



# TRADITIONAL ARCHITECTURE GUIDELINES



Department of Urban Development and Housing

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## FOREWORD

Modern Bhutan is directed towards its development goals by nine guiding principles conceived through the vision and foresight of His Majesty the King. One of these principles is the "Preservation of Traditional Art and Culture". Our long period of isolation and late entry into the sphere of socio-economic development has offered us the opportunity to examine the successes and failures of other nations and to learn from these examples. We have realized that the key to maintaining our sovereign and independent identity is the preservation of our unique traditions and culture. With its small size and population, Bhutan does not have the potential to become a political or an economic force but she does have the potential to become a cultural force. We are one of the last places on earth where ancient traditions are still a way of modern life.

But those traditions are being seriously threatened by the inundation of modern ideas and space-age technology. The dilutor effects are most visible in our houses. The import of modern materials and labor, the dependence on modern technology, ignorance of traditional Bhutanese architecture and the shrinking number of artisans have all contributed to the deterioration of our traditional building styles and practices. Efforts have been made to promote and incorporate traditional architecture with modern construction methods and materials but results have not been encouraging, primarily due to the absence of any formal guidelines. Bhutanese arts and crafts in general and architecture in particular have always been informal arts. While formal school for certain arts and crafts have now been established, unfortunately architecture and building skills are still taught or learnt informally through oral instruction and on-the-job training.

This book has been published as an attempt to revitalize a fading art in addition to the documentation on Traditional Architecture published in 1993 by the Department of Works and Housing. It aims to acquaint readers with the correct structure and organization of traditional architectural features and to provide guidelines in their usage in various types of buildings. This guideline will form the basis for further research into the area of Bhutanese architecture and will be revised periodically to be more dynamic to adapt to the contemporary needs.

I sincerely hope that this book will serve both as a record of our historical achievements and as a guide to our future generations. I humbly dedicate this book to our beloved King, His Majesty Jigme Singye Wangchuck, for the visionary leadership he continues to bestow on the Bhutanese people and for instilling in us the value of our culture and the importance of its preservation.



(Leki Dorji)

Deputy Minister

Ministry of Communications

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We are particularly thankful to Mr. Namgay Retty, Architect, SPBC, who undertook the laborious task of compiling most of the information and photographs/illustrations and transforming them into the form of this book.

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Finally, we would like to thank DANIDA for their generous financial assistance in organizing the workshop which brought artisans and ideas together to form the basis of this book.

## INTRODUCTION

History has told us that the incursion of industrialization and modernization has often taken over centuries old traditions and cultures in many countries. In Bhutan such influences can be observed in the border towns and in the urban areas where modernization and industrialization has encroached into our rich and vibrant traditional values and cultural heritage. The Royal Government of Bhutan, sensing the danger of losing traditional values and culture, has taken steps to preserve and promote the kingdom's distinctive identity.

In the early 80's the National Urban Development Corporation was established with the mandate to promote the architectural heritage of the kingdom. Unfortunately ours is an oral society where many of our traditions have been passed down verbally. Also with our traditional craftsmen being mostly illiterate, there was a generation gap between the traditional architects and the trained modern architects.

In order to bridge this gap, the Department of Urban Development and Housing arranged a three-day Workshop in Thimphu to discuss on the theme "Traditional Architecture in the Light of Emerging Contemporary Trends", and to develop a guideline, particularly regarding architectural hierarchy and entitlement (*thopthang*). Due to the vastness of the subject, many important issues could not be covered, and these were later discussed in a smaller group of architects and decision makers.

This guideline has been developed based on the recommendations of the workshop. An attempt has been made to document the unique styles and features of traditional Bhutanese architecture. It is hoped that this book will serve as a guide to scholars, architects, engineers and builders and as an inspiration for further creativity and growth. Emphasis is placed on the organization of traditional features, their modes of construction, entitlements (*thopthang*) and minimum requirement of traditional features depending on the type of building.

This book should not be perceived as a definitive treatise on the origins and significance of traditional Bhutanese architectural features. In the absence, or the ignorance, of historical texts regarding traditional architecture, it is neither possible nor proper for us to provide our present day interpretations of age old traditions. Instead, we hope that this publication will stimulate further research into the area of Bhutanese architecture that still remains largely untouched and unknown.

Further, it must be emphasized that this book cannot and should not be used in isolation. Structural stability must be given equal or greater importance than architectural aesthetics which is made even more critical due to our country's location on a sensitive

seismic zone. Therefore, this book should be used in partnership with existing guidelines such as the Bhutan Building Rules and other generally accepted Codes and Standards.

**Note: Replication of traditional architectural features through painting shall not be permitted. Traditional painting on architectural features as per entitlement shall be mandatory.**

## TRADITIONAL BHUTANESE HOUSE

Bhutanese houses apart from the Dzongs, monasteries, temples and bridges have a distinct character from those of other Himalayan countries. Most houses are relatively spacious and take advantage of natural light and because of the steep terrain, are usually built as scattered houses or in clusters rather than in rows. Timber, stone, clay and adobe bricks are typical construction materials. Family residences are frequently three storeyed with room for livestock on the ground floor, storage and sometimes living quarters on the second floor and on the third floor living quarters and a shrine. Between the third floor and the roof an open space is usually kept for open-air storage. Boulders over lath are used to hold down wooden shingles on the roof truss.

Ever since Bhutan lifted its policy of self imposed isolation, the country has witnessed unprecedented changes in a brief span of time. This was primarily due to rapid economic growth and modernization which has resulted in a gradual erosion of traditional ways and values of life which one day may lead to the disappearance of Bhutan's unique architecture, specially in the growing urban towns.

The following chapters will attempt to explain the traditional architectural elements, entitlement of architectural elements (*thopthang*) and guidelines on compromised *thopthang* for contemporary architecture.

It is considered in this report that traditional architecture must adjust to changing needs and conditions in order to retain its power and beauty.

## 1 ROOF

In traditional Bhutanese architecture the roof feature and associated elements signified hierarchical order and one's status in society. The roof features are *Jabzhi*, *Jamthog* and *Lung-go* and associated elements are *Sertog*, *Gyaltshen*, and *Gungdhar*.

The most common traditional Bhutanese roof is a gable roof, which consists of a heavy principle beam known as *Gungchhen*, *Gungchung*, and *Lungzey* (refer illustration-01) supported by a series of vertical posts known as *Shari*, *Sha-thung*, *Lhiuchung* and *Ga*. In the middle and at the rear of the house, the *Dingri* are supported on raised rammed earth known as *Chholo*. Over the principle beams the *Tsim* (rafters) are placed, on which the *Dhangchung* (roofing battens) are laid very closely, which are in turn fastened to the *Tsim* (rafters).

*Shinglep* (timber shingles) are laid on the *Dhangchung* either in three or four layers and held down by stones over the lath. Traditional roof pitches are 12 to 15 degrees.



Photo 1.a - Traditional gable roof with *Lung-go* under construction.



## 1.1. ROOF TYPES

### 1.1.1 Gable Roof

This is the standard traditional roof. It is the most feasible form of roof to finish with timber shingles, but is also suitable for any other type of roofing material.

The gable roof is **permissible** on any structure.

### 1.1.2 Hip Roof.

The hipped roof is a new form of roofing gaining great popularity in Bhutan with the advent of new materials like corrugated sheet and roofing tiles.

This type of roof is **permissible** on any structure.

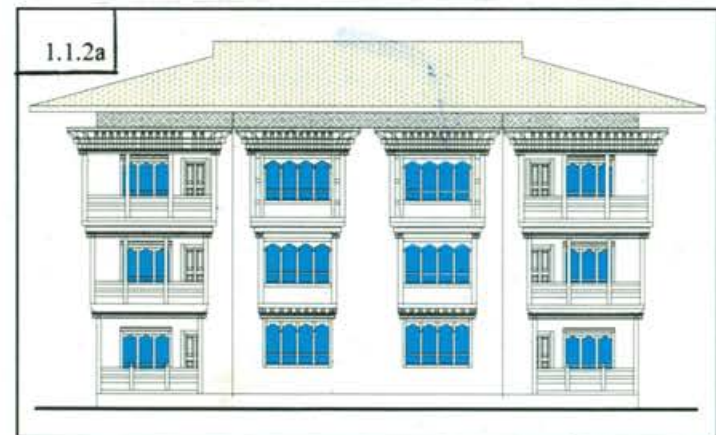


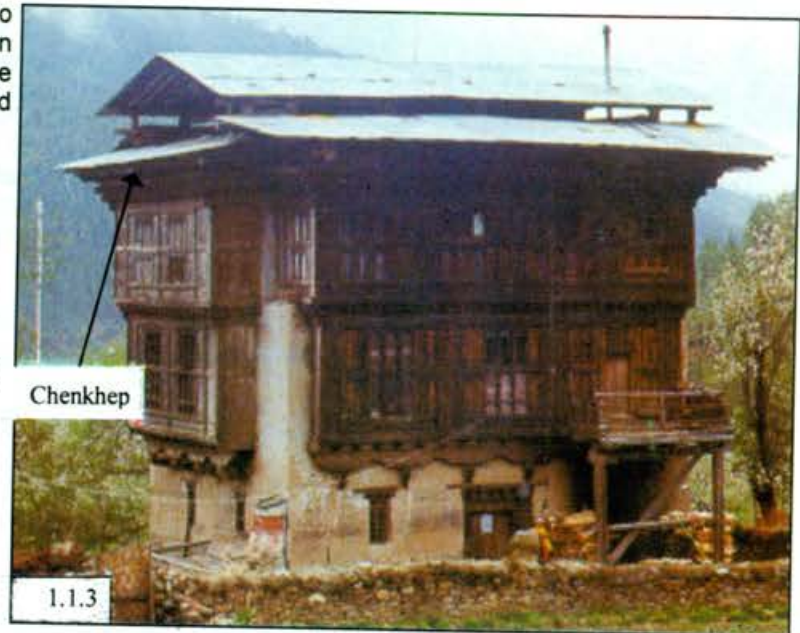
Photo 1.1.1- Building with Gable roof. Illus. 1.1.2a - Conceptual building elevation with Hip roof. Illus. 1.1.2b - single storey Headmaster quarter with Hip roof ( SPBC, Edn)

### 1.1.3 Lean To Roof (*Chenkhep*)

The *Chenkhep* roof is a lean-to roof usually built at a gable end to protect the structure from rain. Traditionally it is only allowed on buildings with *Jamthog* or *Lung-go* roof. Like the *Jamthog*, the *Chenkhep* enables one to achieve an economic roofing structure and provides protection to timber members from rain.

A *Chenkhep* roof is **permissible** on all types of building.

Photo 1.1.3 - Photo from Bumthang valley. The *Rabsel* is known as *Shoma Rabsel* on *Drey-zhu*. The lean-to roof at the side is called *Chenkhep* roof.



