the other two villages, Bumburet and Rumbur, and to compare similarities and differences in the architectural features and construction techniques if present. The investigation and documentation, method used in this thesis, is applicable for those regions as well and can be helpful in further examining other rural settlements within those areas as well.

Changes in the area are inevitable, as population and tourism flux has increased in the past decade, but it is important to take extra precautionary measures while tackling them. Even though projects are announced for the improvement of the settlements, proper measures should be followed under the guidance of personnel who are experienced in the field of conservation and understand the value of the Culture and History of the Kalash people. Without a sensitive approach to the area such projects can end up doing more harm than good to the cultural fabric of the Kalash. It is also important to raise awareness amongst the people regarding the value of the culture and traditional architecture, and to stop the reconstructions and demolishment of the original houses. In these situations, conservation management plan is vital for the area

as it will help in the major decisions in the valleys and also monitoring the impact of those changes.

As the language of the people is different, the terminologies related to the architectural features and construction techniques in Kalashwar also become important as they provide clues to the relationship with other ethnic groups. The interviews with three masons, gives information regarding the construction process, phases of material acquisition and preparation, local names of systems, materials and tools used in the construction of the houses. Fortunately, the Kalash builders, masons and carpenters are still working within the region and teaching in small workshops held by NGOs when required. Even so it is crucial to realize their role in any future conservation process. This will allow the original practices to continue and the traditional construction methods and architectural models to be followed.

The construction technique used in traditional Kalash house walls with stone masonry and timber bands is also found in other regions of KP province in Pakistan, and named as *"Bhatar"*, a construction technique done without the use of any binding material. Also, in northern region of India, especially Kashmir, a similar technique is used and called as *"Taq"* while in Nepal the same construction system is used without any local name given to it (Langenbach, 2015, p. 85). This vernacular technique of dry stone masonry with timber lacing has had a very positive impact on the seismic control of the buildings within the Himalayan areas through the ages, with its origin possibly being traced to central Anatolia some 9,000 years ago (Carabbio, Pieraccini, Silvestri & Schildkamp, 2018). Traditional houses in the Western Taurus Mountain side of Turkey use timber beam reinforced stone masonry for wall construction and called as *"Düğmeli"* buildings (Şahin, 2017, p. 11). This pattern of construction technique being followed in the regions allows an opportunity to further research the linkages and influences that the areas share and translate in architectural and construction method.

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APPENDIX A

Drawings Of Surveyed Houses

The documentation sheets for the 9 houses studied with interior and exterior is provided from Figure A.1. to Figure A.7.

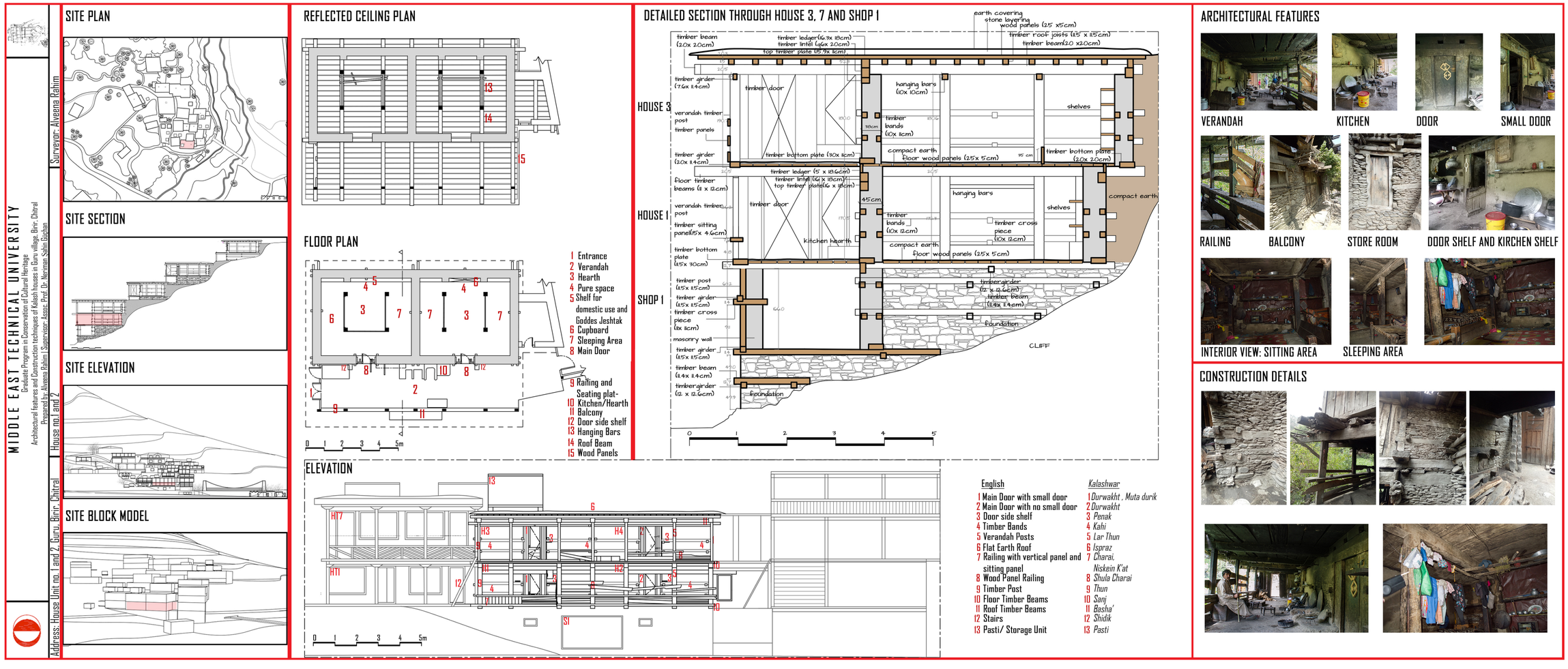


Figure A.1. Documentation of House no. 1 and 2

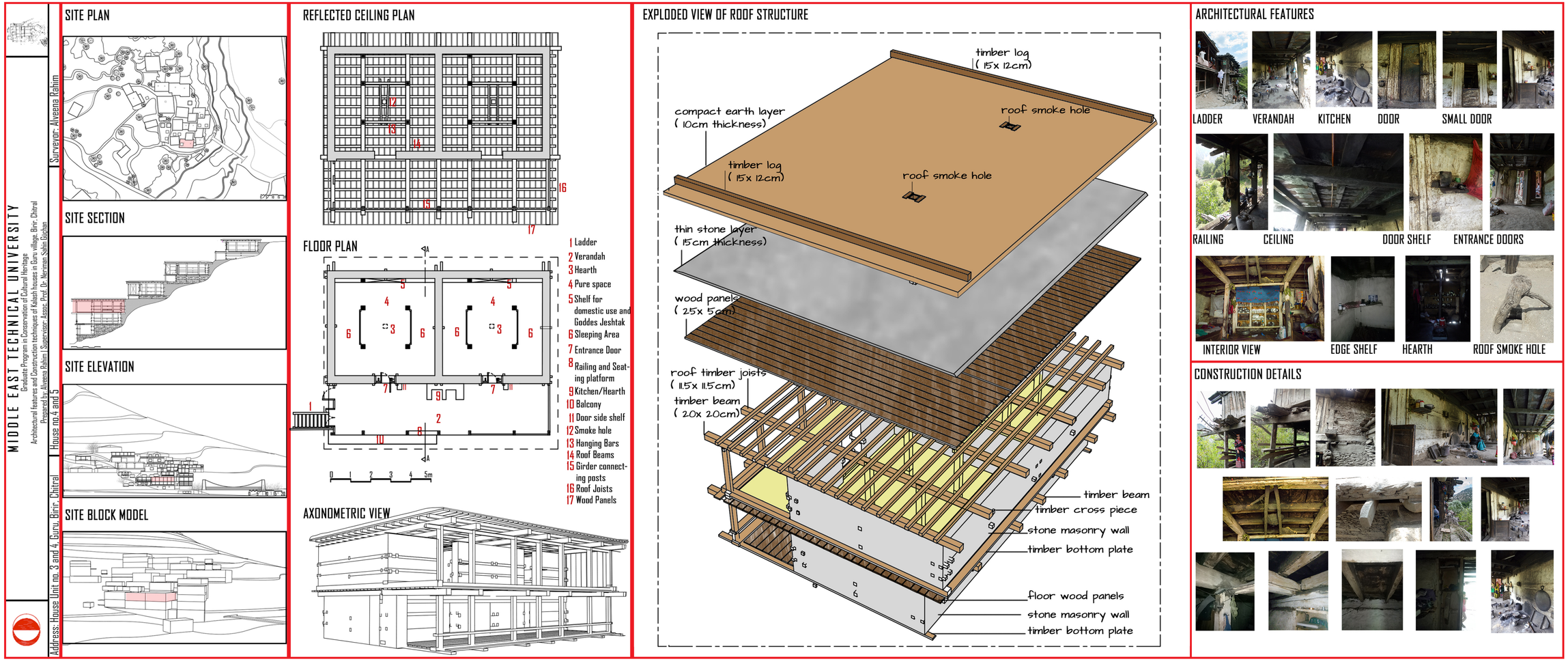


Figure A.2. Documentation of House no. 3 and 4

MIDDLE EAST TECHNICAL UNIVERSITY

Graduate Program in Conservation of Cultural Heritage

Architectural features and Construction techniques of Kalash houses in Guru village, Birir, Chitral

Prepared by: Alveena Rahim | Supervisor- Assoc. Prof. Dr. Nerimah Sahin Gucbas

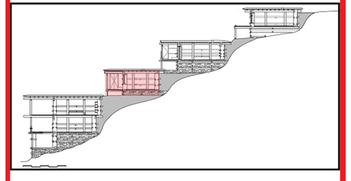
Surveyor: Alveena Rahim

House no. 7

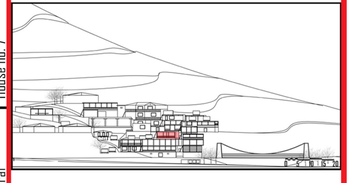
Address: House Unit no. 7, Guru, Birir, Chitral

SITE PLAN

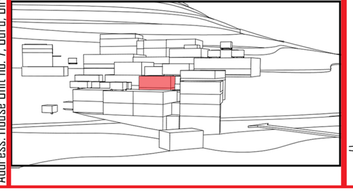
SITE SECTION



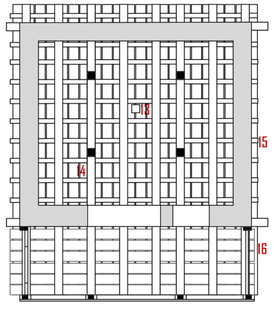
SITE ELEVATION



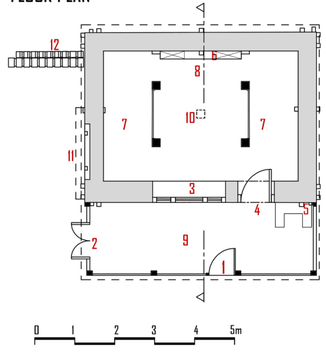
SITE BLOCK MODEL



REFLECTED CEILING PLAN

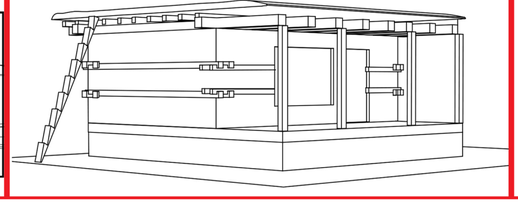


FLOOR PLAN

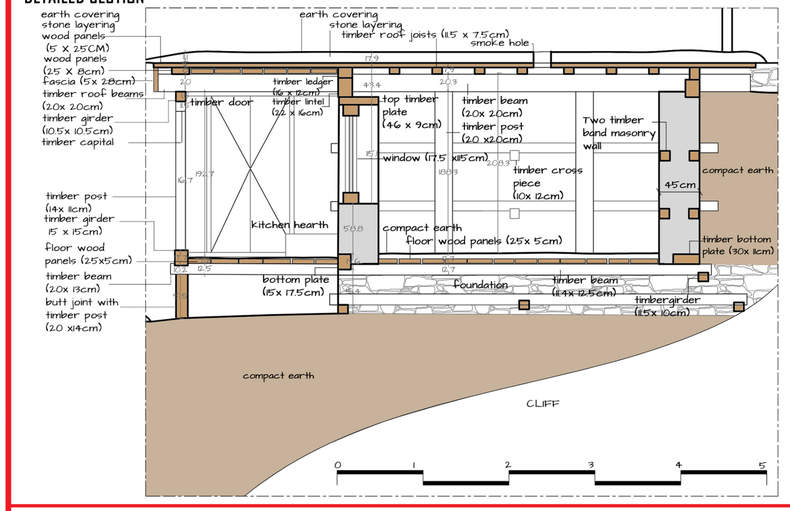


1 Small Entrance Door
2 Side Exterior Door
3 Window
4 Main Door
5 Kitchen/Hearth
6 Shelf and cupboards for domestic use and Goddes Jeshtak
7 Sleeping Area
8 Pure Area
9 Verandah
10 Sitting Area
11 Bee Hive Storage
12 Stairs
13 Smoke hole
14 Timber Beams
15 Wood Panels

