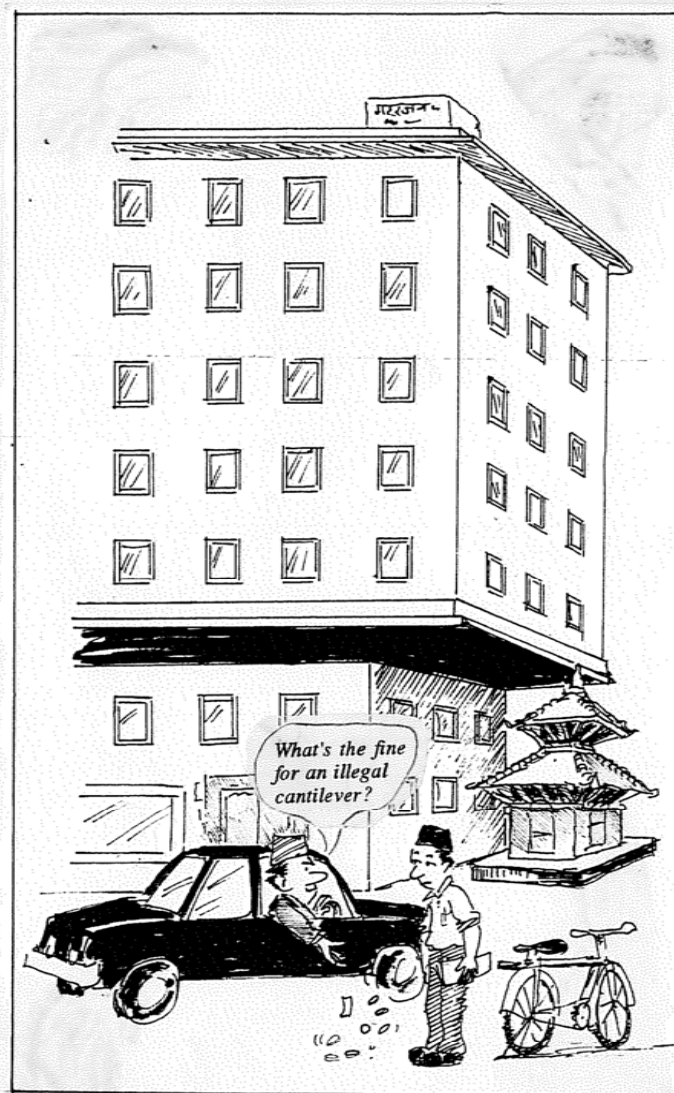




Stealing the city from the people....

Towards a liveable Patan Strengthening Building Controls



Historic town under siege:

The entire townscape seems to be under construction, here another eyesore arises at Gabaha, August, 1992.



Window types of the 1970's - 1980's near Tangah hiti. The sill height is too high and the proportions too square to establish a visual relationship with the historical windows. Photograph by Stanislav Klimek, August, 1992.



House at Bhichebaha: the 3' x 5' window type is predominant, although other variations are found.
Photograph by Stanislav Klimek, August, 1992.



New and old construction at Ukubaha. The biggest eyesore in Patan has been created by the new highrise Sakya houses (left), whose rear elevation dominates the renowned Mahabuddha temple with poor brickwork and ugly ventilation grills. Photograph by Stanislav Klimek, August, 1992.

ARCHITECTS AND CONSERVATION CONSULTANTS TEL/FAX (9771) 610650, 610657

Towards a liveable Patan Strengthening Building Controls

by
Erich Theophile

with
Rohit Ranjitkar and Deepak Pant

Draft Report, December 1992

Table of contents

Introduction

Building controls and urban development.....	1
Goals of improved guidelines.....	2
Working method and products.....	4

Procedures and enforcement

Cases/examples.....	9
Focal case study: Sakya house.....	18
Analysis.....	22
Recommendations.....	23

Building height and cantilever:

Critical issues for the entire city

Introduction.....	27
Building height: cases.....	28
Building height: analysis.....	32
Cantilever: cases and analysis.....	37
Recommendations.....	41

Demolition and preservation

Introduction.....	45
Cases.....	45
Analysis and recommendations.....	53

Preservation and new construction:

Doors, windows, and details

Introduction.....	57
Cases.....	61
Focal case study: Sakya house.....	73
Analysis and recommendations.....	85

URBAN DEVELOPMENT

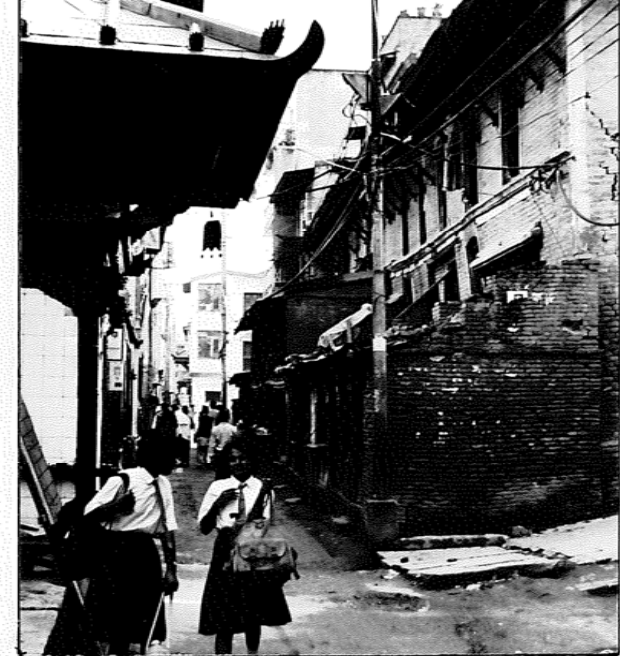
Implementation of any development or conservation strategies in Patan will necessarily engage the existing legislation and standards for building and development as well as the authorities involved in the monitoring, application, review, and enforcement processes, namely the Nagar Palika, the Town Development Committee, and in the Monument Zones, the Department of Archaeology.

The most critical weakness in the effective control of an unprecedented level of new construction is not the existing legislation, consisting of the Town Development Act 2045, the Kathmandu Valley Development Authority Act 2045, the Municipality Act 2048, and the Ancient Monument Act 2013, but rather the **application and enforcement** of these legal provisions. The system is characterized by a lack of coordination between the different government authorities, insufficient manpower and budget in the individual government offices, and, most significantly, a **fundamental inability to enforce the law**. It is acknowledged that the ability to enforce the law, i.e. exact more severe penalties which act as deterrents to further violations, remains a political question.

At this moment, growth in Patan is **out of control**. Fifteen applications for construction permits on average per day may be matched by a comparable number of building starts without applications. Officially approved drawings are not followed during actual construction. The most significant consequence of illegal building activity is the **stealing of public property** by private citizens. This includes illegal construction which invades public lands, public air-space, and public or semi-public monuments.

In the context of Patan Programme, which attempts to integrate conservation and development, the daily destruction and deterioration of world class monuments must be mentioned. In the Patan Darbar Monument Zone, ongoing construction--often unauthorized--threatens the historical character and architectural harmony for which the area was first designated a UNESCO World Heritage Site. Moreover, private and semi-private structures of great historical and artistic value within the Monument Zone and throughout the historic core of the city are demolished continuously. Where monuments remain, they are overshadowed and defaced by adjacent new buildings, which make no attempt to harmonize with the traditional townscape in overall size, floor height, roof form, or facade design.

It would be unrealistic to think that better enforced bylaws alone could control building activity in the Monument Zones. In the future, a programme of **incentives/subsidies** to encourage the retention and repair of historical features as well as to control new construction building heights and materials in areas adjacent to significant monuments must be considered. Although such incentives exist in many developed countries, their application in Nepal--with its particular land development pressures and deteriorated housing stock--must be carefully considered. Attempts at a private subsidy program in the Bhaktapur Development Project, for example, met with mixed results. If a successful programme is possible, its development will engage much dialogue between the private and public sectors, strategic planning, and troubleshooting. The Patan Programme, therefore, identifies such the development of such an



STEALING OF PUBLIC SPACE

Above: the one and two storey shops (mainly butcher shops) on the right side of this lane at Patukva are built on public land

GOALS OF IMPROVED GUIDELINES

The parameters for any planning for Patan's built environment --or for any of the urban settlements of the Kathmandu Valley--must address the basic fact that these cities will always consist of a mixture of old and new structures--be they temples of world class artistic value, houses, resthouses, or supermarkets with escalators.

Thus the way that new and old buildings "meet" must be considered a larger urban planning issue, not just the special problem of the World Heritage Site Monument Zones, although certainly in these areas success is more critical. Thus, one of the major points which this study hopes to clarify is that building controls for the core area in general and those in the Monument Zones in particular have many goals in common.

For the development of more effective building controls it will be more convincing to argue for the larger city's well-being both economically, visually, and in terms of urban amenities, rather than to argue for the preservation of a Monument Zone "pocket". This is not to underestimate the extraordinary artistic and historical value of the Monument Zones, which deserve great attention. Nevertheless, at this time one must state that any improvement in building controls will be the first and most important step towards preservation.

Additionally, while international efforts tend to focus on the World Heritage Site at Patan Darbar Square, ongoing documentation and preparation of an inventory of the monuments of the entire city by Patan Programme confirm that buildings of the highest artistic and historical importance are found throughout the core area. Thus any comprehensive formulation of preservation goals must introduce the idea of protecting key buildings throughout the city, even though the present failure of building controls enforcement make clear how challenging this will be.

It is realistic, for example, to assume that one will never succeed in arguing for strict control of new construction as a pure preservation effort--even when tourist dollars are tied to the proposition¹ -- given the complex pressures and problems that plague this third world city. One should rather focus on more comprehensive longterm economic and development advantages connected to control which at the same time are linked to preservation. As nobody is talking about the complete *eradication* of the historical fabric, we must therefore look for strategic ways to ease the unavoidable juxtaposition of old and new. Given the limited area of its Valley, Nepal cannot *afford* the clash of new buildings which intentionally or unintentionally make the historical buildings look ugly, not only for rather self-evident preservation issues, but also for the resulting chaos, which must eventually affect even the desirability and value of the new buildings.

¹ The recent Pacific Asian Tourism Association conference (October, 1992) focused on the loss of a necessary "buffer zone", a controlled urban area to protect the urban monuments, a precondition for future cultural tourism in the Valley.

Considering a program for effective building controls, the precondition for any future urban improvements, certain basic socioeconomic observations should be made. First of all, many of the historical buildings, although beautiful and often significant, are substandard given the residential standards of upwardly mobile modern Nepalese. Due to a total lack of alternative investment opportunities, new construction goes wild, building believed to be the only way to freeze the value of today's hard earned Rupee². Related and greatly increased property values, together with a traditional lack of mobility in residence, force growing or prosperous families to build up or new--no matter how important or loved the old house may be. A near total inability to enforce building control law, both in pre- and post-democratic Nepal, means that any tightening of the law will have the additional disadvantage of making those new applicants wonder why suddenly they must conform, when it seems everyone else "was able to do what he wanted". And lastly, when it comes to the economic viability of restoration and renovation of historical buildings, one must admit that none of the financial incentives--direct or indirect--which fuel preservation efforts in developed countries, exist here.

² Banskotha, Shubha and Neil Cohen, 1990.



The following study, conclusions, and recommendations focus on "achievable" strategies for building controls. Sufficient materials³ exist on what could be called "ideal" solutions. The recent development of Nepal's historical cities demonstrates, however, that such unrealistic proposals can be more harmful than helpful. The point here is to identify certain minimum requirements for new construction and restrictions which are less difficult to communicate and enforce. It should be mentioned that more effective enforcement of building controls remains a political issue--recommendations for controls might therefore be integrated with public awareness programs and rallying of political support to further this cause. Such projects are discussed in the concluding recommendations of this report.

Although preservation issues are a clear focus of this study, i.e. what building guidelines can produce structures which harmonize with the historical fabric or, at least do not deface the traditional townscape, many of the conclusions are relevant to the entire historical core area, where similar goals of livability must be advocated.

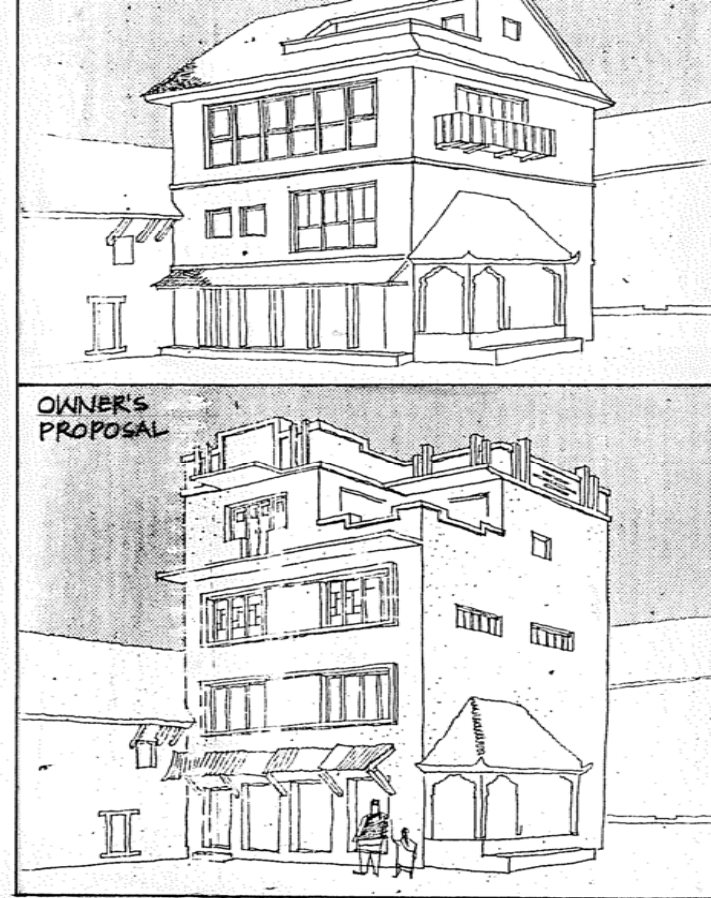
The technical definition of the term preservation is actually the protection of an historical building in its historical form. In the case of the Monument Zone Areas, the definition can be extended to "the protection of the historical form or character of the environment. When discussing how to control new construction preservation may be defined as encouraging new designs which harmonize (or at least do not detract) from the historical buildings. Ongoing efforts to design new buildings which harmonize or fit in with their historical neighbors in more developed countries have often met with mixed results. It seems there can easily be a huge difference between intentions and built results.⁴

Given the difficulty of the proposition, one way to design solutions for what "works" is to study and analyze local examples, that is, not to fabricate abstract principles, but rather consider what is effective, ineffective, good, or bad based on built examples in the local area. Every argument should be demonstrated by a built example. Thus, observation of the new and old houses in the streets of Patan (and other urban settlements in the Valley) is the starting point for this work. These case studies form the body of this work.

A way to move forward

This report is divided into major sections treating (1) Procedures and enforcement, (2) Building height and cantilever, (3) Preservation and demolition, and (4) Preservation and new construction. This organization identifies not only the key issues, but also suggests a way to move forward. Given the present failures in the control of the built environment, a simple listing of all pertinent suggestions would be useless. Thus, what is proposed in this sequence of issues is itself a strategy for strengthening of building controls. Chapter by chapter, each closing with recommendations for immediate action, one possible course of action is charted. In addition, a chapter at the end of the report discusses activities, related both indirectly and directly to this course of action, which Patan Programme could support.