## 1.2 ROOF FEATURES

### 1.2.1 Jabzhi Roof.

The *Jabzhi* roof is a square lantern type structure with pitch roof, which is usually placed on main roof or on another larger *Jabzhi* known as *Jabzhi Wogma* (lower *Jabzhi*). Traditionally the *Jabzhi* roof is painted yellow, has carvings of mythical birds or animals like the *Jachhung* (Garuda) or *Chhusing* (alligator) and is framed with a special eave board known as *Chhuzar-chhulog*. According to *Zowu* (traditional carpenter) Thuji from Talo, *Jabzhis* normally do not have windows and cornices, the addition of which appears to be a recent development.

A *Jabzhi* roof has to have a *Sertog*. The *Jabzhi* roof must be decorated with a *Jachhung* (Garuda) or *Chhusing* (alligator) and *Chhuzar-Chhulog*, and such decorations are permissible only on Dzongs, Monasteries, Temples and on Royal buildings as this roof form is the highest in roof hierarchy.

A *Jabzhi* roof is therefore **not permissible** on residential and commercial buildings. With **special permission** from the Competent Authority it may be allowed on certain institutional buildings with a *Gyaltshen*. In such cases minimum required cornices shall be incorporated above the *Jabzhi* windows.

A *Jabzhi* roof with a *Gungdhar* may be **permitted** on Ministerial residences without the carvings of mythical birds or *Chuzhar-chhulog* and without the yellow painting.

Note: A pitch roof other than a square shaped one is not a *Jabzhi*.



*Jabzhi Wogma*

Photo 1.2.1 - Trashichhodzong Utse with top *Jabzhi* placed on *Norbu Bagam*. Also refer Photo 1.3.1a showing *Jabzhi* roof with windows and cornices.

### 1.2.2 Jamthog Roof.

This is another special feature of the roof and comprises a raised gable roof over the main gable roof of same length. Historically it is said that to have a *Jamthog* roof, one had to be a senior Govt. officer or a person of high social ranking. The *Jamthog* may be over a half gable roof as illustrated in photo 1.2.2b or "full" as in photo 1.2.2a. According to Zowu Tshering from Tsiwu-La, Punakha, traditionally a building with *Drey-zhu Rabsel* implied that it was entitled to a *Jamthog* roof.

Traditionally no windows or cornices were provided under the *Jamthog*.

Photo. 1.2.2a - Farm house with full *Jamthog* supplemented by *Drey-zhu Rabsel*.

Photo. 1.2.2b - Another farmhouse with half *Jamthog*.

The *Jamthog* roof is **permissible** on residential, commercial and institutional buildings that have two or more storeys. The *Jamthog* roof may be **allowed** to have windows between the roofs **without cornices** above.



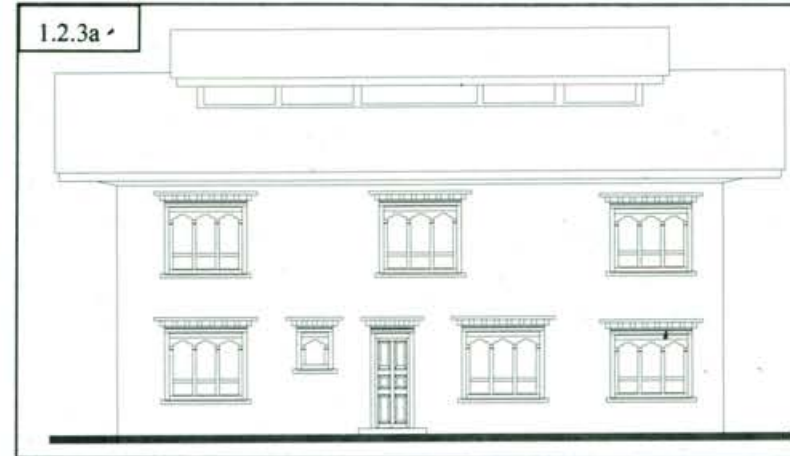
### 1.2.3 Lung-go Roof.

The *Lung-go* roof is also a raised roof like the *Jamthog* but does not extend to the full length of the main roof. A *Lung-go* roof can be gable ended or hipped like the *Jamthog*. Historically it had no clerestory windows. According to tradition, the entitlement of *Lung-go* is similar to *Jamthog* though this type of roof is now found all over Bhutan on farm buildings.

A *Lung-go* roof is **permissible** on all types of buildings under the strict guidance of Bhutan Building Rules. To achieve better space utility, plain clerestory windows may be **allowed** between the roofs **without cornices** above.

Illus. 1.2.3a - Two storeyed building with *Lung-go* roof.

Photo. 1.2.3b - The Old Zangtopelri above Taktsang monastery with *Lung-go* roof.



### 1.3. DECORATIVE ELEMENTS

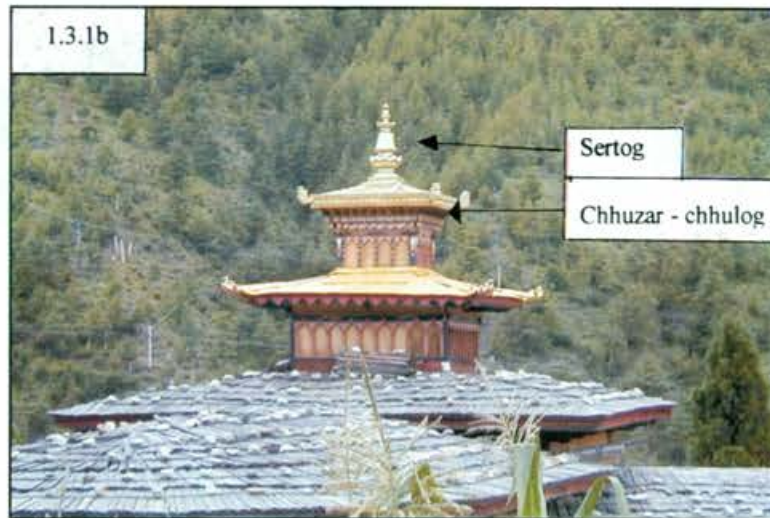
#### 1.3.1 Sertog.

The *Sertog* is the highest architectural element placed on Dzongs, Monasteries and Royal Buildings. The *Sertog* is invariably placed on a *Jabzhi* roof either standing on a *Norbu Bagam* or on a structure with a *Kemar* band or on a structure with windows fully incorporated with traditional cornices (Phagna, Bogh, Choetseg, Pedma, Norbu-Bagam, Norbu-Horzhu and Dhung). The *Sertog* is also seen on the *Jabzhi* of a *Lhakhang* (monastery) that houses very sacred relics.

The *Sertog* is **permissible** only on Dzongs, Royal Buildings and on Monasteries.

Photo 1.3.1a - Changlimithang Royal Pavilion's *Sertog* on single *Jabzhi*.

Photo 1.3.1b - High Court building *Sertog* on double *Jabzhi*. The eave board of the top *Jabzhi* is called *Chhuzar-chhulog*.



### 1.3.2 Gyaltshen

The *Gyaltshen* or 'Victory Banner' is the second highest architectural element placed on the roof of Dzongs and Monasteries. Historically, the *Gyaltshen* was permitted only in Monasteries that had 110 volumes of *Kanjyur*, 240 volumes of *Tenjur* and other very sacred '*Kusung Thuk Ten*'. The *Gyaltshen* was also allowed if a structure had a *Kemar* band irrespective of roof feature. However, this *Thopthang* (entitlement) has been greatly misused as illustrated in the photo 1.3.2a.

The *Gyaltshen* is **permissible** only on Dzongs, Monastery, Royal Buildings and Institutional Buildings.

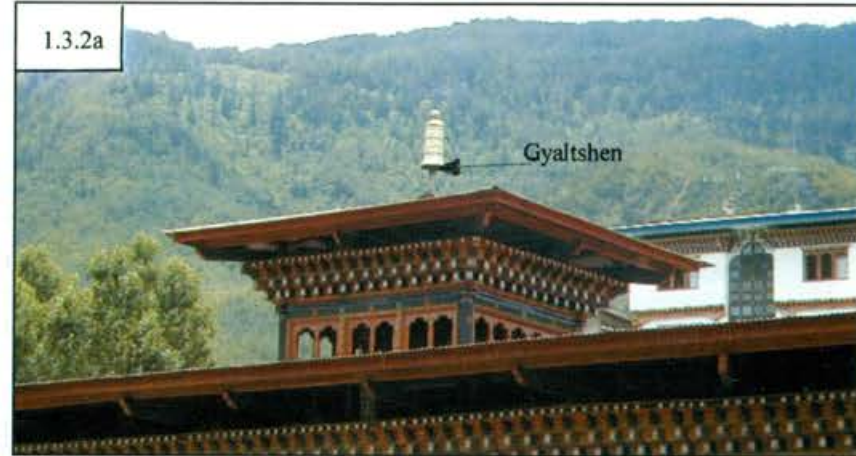
Photo 1.3.2a - Changlimithang archery pavilion. This structure was built as a pavilion for H.H. Jekhenpo during the 'THRI', which at that time was entitled to have *Gyaltshen*. But now it is a multipurpose gallery.

Photo 1.3.2b - This building was initially built to serve as a banquet hall during the Coronation of the fourth King. It is now used as a multi-purpose hall, thus contradicting the significance and usage of the *Kemar* band and the *Gyaltshen*.

### 1.3.3 Gungdhar

A *Gungdhar* is a white flag with blue, yellow and red strips, which is placed on the roof. Traditionally all the houses were permitted to have one without the *Reldri khorto*. In place of *Reldri* and *Khorto* a bunch of leaves were used. The *Reldri* and *Khorto* were permitted only on buildings which had at least a volume of *Domang* or *Gaytoun* or on a house having a *Jamthog*, *Lung Go* or *Jabzhi* roof.

A *Gungdhar* with *Reldri* and *Khorto* is now **permissible** on any building.



In a double tier *Rabsel*, the second tier will start from the *Bogh* of the lower *Rabsel* and must have minimum cornices at the top.

If *Drey-zhu* is used it has to be on the first tier *Rabsel*.

The basic principals described above apply to all types of *Rabsel* except on *Gomang Rabsel*.