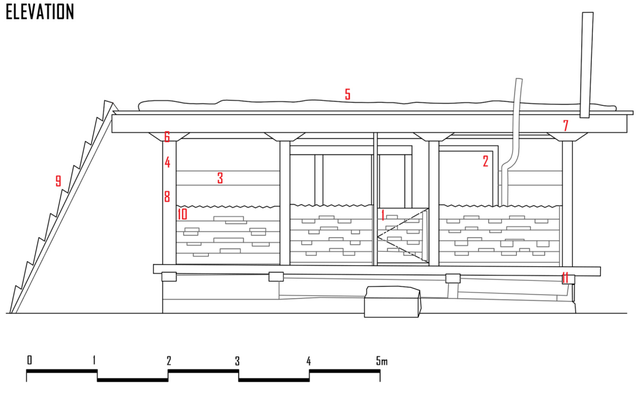
AXONOMETRIC VIEW



DETAILED SECTION



ELEVATION



1 Entrance small door
2 Main Door
3 Timber Bands
4 Verandah Posts
5 Flat Earth Roof
6 Column Capital
7 Fascia
8 Timber Post
9 Stairs
10 Railing
11 Floor Timber Beams

ARCHITECTURAL FEATURES


FRONT ELEVATION


STAIRS

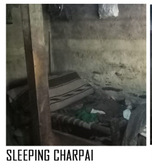

SIDE WALL WITH EXTERIOR DOOR


SMOKE HOLE TOP VIEW


BEE HIVE


VERANDAH


VIEW OF VALLEY FROM HOUSE


SLEEPING CHARPAI


INTERIOR VIEW WITH SHELVES AND CUPBOARDS


PASTI OF HOME OWNERS

CONSTRUCTION DETAILS


TIMBER BEAMS AT EDGE CONNECTION


Timber Panelling


ROOF JOISTS, BEAM AND COLUMN CONNECTION INTERIOR


FLAT EARTH ROOF


WINDOW CONNECTION


VERANDAH POST, CAPITAL AND GIRDER

Figure A.3. Documentation of House no. 7

MIDDLE EAST TECHNICAL UNIVERSITY

Graduate Program in Conservation of Cultural Heritage

Architectural features and Construction techniques of Kalash houses in Guru village, Birir, Chitral

Prepared by: Alveena Rahim | Supervisor- Assoc. Prof. Dr. Nevinnan Sahin Buchan

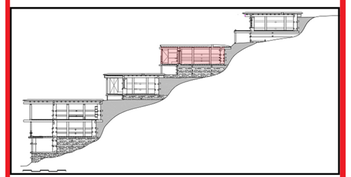
Surveyor: Alveena Rahim

House no. 11

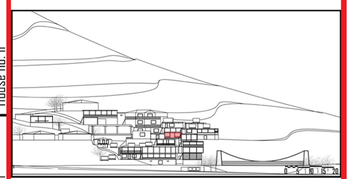
Address: House Unit no. 7, Guru, Birir, Chitral

SITE PLAN

SITE SECTION

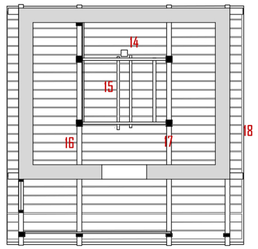


SITE ELEVATION

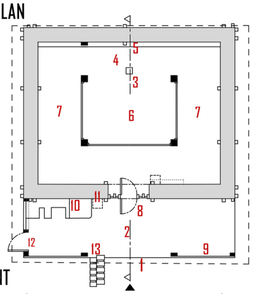


SITE BLOCK MODEL

REFLECTED CEILING PLAN

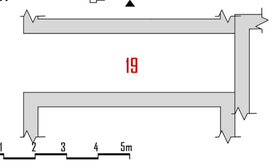


FLOOR PLAN

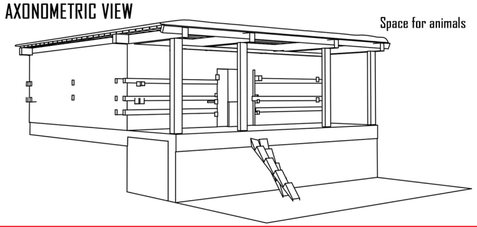


1 Entrance
2 Verandah
3 Indoor Hearth for winters
4 Pure space
5 Shelf for domestic use and Goddes Jeshtak
6 Sitting Area
7 Sleeping Area
8 Main Door
9 Railing
10 Kitchen/Hearth
11 Door side shelf
12 Side Door
13 Stairs
14 Door side shelf
15 Smoke hole
16 Hanging Timber Bars
17 Timber Beams
18 Wood Panels
19 Space for animals

BASEMENT

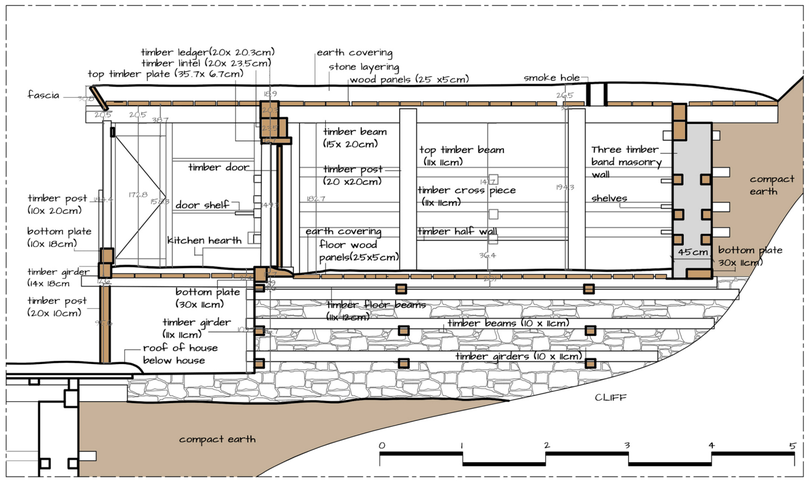


AXONOMETRIC VIEW

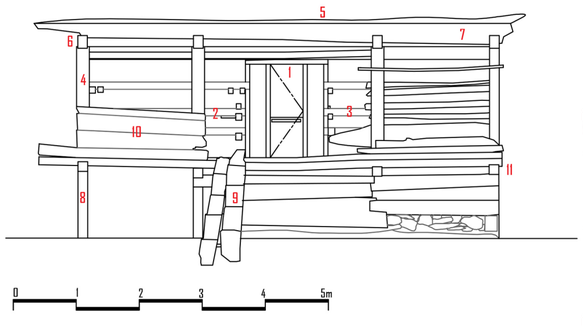


Space for animals

DETAILED SECTION



ELEVATION



English

1 Main Door with small door
2 Door side shelf
3 Timber Bands
4 Verandah Posts
5 Flat Earth Roof
6 Timber Beams
7 Fascia
8 Timber Post
9 Stairs
10 Wood Panel Railing
11 Floor Timber Beams

Kalashwar

1 *Durwakht , Muta durik*
2 *Penak*
3 *Kahi*
4 *Lar Thun*
5 *Ispraz*
6 *Basha'*
7 *Dar Takth*
8 *Thun*
9 *Shidik*
10 *Shula Charai*
11 *Sanj*