³ For example, the thoughtful guidelines for new construction developed by Bhaktapur Development Project, which prescribe traditional building materials which are desirable but unavailable and unaffordable. Excerpts included in this



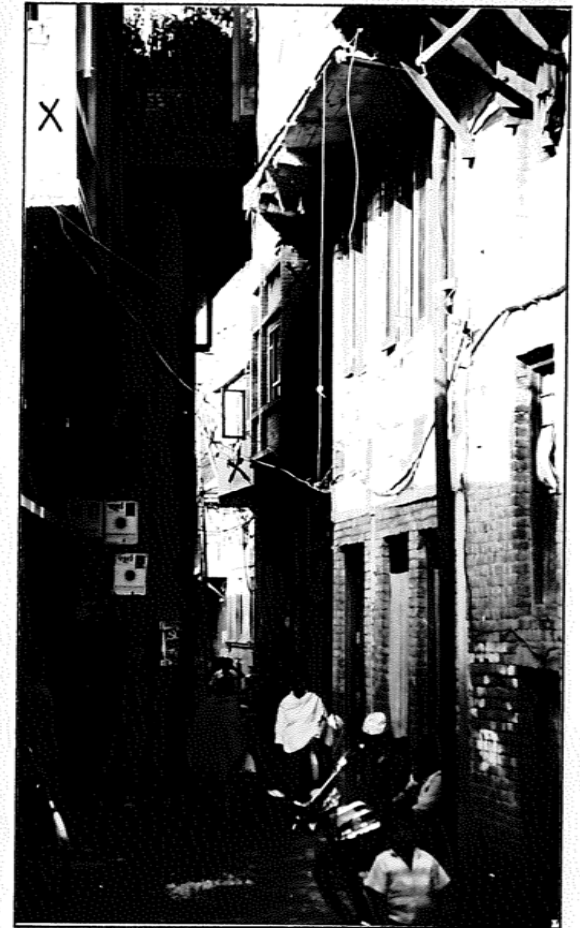
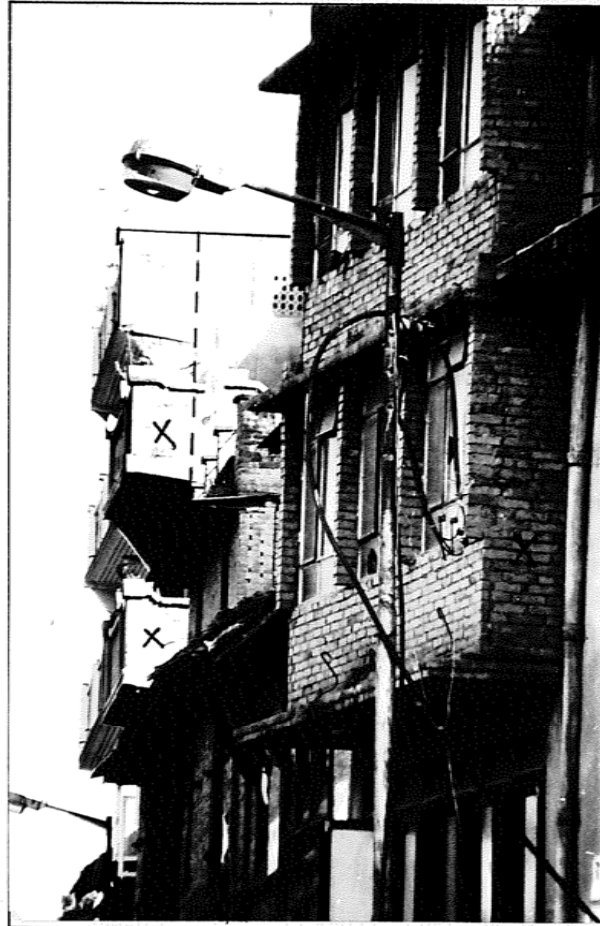
Excerpts from the Bhaktapur Development Project Design Guidelines.

This transformation from the owner's "modern" proposal to a more appropriate Nepalese style building represents the project's goal of maintaining the architectural environment. Such proposals are well designed and intentioned, but are unrealistic given financial and professional constraints. Such solutions would only be viable if funds and architectural assistance could be made available to the owner.

Step by step

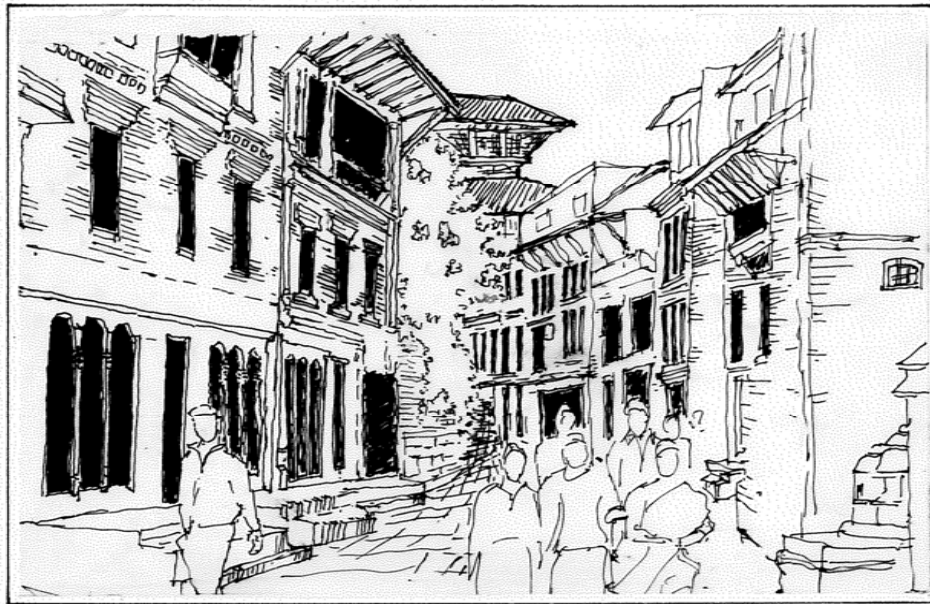
Strengthening of building controls cannot, for example, take place given the present inability to enforce the law--discussion of procedures and enforcement therefore opens the study (1). Secondly, given the present destruction of the city through private encroachment, control of invasive building height and cantilever is next treated, issues critical to the entire core area (2). And lastly, consideration of design guidelines for new construction sympathetic to the architectural heritage is not worth thinking about unless the many monuments under semi-public and private control can be saved from demolition. Thus proposals for anti-demolition bylaws (3) precede analysis of possible design guidelines for the Monument Zone (4). In the next section, a brief treatment of

This study does not address the challenges of development strategies for the areas outside the historic core, such strategies as guided land development or land pooling. One should say, however, that in these areas a relaxation of certain restrictions for new construction might strategically reduce development pressure on Patan's valuable historic core.



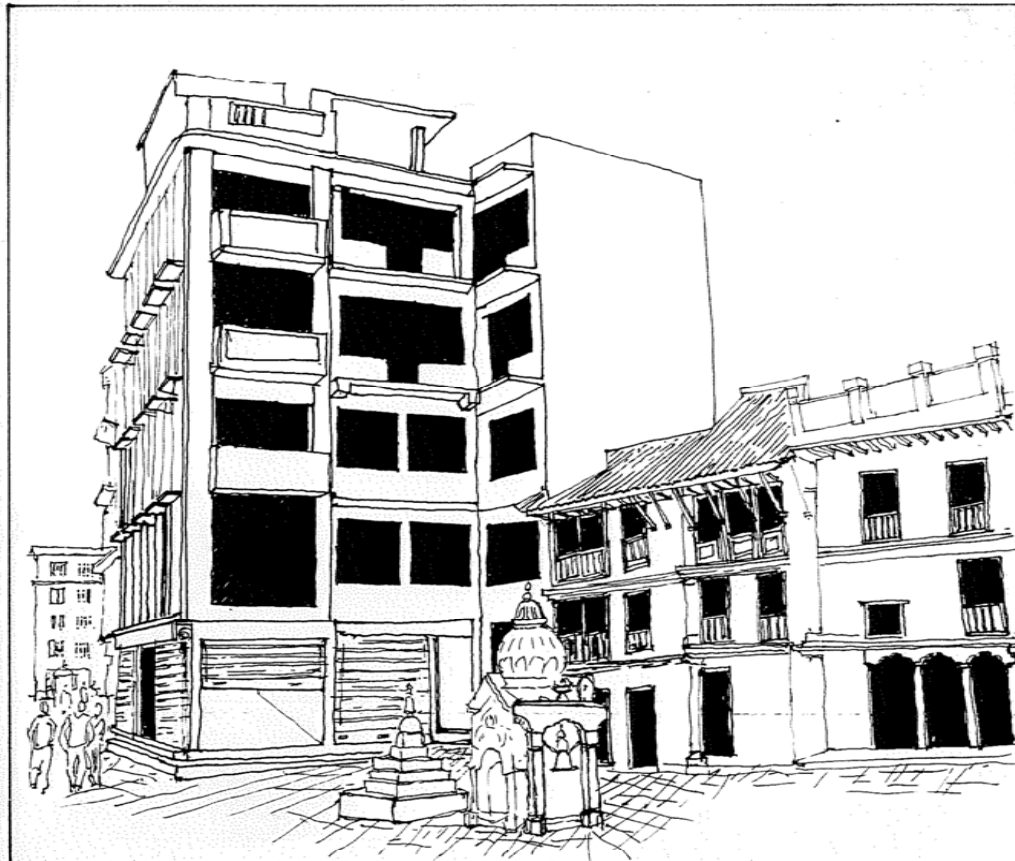
If only building height and cantilever could be controlled, the further destruction of the city could be largely avoided. This destruction at best creates eyesores-- at worst, it creates health and safety hazards in a city which is already weak in public infrastructure.

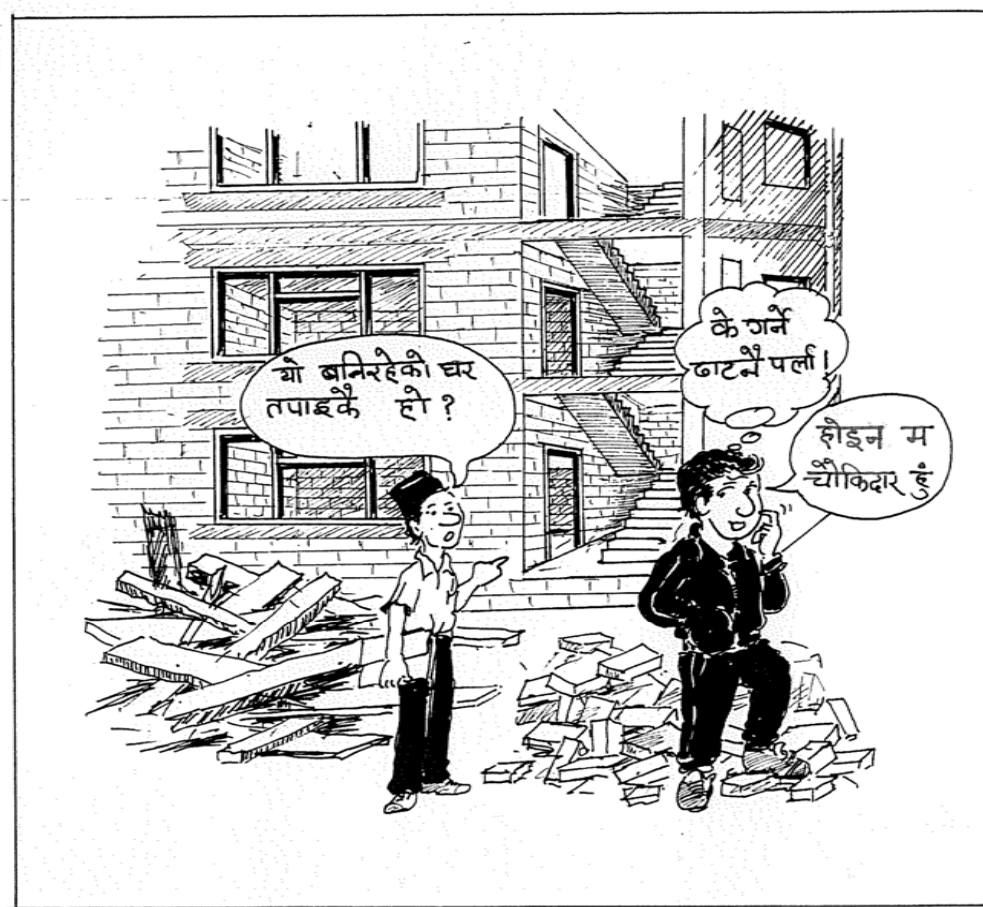
Left: "Highrise" construction in Patukva, west of Patan Darbar and still in the Monument Zone. Center: "X" marks the cantilevered or overhanging floor levels which eat the public space 50 ft. east of the Municipality Building, Patan Darbar. Right: At Bell-bahal looking north to Gresha, unsanitary living conditions are



If our cities in the Kathmandu Valley will always be a mixture of old and new, does it make sense to destroy the beauty of the old buildings with "selfish" new buildings? Above: the traditional beauty of the city is still seen at Svatha, looking towards Patan Darbar. If this townscape, which has attracted cultural tourism to the Valley for years, disappears, so will the tourism and related economic benefits (reported by October 1992 meeting of Pacific Asian Tourism Association (PATA) in Kathmandu).

Compare with the typical scene (below) of the destruction of the environment at Mahabauddha. Three of Patan's biggest buildings (discussed later in detail) have recently been completed directly adjacent to the important Mahabauddha Temple and Ukubahal. Quality of life of the individual takes priority over the community. This destruction must reduce overall land values in the long run.





PROCEDURES AND ENFORCEMENT

Cases/examples

The following cases describe the existing application, review, monitoring, and enforcement system and document some of the key weaknesses. These weaknesses reflect political as well as organizational, budget, and manpower problems.

In general, both here and abroad, too much faith is placed in the "rules" or bylaws themselves--if the rules can not be applied or enforced effectively, then they have no value, as recent developments in Patan's historic core bear witness to.

With the increase of penalties based on an amendment to the Town Development Act 2045, penalties for building bylaw violations, maximum fines have been increased to NRp.s 100,000 and imprisonment up to one year is possible, EFFECTIVE NOVEMBER 10, 1992. The introduction of imprisonment to punish building violations, even if never imposed, may serve as an effective deterrent.

The recent appointment of an architect with considerable experience in architectural conservation to the post of Patan Town Controller is a positive development for the future of Patan Programme efforts.

Insufficient resources for a huge job.....

"Most complaints about illegal construction are coming from the citizens, not from the responsible government officers."

Although it is the responsibility of the field surveyors of the Nagar Palika, Department of Archaeology, and Town Development Implementation Boards to report on new illegal construction, the system is so overburdened with cases, technical manpower so understaffed, and support services (secretarial/filing/transportation) so minimal, that it is virtually impossible for the system to keep up with the building boom.

No Money

Although the law is written that the Town Development Implementation Committee shall compensate property owners as necessary (for example when someone is not allowed to build a house on his land because a road is planned in that location), no such funds exist.

Personnel

The number of inspectors posted under the Town Controllers Offices in Kathmandu and Patan has not been increased since the creation of the Town Development Implementation Board some 16 years ago. Thus, in spite of exponential increase in applications for construction (not to mention illegal construction-starts), manpower remains the same.

Patan Programme support of Drafting Committee

In response to the ongoing drafting of the revised bylaws, the Patan Programme reviewed a translation of the October draft and

Concerned authorities

This information is based on interviews with the respective authorities.

Town Development Implementation Committee

Responsible for development activities such as guided land development although to date no projects have been successfully executed.

Responsible for review of applications for regulation of floor area coverage, right of way, set backs, and cantilever/projections.

Responsible for monitoring of approved and unauthorized construction work.

Responsible for environmental issues.