The different types of *Rabsel* are as follows:

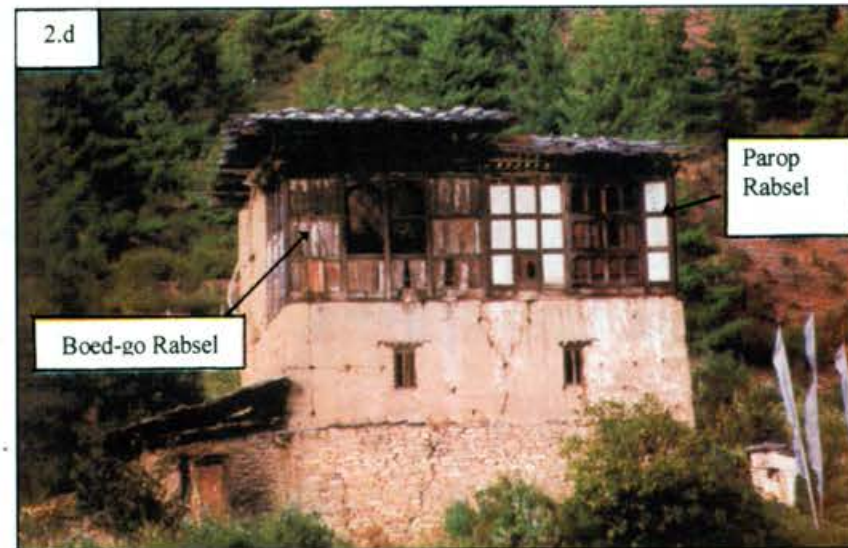
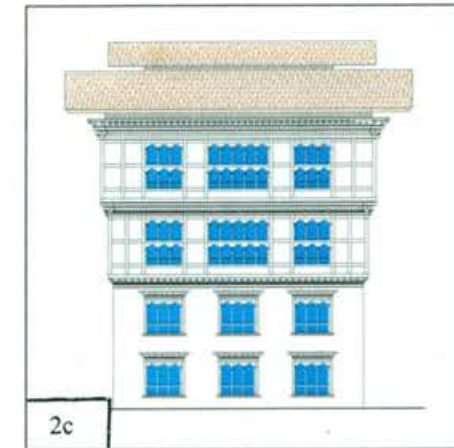
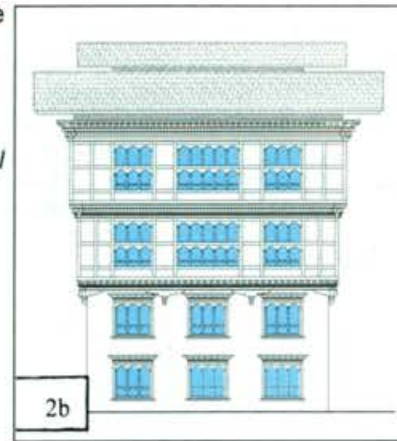
- Parop Rabsel.*
- Rabsel Go-chham Thognyim.*
- Lobur Rabsel*
- Boedgo Rabsel.*
- Gyesargo Rabsel*
- Drey Zhu Rabsel*
- Gomang Rabsel.*
- Nimchong Rabsel*

These *Rabsels* will be discussed individually under their headings.

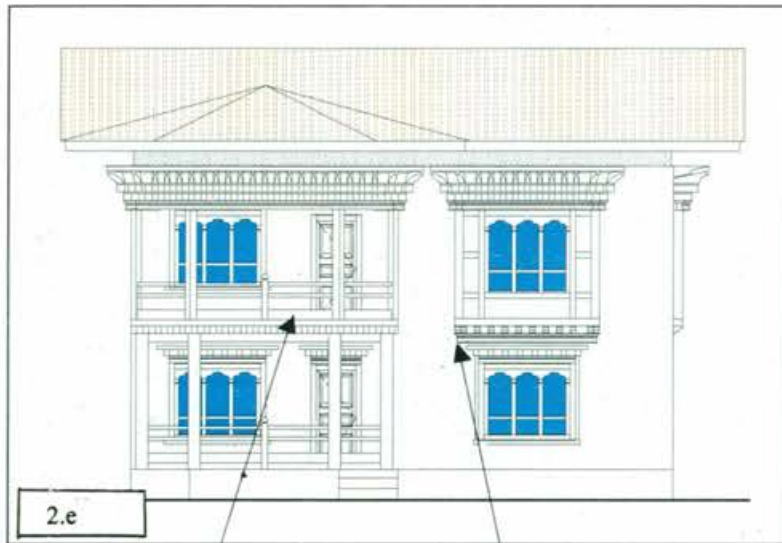
Illus. 2b - Illustration of double tier *Rabsel Go-chham Thognyim* supplemented by *Drey-zhu*.

Illus. 2c - Double tier *Rabsel Go-cham Thognyim* without *Drey-zhu*.

Photo. 2d - A farm building with *Boedgo Rabsel* and *Parop Rabsel* side by side.







*Nimchong Rabsel*

*Lobur Rabsel*

Illus. 2e - Double storey building with *Nimchong Rabsel* and *Lobur Rabsel*.

Photo 2f - *Gyesargo Rabsel* on *Drey Zhu* (Kawangjansa Heritage building).



## 2.1 Rabsel Types

### 2.1.1 Parop Rabsel.

The origin of this *Rabsel* (photo 2.1.1a) is said to be the Paro valley. In principle it is the same as normal *Rabsel* except the window is triple storied as shown in the photo (right). It is also called *Parop-gi go-chham*. This type of *Rabsel* enables the designer to achieve greater room height.

Parop *Rabsel* is **permissible** on any building provided all the required traditional architectural elements are replicated correctly.

Photo 2.1.1a - Building in the foreground has *Parop Rabsel*. The *Thrangchok* on this *Rabsel* is usually smaller than *Rabsel Go-chham Thognyim*.

Illus. 2.1.2a - is the illustration of *Rabsel Go-chham Thognyim*.

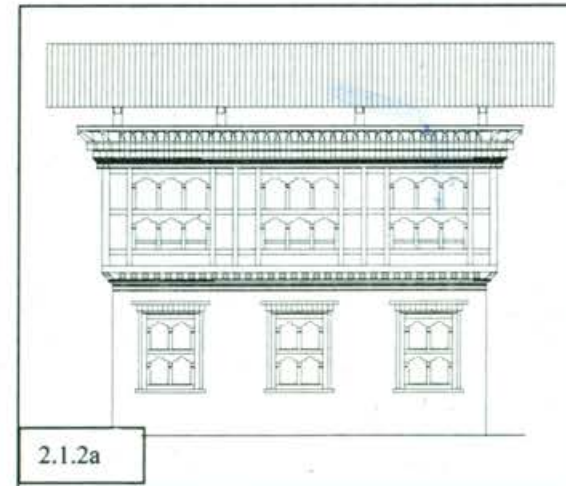


### 2.1.2 Rabsel Go-chham Thognyim.

This type of *Rabsel* is the most popular form used all over Bhutan. The construction technology and permissibility is the same as the above-mentioned *Rabsel*.

This *Rabsel* is now more or less the archetypal form. It requires less timber in comparison with *Parop Rabsel*.

This type of *Rabsel* is **permissible** on all buildings.



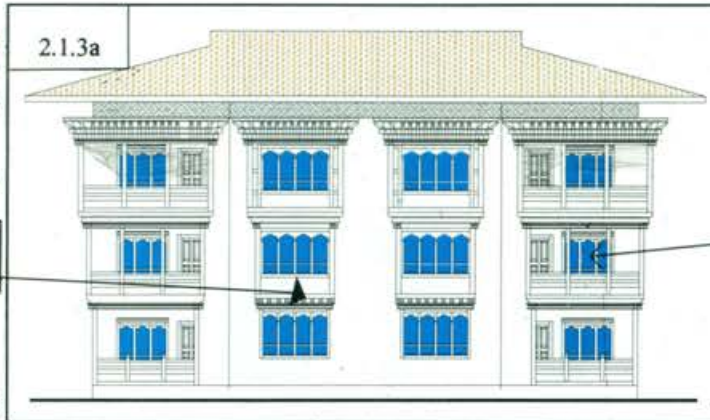
### 2.1.3 Lobur Rabsel.

This is the name of a smaller unit of *Rabsel* that doesn't cover the entire façade of a building. The construction and the architectural details are same as other *Rabsel* and it is **permissible** on any building irrespective of number of storeys.

Illus.2.1.3a - Conceptual building elevation showing *Lobur Rabsel* and *Nimchong Rabsel*.

*Lobur Rabsel*

*Nimchong Rabsel*



### 2.1.4 Boedgo and Gyesargo Rabsel.

These two types of *Rabsel* were used in the medieval architecture of Bhutan and they can be seen on some buildings even today. Usually on such *Rabsel*, *Shoma* panels were used as infill between the timber frames.

Photo. 2.1.4a - photo shows a building with *Gyesargo Rabsel* and photo 2.1.4b shows building with *Boedgo Rabsel*

The difference between the *Gyesar-go* (photo. 2.1.4a) and *Boedgo* (photo. 2.1.4b) are the size of window opening, the *Thrangchok* and the *Horzing*.

Nowadays these types of *Rabsel* are not commonly constructed. However, if someone wishes to incorporate such architectural elements they are **permitted**, provided they adhere to traditional permissibility (*Thopthang*).

*Thrangchok*

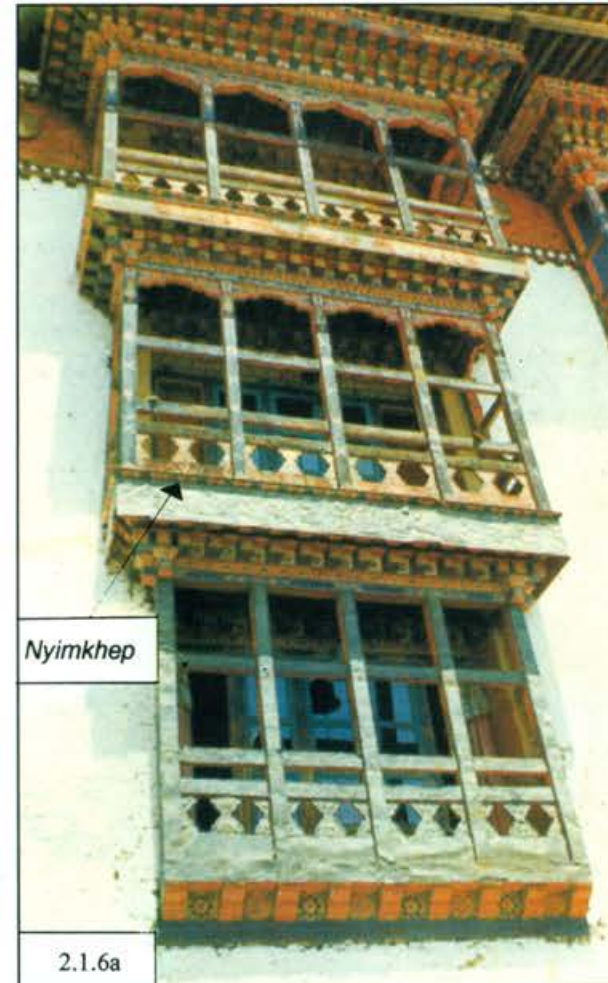


## 2.1.6 Gomang Rabsel

*Gomang Rabsel* (photo 2.1.6a and 2.1.6b) is a *Rabsel* with many openings. Traditionally this is only seen on Dzongs and Monasteries. *Gomang Rabsel* will always have *Nyimkhep* with carved *Lane-zha* words or paintings of auspicious offerings. Blocks of *Norbu Bagam*, *Drey-zhu* or *Tsechukhanyim* support the *Gomang Rabsel*. It may be single storeyed or more.

