

CHABAHA PATI

RESTORATION PROJECT

A JOINT PROJECT OF
URBAN MANAGEMENT AND ECONOMIC DIVERSIFICATION PROJECT (UMEDP)
KATHMANDU VALLEY PRESERVATION TRUST (KVPT)
AND
JYAPU SAMAJ, LALITPUR

FINAL REPORT

ROHIT RANJITKAR*LUMANTI JOSHI
KATHMANDU VALLEY PRESERVATION TRUST
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The Kathmandu Valley Preservation Trust is proud to announce the completion of the restoration of Chabaha Pati on September 2002. On behalf of the Trust, we wish to thank all our generous supporters.

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and
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Implemented by
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and
Kathmandu Valley Preservation Trust

In cooperation with
Lalitpur Sub- Metropolitan City Municipality, Lalitpur
Ward No. 12, Lalitpur Sub-Metropolitan City
and
Department of Archaeology (DOA)

Conservation Architect
Dr. Rohit Ranjitkar

Documentation and Implementation Team
Dr. Rohit Ranjitkar, Sushil Rajbhandari, Raju Roka, Badri Juwal,
Rajan Shrestha, Prajwal Hada, Lumanti Joshi, Shrijan Joshi,
Astrid Vogelgesang and Bishnu Pd. Chulyadha.

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Contents

1. Introduction
2. Historical Significance
3. Project Description
4. Chronology of Work
5. Determination of the Form
6. The Work Process
7. Restoration
8. Training Activities
9. Impact on the Community
10. Four of the Five Options Proposed for the Restoration
11. Documentation Drawings for Proposed Restoration

I. Introduction:

“*Patis*” or the pilgrim rest houses are generally a single or multi-storied structure with their loggia providing interaction space for the community and have long been a part of urban life in historic city cores of the valley. The *patis* are not only found in settlements, they occur at the approaches to settlements, flanking the religious sites, dotted throughout the countryside roads, close to streams, rivers, ponds, and usually placed at a cross roads or junctions along trade routes where they function as shelters for pilgrims and travelers. Whats more, the rest house plays a vital role in the closely interwoven *Newari* society, as it serves as a meeting place social gathering, a place to conduct informal trading, and a preparatory location for rituals festivals, and musical performances.

Thus, the building is used for a number of social, economic, and religious purposes- many of which are overlapping and flexible. The rest house is also related to the agricultural cycle as women of the neighboring community utilize the open space in and around the pati for drying and storage of grains. Sometimes, in the back wall of the rest house, niches are provided in order to house deities, generally *Ganesh*, hence increasing the spiritual value of the area. Their open space is notably critical to the congested city cores of the Kathmandu valley.

Preservation of these structures is vitally important because they represent the rich examples of Nepalese architecture and historical building types. Conserving these structures is of great social significance to the modern city and in making a difference to the quality of urban life. Thus, the restoration of Chabaha Pati at Patan is proposed as a model effort to focus attention on the historical architectural type of the rest house and it's importance to the modern townscape.

2. Historical Significance:

The rest house was completely lost during 1934's great earthquake, leaving only traces of its existence in the wall of the adjoining residential building, and it was never rebuilt. Some of the surviving elements, such as the six columns and the plinth base stones, were rescued and stored. Though no written evidence or the inscription is found around the site, which describes the construction of the original rest house, it is believed that it was endowed by the Shrestha family living in the adjacent back house. The structure can be dated back to the late 18th century with reference to the retained carved columns. The carving is distinctive of the 18th century style, but there is a definite possibility that the columns are not original to the rest house.



1. Chabaha pati was completely lost in the 1934 earthquake. Existence of the rest house was only visible on the wall of the adjacent residence, and from the old brick foundation.



2. Chabaha pati was given back to the local community. It is now possible for the neighborhood to use it again for any kind of gathering, to play, and to rest.

As is the case of all the rest houses dotted around the Valley, Chabaha Pati also serves as a public space for community congregations, and for various social and religious activities. Stone statues of deities were held in the niches, and the neighboring community offered their respects regularly. Before the reconstruction phase of the rest house began, the niches remained vacant for quite sometime, as these statues had already been stolen from their positions in the *pati* some 20 years ago.

Many amenities of the ancient cities, including the public rest houses of all forms, are gradually disappearing due to rapid urbanization of city cores. Private concrete buildings are replacing the resthouse as people discard the notion of significance placed on such public structures. In cases such as this one, restoration of the Chabaha Pati has given back the local community opportunity to develop community interaction. Quality of urban life depends largely on the quality of public spaces such as these.

3. Project Description :

Restoration of the rest house located near the Jyabaha Bahi in Patan comes along with a track record of 15 monuments restored by the Kathmandu Valley Preservation Trust (KVPT) since its establishment in 1990. The KVPT was developed as a means to safe guard the threatened architectural heritage of the Valley. The trust has documented the rapid loss of such structures around the Valley. In time, many of these structures will be lost to urban encroachment and development. The reconstruction of the *pati* to its original state portrays a model attempt to preserve the historic architectural type of rest house, and retains the significance of the *pati* and its open space for the modern community.

The project also involved the training of Nepalese team in project management, restoration project design, community negotiation, publicity and financial reporting. In addition, the project also served as an ideal example for various reasons:

1) The project demonstrates the significance of these "historical" buildings to the quality of "modern urban life". New setting has been developed for variety of community, informal business and religious activities through the *Pati's* restoration.

2) The project has provided a necessary demonstration that the reconstruction of the rest house to a historic style, and incorporation of traditional material is strategic to the long-term economic life of Patan's World Heritage Site.