Nagar Palika (Lalitpur Municipality)

Issues construction permits.

Responsible for monitoring of approved and unauthorized construction.

Issues "construction completion certificates".

Department of Archaeology

Involved only in Monument Zones.

Responsible for review of applications for compliance to Monument Zone Directives. Applications are forwarded by Town Development Committee and Nagar Palika to the Department for review and comments.

Ongoing Building Bylaws Drafting Committee October, 1992

Committee Coordinator: Mr. P.B. Chhetri, Regional Director DHP

Members:

1. Town Controller Kathmandu
2. Society of Nepalese Architects representative, Mr. Y.K. Parajuli
3. Association of Consultants representative, Mr. R.B. Shrestha
4. Nepal Chamber of Commerce Representative (not sent)
5. Acting Director General, Dept. of Archaeology, Dr. S. Amatya
6. Deputy Director General Dept. of Housing/Urban Dev't, Mr. U. Malla
7. Kathmandu and Lalitpur Mayors

Member secretary: Mr. S. B. Sangachhe, Senior Planner

WORKING COMMITTEE

Coordinator: Mr. S.B. Sangachhe

Members:

1. Mr/ Y.K. Parajuli
2. Mr. Bhim Nepal, Dept of Archaeology
3. Mr. Mohan Dongol
4. Town Development Implementation Committee representative

Application process for construction permits

*This information is based on interviews
with the respective authorities.*

Town Development Implementation Committee

(1) Application to Town Development Implementation Committee (Town Controller's Office) with all necessary forms (described below).

Registration of these documents with clerk.

(2) Site check.

The unit-in-charge engineer assigns 2-3 sites per day to each inspector for on site verification of plot information.

(3) Office review.

Review of application drawing for compliance to Building Bylaws. If site is in Monument Zone "Ka" (A) Zone, then forwarded to Department of Archaeology. Monument Zone "Kha" (B) Zone drawings are not forwarded to the Department. Review to see if application site falls in Guided Land Development Area.

Drawing check. Check of drawing scale (1/8th inch or 1:100 scales), Right of way and setback, building height, other issues as relevant.

Legal document checking.

Validity of deed (lal puja) and access road provision is reviewed by a non-gazetted first class clerk.

Department of Archaeology

(3a) Design review

If the case is in the Monument Area "Ka" Zone, the application drawing is forwarded to Department of Archaeology, which reviews with special attention to the design guidelines contained in the Monument Zones Directive. Reviewed application is then forwarded to Nagar Palika.

Nagar Palika

(4) Office review/fee collection.

Drawing check. Check of drawing scale (1/8th inch or 1:100 scales), Right of way and setback, building height, other issues as relevant. Based on compliance with the above bylaws, a report is prepared recommending issuing of the permit by the Mayor.

Legal document checking.

Validity of deed (lal puja) and access road provision is reviewed.

Application fees of 1 NRp/sq ft (average) are collected based on the square foot calculation prepared by this office.

(5) Site check

An inspector is sent to verify plot information

(6) Permit issuing

Construction permits are valid for a period of two years.

Department of Archaeology in 1989 to add an additional storey to his two storey house at Swatha Tol. The request was refused--not because of the building height, but because of the impossibility of successfully monitoring such a project in a World Heritage Site. The owner went ahead and built his addition without permission.

Technical manpower

The most critical stage in the enforcement process is clearly the construction period--this is when the approved drawings are ignored. The structure of personnel and responsibilities in the three concerned government offices, however, provides for this monitoring process only field surveyors, staff without any technical skills in reading drawings, engineering, construction, or engineering. In the Nagar Palika these posts are staffed with non-gazetted 3rd and 4th class officers, that is, one level above peon.

Among all the staff and officers of the three concerned government agencies, there was only one architect (outside of the Patan Town Controller himself) involved in building bylaws application and enforcement. He was lost when all temporary staff was recently eliminated from the government service.

Some findings

*In the last six months, for example, constant monitoring of just a two block area in the Patan Darbar Monument Zone revealed 8 illegal building projects in this critical area between the Darbar and Kva Baha.

*The Town Controller reports 15 building applications per day for greater Patan and 4 per day in the historic core on average in 1992.

The files alone...

The simple job of filing and retrieving applications becomes a huge job given present office equipment and staff. Patan Programme requests in June 1992 to the three concerned government offices for copies of approved construction drawings for 14 buildings (then under construction) yielded only three drawings. Antiquated filing systems, inconsistent plot numbering (kitta), registration under different family members' names and sheer volume made location of the other drawings impossible. In the Patan Town Controller's own words, "some planners from Japan came in with research questions regarding the total number of square feet of new residential construction approved by my office in the last year...I told them they were welcome to go through our files...."

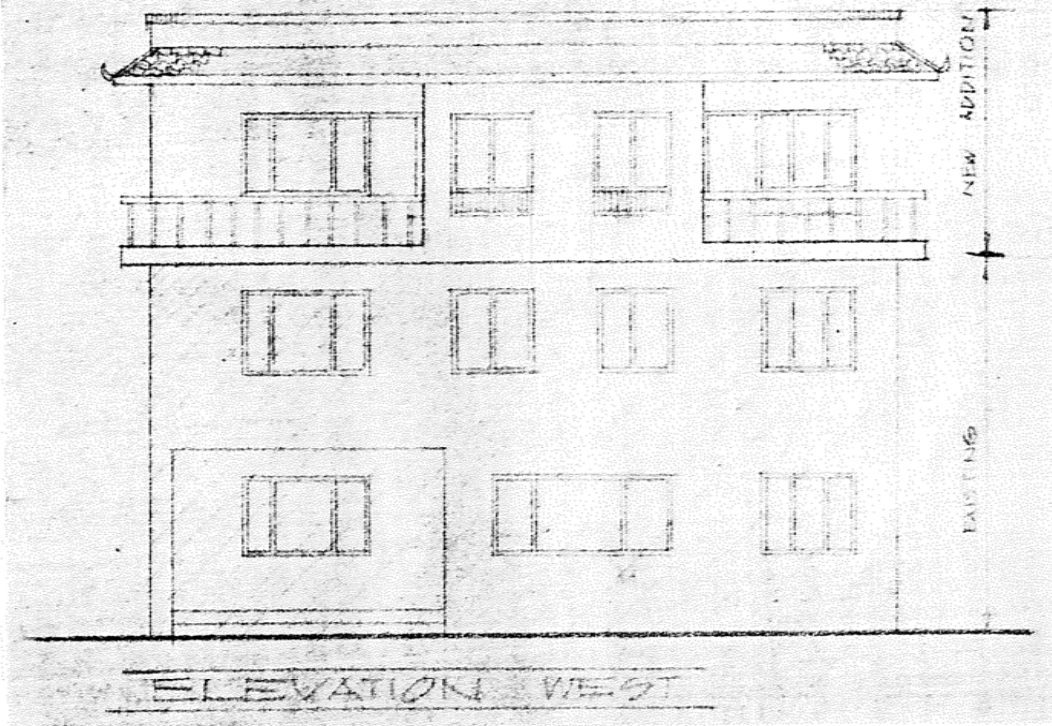
Coping mechanisms

The Patan Town Controller's office and Department of Archaeology have both started writing any special restrictions or conditions directly onto the construction drawing because any additional papers will be lost.

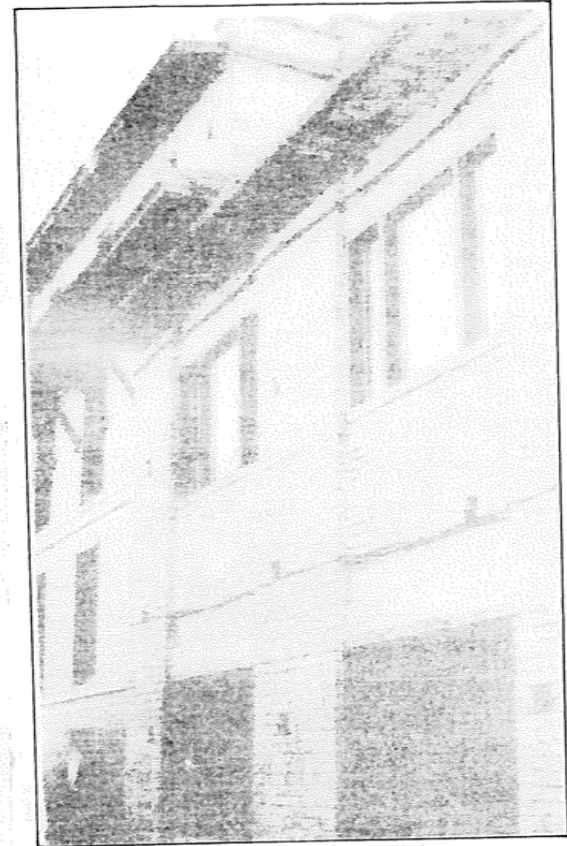
Public information

A recently published brochure by the Department of Archaeology was an excellent step forward in spreading public information about current rules and regulations in the Patan Darbar Monument Zone. It also attempts to give the historical background to justify the compromises such rules involve.

Unfortunately the map (printed on the cover of the brochure) demarcating the edge of the Monument Zone which would clarify



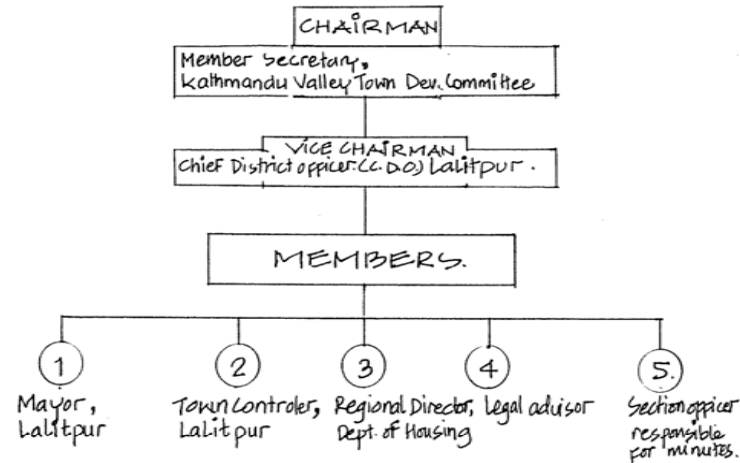
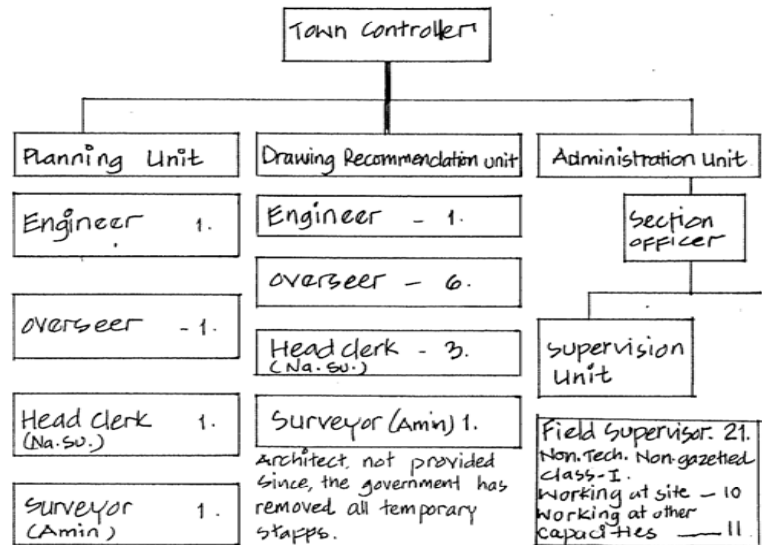
WEST ELEVATION 1:100



Action through inaction

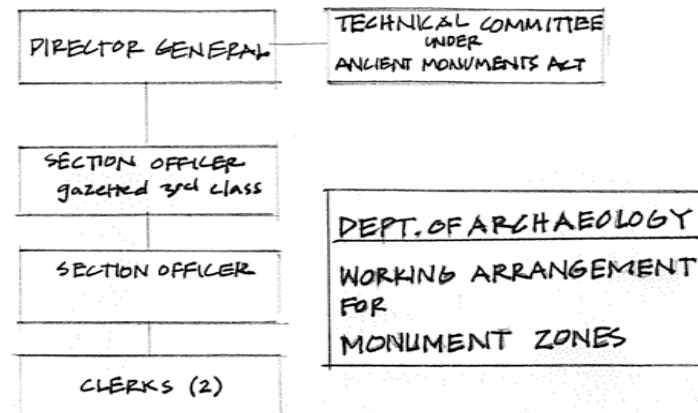
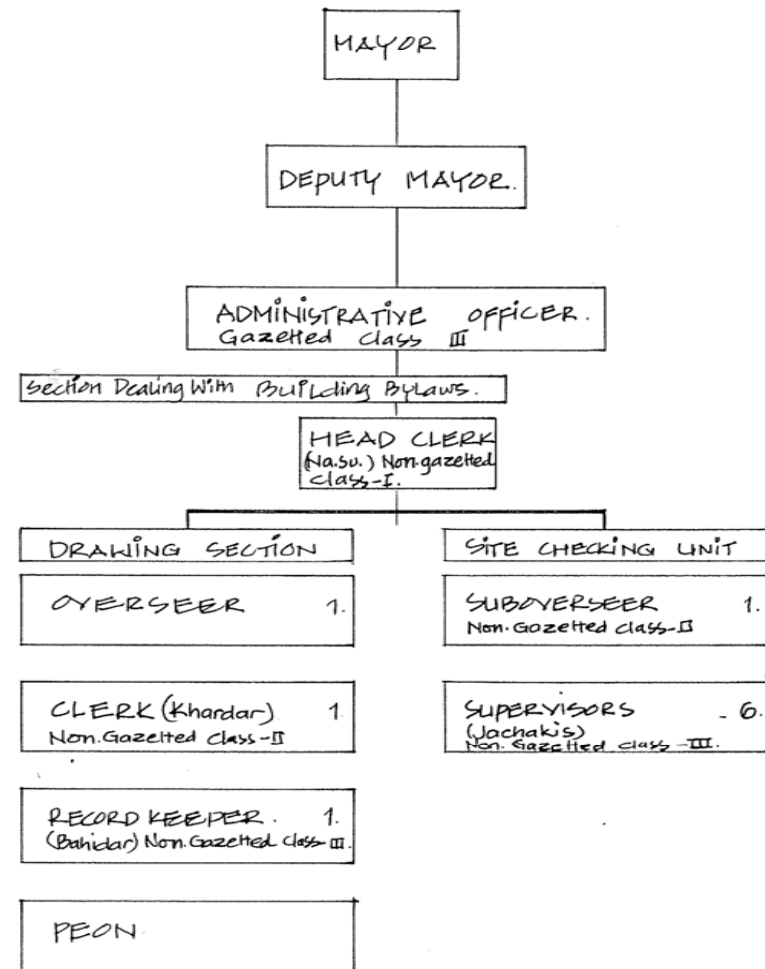
A proposal for how to add another storey was developed by the author on a volunteer basis for the Department of Archaeology in response to the application. Shown here are the owner's proposal above and architect's proposal below. To be able to negotiate design solutions which meet the owner's needs and preserve the character of the Monument Zone requires serious professional time involvement, precluded by the manpower and funding limitations of the Department of Archaeology. Lack of ability to enforce the law makes the responsible authorities hesitant to approve projects in critical locations. The

LALITPUR NAGARPALIKA

TOWN PLANNING IMPLEMENTATION COMMITTEE BOARD
LALITPUR.PERSONNEL STRUCTURE
KATHMANDU VALLEY TOWN DEVELOPMENT PLAN.
OFFICE OF IMPLEMENTATION COMMITTEE, Lalitpur.