A *Gomang Rabsel* is **not permitted** on residential, commercial and institutional buildings.

Photo 2.1.6a - Three tier *Gomang Rabsel* of Tangu Dzong plated with thin brass sheet. The timber board covering the cornices is called *Nyimkhep*.  
Photo 2.1.6b - *Gomang Rabsel* on *Drey-zhu* from Gantey Goempa.

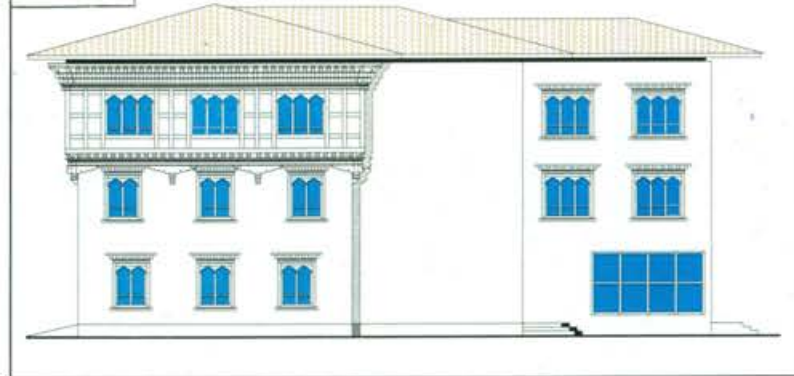


2.1.4b



Boedgo Rabsel has high windowsill and Horzing.

2.1.5a



2.1.5b



### 2.1.5 Drey-zhu Rabsel

This is a *Rabsel* supplemented by members of *Drey-zhu Tsechukhanyim/Langna* to increase architectural richness as shown in the illustration 2.1.5a. The shape of the *Zhu* in a *Drey-zhu* is different from the *Zhu* used on *Kachhen* (photo 4.1a). This architectural detail is **permissible** on any type of building more than one storey high which has *Rabsel*.

Photo 2.1.5b shows the crossing of *Drey-zhu*. The architectural elements you see here are, (from below) *Langna* or *Tsechukhanyim*, *Drey-Zhu*, *Dhung*, *Pedma*, *Choetseg* and *Tsechukhanyim*.

Note : The shape of the *Zhu* is different from that of a *Kachhen Zhu*.

## 2.2 Shamig (Ekra).

The *Shamig* panel is an element, traditionally built with mud plaster over a bamboo mat inserted between timber frames (photo 2.2a). *Shamig* panels are also known as *ekra*.

When this detail is replicated with modern materials, the shape of *Zurbhu*, *Bhu*, *Lenbhug* and *Jaka* must be portrayed properly. *Shamig* may be square or vertically rectangular but never horizontally rectangular.

Photo 2.2a - illustrates the making of *Shamig*.

## 2.3 Shoma.

It is the name given to the timber panel used in place of *shamig* in old houses.



### 2.1.7 Nimchong Rabsel

*Nimchong* (photo 2.1.7a) literally means a Sunroom. It is a type of enclosed balcony either supported on *Tsechukhanyim* or on columns or built over the ground floor with cornices. A *Nimchong* may also have *Tazi* between the vertical posts. There appears to be some confusion between the *Nimchong* and the *Gomang Rabsel* as the functions are similar with common architectural elements such as *Bogh*, *Phag-na*, *Pedma*, *Choetseg*, *Dhung*, *Jugshing* and *Thrangchok* being used. In some cases both are supported by *Tsechukhanyim*. However, a *Nimchong* is never supported by a *Drey-zhu* and will not have a *Nyim-khep*. If supported by *Tsechukhanyim* it cantilevers out. Another feature is the multi-doors behind the *Rabsel*, found only in *Gomang Rabsel*. *Nimchongs* are never built in tiers and if desired, it can be supported clearly by *Kachhen* or *kawo* at the ground level.

*Nimchong Rabsel* is **permissible** on any buildings.

Illus. 2.1.7a - Clearly shows a *Nimchong* supported by *Kachhen* and *Zhu* with cornices on the top.



*Horzing* or *Horzhu* is the curved motif used at the head of a traditional window. The *Horzing* with *Lugro* (photo 3.1d) and *Chhujug Patra* (photo 3.1e) were reserved for use in Dzongs, Monasteries and Royal Buildings.



Photo 3.1d - *Horzing* with *Lugro Patra*

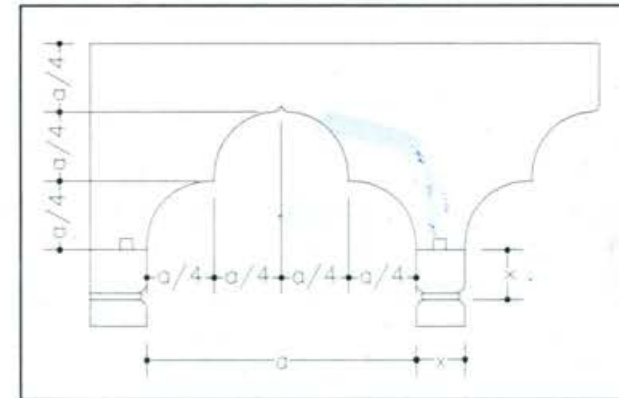


Photo 3.1e - *Horzing* with *Chhujug Patra*

When *Payab* windows are used on buildings without a *Rabsel* it is not required to incorporate *Bogh*, *Phagna* and *Tsechukhanyim*. This type of architecture is **permitted** on two storey buildings only. However, this type of structure shall **not be Permitted** in urban areas.

Placing the *Bogh* directly on the window frame is **not permitted**. It has to be either supported by *Zimchung* over the window frame or by the *Dhung* and *Pedma*. An optional feature is the *Choetseg*.

*Payab* windows with *shamig* is **not permitted** without *Dhung*, *Pedma* and *Bogh*. (*Cheetseg* is optional).



3.1 f: Recommended proportion of *Horzing* for contemporary buildings.

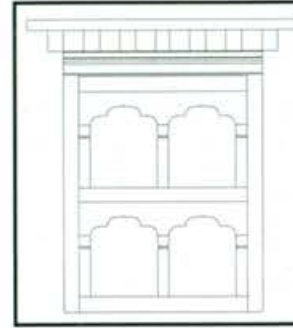


### 3 WINDOW AND DOOR

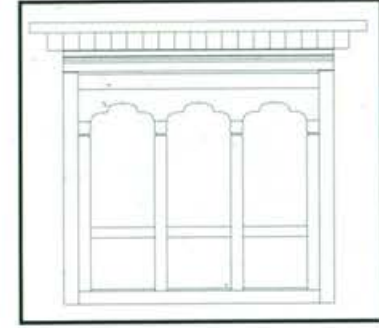
#### 3.1 Payab Window.

The *Payab* is a window that is embedded in the wall, but has few traditional decorative components. It has *Dhung*, *Pedma*, *Choetseg*, *Bogh* and *Zangshing* (illustration 3.1a) on the main window frame or it has *Zimchung* and *Bogh* with *Zangshing* (photo 3.1b). At times *Payab* windows are found with *shamig* on the sides and in such cases *Thrangchok* should be provided between the *Mathem* and *Buel-dhen*. In *Payab* windows *Bogh*, *Choetseg* and *Pedma* are omitted, only *Zimchung* is used between *Zangshing* and window frame (photo 3.1b).

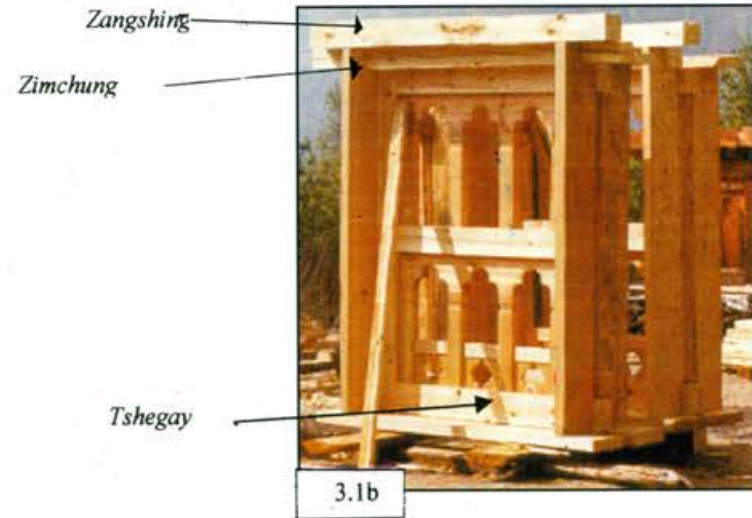
*Payab* windows are of two types; one is of double *Horgo* type (illustration 3.1a and b) and other is a *Boedgo* type (illustration 3.1c). In both cases *Horzing* is incorporated, with *Tshegay* sometimes placed between the *Jugshing* and *Mathem* (photo 3.1b).



3.1a Horgo Payab.



3.1c Boedgo Payab



### 3.3 Mago

*Mago* means main entrance door of the building, which has *Dhung*, *Pedma*, *Choetseg* and *Bogh*. When a *Mago* is placed next to windows, cornices are provided to match with window cornices.

Provision of *Sengay Karm* (Snow Lion head) carving over the *Bogh* only occurs in the Dzongs and Monasteries.

The *Mago* cannot be placed directly under the *Bogh* without a *Zimchung* or *Pedma* and *Dhung*.

Photo 3.3a - It is permitted to have lining of *Pedma* and *Choetseg* around a *Mago* doorframe and in such cases *Zimchung* must be placed above the lining followed by *Bogh* and *Zangshing*.

Photo 3.3b - Detail of *Mago* of a *Lhakang* with *Sengay Karm* carving over the *Zangshing*. (Late *Zopen* Om of Punakha Dzong Construction points out that these days some carpenters tend to place the carving between the *Bogh*, which is incorrect. The correct positioning is as shown in the photo and sometimes the carvings are inserted into individual boxes).

According to the *Zopen*, a *Dhung* is never placed over *Pedma*, *Choetseg* or *Zimchung* directly. When *Dhung* is used it has to sit on the doorframe followed by *Pedma* or *Pedma*, *Choetseg*, *Bogh* and *Zangshing*.



The *Horzing* feature **must** be applied to all windows. The *Lugro* and *Chhujug Patra* are **permissible** if one so desires.

To incorporate *Jugshing* or *Tshegay* on window is **not mandatory**.

To increase its architectural richness the *Payab* window can be lined with *Pedma* and *Choetseg* (as shown in photo 3.1g) inside the window frame on three sides.