ARCHITECTURAL FEATURES


FRONT ELEVATION

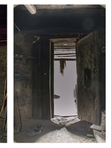

SIDE VIEW


KITCHEN/ HEARTH


SMOKE HOLE TOP VIEW


STAIRS


DOOR



DOOR VIEW FROM INTERIOR


INTERIOR VIEW


SMOKE HOLE



SHELVES EXTERIOR AND INTERIOR

CONSTRUCTION DETAILS


TIMBER BEAMS AT EDGE CONNECTION


ROOF DETAIL



DOOR CONNECTION DETAIL


FLAT EARTH ROOF


CROSS PIECES IN WALL


COLUMN CONNECTION

Figure A.4. Documentation of House no. 11

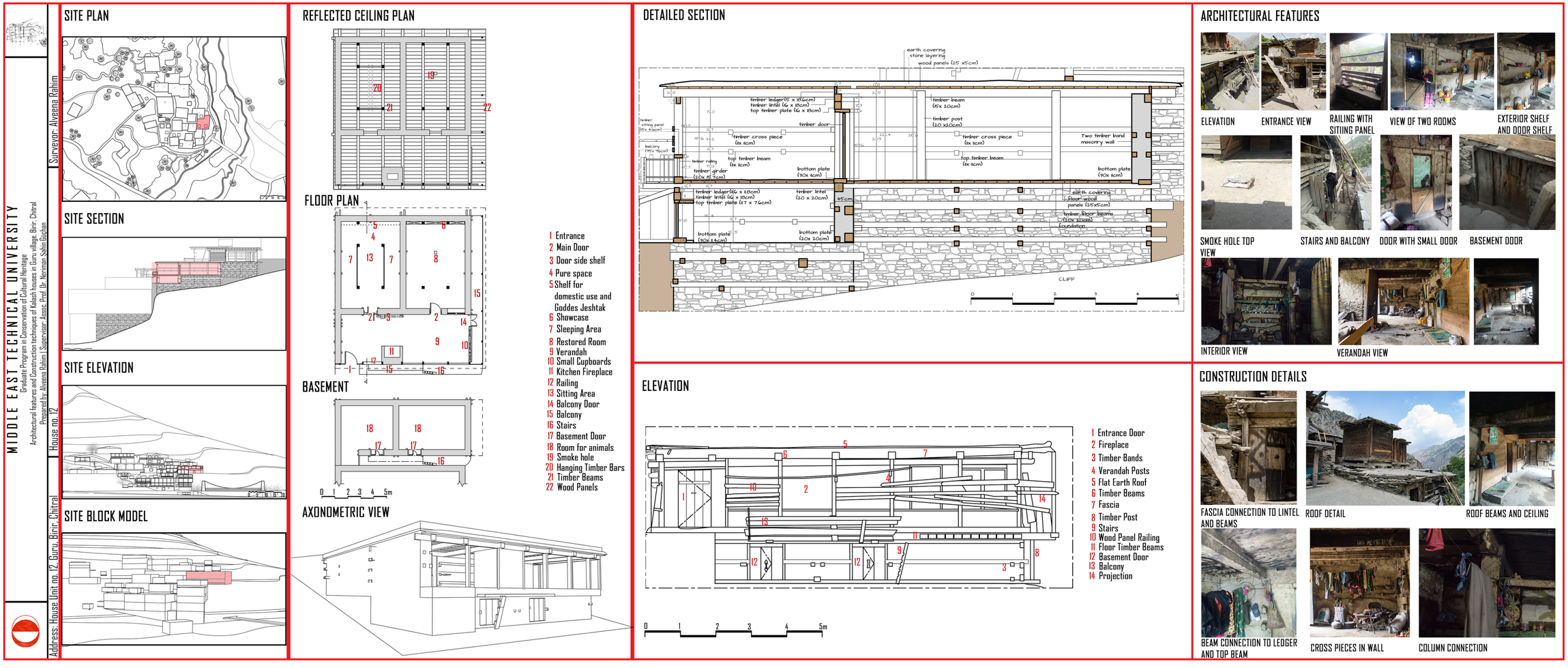


Figure A.5. Documentation of House no. 12

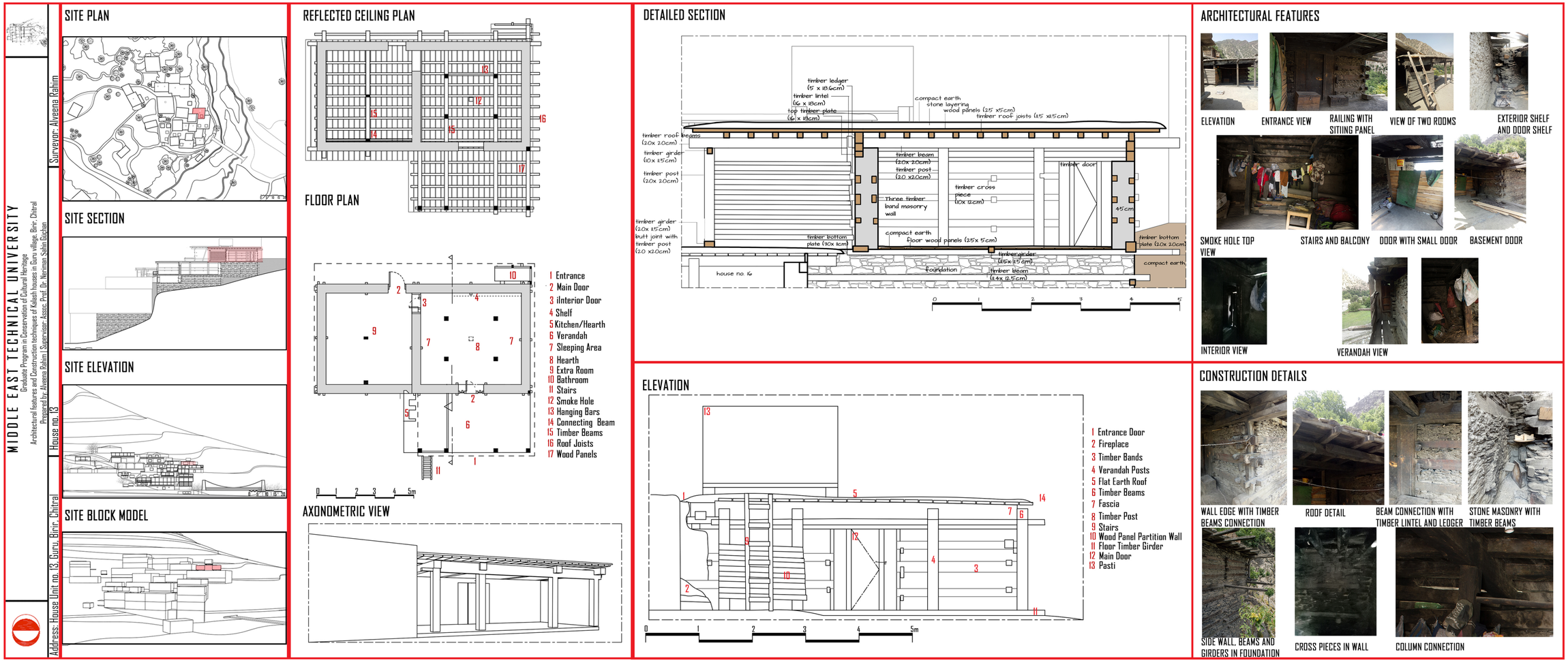


Figure A.6. Documentation of House no. 13

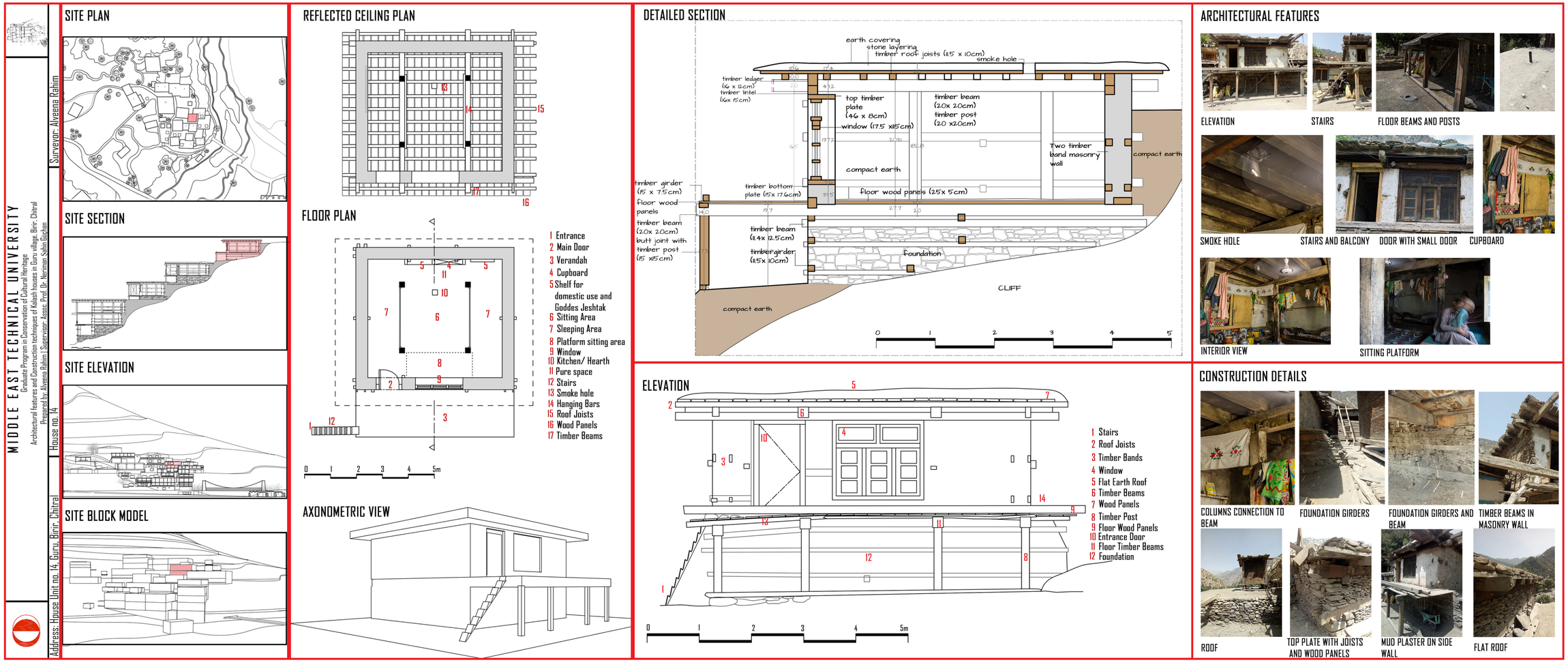


Figure A.7. Documentation of House no. 14

APPENDIX B

Showing the Coding System used for Identification of Construction Details in the Traditional Kalash Houses

R2= Roof Architectural Elements

R2f= Fascia

R2s= Smoke hole

R1= Roof Structure

$R0f_1$ = Flat roof without joists

$R0f_2$= Flat roof with joists

$R0f_3$= Flat roof with joists and new verandah structure

R0= Roof and Lower Floor Connection

R0m= Roof and Masonry Connection

- Rom_1= Lintel, Ledger, Beam connection to masonry
- Rom_2= Lintel, Beam connection to masonry (Restored with windows)

R0p= Roof and Interior Post Connection

- Rop_1= Direct placement on Beam on top of Post
- Rop_2= Dado Joint

R0v= Roof and Verandah Connection

- Rov_1= Direct placement of Beam on top of Post
- Rov_2= Direct placement of Beam on top of Post but posts connected to each other by a beam by housing joint
- Rov_3 =Placement of Beam on top of Post with a bolster

F2= First floor Architectural Elements

F2d= Door

- $F2d_1$=Old Door with no small door
- $F2d_2$=Old Door with small door
- $F2d_3$=New Door
- $F2d_4$=Old Basement door
- $F2d_5$=Old Exterior door

F2b= Balcony

- $F2b_1$=Balcony with railing
- $F2b_2$= Balcony with no railing

F2n=Niche

- $F2n_1$=Door Niche

F2c=Cupboard

- $F2c_1$=Small Cupboard
- $F2c_2$= Big Cupboard

F2s=Stairs

- $F2s_1$=ladder
- $F2s_2$=Linear Tree Trunk Stair
- $F2s_2$=Linear Tree Log Stair
- $F2s_4$=Broader Tree Trunk Stair

F2r=Railing

- $F2r_1$=Random timber Plank Railing
- $F2r_2$=Flat timber panel railing used for sitting as well
- $F2r_3$=vertical timber panel railing
- $F2r_4$=new railing design

F2k=Hearth/Fireplace

- $F2k_1$=Open Hearth Fireplace
- $F2k_2$=Covered Fireplace

F2sh=Shelves

- $F2sh_1$=Shelf on the middle of wall opposite to door
- $F2sh_2$= Shelf on the left of wall opposite to door
- $F2sh_3$= Shelf on the right of wall opposite to door
- $F2sh_4$=Shelf next to door
- $F2sh_5$=Shelf next to hearth

- F2sh$_6$=Shelf at the edge of room

F2h=Hanging Rods

- F2h$_1$=hanging rods in x direction
- F2h$_2$= hanging rods in y direction

F2p=Pasti

F1= First Floor Vertical Load Bearing Elements

F1m= First Floor Masonry

- F1m$_1$= Two Timber laced Stone Masonry Wall
- F1m$_2$= Three Timber laced Stone Masonry Wall
- F1m$_3$= One Timber laced Stone Masonry Wall
- F1m$_4$= Stone Masonry Wall with vertical and horizontal timber elements

F1p= First Floor and Interior Post Connection

- F1p$_1$= Four Interior Columns in Room (20 x20cm)
    1. F1p$_{1a=}$ Butt Joint
    2. F1p$_{2b=}$ Dado Joint

- F1p$_2$= Verandah Columns (20cmx20cm, 15cmx15cm, 20cmx12cm)
    1. F1p$_{2a=}$ Butt Joint
    2. F1p$_{2b=}$ Girder connecting Posts
    3. F1p$_{2c=}$ Butt Joint with a capital
    4. F1p$_{2d=}$ Dado Joint

F1t= First Floor Timber wall

- F1t$_1$= Vertical panel Timber wall
- F1t$_2$= Horizontal panel Timber wall

F0= First Floor and Lower Floor Connection

F0m= First Floor Masonry and Lower Floor Connection

- Fom$_1$= Connection to Stone Foundation
- Fom$_2$= Connection to Stone Masonry

F0p= First Floor Interior Post and Foundation/ lower floor Connection

- Fop_1= Connection of Interior Posts to floor

F0v= First Floor Verandah Lower Floor Connection

- Fov_1= Connection to Stone Foundation
- Fov_2= Connection to Masonry Wall
- Fov_3= Connection to Timber Columns

G2= Ground floor Architectural Elements

G2d= Door

- $G2d_1$=Old Door with no small door
- $G2d_2$=Old Door with small door
- $G2d_3$=New Door
- $G2d_4$=Old Basement door
- $G2d_5$=Old Exterior door

G2b= Balcony

- $G2b_1$=Balcony with railing
- $G2b_2$= Balcony with no railing

G2n=Niche

- $G2n_1$=Door Niche

G2c=Cupboard

- $G2c_1$=Small Cupboard
- $G2c_2$= Big Cupboard

G2s=Stairs

- $G2s_1$=ladder
- $G2s_2$=Linear Tree Trunk Stair
- $G2s_2$=Linear Tree Log Stair
- $G2s_4$=Broader Tree Trunk Stair

G2r=Railing

- $G2r_1$=Random timber Plank Railing
- $G2r_2$=Flat timber panel railing used for sitting as well
- $G2r_3$=vertical timber panel railing
- $G2r_4$=new railing design

G2k=Hearth/Fireplace

- $G2k_1$=Open Hearth Fireplace
- $G2k_2$=Covered Fireplace

G2sh=Shelves

- $G2sh_1$=Shelf on the middle of wall opposite to door
- $G2sh_2$= Shelf on the left of wall opposite to door
- $G2sh_3$= Shelf on the right of wall opposite to door
- $G2sh_4$=Shelf next to door
- $G2sh_5$=Shelf next to hearth
- $G2sh_6$=Shelf at the edge of room

G2h=Hanging Rods

- $G2h_1$=hanging rods in x direction
- $G2h_2$= hanging rods in y direction

G2p=Pasti

G1= Ground Floor Vertical Load Bearing Elements

G1m= Ground Floor Masonry

- $G1m_1$= Two Timber laced Stone Masonry Wall
- $G1m_2$= Three Timber laced Stone Masonry Wall
- $G1m_3$= One Timber laced Stone Masonry Wall
- $G1m_4$= Stone Masonry Wall with vertical and horizontal timber elements