3) The project complements a larger 4-year campaign by the Trust to raise funds for restoration of the ancient monastic complex known locally as “Jyabaha Bahi”. The complex dates back to the 14th century. The monastery is proposed for restoration that incorporates income generating activities including a visitor's center for Buddhist architecture.

The project is funded by the European Commission, Asia Urbs Program and the Urban Management and Economic Diversification Project (UMEDP). The implementation works were carried out by the competent technical staff of the KVPT in cooperation with the UMEDP, Lalitpur Sub-Metropolitan city, and Jyapu Samaj of Patan. Jyapu Samaj supported the project by providing the volunteer unskilled labors and workmen for executing the restoration work.



3. Some of the similar structures around Patan were carefully studied prior to the restoration of Chabaha Pati. Patis are still part of urban life there, used for different community activities.

4. Chronology of Work:

June 2002

- Inauguration *puja*.
- Comparative study of similar structures.
- Lost pillars were re-carved based on the rescued originals ones along with the
- New timber elements were made including the windows and capitals for the pillars.
- Excavation of the Foundation.

July 2002

- Rebuilding of the foundation.
- Base stones, or *Nagol*, were placed.
- Carving of the base stone for the pillars or *ilohan*.
- Reconstruction of plinth using the traditional *dachi appa* and *ilohan* installation.
- Preparation of *lakashi* and the wooden member required for the floor.
- Installation of *lakashi* was then installed, and framework for the planking was completed.
- Rebuilding of the sidewalls.

August 2002

- Preparation of planking for the ground floor level.
- Installation of floor joists above beam.
- Original, as well as replicated pillars installed along with well-fitted capital in their position.
- Retrofitting of the original wooden elements.
- Installation of beams and joists, and the preparation of rafters.
- Old back wall dismantled and re-erected using *ma appa* and mud mortar.
- Niches made on the wall to house statues of deities.
- Walls built above the beams at the first floor level, and newly carved window elements fixed in their respective positions.
- Installation of the rafters.

September 2002

- Planking at the ground floor level.
- Installation of struts, new rafters, eaves boards, and planking above the rafter.
- Waterproofing membrane laid above the planking and timber battens installed.
- Roof tiles or *Jhingati* were laid on the mud bed, which was set above the planking.
- Cleaning of the site.
- The inauguration of the completed project was done on the 20th September.

5. Determination of the form:

Nothing remained of the rest house since the 1934 earthquake. No attempts were made to revive it, and only a couple of elderly people from the same locality could vaguely remember the type of rest house it was. Considering no visual documents were available which proved its existence, with exception to the timber columns, old brick foundation, plinth stones, a base stone for the columns and the niches at the back wall, reconstruction of the rest house seemed like a quite a complicated matter.

People are of the notion that reconstruction is an extremely simple and easy task, just to rebuilt as it once was. Conversely efforts are quite complex. In reconstruction, we are required to make adjustments where as starting from scratch allows for free reign of possibility. All the existing evidence we had was like parts of big gig saw puzzle, we had to put them together in their original position to find out the dimensions of the lost elements. When it came down to recreating the details, we had to face more problems; there are thousands of variations in a single design itself.

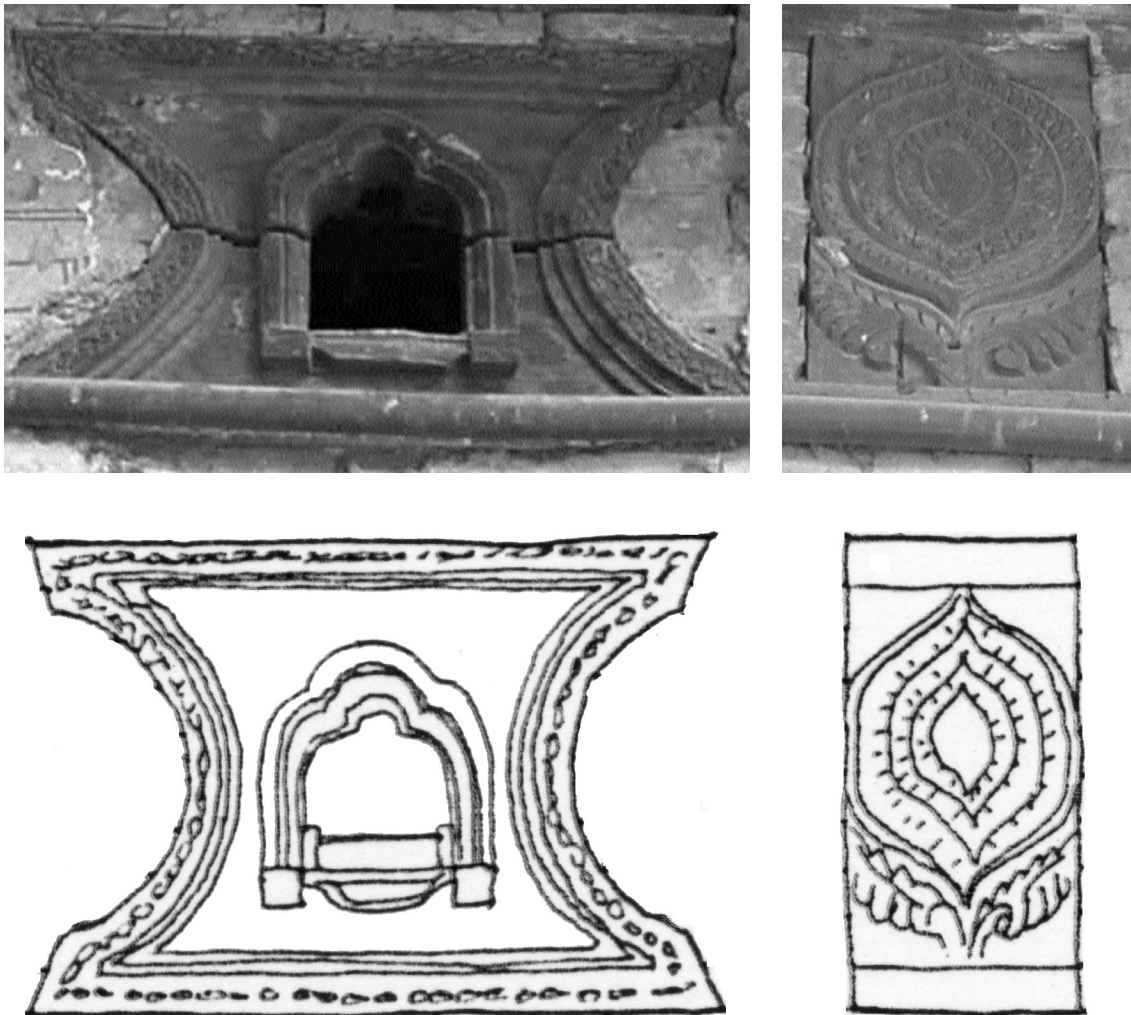
After communicating with the local elders, and conducting some research about the rest house of similar style *patis*, the design process became a much smoother task. Thorough 6 weeks of extensive research, we came up with four different options for the front facade of the *Pati*. Below the timber beams most of the dimensions were determined by the remaining timber columns, and the rescued stone base. However, above the timber beam, it was not easy especially with the roof shape. Finally the elders agreed on one of the options. The window designs were copied from similar *patis* of the same period at Chochhe Galli, making the dimensions proportionate to the rest house under consideration. Thus, reconstruction was carried out according to the desired design of the elderly local.