3.1g: Lining of *Pedma* and *Choetseg*



### 3.2 Geykar Window.

The *Geykar* is a rectangular window embedded in the wall (photo 3.2a) with or without cornices and *Horzing* but with *Zangshing*. Generally *Geykar* openings are narrow and tall, divided into two or more layers. The *Horzing* if used is placed in the division.

Plain *Geykar* (without cornices and *Horzing*) is **permitted** only on store and toilets.

*Geykar* with *Bogh*, *Pedma* and *Dhung* is **permitted** for habitable rooms where architectural richness is to be achieved. In such cases *Geykar* is used on the lowest floor of the building.

*Geykar* openings should be narrower than *Payab* windows and will not have *Jugshing*. In place of *Jugshing*, *Barthem* is used.



The *Horzing* feature **must** be applied to all windows. The *Lugro* and *Chhujung Patra* are **permissible** if one so desires.

To incorporate *Jugshing* or *Tshegang* on window is **not mandatory**.

To increase its architectural richness the *Payab* window can be lined with *Pedma* and *Choetseg* (as shown in photo 3.1g) inside the window frame on three sides.

3.1g: Lining of *Pedma* and *Choetseg*



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Provision of *Sengay Karm* (Snow Lion head) carving over the *Bogh* only occurs in the Dzongs and Monasteries.

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Photo 3.3b - Detail of *Mago* of a *Lhakang* with *Sengay Karm* carving over the *Zangshing*. (Late *Zopen* Om of Punakha Dzong Construction points out that these days some carpenters tend to place the carving between the *Bogh*, which is incorrect. The correct positioning is as shown in the photo and sometimes the carvings are inserted into individual boxes).

According to the *Zopen*, a *Dhung* is never placed over *Pedma*, *Choetseg* or *Zimchung* directly. When *Dhung* is used it has to sit on the doorframe followed by *Pedma* or *Pedma*, *Choetseg*, *Bogh* and *Zangshing*.



3.3a



3.3b

## 4.2 Zhu

This is a timber bracket shaped like a bow and reduces the length of a beam to increase the load bearing capacity. The *Kachhen Zhu* is different from the *Zhu* used on the *Drey*.

There are no strict rules as to the type of *Zhu* one can use on a particular structure. This depends entirely on the elaborateness of the adjacent architectural elements. However, the shape and proportions must be maintained.



If the *Zhu* is used with the *Kachhen*, *Dhung*, *Pedma* or *Choetseg* and *Tsechukhanyim* must follow it.

Sometimes a double layer of *Bogh* is laid in place of *Tsechukhanyim*, which is also permissible.



Photo 4.2a - The tail of the crossing *Zhu*, *Dhung* and *Pedma* at the corner is missing. It should look like in photo 4.2b.



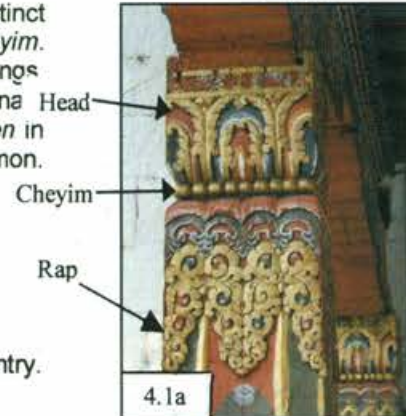
## 4 KACHHEN AND ZHU

### 4.1 Kachhen.

A *Kachhen* is the timber column that is tapered and has a distinct *Kachhen* head and *Rap* (photo 4.1a) separated by a line of *Cheyim* (rosary bead). Traditionally the *Kachhen* was found in Dzongs Monasteries and Royal buildings. They are very rarely found in ordinary residential buildings. However, in recent times, the use of *Kachhen* in commercial buildings and ordinary houses has become very common. There are three common shapes of *Kachhen* found in Bhutan.

- a) Square *Kachhen* (photo 4.1b).
- b) Octagonal *Kachhen* (photo 4.1c)
- c) Twelve sided *Kachhen* (photo 4.1d)

*Kachhen* (a) and (b) are most commonly used all over the country. *Kachhen* (c) is usually found in old monasteries and Dzongs.



The use of *Kachhen* is now **permitted** irrespective of residential, commercial or institutional buildings.

In commercial buildings where an arcade is built, it is mandatory to provide *Kachhen* and *Zhu* except on buildings designed as hotels.



## 5. TAZI

This is the name given to a balcony with traditional railing. *Tazi* may or may not have *Tshegay*.

*Tazi* is **permissible** on any building depending on the functions of the building.

It can be used between the *Kawo* of the balcony that is supporting the roof structure.

When *Tazi* is replicated with bricks or RCC the detailing should be carried out faithfully.



Photo 5.a shows the *Tazi* with *Tshegay* and Photo 5.b without *Tshegay*. Both are permitted.



*Zhu* can be simplified according to the spacing of the columns or according to the significance of the structure. The *Zhu* shown in Photo 4.2b is more elaborate than the *Zhu* shown in Photo 4.2c. The simplest form of *Zhu* permissible on a building is the one shown in Photos 4.2d&e. The figure 4.2f shows the step of simplifying the *Zhu* to suit the purpose.

The thickness of the *Zhu* is determined by the thickness of the *Dhung*. It is either equal to it or slightly bigger. The length of the full *Zhu* is usually 6 times its depth plus the thickness of the column. However, the length of the *Zhu* is also restricted by the spacing of the columns but its depth will not vary.

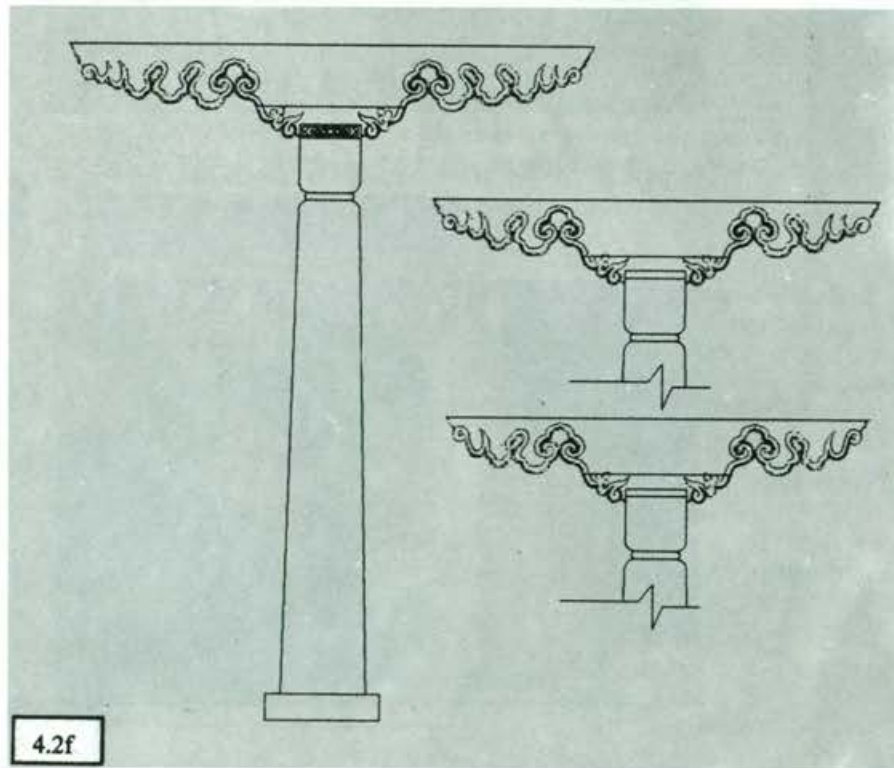
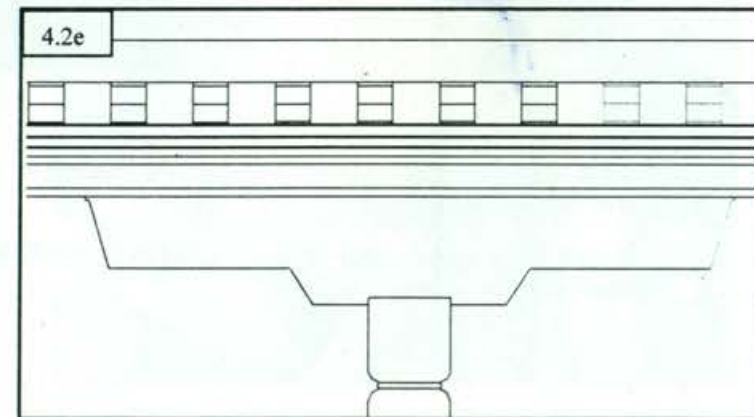


Photo 4.2d & e shows the simplified form of *Zhu*.



To achieve the architectural richness on a *Rabsel* one can add a layer of *Bogh*, *Choetseg* and *Drey-Zhu*.

On a single *Rabsel* (fig.6.b) *Langna* and *Drey-Zhu* are added below the *Tsechukhanyim's* *Dhung* to increase the architectural richness. In such cases the cornices on the *Rabsel* should be *Dhung*, *Pedma*, double layer *Bogh*, *Phag-na* and *Phag-khep*. However, if double tiered *Rabsel* is used on a building as shown in Illus. 2.b then *Langna*, *Drey-Zhu* will be attached to the bottom member and double *Bogh* is provided between the two layers of *Rabsel* and on the top the cornices will be same as on single *Rabsel*. In Illus. 2.c *Drey-Zhu* is omitted.

**Omission** of layer of *Bogh* or *Phag-na* is possible only on **single** and **double** storey building.

On the cornices below the *Jabzhi* roof, *Norbu Bagam* and *Norbu Horzhu* may be omitted or either one of them may be used.