Technical manpower deficiencies

The personnel ladders of the responsible authorities are critically weak in the engineering and architectural expertise necessary to tackle building controls.



In spite of an official letter from the Town Controller to halt illegal construction at this house directly south of the Nagar Palika building, construction continued and is now almost complete.

The owner built his ground floor 12 feet tall in violation of the 8 feet specified in the drawing approved by Town Development Implementation Committee and the Department of Archaeology. The house is in the Monument Zone and is visible from the Darbar Square. The giant ground floor height is equal to two floors' height in the adjacent older buildings.

The approved drawing for this construction is one of those requested by the Patan Programme which was never able to be located.

Dismantling

Although the Town Controller and Town Development Committee are authorized to dismantle illegal construction, they lack the means—the tools and manpower to perform such work. The few cases in which dismantling of illegal construction was achieved have led to countersuits by the owner when adjacent parts of the building were damaged in the pulling down process.

The Department of Archaeology once succeeded in dismantling two floors of a house at the south end of Patan Darbar Square, on the eve of the 1987 SAARC conference in Kathmandu.

Fight fire with fire

The Town Controller is authorized to order water and electricity to be cut off for buildings in violation of the building bylaws. In several cases, such orders were given, but never the electricity and water authorities did not respond.

The one day building law was going to be enforced...

Several years ago the Town Development Implementation Committee had rallied sufficient power that, in accordance with a government order, they would dismantle an illegal "rakshi hotel" constructed adjacent to the police station in Jawalakhel. When they approached the house with tools ready for the dismantling process, the owner stood on the roof holding a knife and threatened to kill himself if they came nearer. The dismantling was called off.

A serious spelling mistake

According to interviews with several former Town Controllers, the original drafting of the Town Development Act contained a serious mis-spelling. The posts of inspectors who monitor construction were listed as administrative instead of technical posts. ("Pra", the abbreviation for *prashaasan* meaning administrative was used instead of "Praa", the abbreviation of *praabhidhik* meaning technical.)

Enforcement: police orders

Under the Panchayat system, the Zonal Commissioner was a member of the Town Development Implementation Board, a government office able to order police directly to enforce building law. That post has been eliminated since democracy.

Transportation

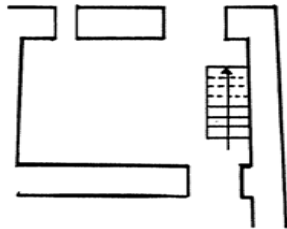
It takes 40 minutes round trip to walk from the Town Controller's Office to Patan Darbar Square and back. Inspectors do not have bicycles.



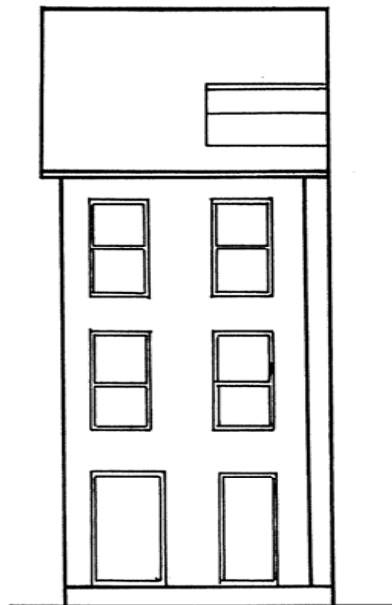
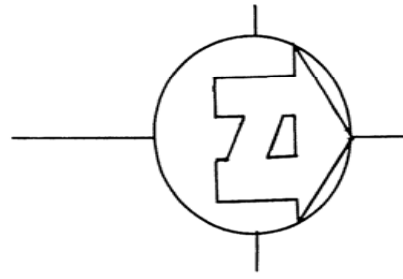
Tamrakar House, Haugah: new construction as seen from from Darbar Square.



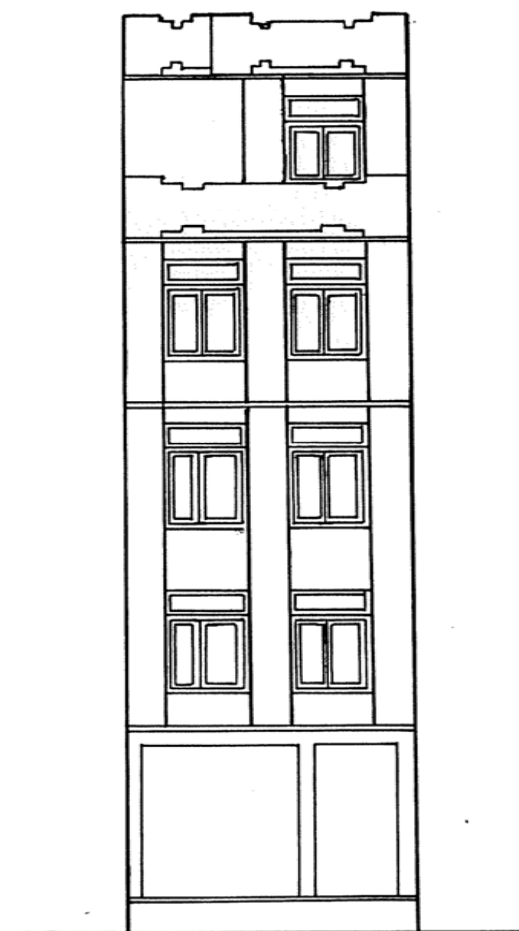
Tamrakar house, Haugah: the 12 ft. ground floor ceiling height is illegal. Notice how the new ground floor steel rolling shutter (also illegal) reaches the same height as the first floor window of the traditional house to the left.



EXI. GROUND FL. PLAN



EXI. EAST ELEVATION



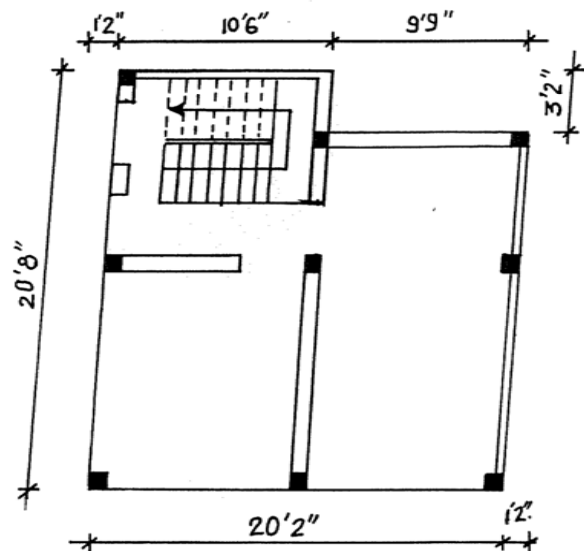
PRO. EAST ELEVATION

OWNER: ASHA RATNA SHAKYA
 SITE: LRU ZONAL
 HEIGHT: 55'-11"

SCALE: 1"=8'

Typical applications for new construction

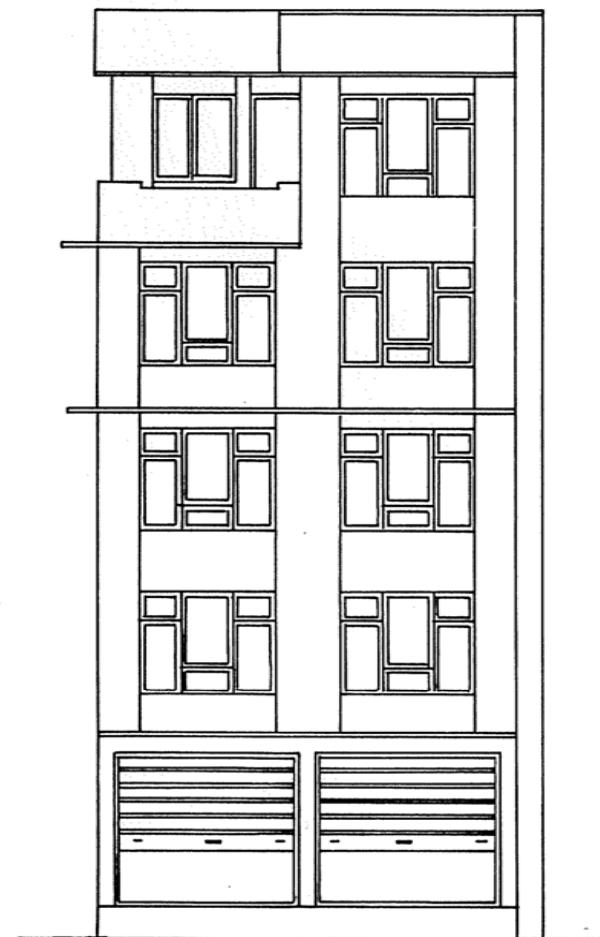
These drawings make clear several key features of the current building trend and control problems. (1) Each of the application drawings shows overall building height of 45 ft., while each house--as built--is between 52 and 60 ft. tall! Monitoring is the problem. (2) Reinforced concrete slab and "Indian style" bay windows are the norm for current building; and (3) Irregular or tiny building plots



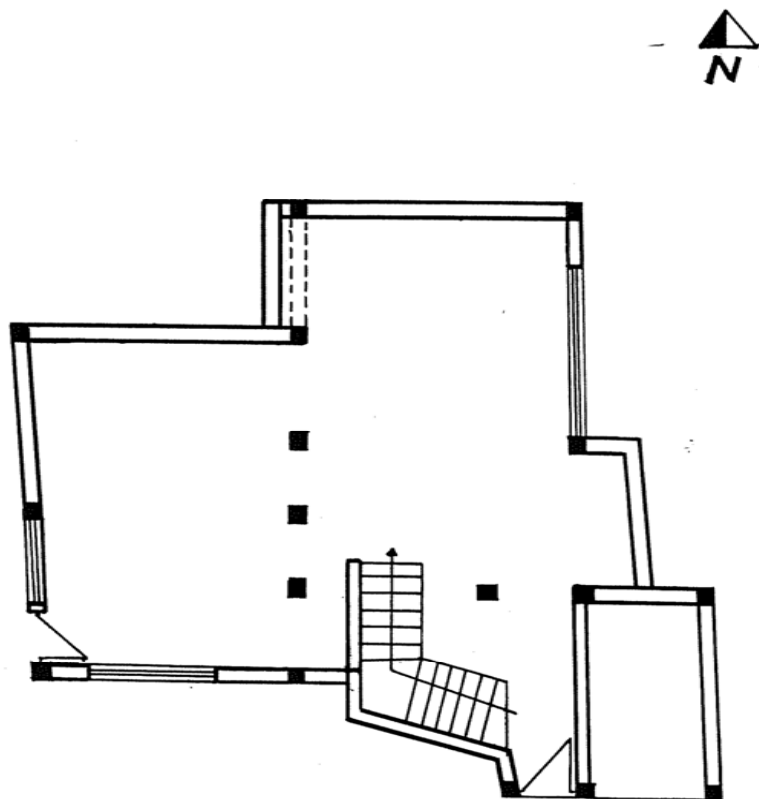
GROUND FLOOR PLAN

SCALE: 1" = 8'0"

SULMA SQUARE (NW CORNER)
FORMER SATTAL.



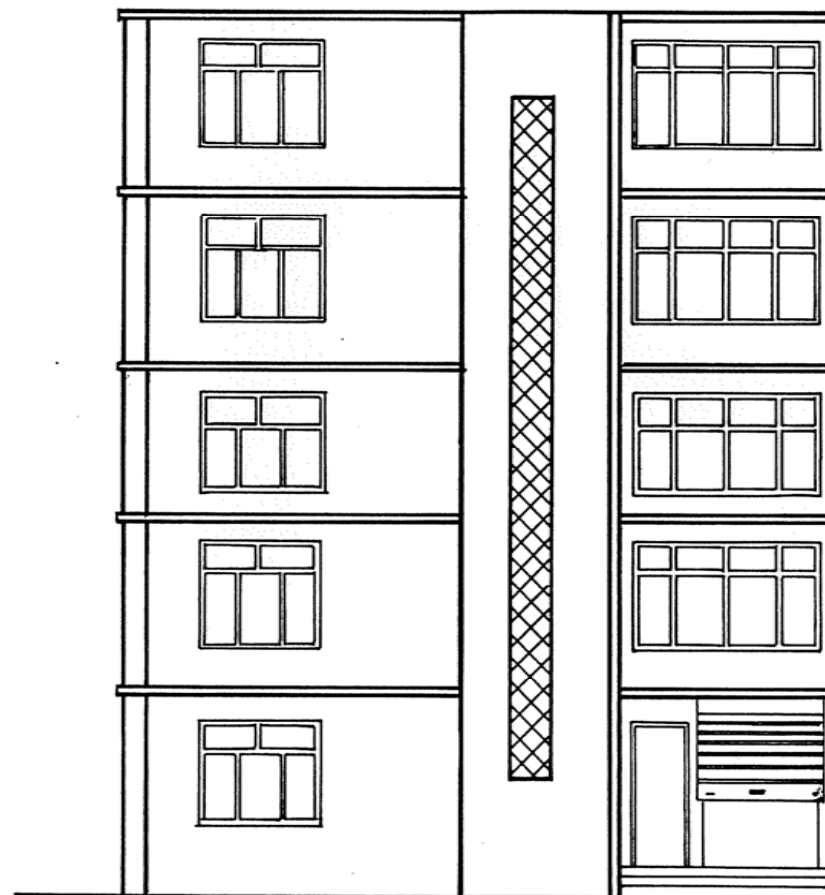
SOUTH ELEVATION



PRO. GROUND FLOOR PLAN

SCALE: 1"=8'0"

OWNER: MANI RATNA SHARMA
SITE: UKU BAHAL
HEIGHT: 55'-11"



SOUTH ELEVATION

Man Ratna Sharma 55'-11"

Typical applications for new construction

These drawings make clear several key features of the current building trend and control problems. (1) Each of the application drawings shows overall building height of 45 ft., while each house--as built--is between 52 and 60 ft. tall! Monitoring is the problem. (2) Reinforced concrete slab and "Indian style" bay

building bylaws case against an individual to be pursued by more than one government office at a time. The current strategy of building bylaw offenders is when any trouble arises to "bring" their case to the Nagar Palika as soon as possible to avoid what is considered the more strict measures of the Town Controller's office.

The transmittal of application and approved construction drawings between offices results in many poor quality photocopies, so poor in fact that many are illegible for enforcement procedures.

A new rule in Patan

One notable example of a lack of coordination between concerned government offices is the three month old provision of the Patan Nagar Palika to issue "construction certificates" to house owners. This permit, which the owner is allowed to apply for after completion of at least one floor of his building, is now used to apply for electricity and water supply. Although in the tradition of certificates given at the end of construction to control successful completion, this new provision may have the effect of "legalizing" illegal construction. 39 certificates have been issued between July 15 and November 15, 1992, some to buildings constructed without a permit or not finished according to approved drawings.

This new rule also includes a requirement for owners to apply for permission to continue with construction after the completion of the damp proof course, the top layer of the foundation. To date no one has applied for this "construction continuation" permission.

"Ka" and "Kha" Zones

The existing Monument Zone area is divided into "ka" (A) and "kha" (B) zones. In "ka" zones which face Darbar Squares, maximum building height is 32'; in "kha" zones, which are still in the Monument Zones but away from the principal squares, maximum building height is 45'.

*The map for ka and kha zones is unavailable from the Town Controller's Office and from Nagar Palika. The Department of Archaeology has the map which was prepared in the last two years.

*The Town Controller's office was unable to provide a copy of this zoning map at our request because they did not have funds to make a photocopy.

*When Patan Programme offered to pay for several copies of the critical map, we were told that there was not staff to take it to the photocopy store.