6. The Work Process:

The project involved more than a mere reconstruction of the lost rest house. The work process followed the principle the anastylosis. Anastylosis is the rebuilding of a fragmented monument by re-assembling its elements, or the reconstruction of the buildings by piecing together the existing materials in the original position. The lost elements were recreated with reference to the original elements, which were salvaged after it was destroyed in the earthquake.

In the reconstruction of this *pati*, emphasis was only given to the use of traditional building materials. For example: Stone was used for the apron, and base of the columns; *dachi appa* for the plinth wall, *ma appa* with mud mortar for inner wall and back wall; timber for beams, base of the pillar, joists, and rafters and *jhingati* as roof tiles on a mud bed.

The use of traditional materials and techniques in construction presents doubts about the durability of the structure in the mind of general people. Traditionally used materials are natural, namely timber, and mud and can go long way compared to modern, artificial materials like cement. In addition, traditional materials are renewable, though some kind of maintenance is required to keep them intact. There are many examples of monuments existing from the past which have been standing at various corners of the cities, having been passed on from generation to generation. Besides, the social factor, which involves maintaining the living craft culture of the area, has also been considered. With this, we too are able to pass down the achievements and techniques handed to us by our ancestors for generations to come.



4. Samples of the wooden carved elements from a pati at Chochhe Galli were studied to recreate the new ones for Chabaha Pati. Drawings of these elements were prepared with reference to the ones at Chochhe Galli, Patan.

7. Restoration:

I. Foundation:

Upon excavating the site, we could only find traces of the foundation, laying only about 6 inches underneath the ground level. As the depth of the original one was not adequate enough to support the above structures, a new foundation was constructed out of a solid mass of brick. This forms a raft through which the weight of the upper construction is distributed over a wide area.

II. Plinth wall and floor:

Due to the complete collapse in the 1934 earthquake, nothing remained from its original form. The plinth was restored with reference to the similar structure at Chochhe Galli, Patan. “*Nagol*”, or encircling base stones, were placed. The plinth was raised using veneer bricks, or *dachi appa*, set in yellow mud mortar. The mud mortar construction greatly increases the performance of the structure in an earthquake as it is able to absorb the shock waves of an earthquake without fracturing adjacent bricks.

At certain intervals of the plinth structure, *ilohan*, or base stones to support the pillars, were installed. *Lakashi*, or the plinth tie beam, was installed along with the framework for the planking. The plinth is essentially hollow. A one-inch gap was introduced between the bricklayer and *Lakashi* to provide air circulation, and to avoid rotting of the planking. One-inch thick planking was placed in random widths and lengths on the *pati* floor.



5. The plinth was reconstructed using traditional materials and technology.

III. Upper Structure:

The height of the recovered column was used to determine the actual height of the *pati*. The side walls were constructed to support the columns. Two of the lost decoratively carved wooden structural pillars were re-carved on the basis of the existing ones. The carved pillars were then installed with the well-fitted capitals. One of the structural pillars of the *pati* had to be retrofitted with a new base, as the older one was not in good condition. Saw tooth joinery was utilized to join the new ones to the old ones.

The *pati* shares its back wall with the adjacent house. One layer of brick was removed due to its bad condition, and was reconstructed with *ma appa* using yellow mud mortar. The niches, which existed from the historic structure were reconstructed on the basis of the photograph taken prior to the dismantling of the back wall, and housed stone images of the guardian deities of the *pati*.



6. Newly carved columns being erected next to the old one. The base of one of the originals was retrofitted with new timber to provide stability to the structure.

IV. Roof Structure:

After thorough investigation of similar structures around the city of Patan, we came up with five alternative designs for the roof structures. The one bearing the closest resemblance to the description given by the elderly of the local community was considered for the actual construction. The joists were installed above the beams over which the one-inch thick timber planking were placed. The supporting wall for the roof structure was built above the beams. Pine rafters were positioned on which timber planking were nailed.