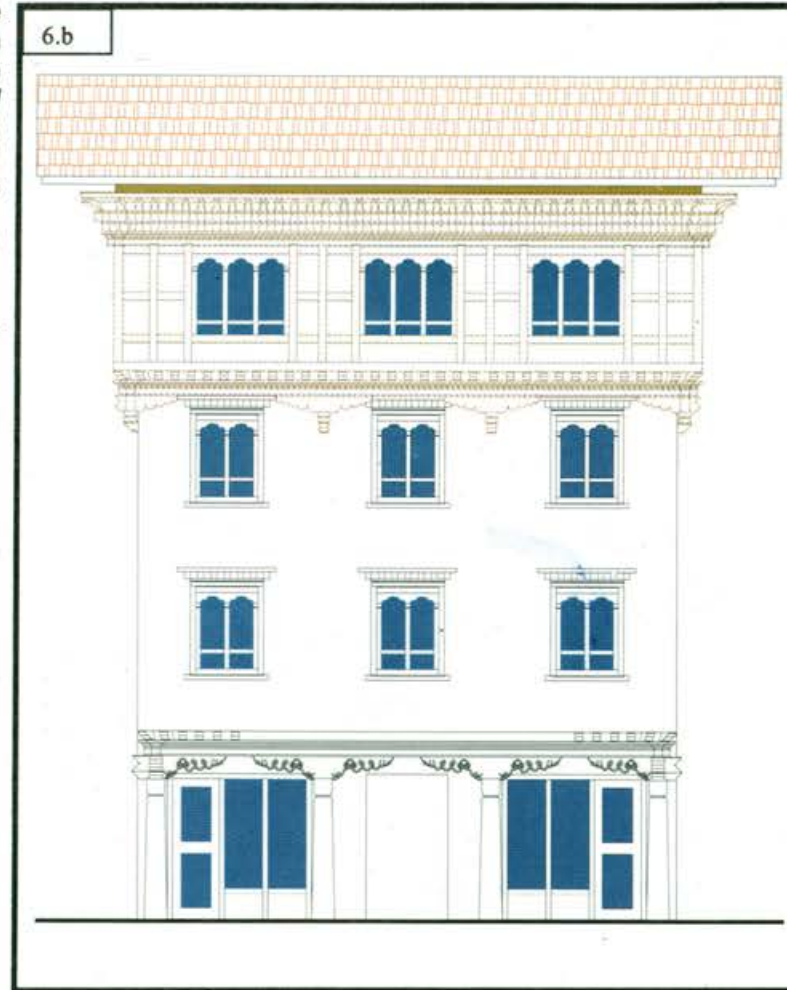
*Tsechukhanyim* cannot be omitted from a *Rabsel*. Also it is not **permitted** to use it as a decorative element without a *Rabsel* as shown in Photo 6c.



Illus. 6.b - A typical four storeyed commercial building with *Drey-Zhu* *Rabsel* on fourth floor level and *Tsechukhanyim* at first floor level.

Photo. 6.c - *Tsechukhanyim* only as a decorative element, which is **not permitted**.

Above a *Kachhen* minimum cornices required are *Zhu*, *Dhung*, *Pedma* and *Tsechukhanyim*.



## 6. CORNICES

Cornices in this context means *Phag-na/Ngangkey/Phuto Boo, Bogh, Choetseg, Pedma, Norbu Bagam, Norbu Horzhu, Tsechukhanyim/Langna, Dhung, Jang-Dhung, Zimchung and Drey-Zhu* (refer illustration-01).

These cornices may be used in different combinations to achieve certain hierarchy and aesthetic look.

### **Cornice Requirement on a Building.**

*Bogh* and *Phag-na* are **not mandatory** on a single storey building that has only *Payab* windows.

On a single storey *shamig* (*ekra*) building either two layers of *Bogh* with thicker *Bogh-khep* may be laid or one layer of *Bogh* and *Phag-na*.

Cornices are **permissible** on a building that has only *Payab* windows and is more than one storey.

**Minimum** cornices requirement on a building with *Rabsel* are *Phag-khep, Phag-na*, one layer of *Bogh* (up to two storey, more than two storey two layers of *Bogh* is required) *Pedma* and *Dhung* on the *Rabsel* and *Tsechukhanyim, Pedma* and *Dhung* at the bottom.

Photo 6.a - Depicts the full cornice of a *Gomang Rabsel*. In descending order are *Phag-na khep, Phag-na, Cham, Bogh, Choetseg, Pedma, Norbu Bagam, Norbu Horzhu* and *Dhung*.

The **full cornices** on the *Rabsel* would be *Phag-khep, Phag-na, Cham, Bogh, Choetseg, edma* and *Dhung*. At the bottom of the *Rabsel* are *Tsechukhanyim, Choetseg, Pedma* and *Jang-Dhung*.

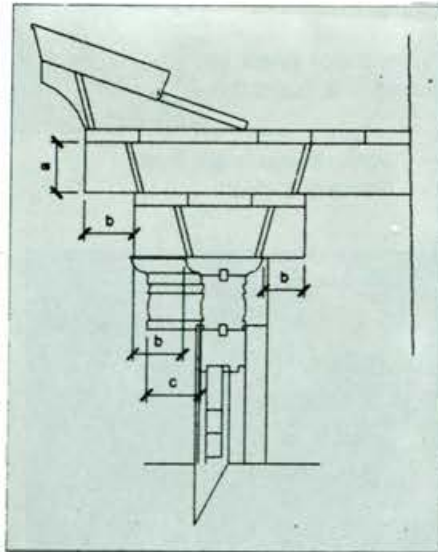


The size of *Bogh* for *Payab* windows shall be 110x135mm minimum and 125x150 maximum.

Projection of the *Bogh* on *Payab* window may vary according to the thickness of the wall.

The size of the *Dhung* to be considered would be its height rather than its thickness. Therefore, the minimum height of the *Dhung* shall be 125mm and the maximum 175mm for *Rabsel* and *Payab*. The size of the *Dhung* over the *Kachhen* is usually restricted by the beam depth in RCC structure.

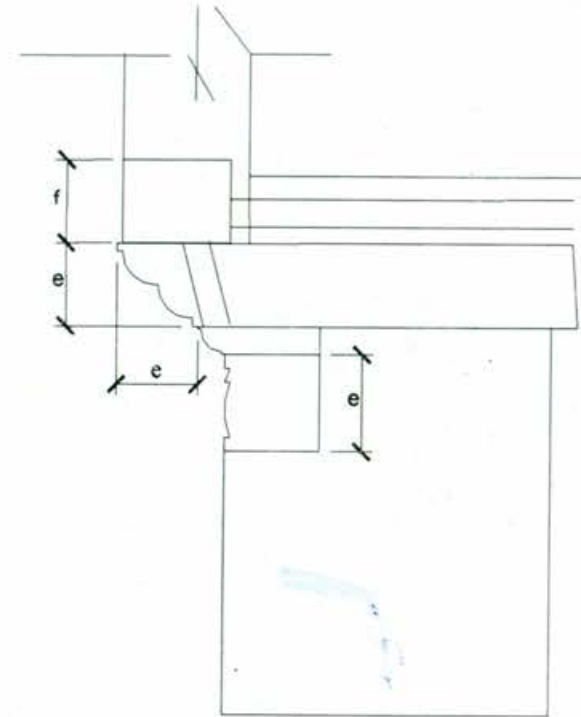
The minimum thickness of the *Pedma* shall be 50mm and maximum 75mm.



When *Pedma* and *Choetseg* are used together the total thickness shall be 100mm.

The minimum size of the *Tsechukhanyim* shall be  $f=125$  and  $e=150$ mm. The projection shall be equal to  $e$  or its depth.

The depth of *Jang Dhung*  $e$  is usually equal to the depth of the *Tsechukhanyim*.



*Drey-zhu* is not **permitted** between double tiers *Rabsel*.

On a commercial building of more than three storeys with *Kachhen* in the ground floor and a *Rabsel* on the second and third floor, the first floor wall must not bear any replication of *ekra* although the wall shall stand on the *Tsechukhanyim* at the first floor level.

If the *Rabsel* is only on the third floor either with plain or *Drey-zhu Rabsel*, the first and second floor may not have *ekra* cladding although it may be standing on *Tsechukhanyim* at the first floor level.

However, if successive floors are projected out with cornices then *Shamig* shall be provided on all. In such cases the *Tsechukhanyim* would be provided only at the first floor level.

*Shamig* (*ekra*) cladding on replicated *Rabsel* is not mandatory.

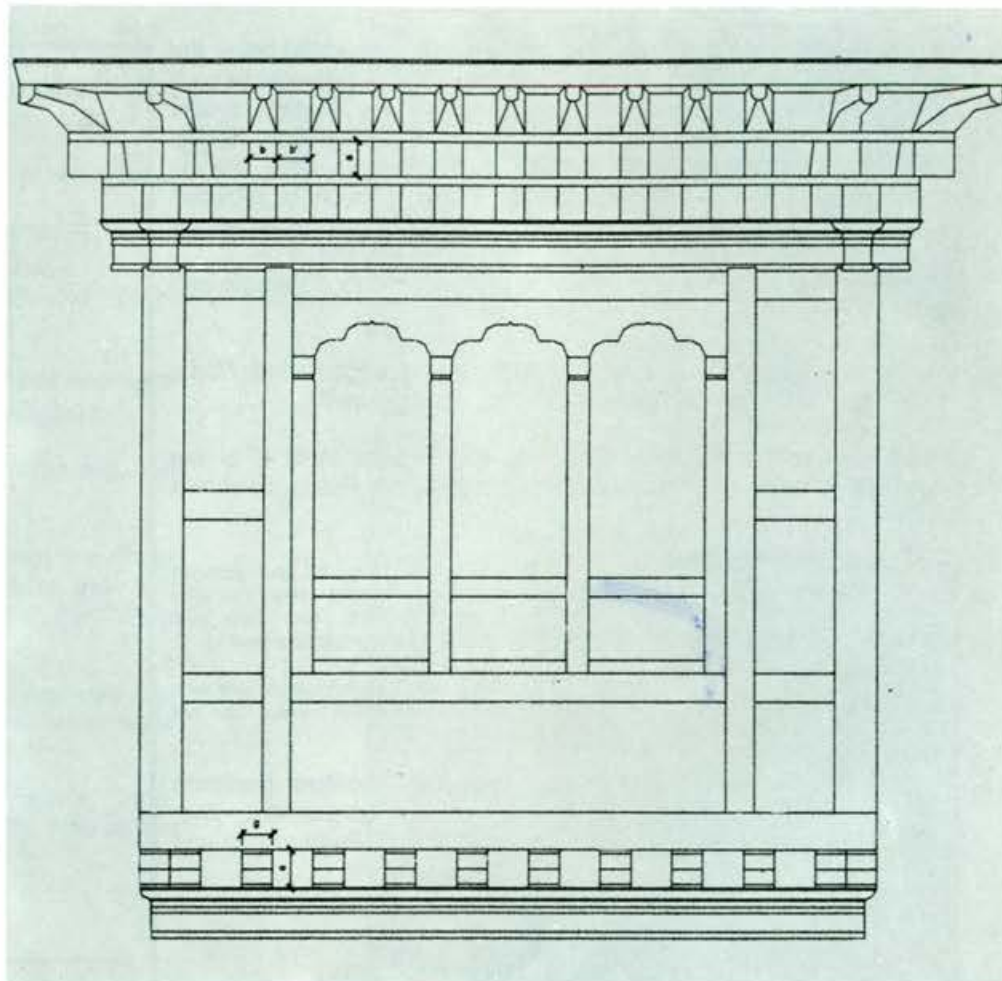
#### 6.1 Proportion of cornices.

If width of *Bogh* is  $b$  then thickness of *Bogh*  $a$  is  $b$  plus 25mm. Minimum projection of *Bogh* equal to  $b$  and maximum  $a$ .

Minimum spacing  $b'$  between these *Bogh* is  $1.75b$  and maximum  $2b$ .

The projection  $c$  of the *Dhung* and *Pedma* is normally equal to  $b$ .

The minimum size of the *Bogh* for *Rabsel* shall be 115x140mm and maximum 150x175mm.