*When our team members discussed the matter with the Town Controller's staff, they were told that the map is under preparation. Inspectors do not have copies of this zoning map when they go out in the field.

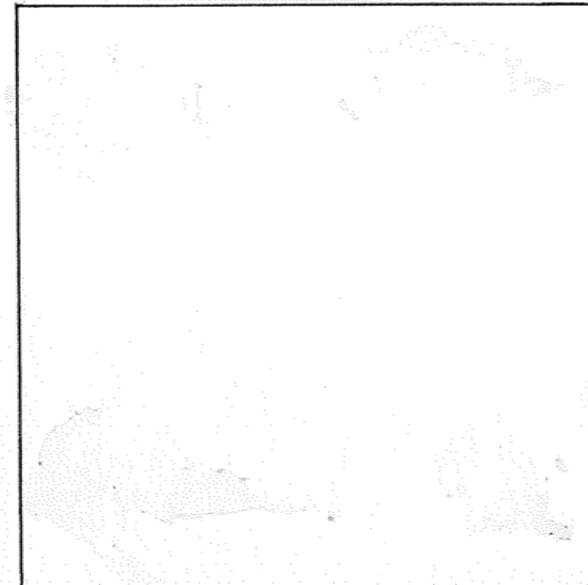
Even with technical support, no way to enforce...

The existing structure had no windows and was a ruin on the inside. The owner's proposal to rebuild this structure at Basantapur, Kathmandu was revised for the Department of Archaeology by the author in 1988, specifying reconstruction of the 19th century Narayan temple on its roof. In spite of this design service and a written contract between owner and the Department, the temple was not rebuilt until 1991, when an ugly modern version of the temple



Basantapur
Principal Elevation

Rooftop temple, Basantapur, Kathmandu, before dismantling (below) and approved reconstruction drawing above.



Introduction

Since January 1991 the Patan Programme has provided technical support to the Department of Archaeology to (1) review and revise designs for a proposed renovation/addition to a house on the Patan Durbar Square and (2) monitor construction after the Department's authorization of construction. Construction is 95% complete at present. The Patan Programme also provided (3) material support to the owner for the execution of certain traditional facade details, a chance to explore private subsidies for critical buildings in the Monument Zones.

The project was identified as an opportunity to build concrete experience with the review and monitoring process at a key site, in this case, a house prominently defining the north end of Patan's Durbar Square and adjacent to the Mani Ganesha Temple. During the review and redesign process, Patan Programme consultants negotiated with both the owner and with the Department. After several alternative design proposals had been developed, a training/brainstorming session on design guidelines for the Monument Zones was organized by Patan Programme involving all concerned professionals and staff of the Department, Patan Programme consultants, and the owner. Patan Programme consultants also met with the Patan Town Controller and the owner to discuss the case several times.

The 1934 house that stood on the site had been demolished some eight years ago; meanwhile, the Department of Archaeology had successfully halted an oversized, unsympathetic, and illegal building begun five years ago on the site. The modern building sat incomplete for five years, although shops occupied the ground floor.

This case will be discussed again later under a chapter evaluating architectural guidelines for Monument Zones, it is introduced here to demonstrate several key facts about enforcement and the amount and type of manpower necessary to handle such cases. Following is the log of the time involved of one experienced architect and one junior architect working as assistant and draftsman.

1. Review/redesign process (total 14 mandays)

One architect and one draftsman worked one week verifying site measurements, documenting photographically, meeting owner and Department, developing design alternatives, and preparing presentations showing design alternatives with the adjacent buildings at the north end of the square.

2. Revisions (total 1 manday)

Although the owner agreed to one of the proposals at the training session, he later changed his mind and met with the architect another four times to present his counterproposals. Minor revisions were made to accommodate the owner's wishes and checked with the Department.

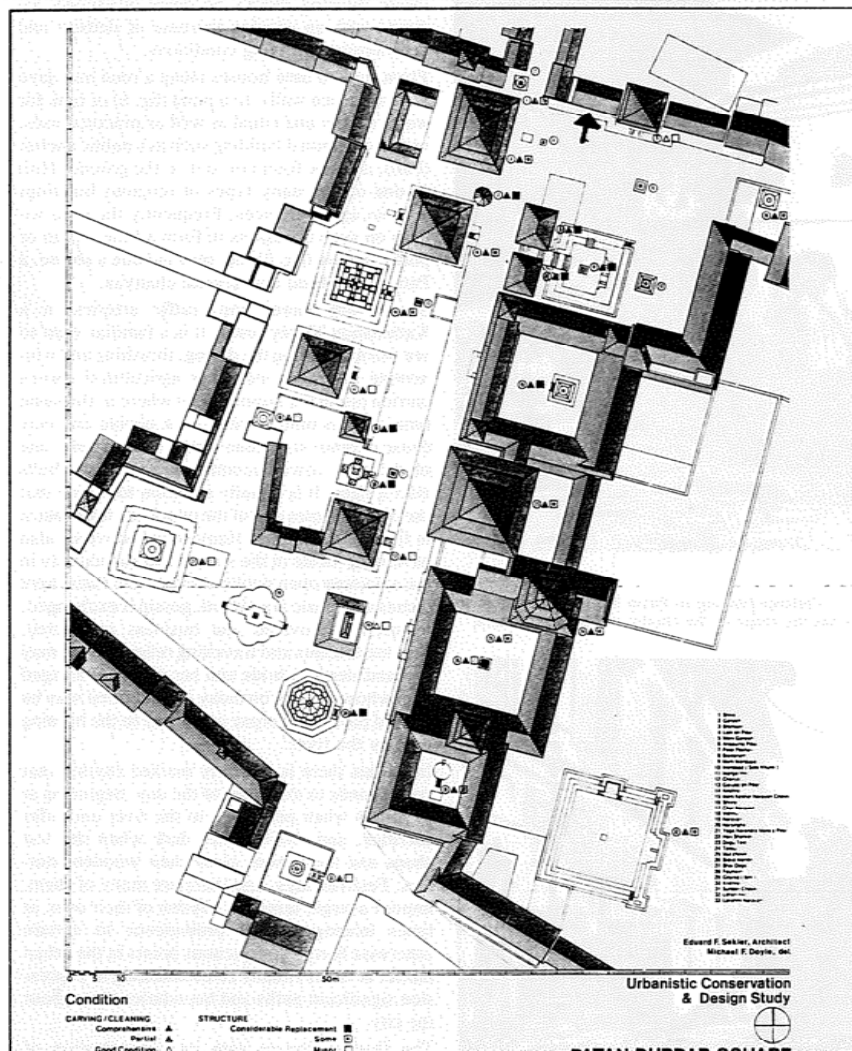
3. Construction documents (2 mandays)

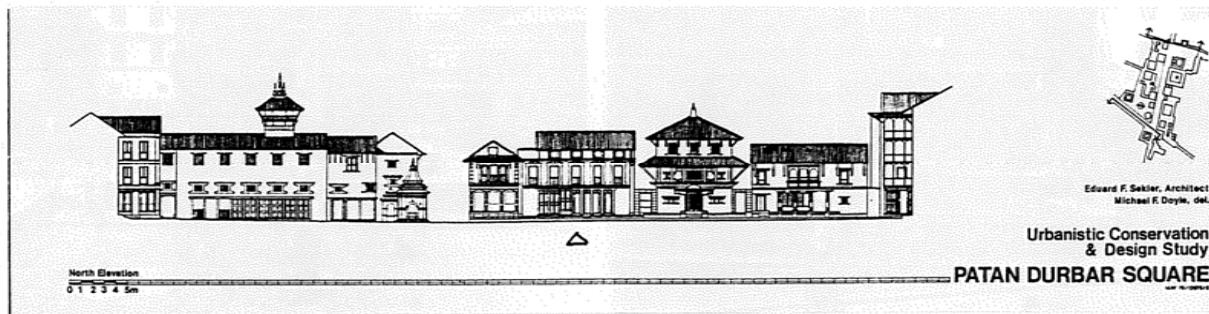
Preparation of the construction documents with window, cornice, and roof details and specifications for all materials. Full size sample of window frame provided to owner by architect.

4. Site supervision (10 mandays)

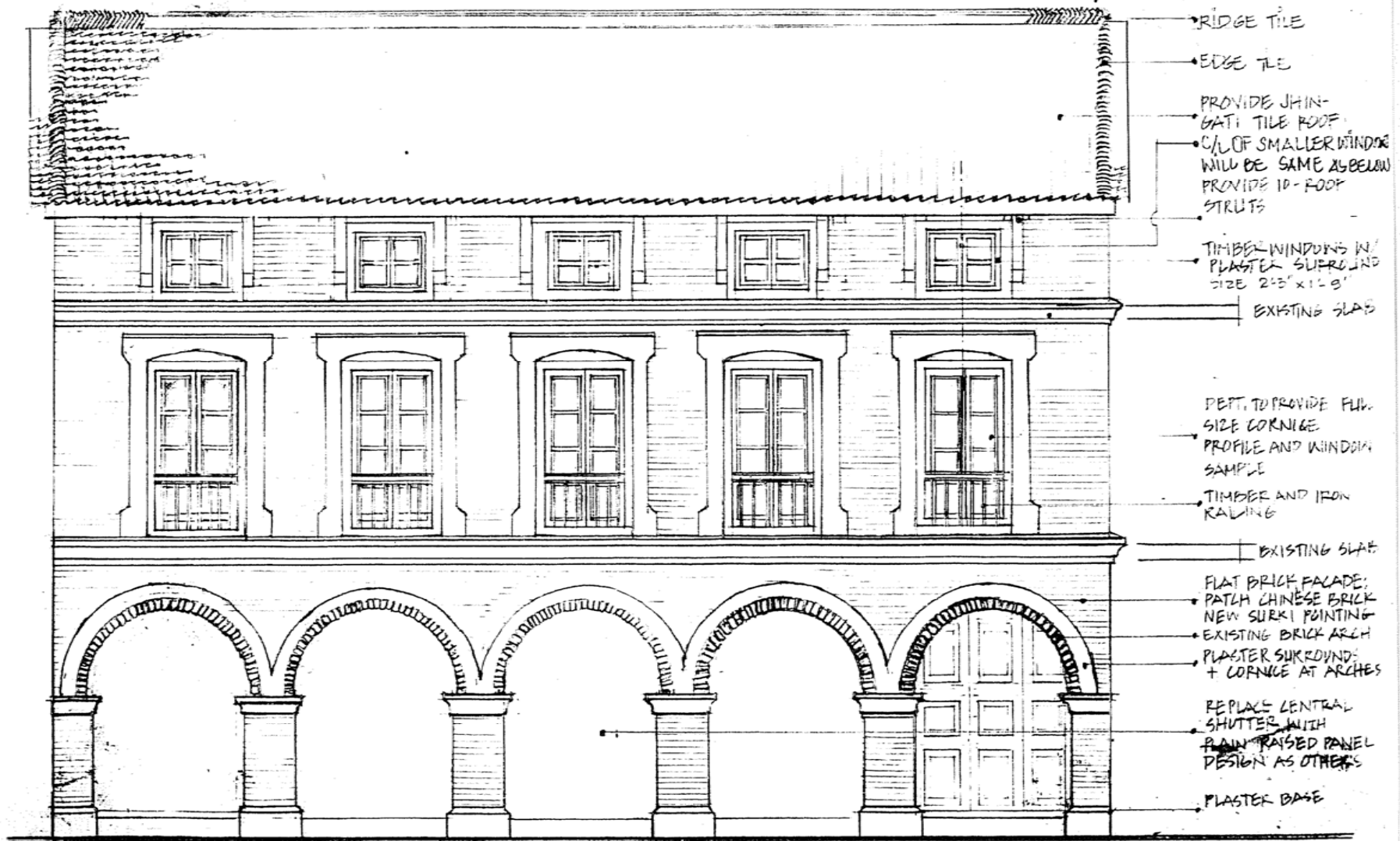
Over seven months of construction the architect or the assistant architect visited the site on average 2 times per week. During this time, the owner built the first floor according to the design, but then totally modified the design in the construction of the second floor

The incomplete house as it looked from 1986 until 1992 (above) and its location on the Durbar Square (below).





Elevation of the north side of Darbar Square showing house location (left) and modified facade design as developed by the Patan Programme in consultation with the owner and Department of Archaeology. Compare approved drawing below with typical applications shown on pages 14-16.



Principal Elevation



Upper left: Modification of the first floor windows--compare recommended vertical windows left to "Indian style" bay windows right. Lower left: The house nearing completion with plaster surrounds at windows, October 1992. Upper storey windows are one and a half times taller than approved proposal. Above: The prototype recommended window: 3'x5', plain timber design, the solid lower panel was the owner's design.

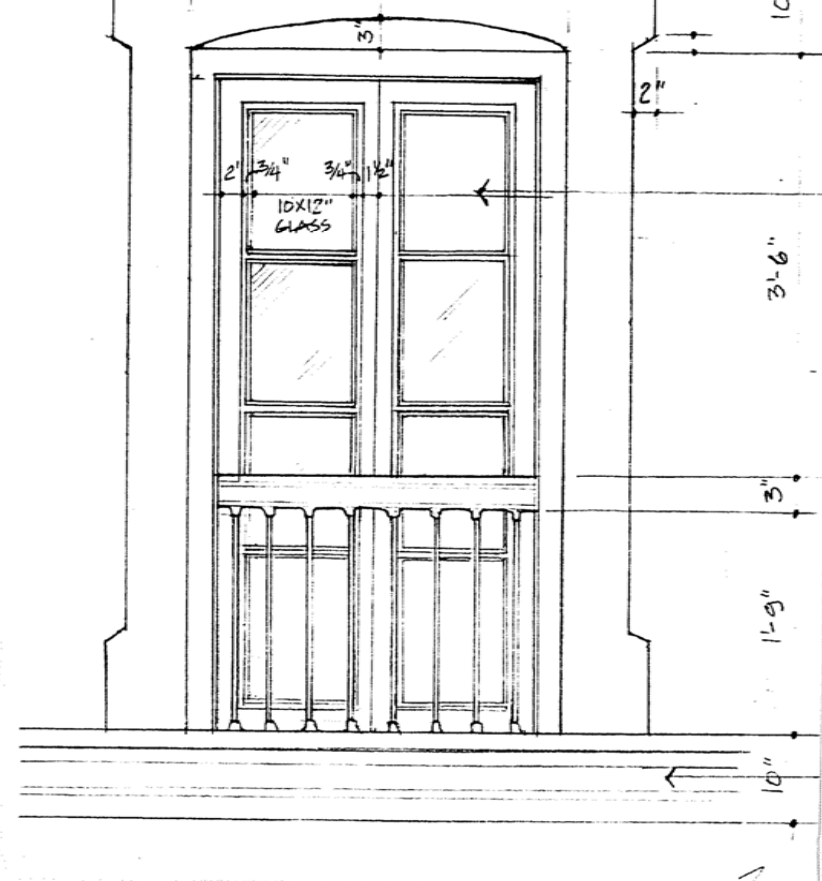
rebuilding), but also with notification of the appropriate authorities. Letters to and meetings with the owner, the Department of Archaeology, the Town Controller, and the Mayor succeeded in securing of (1) an official construction halt-order (although never enforced) and (2) some small changes by the owner to bring his building closer to the approved design.