The plain struts were installed to support the roof structure. Waterproofing membrane was introduced under the mud bed to extend the life of the roof. Our experience shows that careful supervision of the various work components such as mud treatment, batten installation, etc is the most critical determinant of the roof life. Above the membrane, battens were laid in diagonal sloping pattern to allow water to run off. Salt was added to the mud used to prevent vegetation growth in the roof. Traditional roof tiles, or *jhingatis*, were laid on the thick layer of mud. The bottom roof tiles (above the eaves board) were drilled and nailed in place as they are highly susceptible to being knocked off.

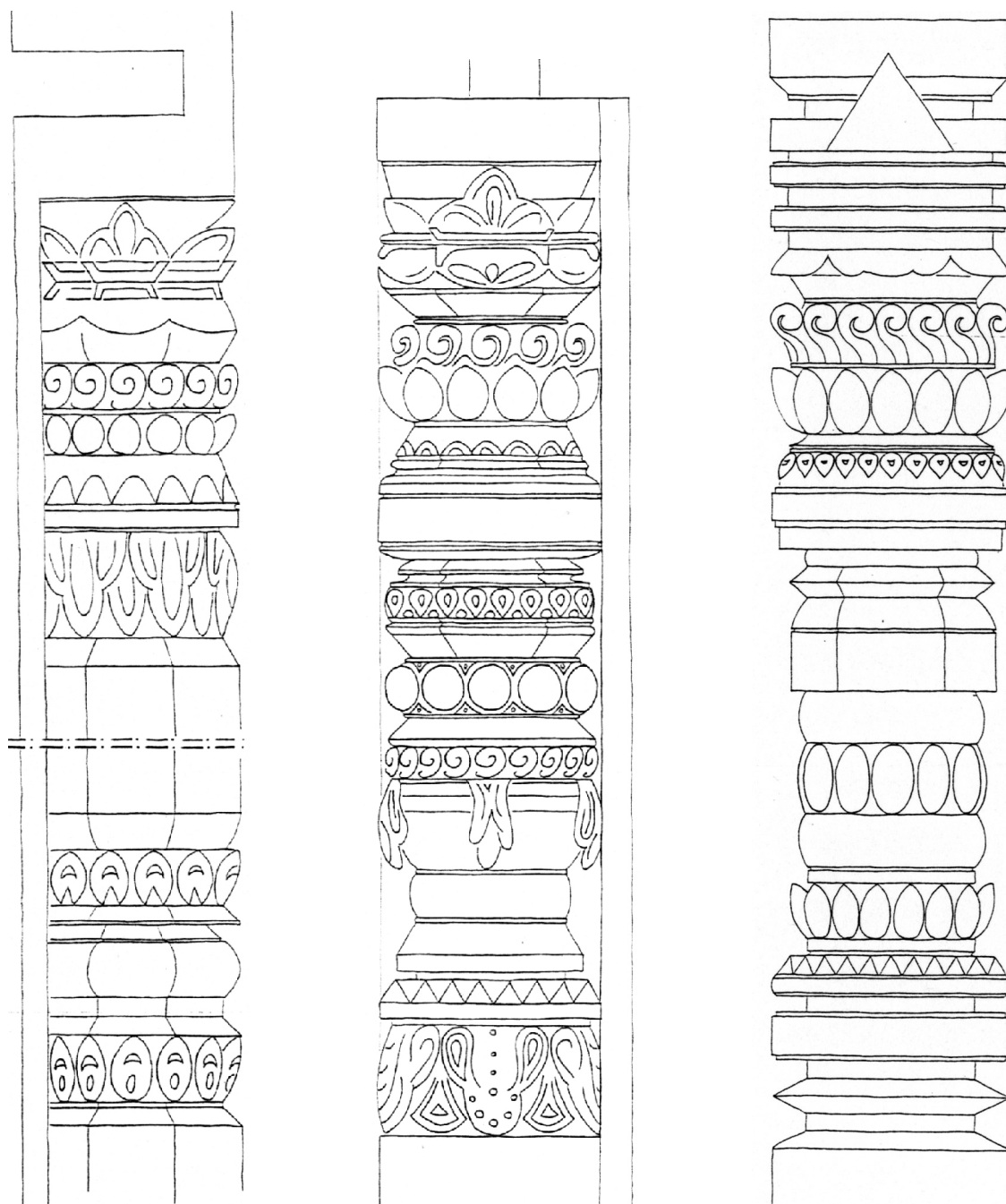


7. The upper wall above the beam built with newly carved elements in their positions.

V. Decorative elements:

Stylistic analysis of the remaining carvings shows that the *pati* is from the 18th century. Two of the missing carved columns were reproduced according to the existing ones. The decorative windows were lost in the 1934 earthquake, and there was no way to determine their style. When various rest houses around Patan were studied for an answer, great variations in design and style were found. These elements were replicated from comparable example from the same period found at Choche Galli.

The stone images in the niches were either stolen or lost. Descriptions of elder local provided the required reference for reproducing the stone images. Images of different guardian deities such as Ganesh, Kumar, Uma Maheswar and other two deities were installed in the niches after an auspicious *puja*.



8. The details of the remaining columns were carefully documented and were used for re-carving the missing ones.



9. Rafters are installed with reference to the traces of a roof line on the wall of adjoining house.



10. Waterproofing membrane being laid between the planks and the mud bed for tiles.



11. The deities in the niches were either lost or stolen.



12. Newly carved stone images of Uma Maheshwor flanked by Ganesh and Kumar, were installed in the empty niches.

8. Training Activities:

Appropriate use of traditional craft, and the knowledge of traditional principles of construction, is essential in context of architectural heritage conservation and restoration. But for proper implementation, scientific research, analysis and better understanding of the international norms and principles of conservation is necessary.