## 7. SHAMBARNANG

This is the space between the roof and the building. Traditionally it is made spacious to dry the winter crops. On some of the old buildings this space is developed into a habitable area due to changing needs and conditions. But creating of habitable room shall **not be permitted**. However, to achieve proportion and proper ventilation, the roof can be raised.

*Phag-na* is the top most member of the cornice, which traditionally defines the end of the habitable structure. Therefore, any type of habitable structure should **not be permitted** after the *Phag-na* is laid.

## 8. KEMAR

This is a red band found only on Dzongs and monasteries and has religious significance. It is **permitted only** on Dzongs and Monasteries.



Kemar

6.2 **Norbu Bagam.**

Traditionally this member is found only on the most important structures in Dzongs and Monasteries. It is either found in form of carving (photo 6.2a) or built in blocks of timber (photo 6.2b). *Bagam* is never placed on top of *Pem* and *Choetseg* and never below the *Dhung*.



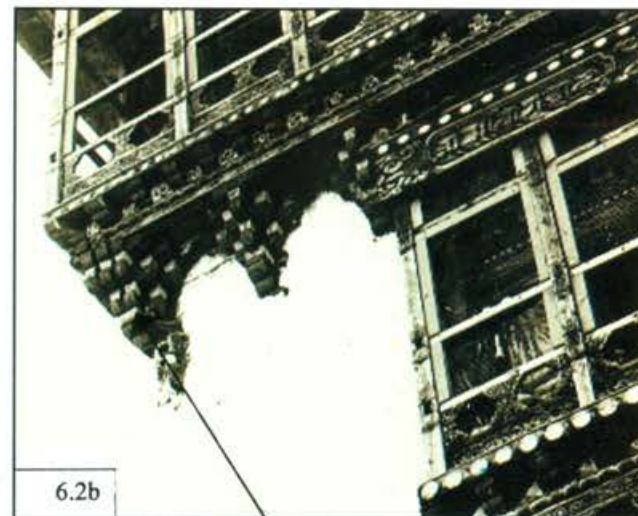
6.2a

Norbu Bagam

Another member found on Dzongs and Monasteries is *Norbu Horzhu*. This member like *Norbu Bagam* is never placed below *Dhung* and above *Pedma* and *Choetseg*. If *Norbu Bagam* and *Norbu Horzhu* is used together then *Norbu Horzhu* has to come below *Norbu Bagam*.

These two components are **permitted** only on Dzongs, Monasteries and Royal Buildings.

If a building is **permitted** to have *Jabzhi* then it is allowed to incorporate both the components under the *Jabzhi* roof.



6.2b

*Norbu Bagam* made from blocks of timber.



*Norbu Horzhu*

**10. Credit for photographs**

Illustration 2a. Building from Gangtey Gompa by Fritz Baumgartner.

Photographs contributed by Ms. Dorji Yangki, Architect, Special Commission for Cultural Affairs. Illustration 2.2a Making of Shamig.

Illustration 2.1.6b Gomang Rabsel on Drey-Zhu.

Illustration 3.3b Ma-go of a Lhakhang.

Photographs from Ms. Noako Takahashi's documentation on Zhu.

Illustration 4.1d 12-sided Kachhen.

Illustration 4.1b Square Kachhen.

Illustration 4.1c Octagonal Kachhen.

Illustration 4.2b the full Zhu.

Illustration 4.2c simplified Zhu.

**11. References :**

Introduction to Traditional Architecture by PWD, Royal Government of Bhutan.

Architecture of Bhutan, by Chris Butters, Tashi Delek – Druk Air In flight magazine.



## Conclusions

Bhutanese architecture is one of the best expressions of the country giving a unique identity to the kingdom. The combination of culture and religion composed in our houses by the implementers - the traditional architects - has demonstrated the unparalleled skills and aesthetic beauty of Bhutanese architecture as manifested in the most massive Dzongs to the small houses and bridges. Traditional cornices, colours and decorative patterns on the walls, doors and windows have put Bhutanese architecture in a class of its own.

Therefore it is felt that in view of contemporary architecture, it may not be practical to enforce true traditional *thobthang* on each and every building that will be built in the future. For example, a traditionally built building could not incorporate *Drey-zhu* on the *Rabsel* if it was not entitled to a *Jamthog* or *Lung-go* and to have a *Jamthog* or *Lung-go* on a building one had to have special status in society. However, times have changed, buildings have progressed from three stories to five stories, from ordinary farmhouses to duplex residences, which have caused the traditional architectural permissibility to be compromised.

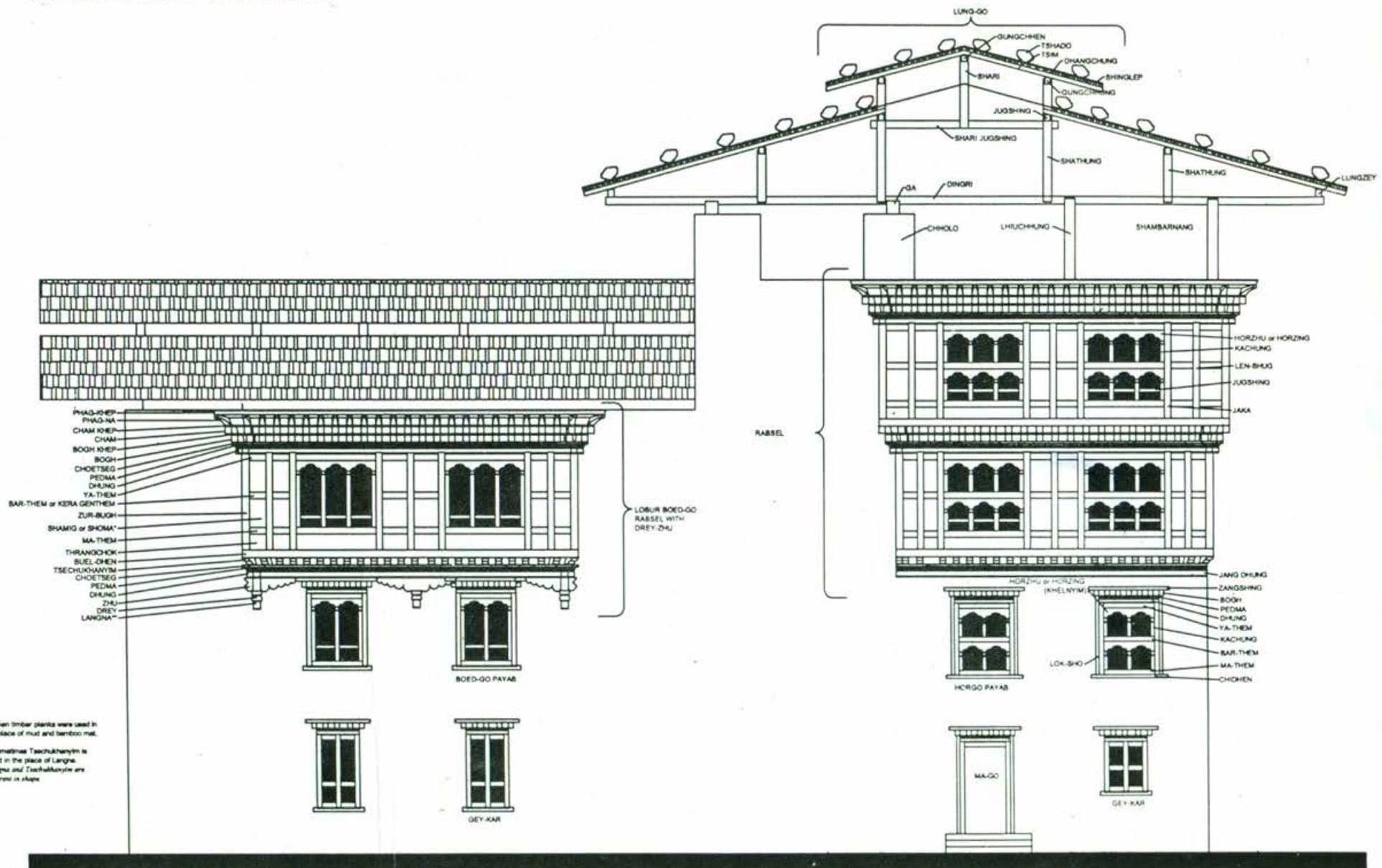
This book is to serve as a guideline to traditional architecture and is not intended to address every problem encountered or to provide all solutions to such problems as every case varies from design to design and traditional architecture is subject to varied interpretations.

**PERMISSIBILITY OF TRADITIONAL DETAILS IN CONTEMPORARY BUILDINGS**

**Commercial Buildings**

Sl. No	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
1	Sertog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs, Royal buildings and Monasteries
2	Gyaltshen	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs, Royal buildings, Monasteries and Institutional buildings
3	Gungdhar	Permissible	Permissible	Permissible	Permissible	
4	Roof	MUST	MUST	MUST	MUST	
5	Jabzhi	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
6	Jamthog	Permissible	Permissible	Permissible	Permissible	
7	Lung-go	Permissible	Permissible	Permissible	Permissible	
8	Chenkhep	Permissible	Permissible	Permissible	Permissible	
9	Kemar	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and Monasteries
10	Gomang Rabsel	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and Monasteries
11	Parop Rabsel	Permissible	Permissible	Permissible	Permissible	
12	Rabsel Go-chham Thognyim	Permissible	Permissible	Permissible	Permissible	
13	Nimchong Rabsel	Permissible	Permissible	Permissible	Permissible	
14	Boedgo-Rabsel	Permissible	Permissible	Permissible	Permissible	
15	Gyesargo-Rabsel	Permissible	Permissible	Permissible	Permissible	
16	Lombur Rabsel	Permissible	Permissible	Permissible	Permissible	
17	Drey-Zhu	Not Permitted	Permissible	Permissible	Permissible	
18	One Bogh and Phagna	MUST	Not Permitted	Not Permitted	Not Permitted	Top Cornice
19	Two Bogh and Phagna	Not Permitted	MUST	MUST	MUST	Top Cornice
20	Two Bogh and Khorlo Kachu	MUST	Permissible	Not Permitted	Not Permitted	Top Cornice
21	Phuto Boo	Permissible	Permissible	Permissible	Permissible	Top Cornice
22	Tsechukhanyim	Permissible	Permissible	Permissible	Permissible	Only with Rabsel
23	Tazi	Permissible*	Permissible*	Permissible*	Permissible*	*Permissible as per BBR Act.
24	Tsheygyay	Permissible	Permissible	Permissible	Permissible	
25	Kachhen	Permissible	MUST*	MUST*	MUST*	*Not mandatory for hotels and bar
26	Octagonal Kachhen	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
27	Kawo	Permissible	Permissible	Permissible	Permissible	
28	Zhu	Permissible	Permissible	Permissible	Permissible	

**NOMENCLATURE OF TRADITIONAL  
BHUTANESE BUILDING. (ILLUSTRATION #1)**



\* When timber planks were used in the place of mud and bamboo mat.