G1p= Ground Floor and Interior Post Connection

- $G1p_1$= Four Interior Columns in Room (20 x20cm)
    3. $G1p_{1a=}$ Butt Joint
    4. $G1p_{2b=}$ Dado Joint

- $G1p_2$= Verandah Columns (20cmx20cm, 15cmx15cm, 20cmx12cm)
    5. $G1p_{2a=}$ Butt Joint
    6. $G1p_{2b=}$ Girder connecting Posts
    7. $G1p_{2c=}$ Butt Joint with a capital
    8. $G1p_{2d=}$ Dado Joint

G1t= Ground Floor Timber wall

- $G1t_1$= Vertical panel Timber wall
- $G1t_2$= Horizontal panel Timber wall

G0= Ground Floor and Lower Floor/ Foundation Connection

G0m= Ground Floor Masonry and Foundation/lower floor Connection

- Gom_1= Connection to Stone Foundation (with stone terrace and part of cliff)
- Gom_2= Connection to Stone Masonry

G0p= Ground Floor Interior Post and Foundation/ lower floor Connection

- Gop_1= Connection of Interior Posts to floor

G0v= Ground Floor Verandah Lower floor /Foundation Connection

- Gov_1= Connection to Stone Foundation type 1 (with stone terrace and part of cliff)
- Gov_2= Connection to Masonry Wall
- Gov_3= Connection to Timber Columns

B1= Basement Floor Vertical Load Bearing Elements

B1m= Basement Floor Masonry

- $B1m_1$= Two Timber laced Stone Masonry Wall
- $B1m_2$= Three Timber laced Stone Masonry Wall
- $B1m_3$= One Timber laced Stone Masonry Wall
- $B1m_4$= Stone Masonry Wall with vertical and horizontal timber elements

B0= Ground Floor and Lower Floor/ Foundation Connection

B0m= Basement Floor Masonry and Foundation

- $B0m_1$= Connection to Stone Foundation (with stone terrace and part of cliff)

FO= Foundation Structures

MIDDLE EAST TECHNICAL UNIVERSITY

Graduate Program in Conservation of Cultural Heritage

Architectural features and Construction techniques of Kalash houses in Guru village, Birir, Chitral

Prepared by: Alveena Rahim | Supervisor: Assoc. Prof. Dr. Neriman Şahin Güçhan

SHOWING DETAIL TYPE OF STUDIED BUILDINGS WITH CODES

	← R2		Roof ← R1		← R0 →		← First Floor ← F2									← F1			← F0 →			← Ground Floor ← G2					
Code of Details	R2s	R2f	R1f	R0m	R0p	R0v	F2d	F2b	F2n	F2c	F2s	F2r	F2k	F2sh	F2p	F2h	F1m	F1p	F1t	F0m	F0p	F0v	G2d	G2w	G2b	G2n	G2c	G2s
House Unit																												
Block= House Unit 1,2,3,4	$R0s_1$	—	$R1f_2$	$R0m_1$	$R0p_2$	$R0v_2$	$F2d_1$ $F2d_2$ $F2d_5$	$F2b_2$	$F2n_1$	$F2c_2$	$F2s_1$	$F2r_2$	$F2k_1$	$F2sh_6$, $F2sh_3$	F2p	$F2h_1$	$F1m_1$	$F1p_{1b}$, $F1p_{2b}$	$F1t_1$	$F0m_2$	$F0p_1$	$F0v_3$	$G2d_1$ $G2d_2$ $G2d_5$	—	$G2b_1$	—	$G2c_1$	—
Block= House Unit 5,9	$R0s_1$	—	$R1f_2$	$R0m_1$	—	—	—	—	—	—	—	—	—	—	F2p	—	$F1m_1$	—, $F1p_{2d}$	$F1t_1$	$F0m_2$	—	$F0v_3$	—	—	—	—	—	—
7	$R0s_1$	R2f	$R1f_3$	$R0m_2$	$R0p_1$	$R0v_3$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_3$ $G2d_5$	$G2w_2$	—	—	$G2c_2$	$G2s_2$
8	—	—	$R1f_2$	$R0m_1$	—	$R0v_2$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_2$ $G2d_5$	—	—	—	—	$G2s_1$
10	—	—	$R1f_1$	$R0m_1$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_1$	—	—	—	—	—
11	$R0s_1$	R2f	$R1f_1$	$R0m_1$	$R0p_2$	$R0v_1$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_2$ $G2d_5$	—	—	—	—	$G2s_2$
12	$R0s_1$	R2f	$R1f_1$	$R0m_1$	$R0p_2$	$R0v_2$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_2$ $G2d_3$ $G2d_5$	—	$G2b_1$	—	$G2c_2$	$G2s_1$
13	$R0s_1$	R2f	$R1f_2$	$R0m_1$	$R0p_1$	$R0v_2$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_2$ $G2d_3$ $G2d_5$	—	—	—	—	$G2s_1$
14	$R0s_1$	—	$R1f_2$	$R0m_2$	$R0p_1$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_1$	$G2w_2$	—	—	$G2c_2$	$G2s_2$
Block= House Unit 18,19	—	—	$R1f_2$	—	—	$R0v_1$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2b_1$	—	—	$G2s_1$
21	—	—	$R1f_2$	$R0m_1$	—	$R0v_1$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_1$ $G2d_5$	—	—	—	—	—
22	—	—	$R1f_2$	$R0m_1$	—	$R0v_2$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	$G2d_1$	—	—	—	—	$G2s_2$

CODES

$F2d_4$

- First floor
- Architectural element — Location of detail
- Door
- Type 4 — Type of detail

— Does not exist

— Not Surveyed

	Ground Floor → G2r	G2k	G2sh	G2p	G2h	← G1			← G0 →			← Basement ← B2		B1	B0	Foundation → FO
Code of Details						G1m	G1p	G1t	G0m	G0p	G0v	B2d	B2w	B1m	B0m	FO1
House Unit																FO1
Block= House Unit 1,2,3,4	$G2r_1$, $G2r_2$, $G2r_3$,	$G2k_1$	$G2sh_1$, $G2sh_2$, $G2sh_3$, $G2sh_4$, $G2sh_5$, $G2sh_6$	G2p	$G2h_1$	$G1m_1$	$G1p_{1a}$, $G1p_{2a}$	—	$G0m_2$	$G0p_1$	$G0v_2$	$B2d_4$	$B2w_1$	$B1m_4$	$B0m_1$	FO1
Block= House Unit 5,9	—	—	—	—	—	$G1m_1$	—, $F1p_{2d}$	—	$G0m_1$	—	—	$B2d_5$	—	—	—	FO1
7	$G2r_4$	$G2k_1$	$G2c_2$	G2p	—	$G1m_1$	$G1p_{1a}$, $G1p_{2c}$	$G1t_1$	$G0m_1$	$G0p_1$	$G0v_3$	—	—	—	—	FO1
8	—	$G2k_1$	—	G2p	—	$G1m_1$	—, $G1p_{2c}$	$G1t_1$	—	—	$G0v_2$	$B2d_4$	—	$B1m_3$	$B0m_1$	FO1
10	—	—	—	G2p	—	$G1m_1$	—	—	$G0m_1$	$G0p_1$	—	—	—	—	—	FO1
11	$G2r_1$	$G2k_1$	$G2sh_1$, ,$G2sh_3$, $G2sh_4$, $G2sh_5$,	G2p	$G2h_1$, $G2h_2$	$G1m_2$	$G1p_{1b}$, $G1p_{2a}$	$G1t_2$	$G0m_1$	$G0p_1$	$G0v_1$	—	—	—	—	FO1
12	$G2r_1$, $G2r_2$,	$G2k_2$	$G2sh_1$, $G2sh_2$, $G2sh_3$, $G2sh_4$, $G2sh_5$	G2p	$G2h_2$	$G1m_1$	$G1p_{1b}$, $G1p_{2b}$	$G1t_1$	$G0m_2$	$G0p_1$	$G0v_2$	$B2d_4$	—	$B1m_3$	$B0m_1$	FO1
13	—	$G2k_1$	$G2sh_1$, $G2sh_3$,	G2p	$G2h_2$	$G1m_2$	$G1p_{1a}$, $G1p_{2b}$	$G1t_2$	$G0m_1$	$G0p_1$	$G0v_1$	—	—	—	—	FO1
14	—	—	$G2sh_3$	G2p	$G2h_1$	$G1m_1$	$G1p_{1a}$, —	—	$G0m_1$	$G0p_1$	$G0v_3$	—	—	—	—	FO1
Block= House Unit 18,19	$G2r_3$	—	—	G2p	—	—	—, $G1p_{2a}$	—	—	—	$G0v_2$	—	—	—	—	FO1
21	—	$G2k_1$	—	—	—	$G1m_1$	—, $G1p_{2a}$	$G1t_1$	$G0m_1$	—	$G0v_1$	—	—	—	—	FO1
22	—	—	—, $G2sh_4$	—	—	$G1m_2$	—, $G1p_{2b}$	—	$G0m_2$	—	$G0v_3$	$B2d_4$	—	$B1m_2$	$B0m_1$	FO1

Figure B.1. Showing detail type of studied buildings with codes

APPENDIX C

Showing the filled survey sheets in Kalashwar of Architectural Elements and Construction techniques filled through information given by Kalash Masons.

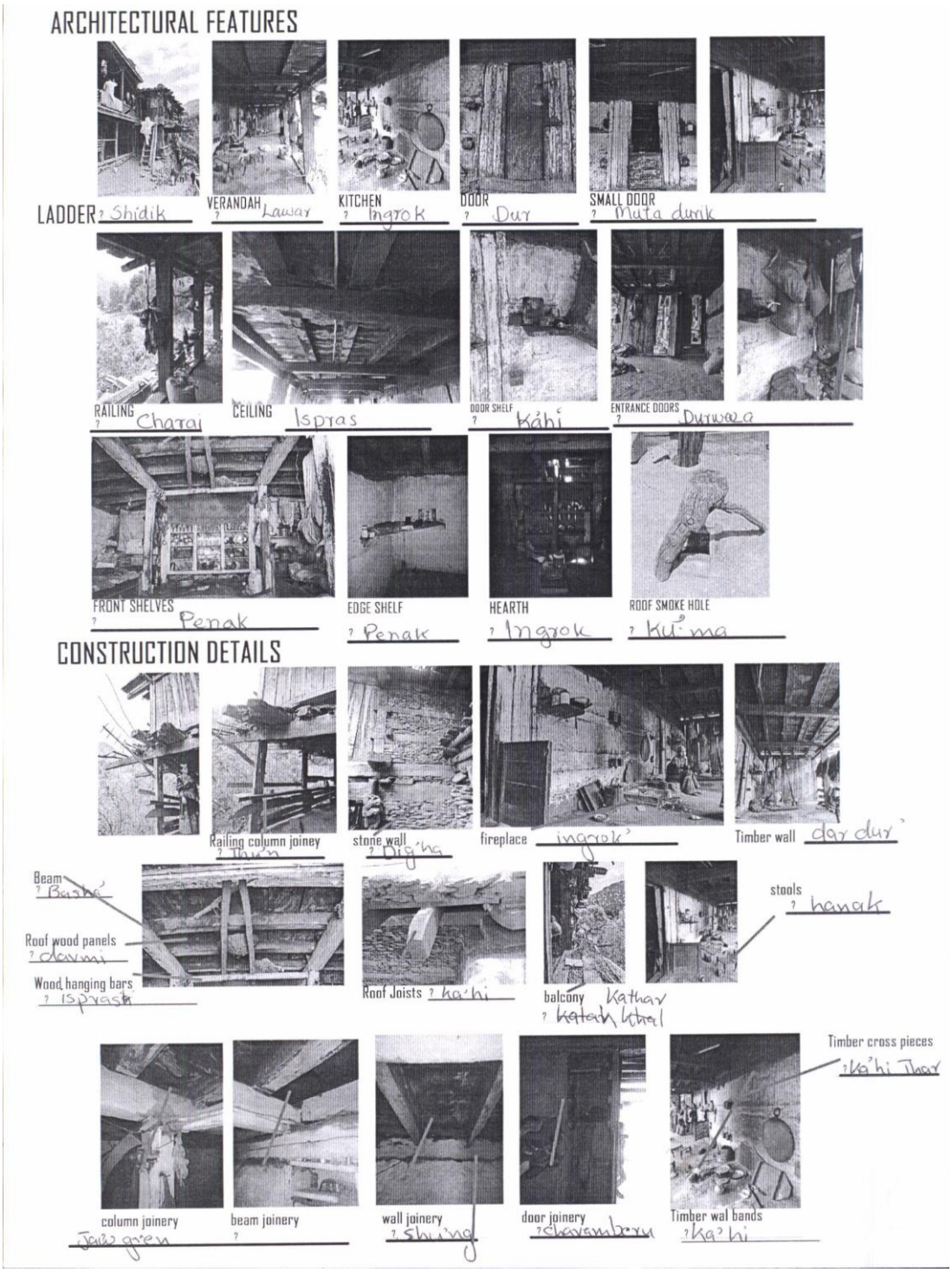


Figure C.1. Kalashwar names of Architectural Elements and Construction Techniques