Sakya house case study: conclusions

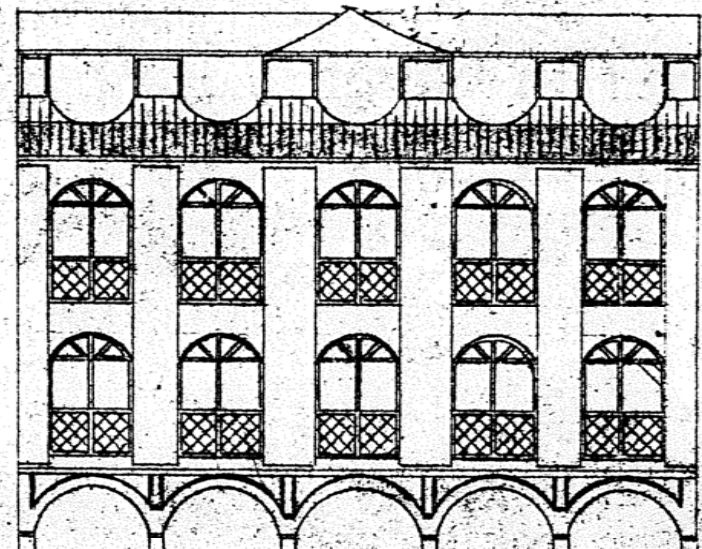
The biggest lesson of this case history is how time-consuming a thorough negotiation, review, and monitoring process is for the concerned agencies—one man-month's time, not including the time invested by the concerned authorities! Certainly this was a difficult and critical case given the prominence of the building's site and therefore merited a great deal of design time. Nevertheless, given present norms to disregard approved drawings during construction, such an investment of time monitoring the project must be seen as necessary rather than luxurious.

Secondly, the case history highlights the necessity of appropriate technical skills for the concerned government officers. For the monitoring process, inspectors must be able to read construction drawings with great ease—able to verify a critical height measurement both on site and on the drawing. An architect is necessary to design the many compromises and ad-hoc solutions which are needed during construction, especially when the owner *wants* to disobey the approved drawing. (The illegal roof terrace, for example, was claimed necessary by the owner because of roof drainage problems. We then measured and made the drawings for a roof drainage system which would allow the terrace to be removed. All this was done in the presence of the Town Controller.)

This case must be taken as a norm, not an exception for those sites in key locations with respect to this country's most significant urban squares and monuments. No guidelines can ever guarantee new buildings' successful integration with their historical environment and no set of rules can ever work out the compromises which help move such difficult projects along. In this case, for example, the existing ground floor arches of the building (which would not be allowed by the Monument Zone Directives and which would have been costly to replace with a traditional Nepali design) were allowed to remain if the owner agreed to design the new upper floors according to the proposal approved by the Department of Archaeology.



Above: detail elevation of the recommended prototype window, provided by Patan Programme for approved construction drawings. Below: an approved proposal for the same site by the previous owner in 1985. Another 5 storey proposal for the same site was still legally valid during this case history. The author saw this drawing once, but it could not be relocated by the concerned authorities.



Analysis

Enforcement procedure

A review of the existing applicable Building Bylaws and Monument Zone Directive demonstrates that existing bylaws are most problematic for their inability to be enforced. Some of the bylaws are unrealistic given current construction norms, but in all cases the most significant problem is a **lack of procedure for enforcing the law**. This procedure must be defined.

Public awareness

The spread of public information could help in deterring further violations. Suggestions from the Town Controller's office include: publishing of violators with photographs of the buildings in the newspapers, posting of signs which alert the public to illegal building activity, and requiring a construction permit sign to be posted visibly at all construction sites. Through these means, the public support of enforcement could be increased.

Overlapping responsibilities of the three offices:

How to streamline?

With regard to the clarification of future roles for the three concerned government offices, the following observations can be offered.

Final responsibility for building bylaw review, monitoring, and enforcement of each individual case must be taken by one of the three concerned government authorities, otherwise not only will government efforts continue to be duplicated, but, as happens often now, the actions of one office are contradicted by the other.

There is a potential conflict of interests between the Nagar Palika as a strict enforcer of building bylaws and as a body headed by an elected political leader dependent on voter support. Especially until broader awareness about the consequences of uncontrolled development is raised, the Nagar Palika officials could see strict enforcement as deleterious to their future.

Given the specialized technical expertise necessary for monument preservation and new building design guidelines for Monument Zones (see detailed discussion under Monument Zones), architectural and conservation experts --both Nepali and foreign, private and public sector--will have to work together with the enforcing agency. It will not be efficient to train experts in all of the concerned offices--Department of Archaeology, Town Controller, and Nagar Palika--to manage the architectural heritage of Patan. It would make sense, therefore, to concentrate these responsibilities under one authority, in this case, the Department of Archaeology. Such centralization of responsibility for preservation under a state agency is the norm in developed countries active in preservation.

Demolition

Who should actually dismantle the illegal building or building parts? As it is now, the owner is generally responsible for this dismantling, but in extreme cases the Town Development Implementation Committee has taken responsibility for this work. Given the extreme legal complications which can result (owners sue the government because the dismantling has damaged other parts of the building for example) it is recommended that the government authorities not

Different zones: Ka, Kha

The current lack of enforcement makes it difficult to assess the necessity for the different ka and kha zones within the Monument Zones. Differences in height requirements and materials specifications are confusing. Furthermore the edges of these zones are not well understood by the offices enforcing the law.

In order to meet the national obligations to the protection of this Monument Zone (as ratified by Nepal June 28, 1978 joining the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage), the entire Monument Zone should be classified by the more strict "ka" zoning. Although this simplification would also increase need for monitoring and enforcement, the identification of which zoning law applied would be made easier.

In general this ka/kha policy must be reviewed with respect to all the World Heritage Sites. Inconsistent definition of Monument Zone guidelines has been cited by the November 24, 1992 resolution of the International Committee on Monuments and Sites (ICIMOS) in their role as advisors to the UNESCO World Heritage Convention. Further lax monitoring of these sites could result in their removal from the UNESCO World Heritage Sites List.

PROCEDURES AND ENFORCEMENT Recommendations

The first steps in strengthening building controls in Patan include not only a clear definition of the roles of the different government offices involved, but also the allocation of funds and properly skilled technicians, professionals, staff, and support services. Until the system has the capability and political clout to enforce, even the most clever bylaws will fail.

Although this report focuses on "achievable" solutions in terms of design guidelines, the necessary staff, funds, and political clout must be seen as a pre-condition for change. See further discussion under recommendations for ongoing and future activities by Patan Programme at the end of this report.

Recommendations: Immediate Action

- *Clarification of overlapping roles of three concerned offices by HMG in building bylaws process.

- *Re-evaluation of professional, technical, and support staffing requirements for these offices based on current work load. Allocation of technically skilled officers corresponding to the work, especially for the monitoring of construction.

- *Allocation of funds and equipment for these offices to establish improved filing system and easy transport to sites.

- *Definition of procedures for enforcing penalties for building law violations by Drafting Committee. These must directly link the enforcing government authority with police.

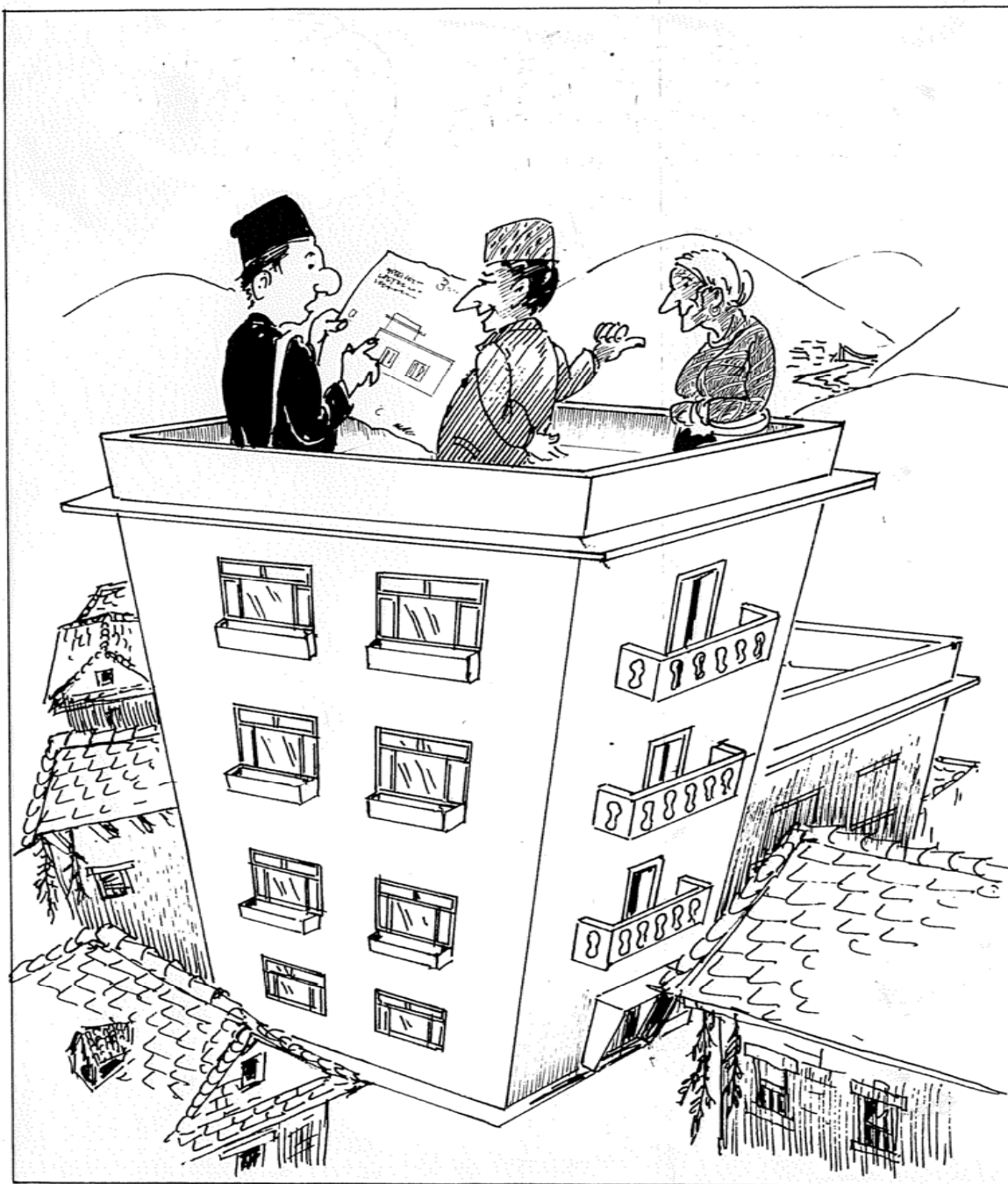
- *Redefine penalties to include alternatives such as shut-off of water and electricity, attachments to deeds which prevent property transfer, etc. Procedure for ordering these actions must be established at the same time.

- *Public information: require building permits to be displayed at a visible location on site; develop a system to post official government signs at unauthorized construction sites, allocate funds for publishing in newspapers violations and violators.

- *Make entire Monument Zone subject to "ka" zoning.

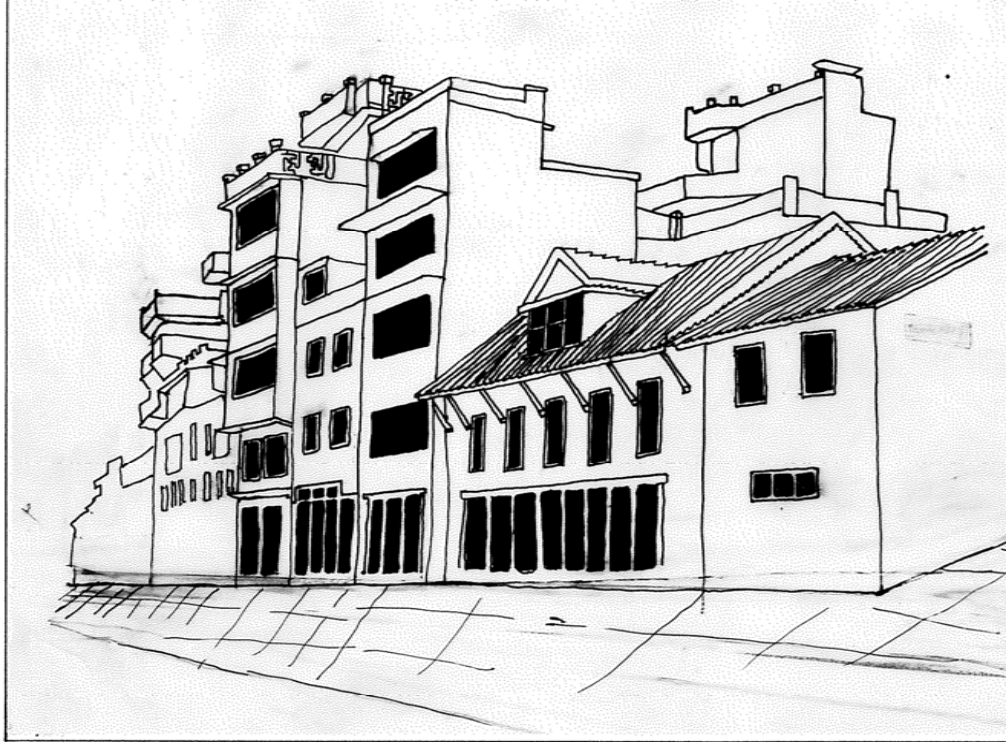
Note January 18, 1993

During the production of this report, major changes were made by HMG in the distribution of responsibilities for building controls. The Nagar Palika is now solely responsible for the review, approval, and monitoring of building applications and construction in the core area. Problems of duplication of effort identified above have been partially solved, but the dire lack of appropriate technical manpower, budget, and support services is made even worse.