\*\* Sometimes Tsechukhayim is used in the place of Langna. Langna and Tsechukhayim are different in shape.

**PERMISSIBILITY OF TRADITIONAL DETAILS IN CONTEMPORARY BUILDINGS**

**Residential Building**

Sl.	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
1	Sertog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs, Royal buildings and monasteries
2	Gyaltshen	Not Permitted	Not Permitted	Not Permitted	Not Permitted	only on the dzongs, Royal buildings, monasteries and Institutional buildings
3	Gungdhar	Permissible	Permissible	Permissible	Permissible	
4	Roof	MUST	MUST	MUST	MUST	
5	Jabzhi	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Permissible only on Minister's Residence
6	Jamthog	Permissible	Permissible	Permissible	Permissible	
7	Lung-go	Permissible	Permissible	Permissible	Permissible	
8	Chenkhep	Permissible	Permissible	Permissible	Permissible	
9	Kemar	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
10	Gomang Rabsel	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
11	Parop Rabsel	Permissible	Permissible	Permissible	Permissible	
12	Rabsel go-chham Thognyim	Permissible	Permissible	Permissible	Permissible	
13	Nimchong Rabsel	Permissible	Permissible	Permissible	Permissible	
14	Boedgo-Rabsel	Permissible	Permissible	Permissible	Permissible	
15	Gyesargo-Rabsel	Permissible	Permissible	Permissible	Permissible	
16	Lombur Rabsel	Permissible	Permissible	Permissible	Permissible	
17	Drey-Zhu	Not Permitted	Permissible	Permissible	Permissible	
18	One bogh and phagna	MUST	Not Permitted	Not Permitted	Not Permitted	Top Cornice
19	Two bogh and phagna	Not Permitted	MUST	MUST	MUST	Top Cornice
20	Two Bogh and Khorlo Kachu	MUST	Permissible	Not Permitted	Not Permitted	Top Cornice
21	Phuto Boo	Permissible	Permissible	Permissible	Permissible	Top Cornice
22	Tshechukhanyim	Permissible	Permissible	Permissible	Permissible	Only with rabsel
23	Tazi	Permissible	Permissible	Permissible	Permissible	Must on the balcony facing the public area
24	Tsheygay	Permissible	Permissible	Permissible	Permissible	
25	Kachhen	Permissible	Permissible	Permissible	Permissible	Not mandatory for Hotels and Bars
26	Octagonal Kachhen	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
27	Kawo	Permissible	Permissible	Permissible	Permissible	
28	Zhu	Not Permitted	Permissible	Permissible	Permissible	
29	Payab with zimchung and Bog	Permissible	Permissible	Permissible	Permissible	
30	Payab without shamig	Permissible	Permissible	Permissible	Permissible	
31	Payab with Zimchung only	Permissible	Permissible	Permissible	Permissible	on less important building
32	Payab with shamig	Permissible	Permissible	Permissible	Permissible	

## Commercial buildings

Sl.	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
29	Payab with zimchung and Bog	Permissible	Permissible	Permissible	Permissible	
30	Payab without shamig	Permissible	Permissible	Permissible	Permissible	
31	Payab with Zimchung only	Permissible	Permissible	Permissible	Permissible	on less important building
32	Payab with shamig	Permissible	Permissible	Permissible	Permissible	
33	Payab with Horzing	MUST	MUST	MUST	MUST	
34	Payab with Boedgo	Permissible	Permissible	Permissible	Permissible	
35	Geykar with Bogh	Permissible	Permissible	Permissible	Permissible	Only for store, godown, toilet & warehouses
36	Geykar plain	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
37	Mago with Sengay Bogh	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
38	Mago with plain Bogh	MUST	MUST	MUST	MUST	
39	Mago with Zimchung and Bogh	Permissible	Permissible	Permissible	Permissible	
40	Norbu Bagam	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Permissible only if jabzhi roofing is allowed
41	Norbu Horzhu	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Permissible only if jabzhi roofing is allowed
42	Dhung	MUST	MUST	MUST	MUST	
43	Pedma	MUST	MUST	MUST	MUST	
44	Choetseg	Permissible	Permissible	Permissible	Permissible	
45	Zimchung	Permissible	Permissible	Permissible	Permissible	
46	Chhuzar-chhulog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs, Royal buildings and monasteries
47	Nyimkhep	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries

**PERMISSIBILITY OF TRADITIONAL DETAILS IN CONTEMPORARY BUILDINGS**

**Institutional Building**

Sl.	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
1	Sertog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs, Royal buildings and monasteries
2	Gyaltshen	Permissible	Permissible	Permissible	Permissible	
3	GungDhar	Permissible	Permissible	Permissible	Permissible	
4	Roof	MUST	MUST	MUST	MUST	
5	Jabzhi	Permissible	Permissible	Permissible	Permissible	
6	Jamthog	Permissible	Permissible	Permissible	Permissible	
7	Lung-go	Permissible	Permissible	Permissible	Permissible	
8	Chenkhep	Permissible	Permissible	Permissible	Permissible	
9	Kemar	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
10	Gomang Rabsel	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
11	Parop Rabsel	Permissible	Permissible	Permissible	Permissible	
12	Rabsel Go-chham Thognyim	Permissible	Permissible	Permissible	Permissible	
13	Nimchong Rabsel	Permissible	Permissible	Permissible	Permissible	
14	Boedgo-Rabsel	Permissible	Permissible	Permissible	Permissible	
15	Gyesargo-Rabsel	Permissible	Permissible	Permissible	Permissible	
16	Lombur Rabsel	Permissible	Permissible	Permissible	Permissible	
17	Drey-Zhu	Not Permitted	Permissible	Permissible	Permissible	
18	One Bogh and Phagna	MUST	Not Permitted	Not Permitted	Not Permitted	Top Cornices
19	Two bogh and phagna	Not Permitted	MUST	MUST	MUST	Top Cornices
20	Two Bogh and Khorlo Kachu	MUST	Permissible	Not Permitted	Not Permitted	Top Cornices
21	Phuto Boo	Permissible	Permissible	Permissible	Permissible	Top Cornices
22	Tsechukhanyim	Permissible	Permissible	Permissible	Permissible	Only with rabsel
23	Tazi	Permissible	Permissible	Permissible	Permissible	Must on the balcony facing the public area
24	Tsheygay	Permissible	Permissible	Permissible	Permissible	
25	Kachhen	Permissible	Permissible	Permissible	Permissible	Not mandatory for Hotels and Bars
26	Octagonal Kachhen	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
27	Kawo	Permissible	Permissible	Permissible	Permissible	
28	Zhu	Not Permitted	Permissible	Permissible	Permissible	
29	Payab with zimchung and Bog	Permissible	Permissible	Permissible	Permissible	
30	Payab without shamig	Permissible	Permissible	Permissible	Permissible	
31	Payab with Zimchung only	Permissible	Permissible	Permissible	Permissible	on less important building
32	Payab with shamig	Permissible	Permissible	Permissible	Permissible	

## Residential Buildings

Sl. No.	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
33	Payab with Horzing	MUST	MUST	MUST	MUST	
34	Payab with Boedgo	Permissible	Permissible	Permissible	Permissible	
35	Geykar with Bogh	Permissible	Permissible	Permissible	Permissible	Only on store, godown, toilet & ware houses
36	Geykar plain	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
37	Mago with Sengay Bogh	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
38	Mago with plain Bogh	MUST	MUST	MUST	MUST	
39	Mago with Zimchung and Bogh	Permissible	Permissible	Permissible	Permissible	
40	Norbu Bagam	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Permissible only if jabzhi roofing is allowed
41	Norbu Horzhu	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Permissible only if jabzhi roofing is allowed
42	Dhung	MUST	MUST	MUST	MUST	
43	Pedma	MUST	MUST	MUST	MUST	
44	Choetseg	Permissible	Permissible	Permissible	Permissible	
45	Zimchung	Permissible	Permissible	Permissible	Permissible	
46	Chhuzar-chhulog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
47	Nyimkhep	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries

## INDUSTRIAL AND OTHER BUILDINGS .

This group of buildings includes structures like workshops, garages, bus stops/depots, warehouses, public toilets, gas stations and sports complexes. The workshop recommended that in order to maintain the hierarchy of building use and architectural elements, general industrial buildings need not replicate every architectural detail. However structures within an industrial complex that are used as offices and residences will have to follow the guidelines laid out for institutional and residential buildings. A summary is as follows:

- Kachhens are not permissible.
- For walls without ekra or ekra effect all windows will have to be Payab windows i.e. with a Zangshing and row of Boghs either in wood or in raised plaster.
- All windows will have to incorporate the Horzing and Jugshing. The Tshegay is not mandatory. Toilet windows shall be permitted without Horzing.
- For multistoried buildings, it is recommended that the bands of bogh currently being used be discontinued and the Rabsel be correctly incorporated on the final floor. The walls on the final floor will have to have an ekra effect.
- Jamthog and Jabzhi are not permitted although a Lung-go – a raised roof without windows or any enclosures shall be permitted to facilitate storage and the provision of roof top water tanks. In keeping with the Bhutan Building Rules this space cannot be utilised for human habitation.
- Railings on external balconies to be traditional and replicated correctly and faithfully.
- Elements like Norbu Bagam, Norbu Horzhu, Gomang Rabsel, Kamar, Gyaltshe and Sertog are not permissible.



**Institutional Buildings**

Sl. #	Nomenclature	Single storey	Double storey	Three storey	Four storey	Remarks
33	Payab with Horzing	MUST	MUST	MUST	MUST	
34	Payab with Boedgo	Permissible	Permissible	Permissible	Permissible	
35	Geykar with Bogh	Permissible	Permissible	Permissible	Permissible	Only on store, godown, toilet & ware houses
36	Geykar plain	Not Permitted	Not Permitted	Not Permitted	Not Permitted	
37	Mago with Sengay Bogh	Permissible	Permissible	Permissible	Permissible	
38	Mago with plain Bogh	MUST	MUST	MUST	MUST	
39	Mago with Zimchung and Bogh	Permissible	Permissible	Permissible	Permissible	
40	Norbu Bagam	Permissible	Permissible	Permissible	Permissible	Permissible only if jabzhi roofing is allowed
41	Norbu Horzhu	Permissible	Permissible	Permissible	Permissible	Permissible only if jabzhi roofing is allowed
42	Dhung	MUST	MUST	MUST	MUST	
43	Pedma	MUST	MUST	MUST	MUST	
44	Choetseg	Permissible	Permissible	Permissible	Permissible	
45		Permissible	Permissible	Permissible	Permissible	
46	Chhuzar-chhulog	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries
47	Nyimkhep	Not Permitted	Not Permitted	Not Permitted	Not Permitted	Only on the dzongs and monasteries