Each of the elements of the building, including its motifs and decorative details has specific significance and certain religious value attached. Hence, in order to recreate or restore a disintegrated structure, an understanding of traditional building techniques and artistic skill is required. Without thorough research and scientific analysis, there might be risk of "superimposition of personal taste and creativity" in the process of restoration. Intended improvements to the building fabric would turn out to be detrimental, and could ruin the cultural property.

Thus, training of local craftsmen regarding the ethics, concepts, and principles of conservation becomes rather essential in order to properly mobilize the skills gained from continuous experience. Thus, KVPT has initiated key training and awareness programs. Providing personalized work and training opportunities for young Nepalese professionals and artisans has been a key component in every conservation project, which was continued in the restoration of Chabaha Pati.

The process was made possible through the coordination of different skilled personnel not solely with the engineers, architects and planners. The conservation team was comprised of conservation architects, carpenters, carvers, labors, the documentation team, and many more. If not for the craftsmen, the restoration would not have been possible.

Another aspect of this project was to train the craftsmen from the local community, without which, will result in the death of the traditional crafts. Making craftsmen accustomed to traditional materials and techniques was quite a task, as many were dubious concerning their scope. However, through the effective training process, it was possible to revive traditional skills.

All craftsmen involved in the project were from the local community and Jyapu Samaj contributed all the laborers, setting a good precedent for local monuments. The KVPT provided the technical support necessary for implementation of the project.

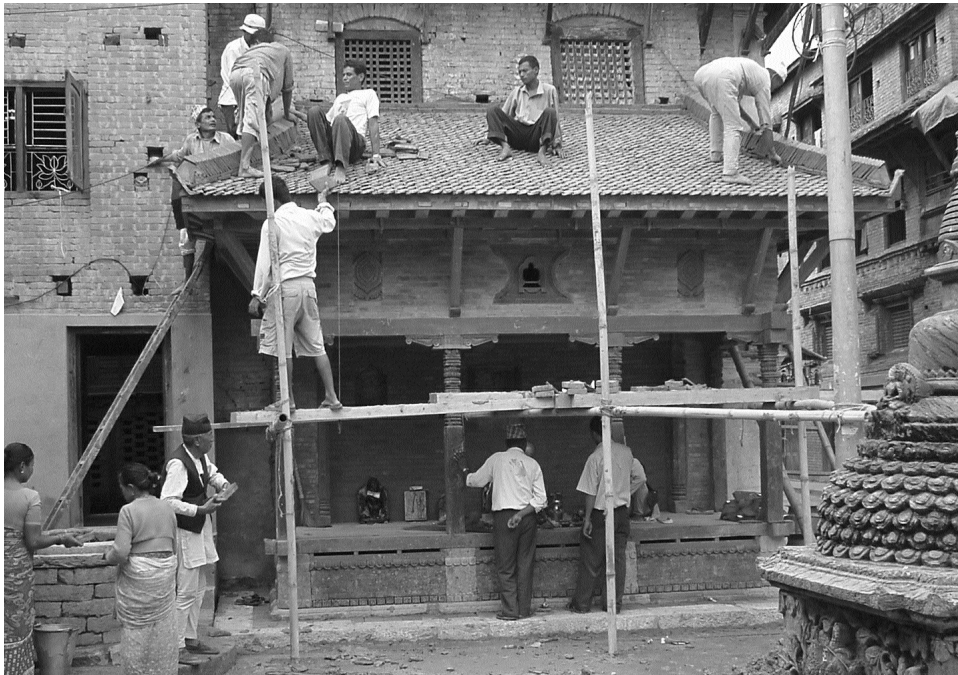
Architect Lumanti Joshi is in continuous training to work with historic buildings. Lumanti has completed the documentation of the restored condition of the Pati. She is also handling the final documentation of other KVPT projects. She completed her architecture study at Nepal Engineering College in Duwakot, Bhaktapur. Prajwal Hada, a recent graduate of architecture from Dhaka University, was responsible for supervision of the reconstruction work. Shrijan Joshi, a 4th year student from the School of Architecture and Planning in Delhi, was working as an intern during that period, and was involved in documentation of the project. Likewise, Astrid Vogelgesang, who was also an architecture student intern from Germany, was involved with detail documentation of the remaining historic columns.

9. Impact on the Community:

The quality of urban life depends on the quality of the public space. *Patis* are generally used by all generations- children play in them, women gather to work and chat, men use them as a meeting space and musical performances are even held there. *Patis* give the community an opportunity to gather together and communicate, to maintain relations amongst neighbors.

The reconstructed Chabaha Pati was given back to the community, which was lost many years ago. It is now possible to use it for any kind of gathering, to play and rest, activities that can be seen on the site today. Thus, this *pati* is now being used as it was intended by our ancestors.

Local participation in the project execution has assisted in developing an enthusiastic and positive sentiment among the local community regarding such conservation works. This has made the people living there feel that is their own monument, and has helped them realize the importance of maintaining it for future. They are becoming more sensitive to the value of their cultural heritage and are beginning to understand that these types of structures stand as proof of the rich history of their generations gone by.