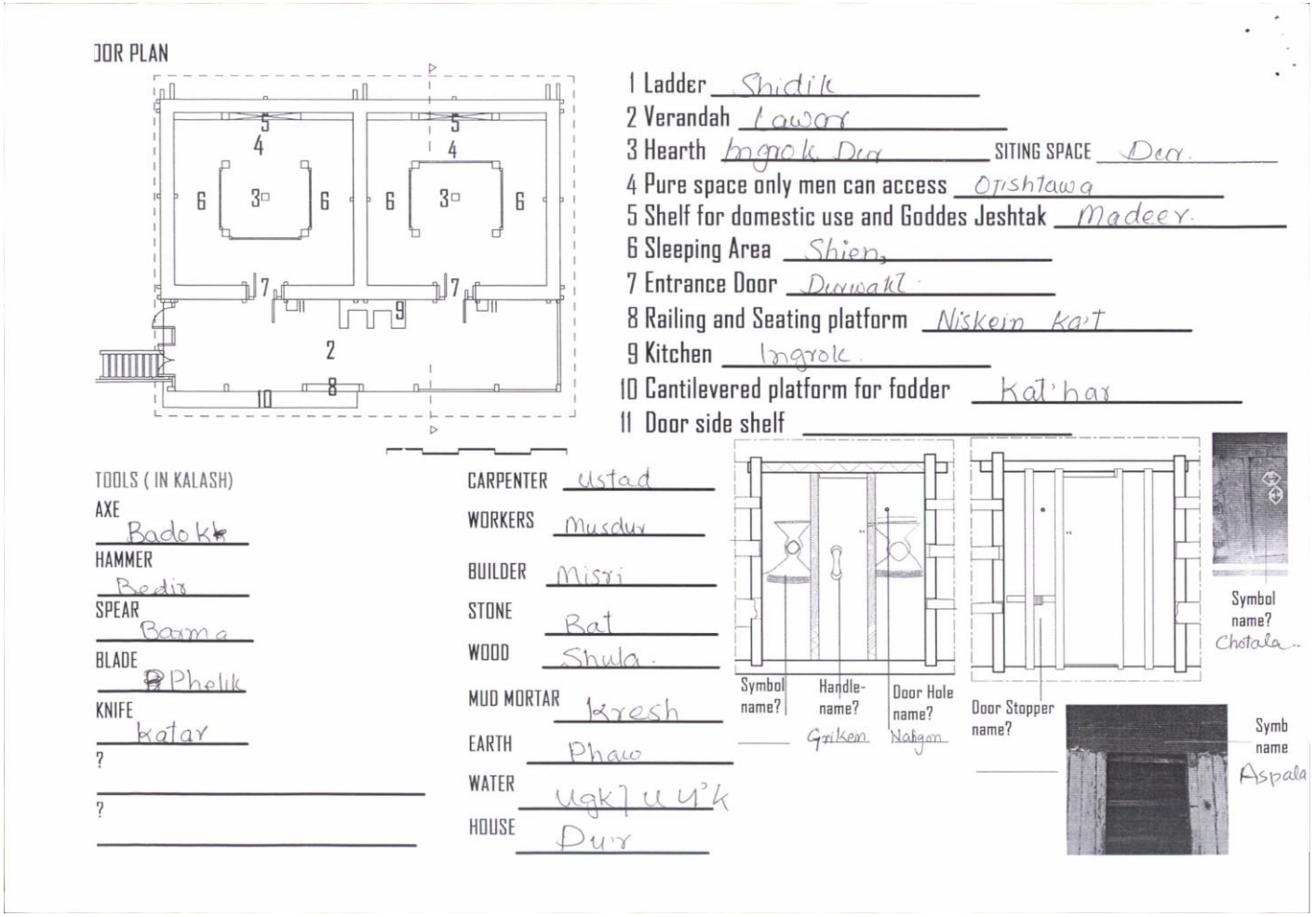


Figure C.3. Kalashwar names of spaces, tools and construction materials.

APPENDIX D

Showing the sketches of the houses done during the site visits.