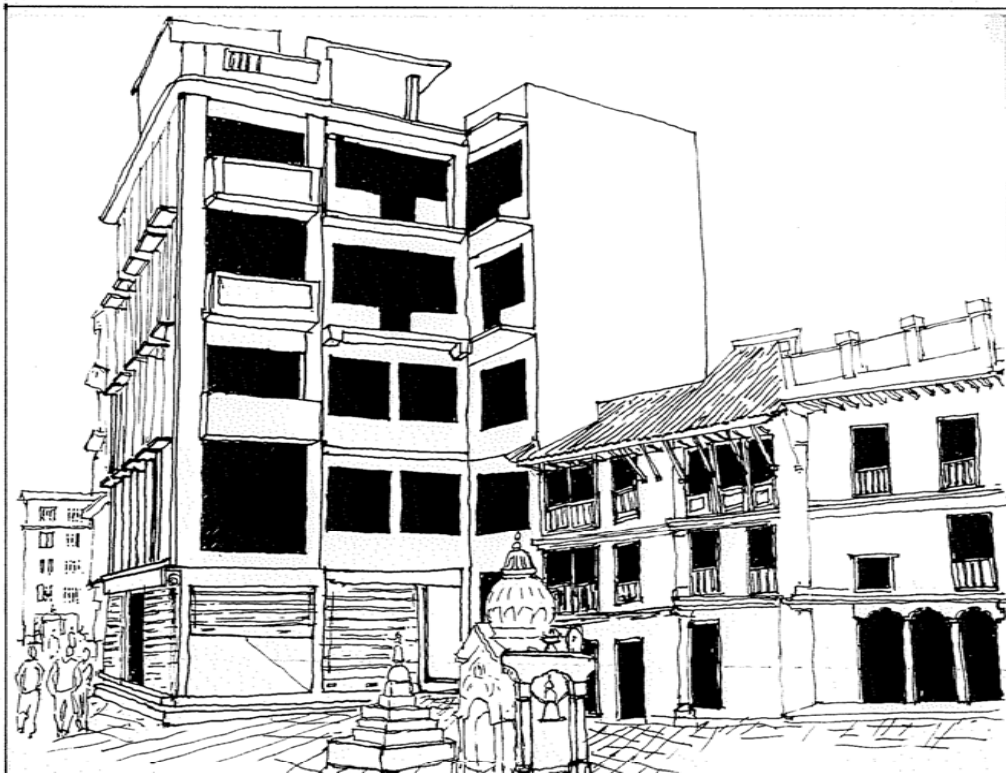
BUILDINGS & BYLAWS

**Building Height and Cantilever:
Critical Issues for the entire city**

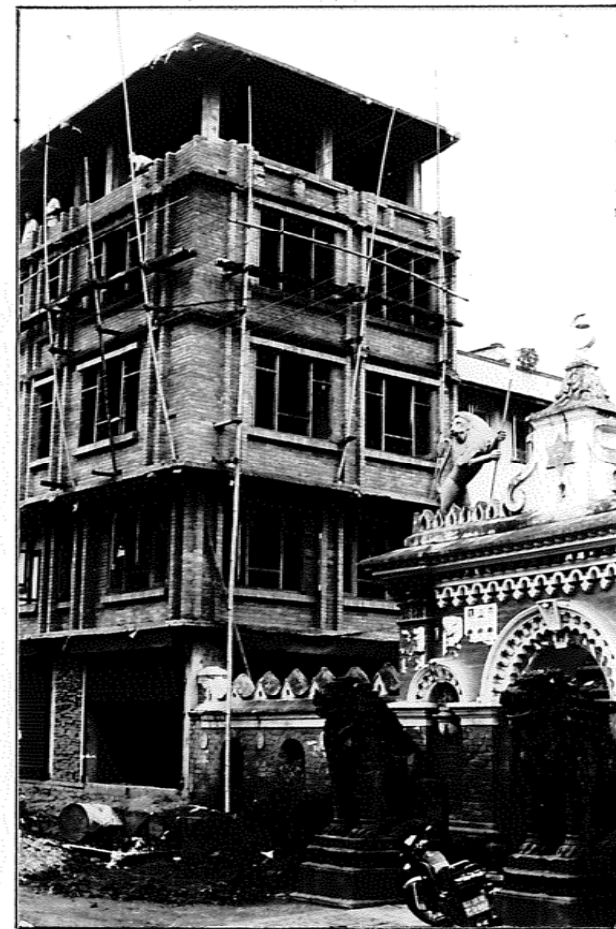
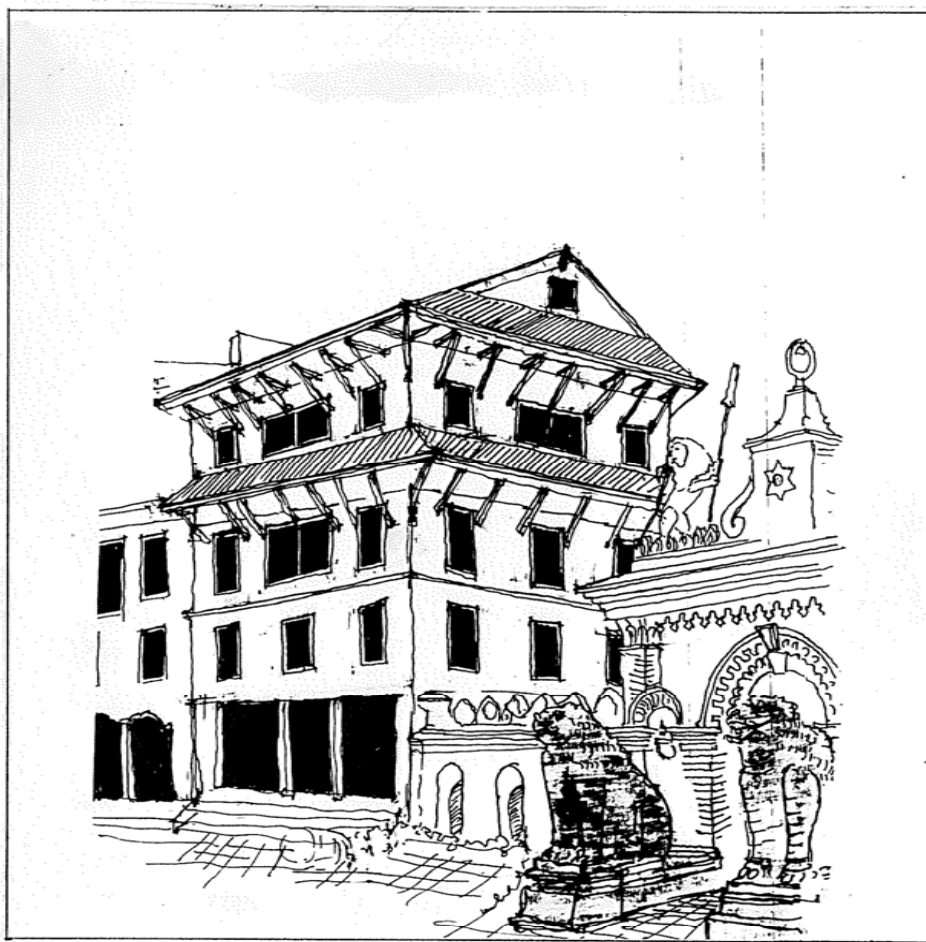


Building Height and Cantilever: Critical Issues for the entire city

The findings of this study are that the most critical violations in building bylaws, the stealing of public space by illegal building heights and cantilevers, are critical both for the entire core area and the Monument Zone. Thus, the discussion of these issues begins this analysis of buildings and bylaws. Control of these two issues must be the focus and first step of any strengthening of building controls.



Opposite: destruction of the townscape of Patan and the other historical cities of the Kathmandu Valley is caused by increased floor heights, increased numbers of floors, and cantilevering floors and balconies, all of which "eat" the public space. Above: the row of buildings east of Municipality Building at Patan Darbar; below: the view west from Ukubaha to the line of buildings adjacent to Mahabaddha. The comparison shows that more recent developments such as at Mahabaddha are higher and more invasive than the ten year old modern buildings near Patan Darbar. Drawings by Deepak Pant, December, 1992.

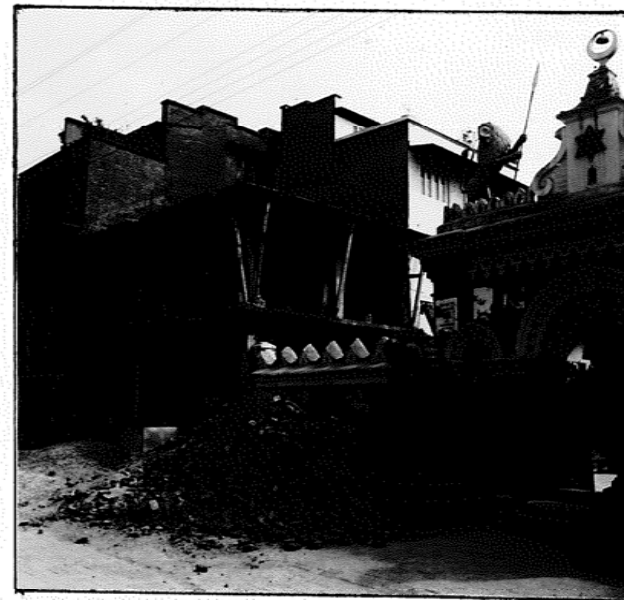


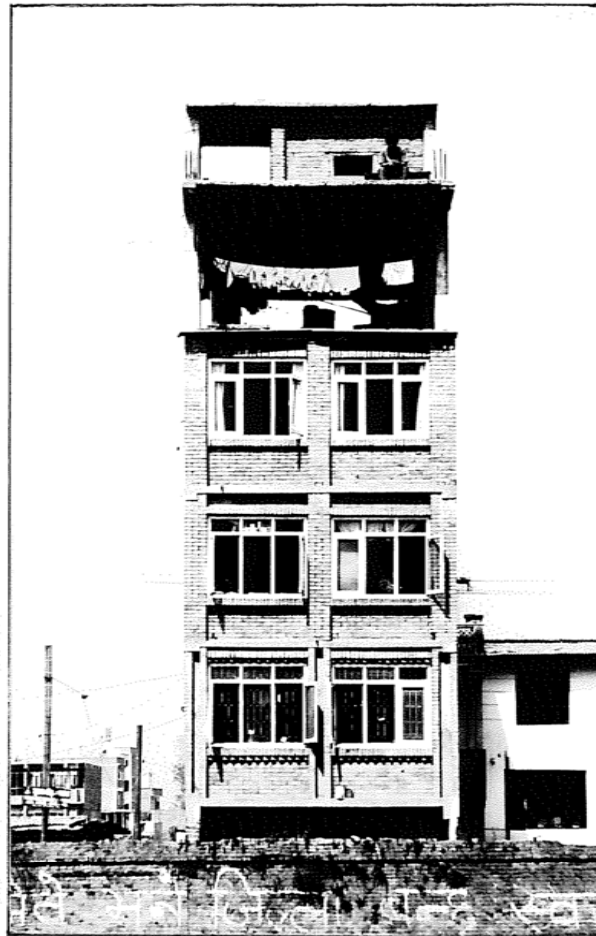
BUILDING HEIGHT Cases

Ukubaha: new construction east of gate

Adjacent to this ancient bahal (not included in the World Heritage Site Monument Zone) new construction in 1992 of a "skyscraper" documented by two photographs shows how the new building completely dominates the streetviews, destroying the harmony of the adjacent buildings. Bylaws and enforcement must prevent such "eating" of the public airspace-- not only in the Monument Zones but also in the entire core area.

An alternative sketch design by Deepak Pant demonstrates how the negative effect of new buildings can be reduced through (1) fixing a maximum of 4 full stories, (2) fixing maximum floor-to-floor height of 8 feet, (3) incorporating sloped tile roofs, (4) incorporating traditional roof overhangs (*pacha*) above the third floor, and (5) simple window designs (discussed chapter 4). Without subsidies, however, only number of stories and maximum floor-to-floor height could be effectively enforced.



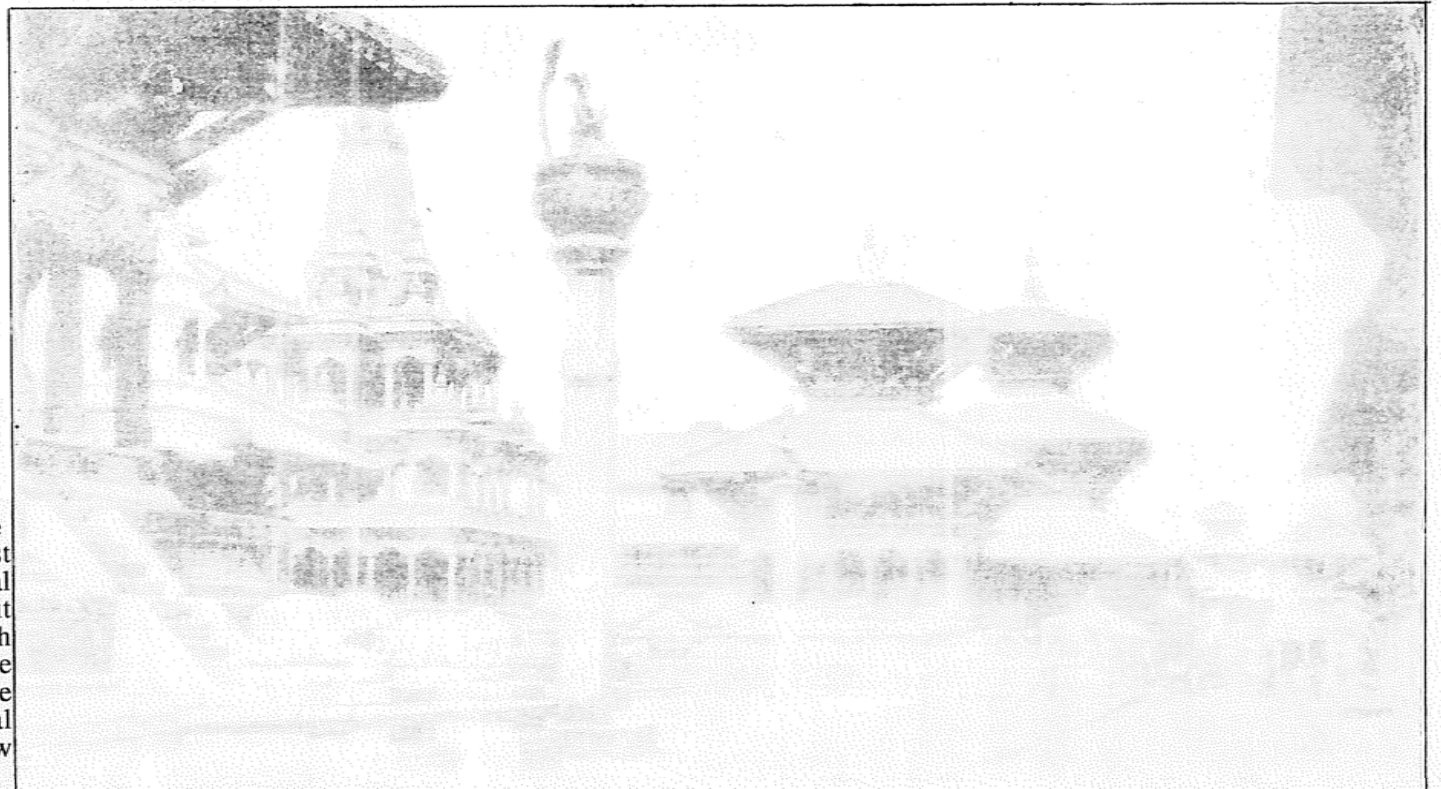
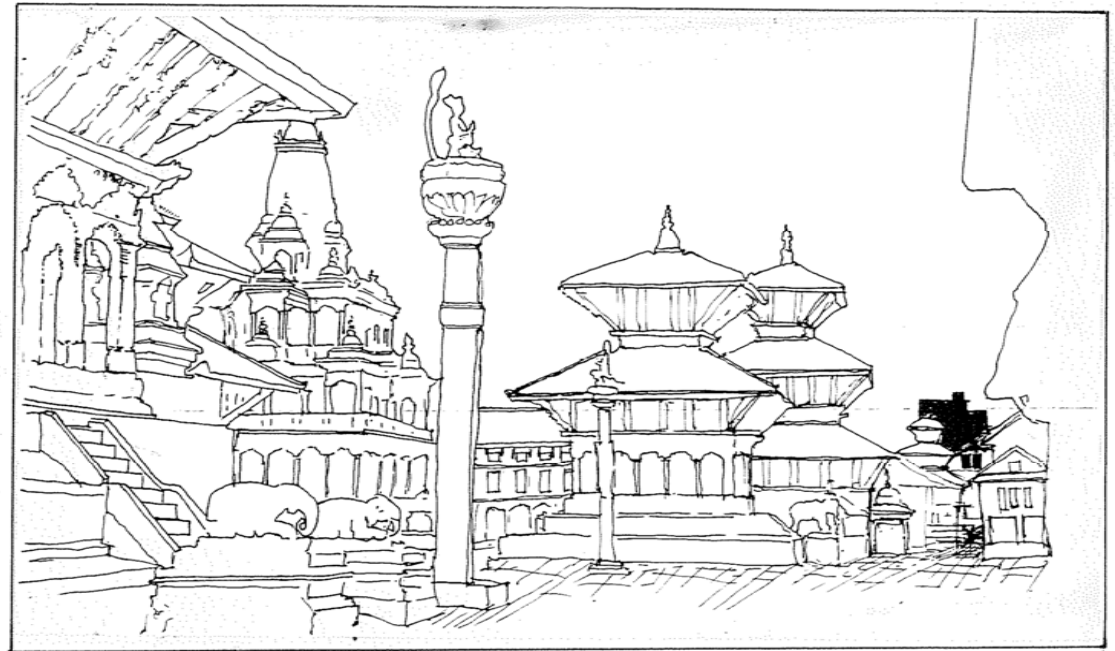


Urban slums

New 5 and 6 storey buildings at Tabaha (left) and Mangalbazaar (right) are creating unsightly environments which could be described as urban slums.