13. Jhingat, or roof tiles, being laid on a thick bed of yellow mud.



14. Chabaha Pati Restoration Project was inaugurated by Mr. David Michaelmore, international co-ordinator of UMEDP.

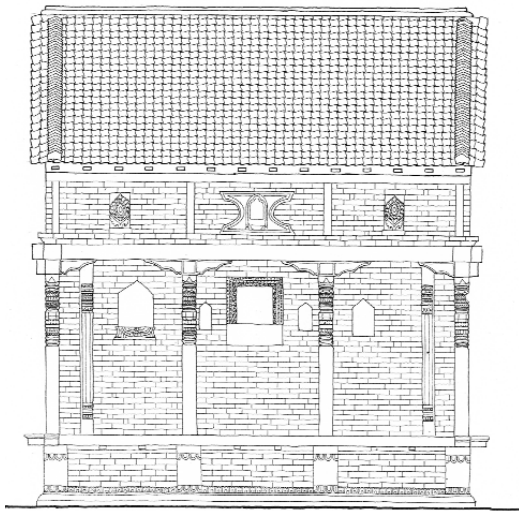


15. The area where the pati existed laid vacant before reconstruction.

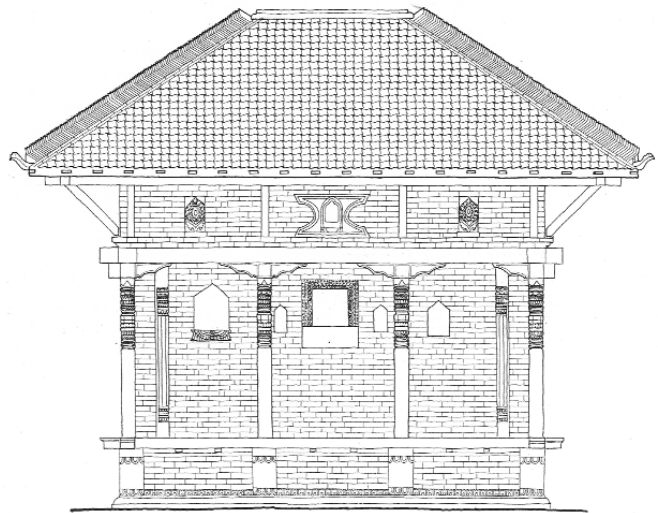


16. The pati has become a bustling place for community gathering after the reconstruction

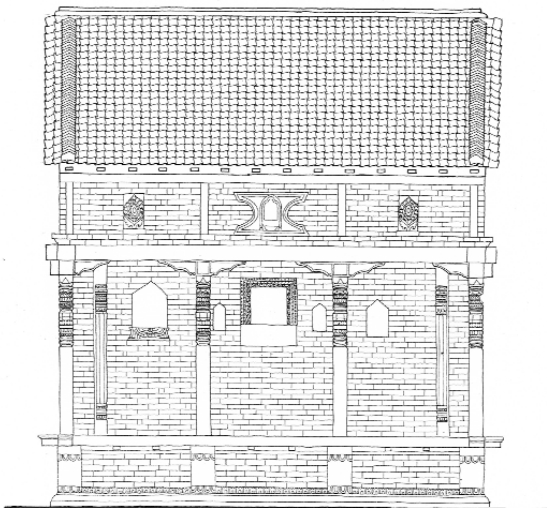
10. Four of the Five Options Proposed for the Restoration:



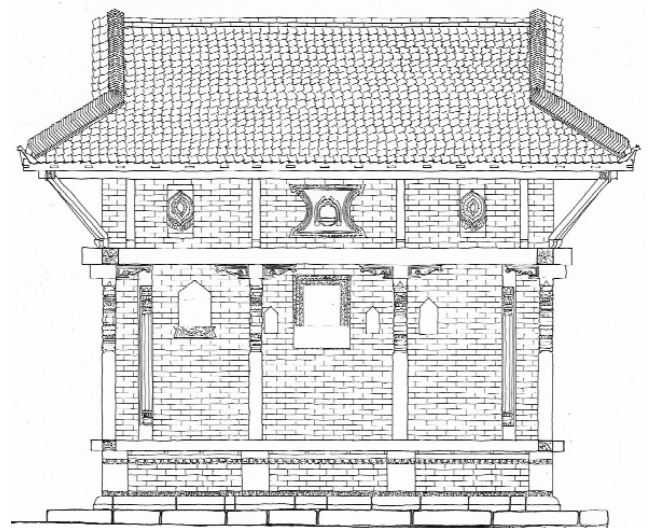
Proposed Elevation (Alternative I)



Proposed Elevation (Alternative II)



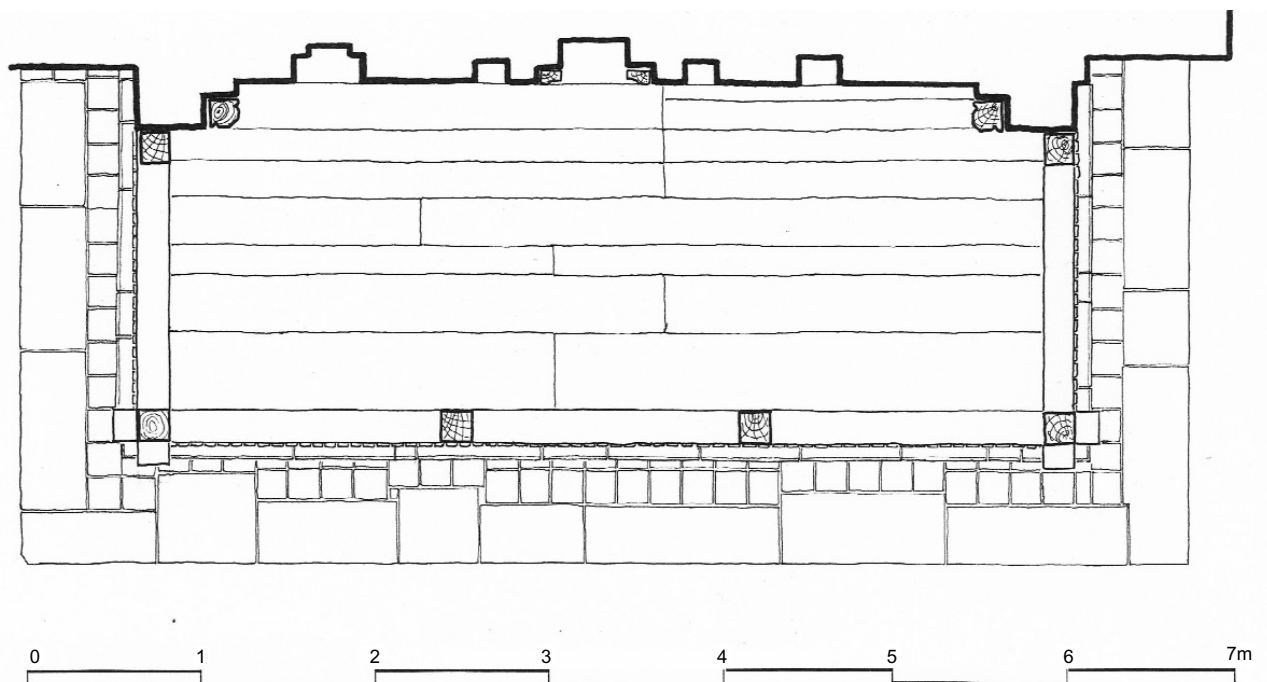
Proposed Elevation (Alternative III)