Figure D.1. Site Sketch

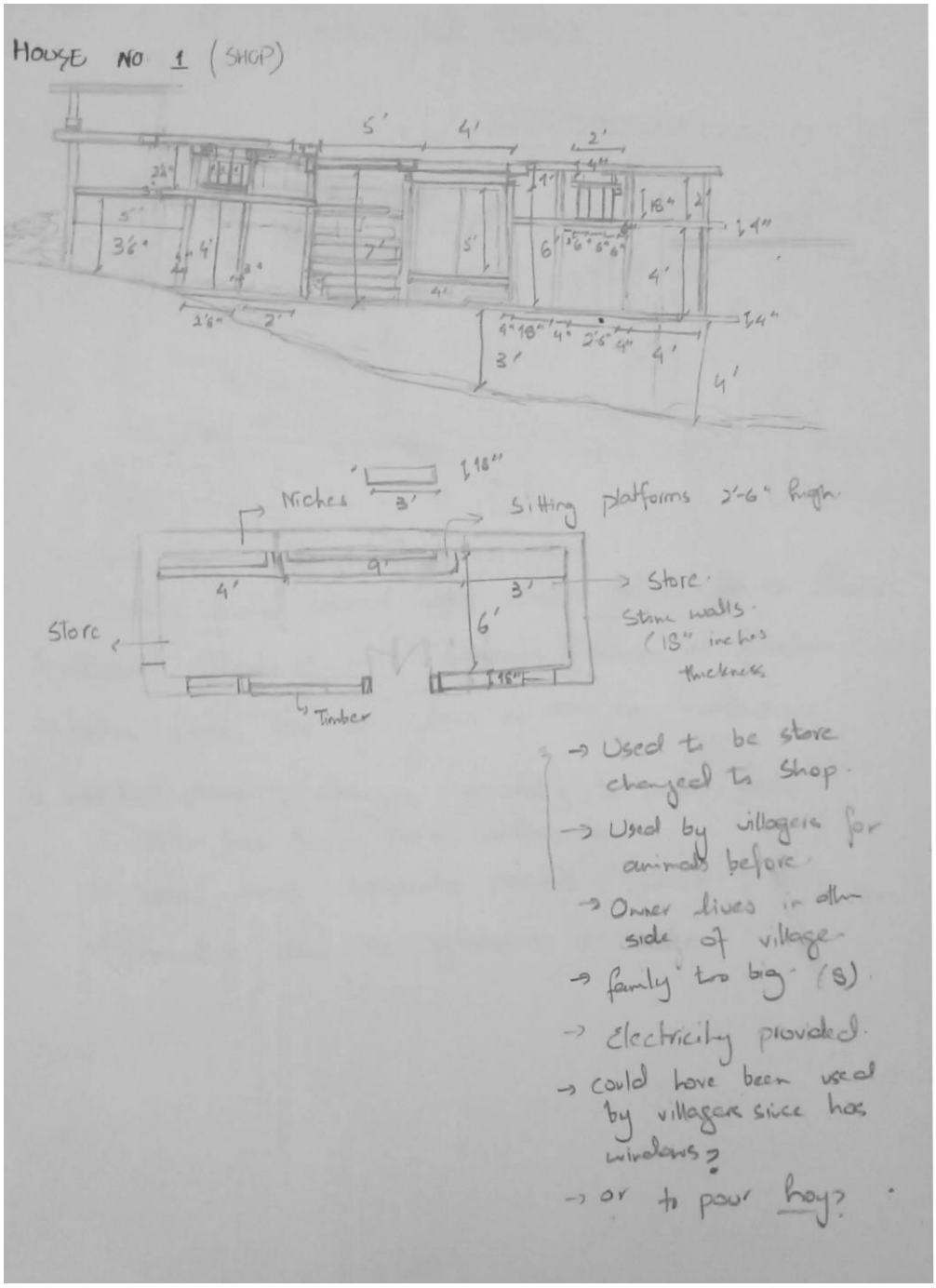


Figure D.2. Sketch of House

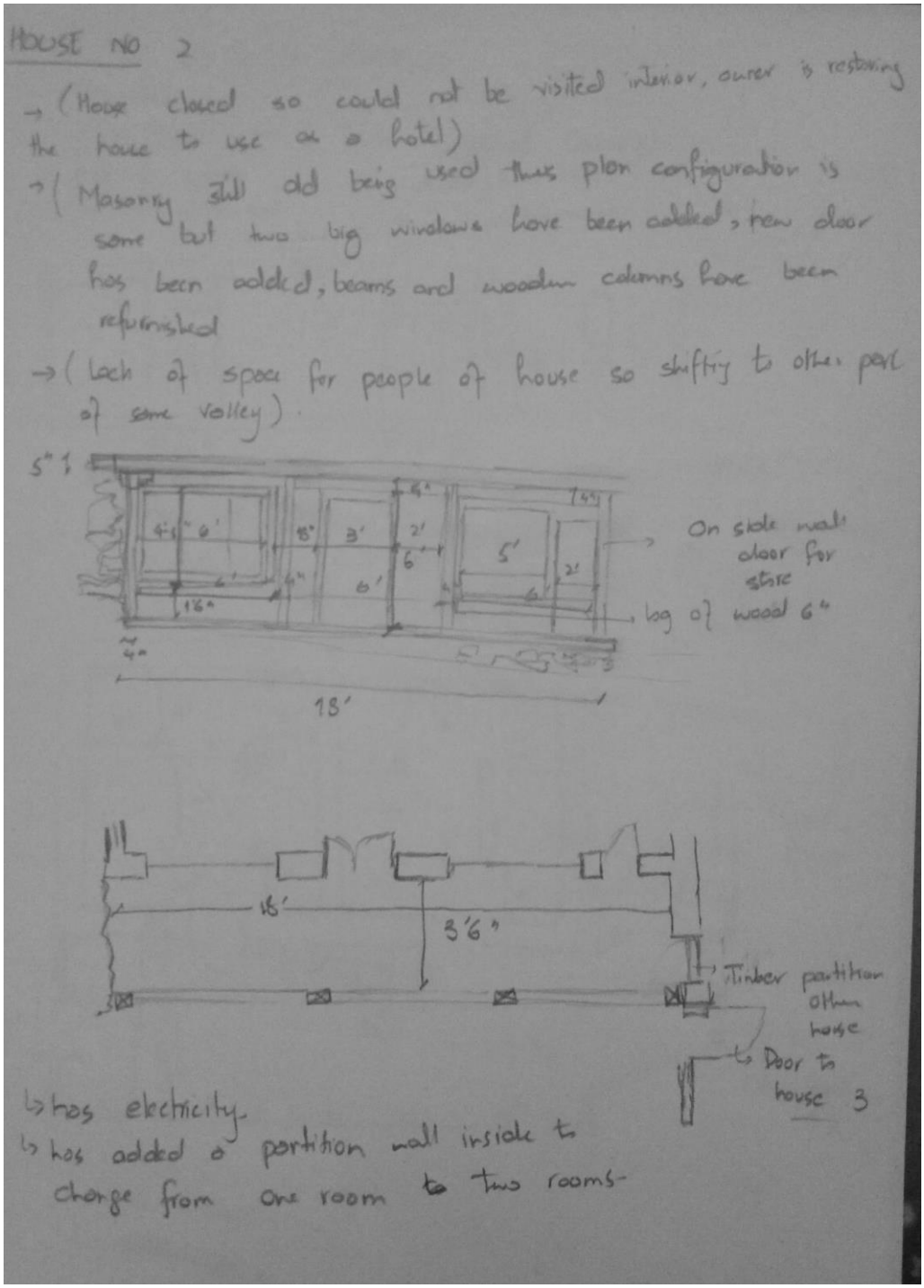


Figure D.3. Sketch of House

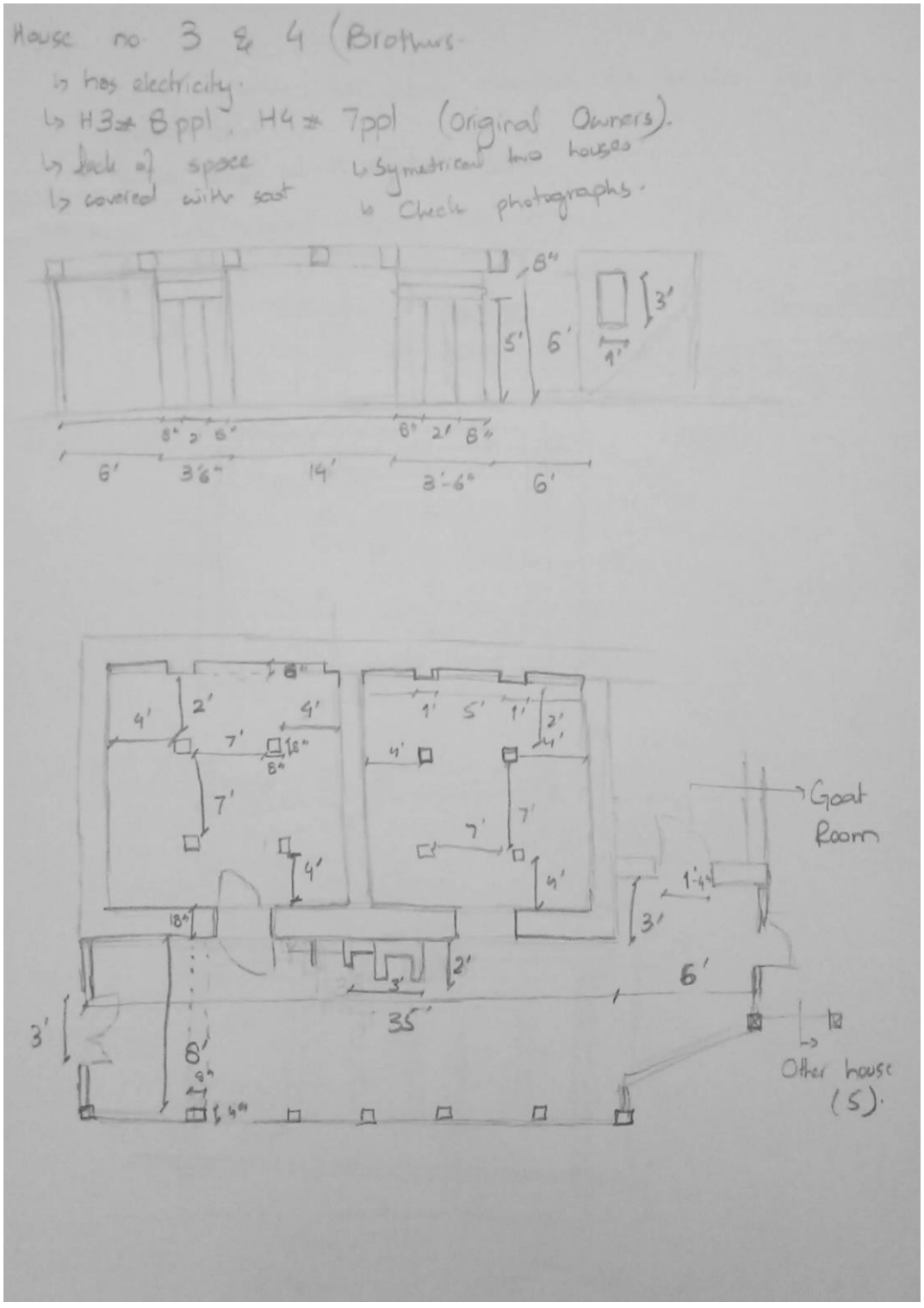


Figure D.4. Sketch of House

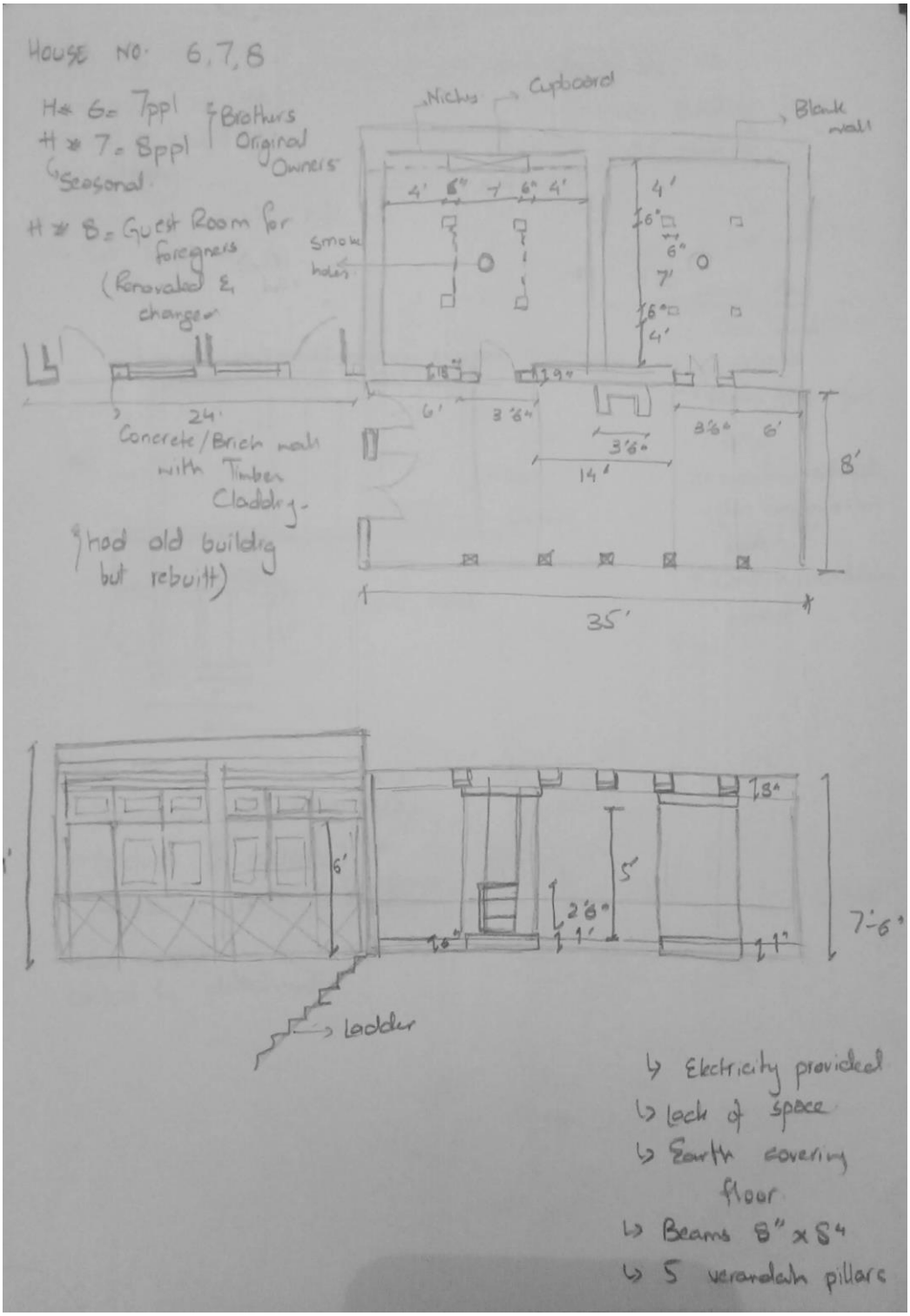


Figure D.5. Sketch of House

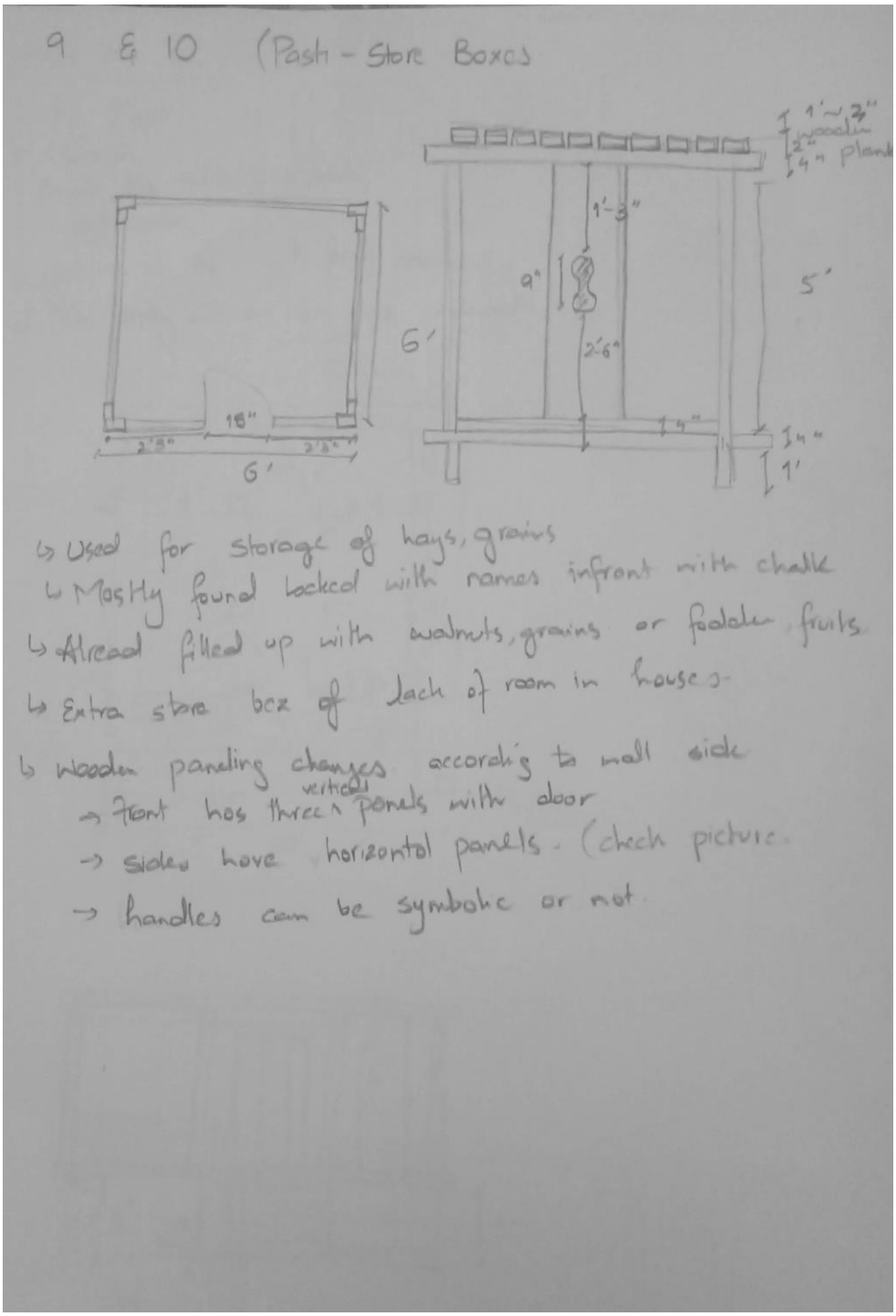


Figure D.6. Sketch of House

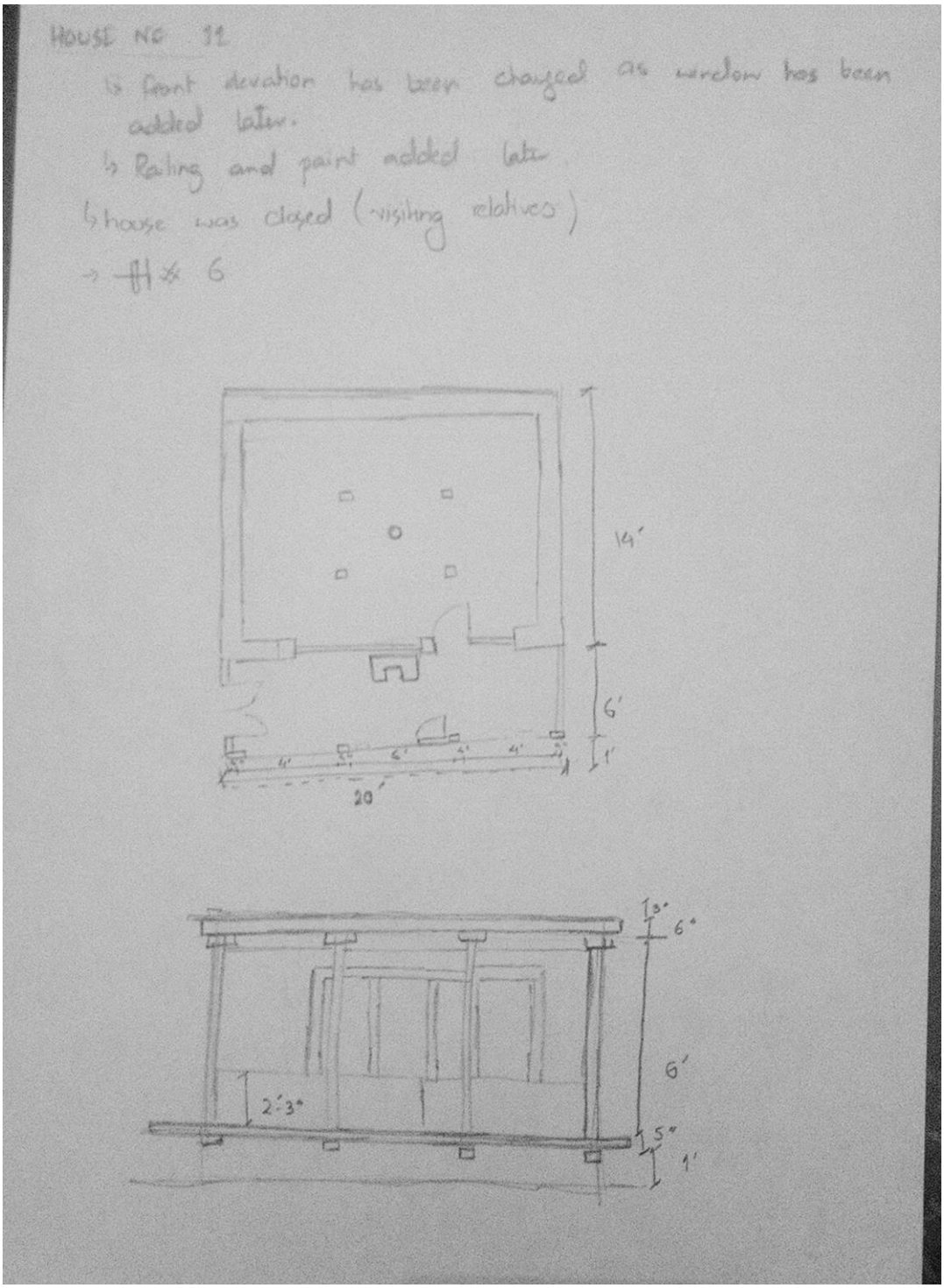


Figure D.7. Sketch of House

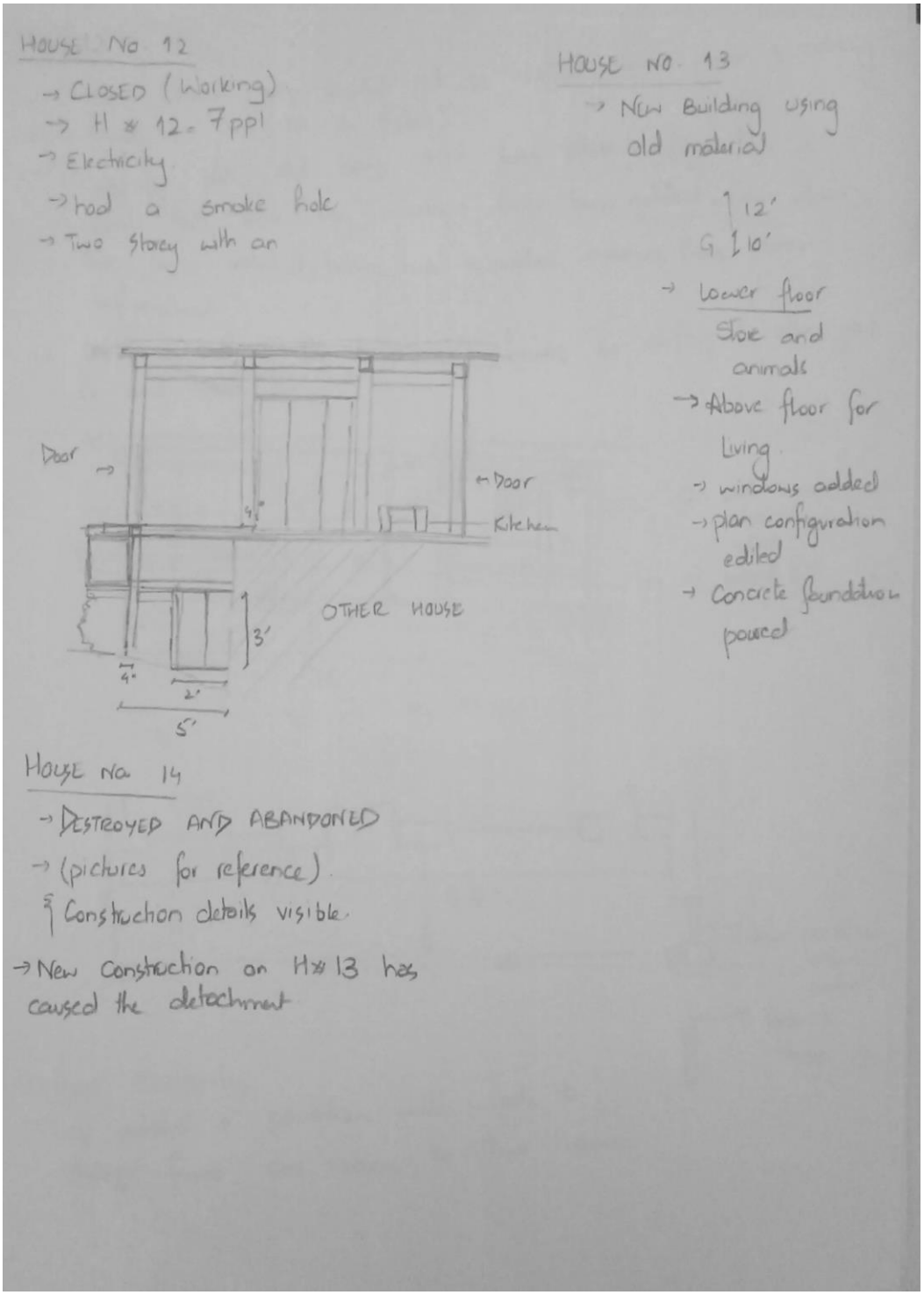


Figure D.8. Sketch of House

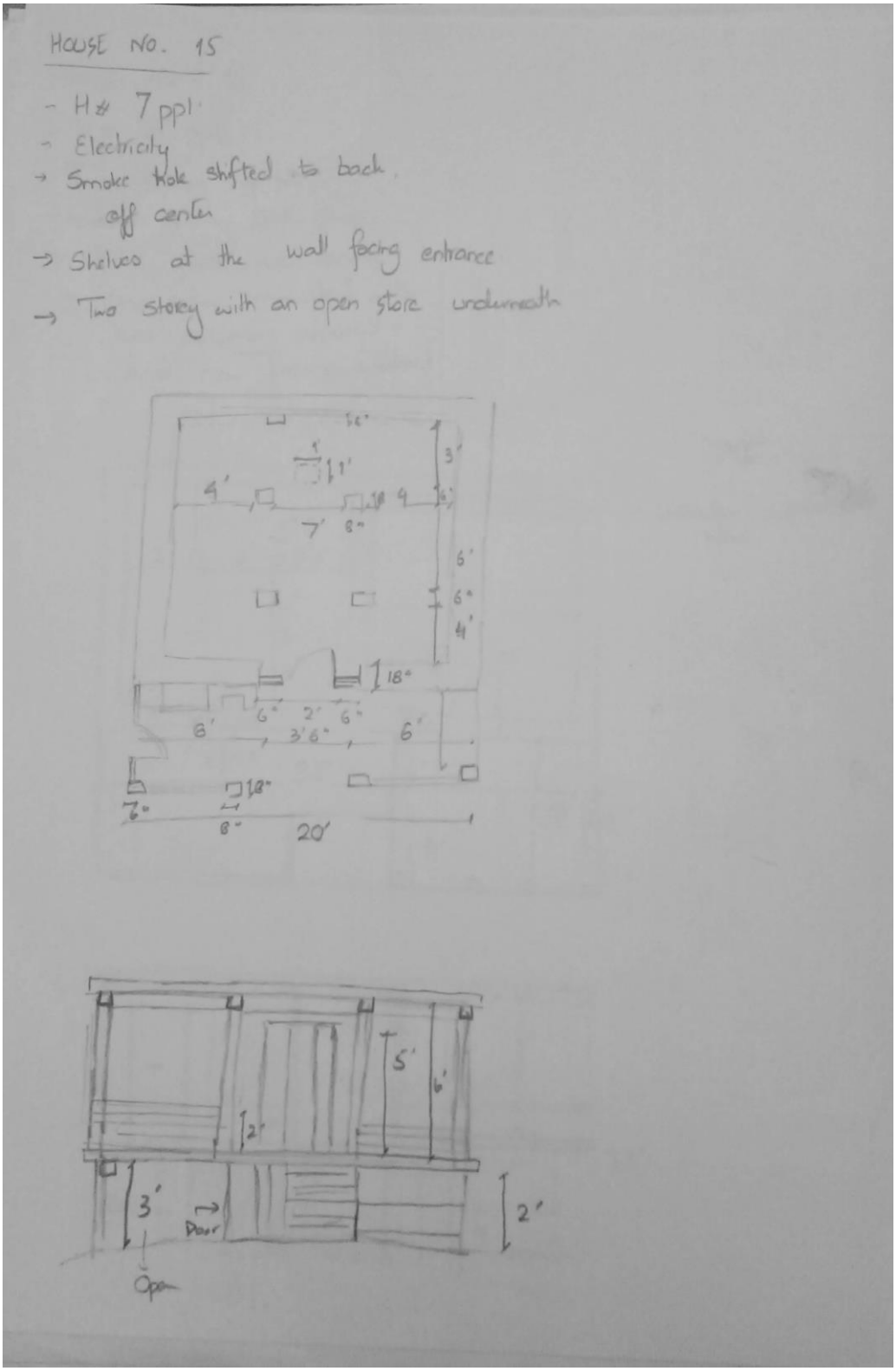


Figure D.9. Sketch of House

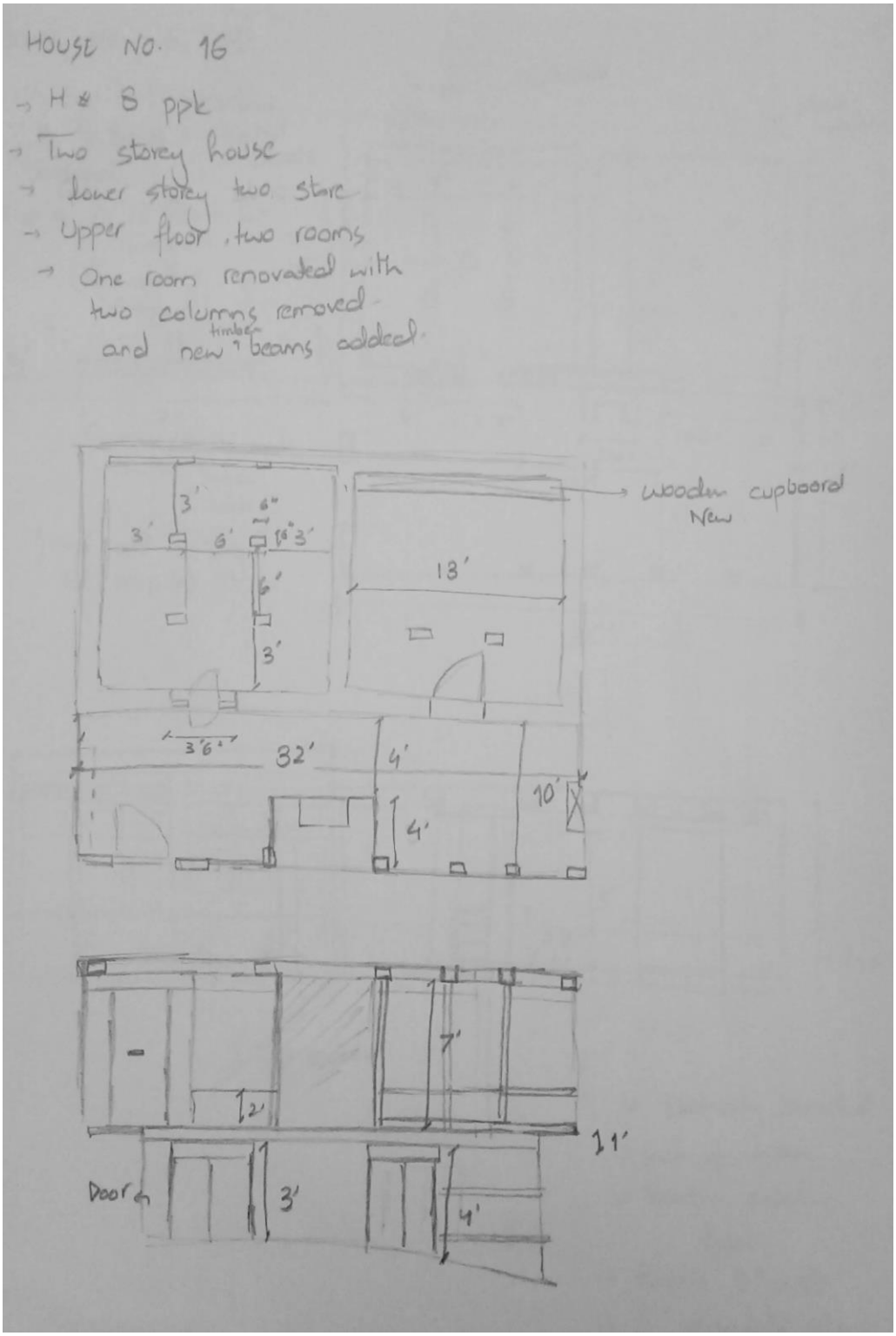


Figure D.10. Sketch of House

APPENDIX E

Maps of the Area.

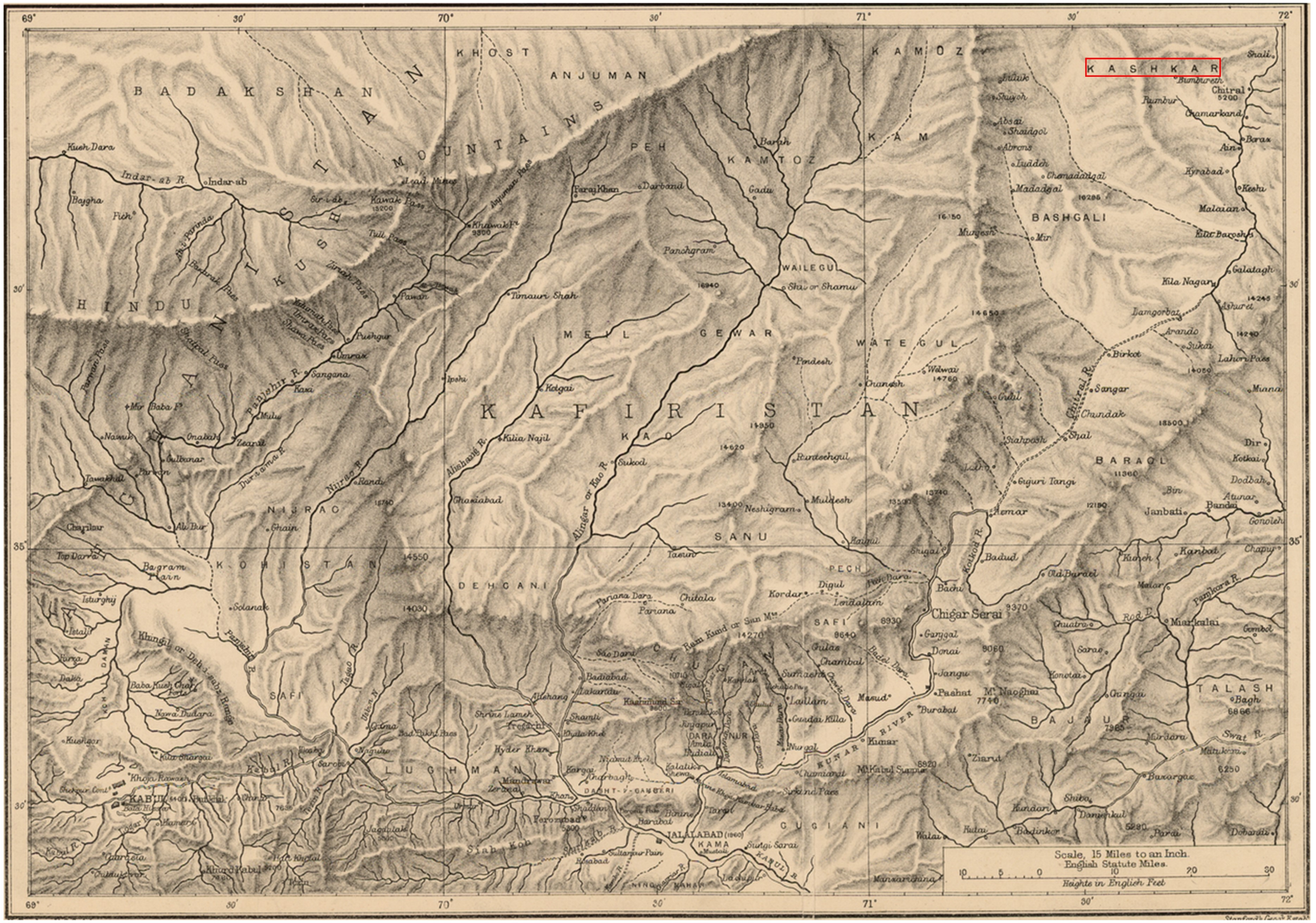
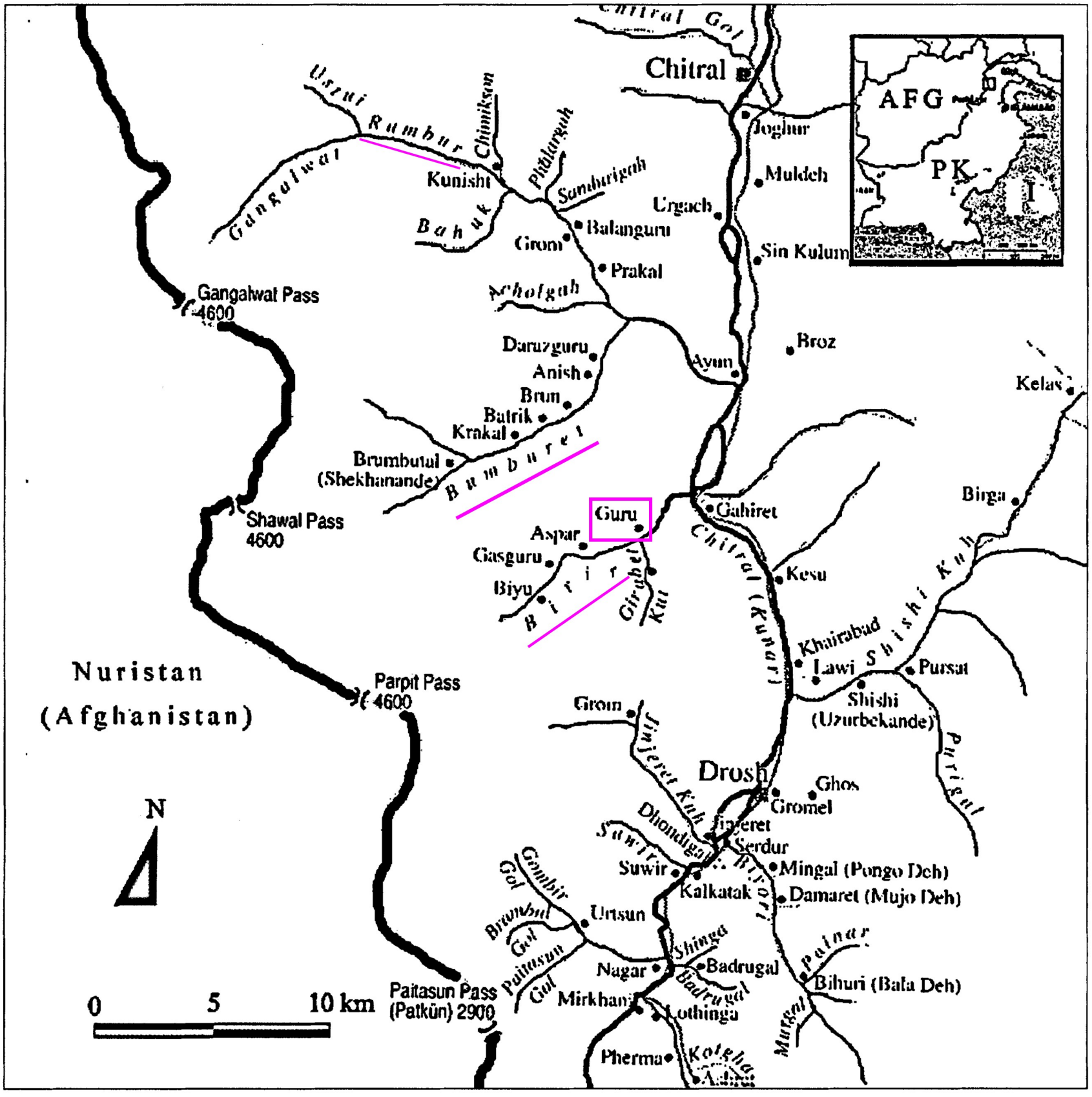