Proposed Elevation (Alternative IV)

17. The elderly from the community were consulted to determine the form of the roof line. Alternative IV was selected for the reconstruction according to their wishes.

11. Documentation Drawings for Proposed Restoration:

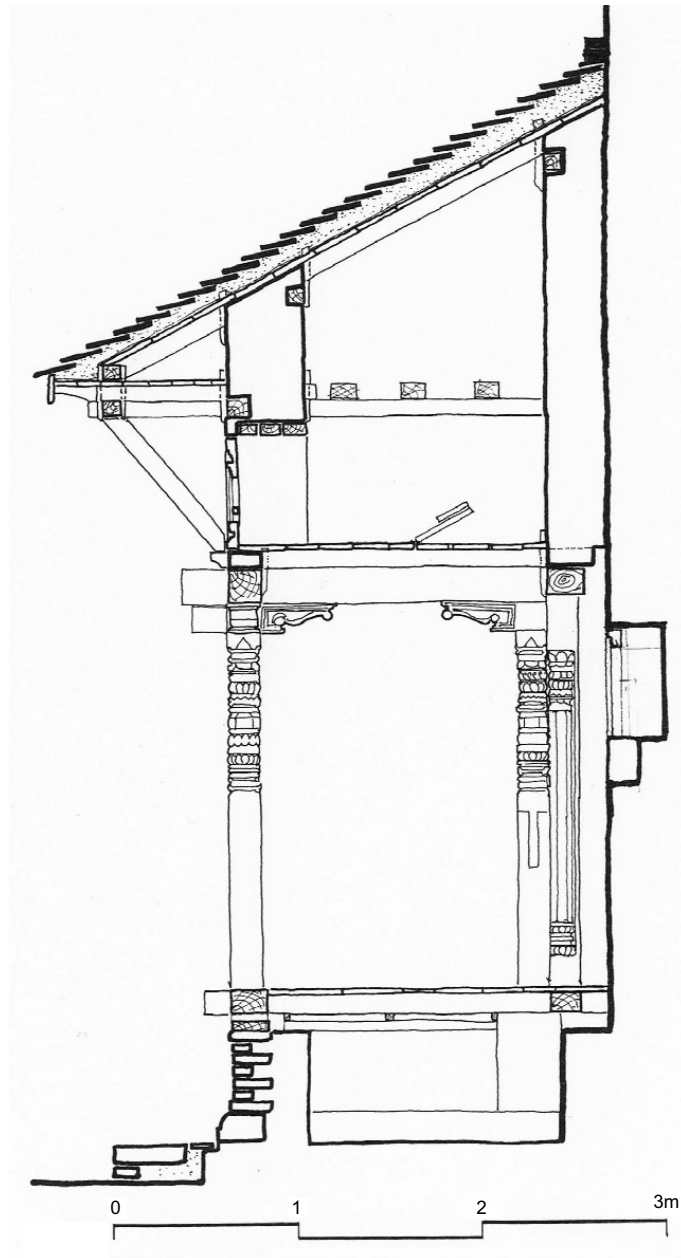


Chabaha Pati

Ground Floor Plan: Restored Condition

Kathmandu Valley Preservation Trust

May 2002

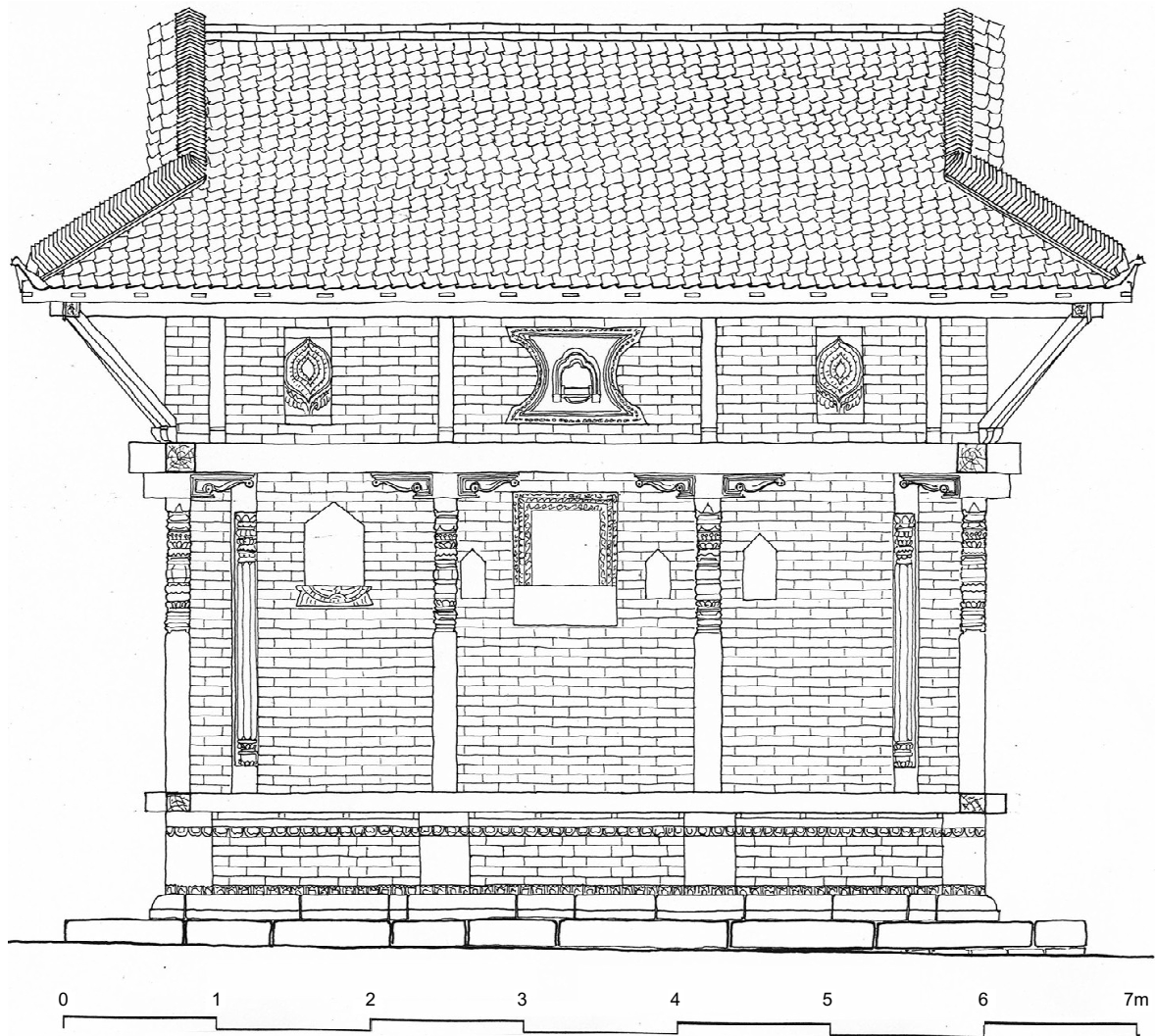


Chabaha Pati

East West Section: Restored Condition

Kathmandu Valley Preservation Trust

May 2002

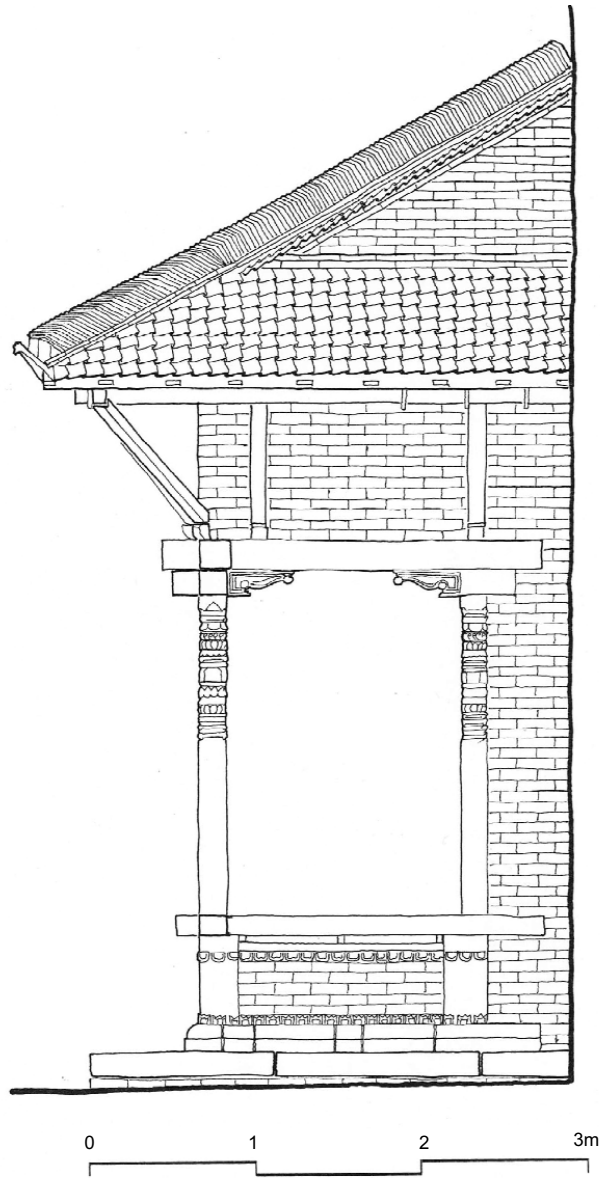


Chabaha Pati

East Elevation: Restored Condition

Kathmandu Valley Preservation Trust

May 2002



Chabaha Pati
North Elevation: Restored Condition
Kathmandu Valley Preservation Trust

May 2002



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KVPT – UNITED STATES

36 West 25th Street - 17th Floor
New York, New York 10010, USA

TEL: +1 212 727 0074

EMAIL: susannah@kvptnepal.org

KVPT-NEPAL

P.O.Box 13349
Kathmandu, Nepal

TEL: +977 1 55 46 055

EMAIL: info@kvptnepal.org

kvptnepal.org