Figure E.1. Map of Kafiristan with Kalash region named as Kashkar. Reprinted from Royal Geographical Society (Great Britain), Edward Stanford, 1881.

Map E.2. Map of Pakistan showing location of Chitral. Reprinted from Political Map of Pakistan, https://www.nationsonline.org/oneworld/map/pakistan_map.htm, Accessed 10 May, 2019.



Map E.3. Map of Southern Chitral modified by author showing location of Kalash Valleys and Guru Village. Reprinted from "The Prun Festival of the Birir Valley, Northern Pakistan, in 2006", by P. D. Carlo, 2007, East and West, 57(1/4), 45.

APPENDIX F

Architectural and Construction techniques terminologies in Kalashwar

English	***Kalashwar***
Axe	*Bardokh*
Beam	*Basha*
Blade	*Phelik*
Builder	*Misri*
Carpenter	*Ustad*
Ceiling	*Ispras*
Door	*Dur*
Door Handle	*Griken*
Door hole	*Nahgan*
Door Joinery	*Charamberu*
Door wood sculpture	*Chotala*
Earth	*Phaw*
Entrance Door	*Durwaza*
Floor	*Kat'har*
Floor Beam	*Sanj*
Foundation	*Mermut*
Hammer	*Bedir*
Horse Shoe Symbol	*Aspala*
House	*Dur*
Joists	*Kahi*
Kitchen	*Ingrok*
Knife	*Katar*
Ladder	*Shidik*
Lintel	*Jaw Gren*
Mud Mortar	*Kresh*
Post	*Thun*
Pure space in room only men can access	*Orishtawa*
Railing	*Charai*
Railing and Seating Panel	*Niskein Kat*
Roof Smoke Hole	*Kumak*
Roof wood panel	*Darmi*
Shelf	*Penak*
Shelf for domestic use and Goddess Jeshtak	*Madeer*
Small Door	*Muta Durik*
Spear	*Barma*

Stone	*Bat*
Stone Wall	*Bat Diga*
Stools	*Hanak*
Timber	*Shula*
Timber Cross Pieces	*Kahi Thar*
Timber Wall	*Dar Dur*
Timber Wall Bands	*Kahi*
Verandah	*Lar / Lawar*
Wall Joinery	*Shing*
Water	*Ugk*
Workers	*Mezdur*