Right: Patan Darbar view north (photo Oldfield 1886); upper right: Darbar's historical skyline intact except for new illegal construction at Svatha (shown in black); upper left: view of the illegal additional floors added at Svatha.



Safeguarding cultural heritage

Some of Nepal's greatest resources both for historical value and economic benefit through tourism are the rich urban spaces defined by the traditional architecture. The skylines of the historical squares are destroyed by new buildings.

Core area vs. Monument Zones

The point of this study is that the obstacles and solutions to improving the urban environment are much the same in the Monument Zone and the urban core areas. A far-sighted building bylaw will attempt to control building height in the core area not only to prevent safety, density, and utilities hazards, but also to promote some level of harmony between the old and new buildings. In the future, a lack of attention to the overall quality of the core area outside the Monument Zone could easily be judged as unfair or elitist, because the Monument Zone area has traditionally been inhabited by more affluent and upper-caste families. Thus, the following sections on height and cantilever discusses the Monument Zone, but is applicable to the entire core area.

The goal of building height regulation in the Monument Zones is to make new buildings fit in with their historical neighbors in terms of size. One can quite simply say, in general, that the lower the new building's overall height, the better the fit with the lower building heights of the historical buildings. Determination of only the maximum overall building height, however, is not sufficient to guarantee successful results.

Individual floor-to-floor height

The height of each floor, for example, is critical for the ability of a new building to harmonize with the older buildings. For example, the harmony between various buildings along a road or defining a square relies on a general correspondence of floor heights.

The ceiling heights of new buildings are so much bigger than those of the old that two "new" floors can be taller than three floors of the older buildings. (The traditional buildings' ceiling heights range from 6' to 8'; the new from 9' to 13'.) These "giants" are clearly destructive to the traditional townscape, whose harmony and beauty depended on their friendly small-scale architecture and buildings being not identical, but similar. Here arises a conflict between the goals of preservation (which would attempt to make new building ceiling heights identical to the old buildings) and contemporary norms for residential construction (the higher the better it seems from recent building activity). The only reasonable solution is a compromise between the low ceiling heights of the old and the giant ceiling heights of the new. Effective guidelines in the Monument Zones must fix maximum ceiling heights. Although this subject merits further study¹, one can say at this time that fixing of maximum floor-to-floor height at all levels of 8'0" could prevent destruction of the city scale from continuing. In addition, the establishing of one standard for the entire core area could simplify the review, monitoring, and enforcement process much easier.

¹ For example, in areas where recent construction already dominates, one could allow 9' heights to allow new buildings to fit in with their modern neighbors. Beside a world class monument, however, one might argue for absolute minimum heights in new construction, perhaps necessitating financial compensation. In general, one should point out again that

building height, one should mention that any simple fixing of a maximum height discourages sloping roofs in new construction. Every owner wants to maximize his property, therefore he will build a "box" whose maximum height corresponds to the guideline. The flat reinforced concrete slab is also the norm in all modern construction, being much easier to maintain, cheaper, timber-free, and most importantly, it allows future additions on top. The introduction of a sloping roof would only reduce an owner's maximum potential floor area.

Nevertheless, it is clear from urbanistic studies of the cities of the Kathmandu Valley that the sloping roofs finished in traditional tiles (*jhingati*), are a critical feature to the traditional urban form: it gives each house a "hat" of sorts. Although the problems of roof form will be discussed separately later, it is touched on here in its connection to maximum building height regulations.

One can, for example, say that in the Monument Areas--or anywhere in the city--a slightly taller building with a sloped roof would be preferable to a shorter flat-roofed building--especially considering all the unsightly additional structures (stair well covers, water tanks, additional rooms) which inevitably mushroom atop flat roofs and destroy the skyline.

Current guidelines require sloped roofs and fix the maximum area of roof terraces to 25% of the top floor area in the Monument Zones. This is clearly unachievable without subsidies, as demonstrated by total lack of compliance with this restriction.

Current guidelines for the core area outside the Monument Zone fix only maximum building height.

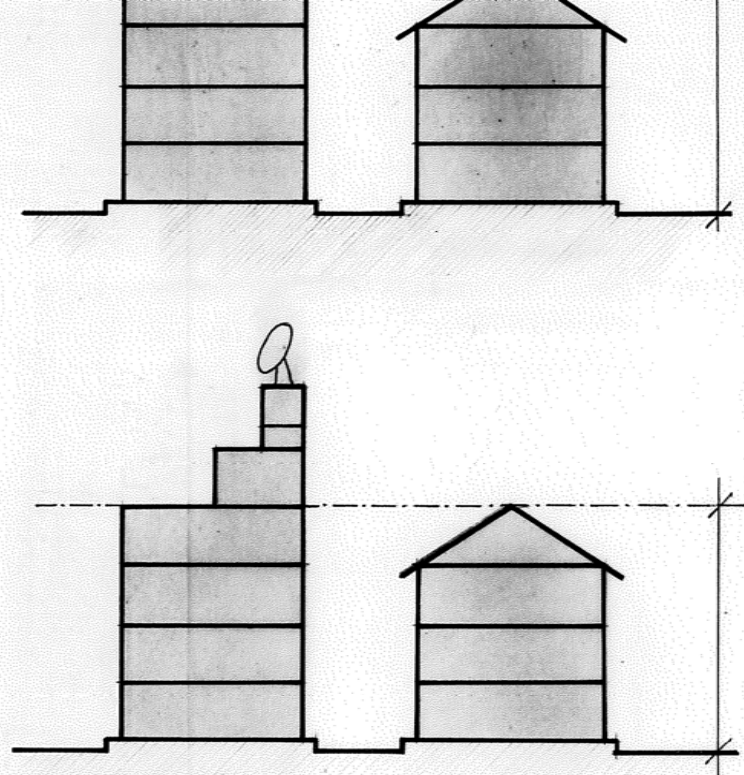
Incentive guidelines

One should consider "incentive guidelines", rules which encourage desired results. For example, one could allow such incentives as an additional floor or a slightly higher ceiling height if the owner provided a sloped roof. Such incentive guidelines would necessitate evaluation on a case-by-case basis to establish what concessions should be granted in return for the owner's construction of the traditional roof. Such trade-offs and consideration of compromises characterize the working method employed informally by the Department of Archaeology and Patan Programme consultants to negotiate recent construction permits in the Monument Zone. Again one must emphasize that thoughtful new construction, which maximizes preservation goals and the meeting of local needs, requires a huge amount of professional manpower experienced in architectural design and urban planning.

Measuring overall building height

And what about the way to measure the top and bottom points? Obviously the top is measured (if measured at all, that is) by the inspectors after the building is completed. Then a year later the additional rooms, water tank, etc. will rise on the roof. How to monitor roof-top construction, it's very difficult to observe from the street?

Existing building bylaws do not even specify *how* to measure

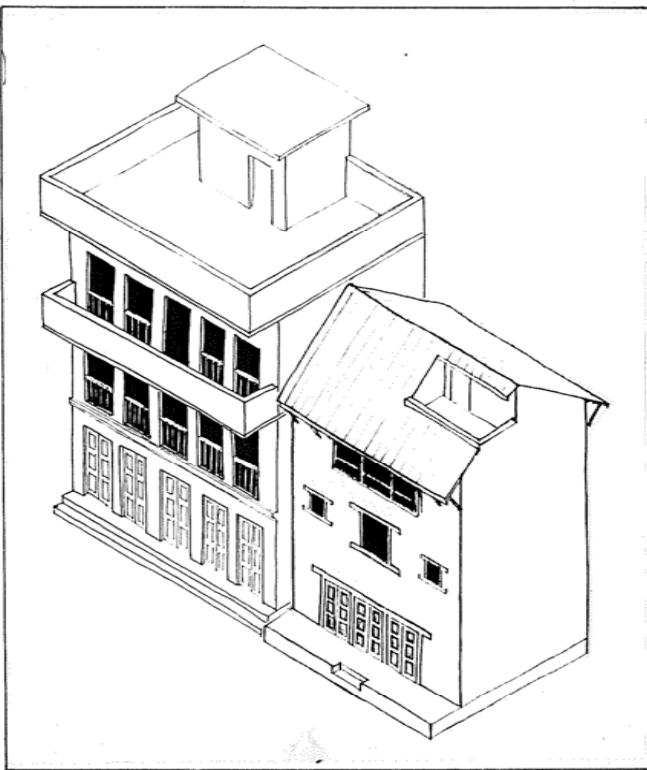


Fixing maximum building heights

Above: a bylaw which fixes a maximum overall height discourages desirable sloped roofs--the owner "loses" potential interior space where the roof sits.

Below: the potential to add additional rooms, water storage tanks, and satellite dishes means that any "maximum" height will grow even taller through later additions.

The difficulty of measuring overall height (given complications of building plinths (*peti*) and additions on the flat roof) suggests that the number of storeys allowed is a more easily regulated bylaw.



Building plinth (*peti*) and height

Questions arise when the street is sloping in front of the property, or when tall building plinths (*peti*) are introduced--from which base point should one measure? If the plinths of adjacent historical buildings are high (they range from 9" to 3 ft. in the traditional buildings), the owner must clearly match that height to avoid drainage problems. Should he then in effect be penalized in how high he can make his building because this necessary plinth has eaten up 3 ft. of his total building height? And not to forget the new buildings which introduce very high plinths (4 ft.) with the only intent of making the whole already illegally tall building even higher?

It is clear that total building height allowance must therefore be measured from the plinth, and that plinth height should in general match that of neighboring buildings. Exceptions must be made on steeply sloping lanes where alignment is impractical.

In the same way one would like to encourage sloping roofs, so one would also like to encourage rebuilding of the building plinth (*peti*), the "front step" of the buildings a true "thematic element" of the traditional architecture. It makes the streets and squares of this valley outdoor rooms. etc., executed in traditional materials of stone, brick, and brick tiles (*telia*). Small stairs in these plinths punctuate longer stretches of platform typically used as a place to sit or sell wares. New examples, however, finished in cement plaster generally provide steps along the entire length of the plinth and thus do not reinforce the traditional character.

As a working method, one would therefore require new plinths to match the shape and stair arrangement of traditional examples, while searching out ways to subsidize or provide the more costly traditional finishes of large edge stones and well-made tiles, which are also difficult to find.

Setbacks as a design strategy in the core area

Another factor related to overall building height is the requiring of building setbacks on floors above a certain level, currently being discussed by the Drafting Committee for new building bylaws. Yes, setbacks will help reduce the visual impact of taller new buildings in the Monument Zones as well as any other core area, but they must be considered carefully.

Building setback is not an easy subject, especially given the irregular plot shapes of these cities. On a deep plot for example (where there is enough room to step the building back), they can be effective. But for the many plots which have long street frontages, but are very shallow in plot depth (6 ft.-8 ft. deep), setbacks will be difficult and even make upper floor rooms unusably small. A further consideration is that most of Patan's building stock defines public space on both sides, so that a setback from the street may have a negative impact on the courtyard behind, equally worthy of protection.

Such shallow or small plots are actually one of the factors which drive the current trend to cantilever upper storeys into the public space: room sizes are just too small. Requiring setbacks on such minimal plots will be near impossible

taller buildings are beside much shorter historical buildings. To be most effective, the setback would suggest a kind of artificial roof level, which screens the upper storeys to some extent. This is the effect of the roof overhangs (*pachas*) on older houses where additional storeys have been added. Clever design of setbacks to simulate these effects would, however, involve considerable design input from a professional architect and evaluation on a case-by-case basis.

Thus, although a useful regulatory concept for further development, a system of setbacks (other than the simple requirement to provide a building plinth) is not recommended at this time. It could only be effectively implemented after further study and, given the different constraints of individual building plots, would require professional supervision on a case-by-case basis.

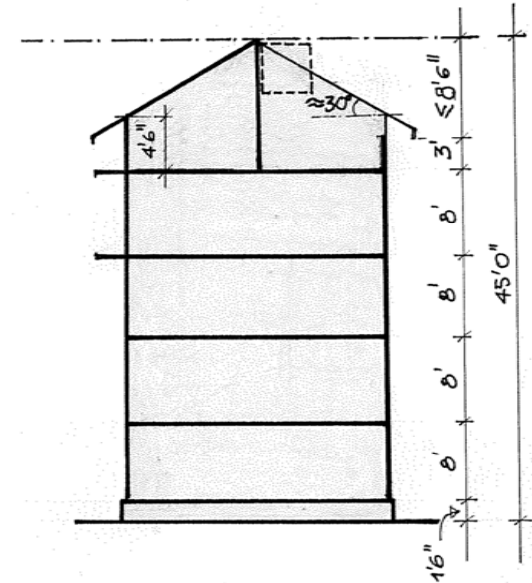
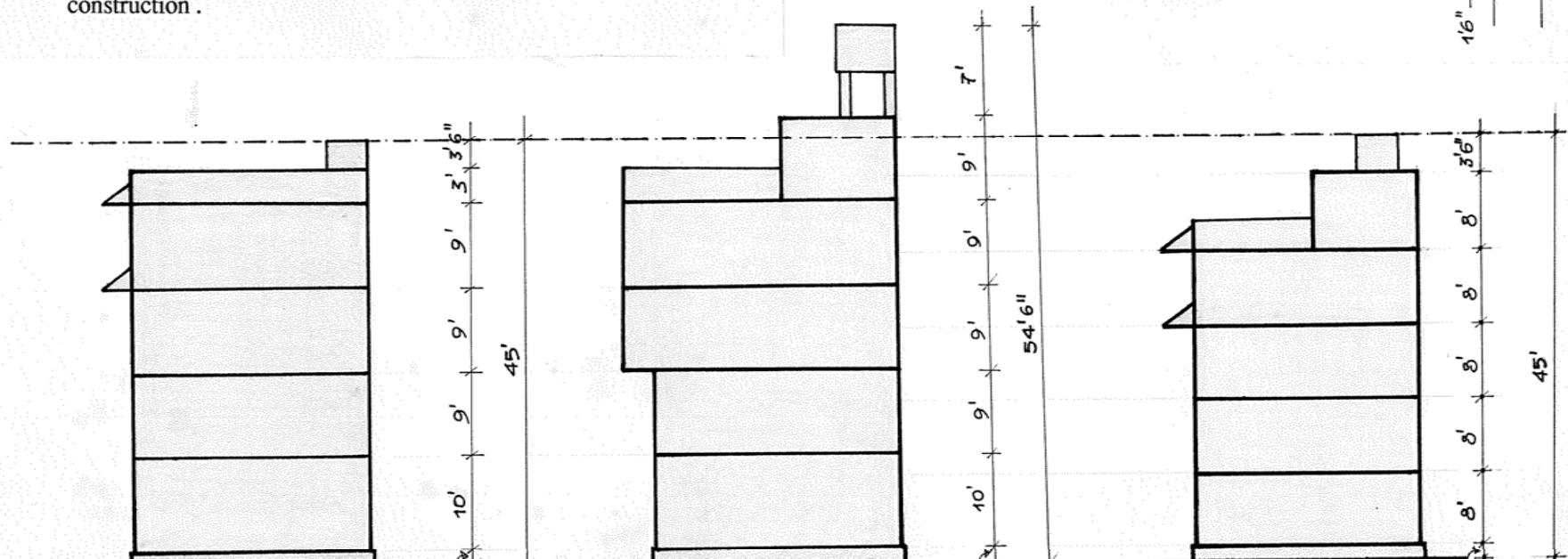
Building Length

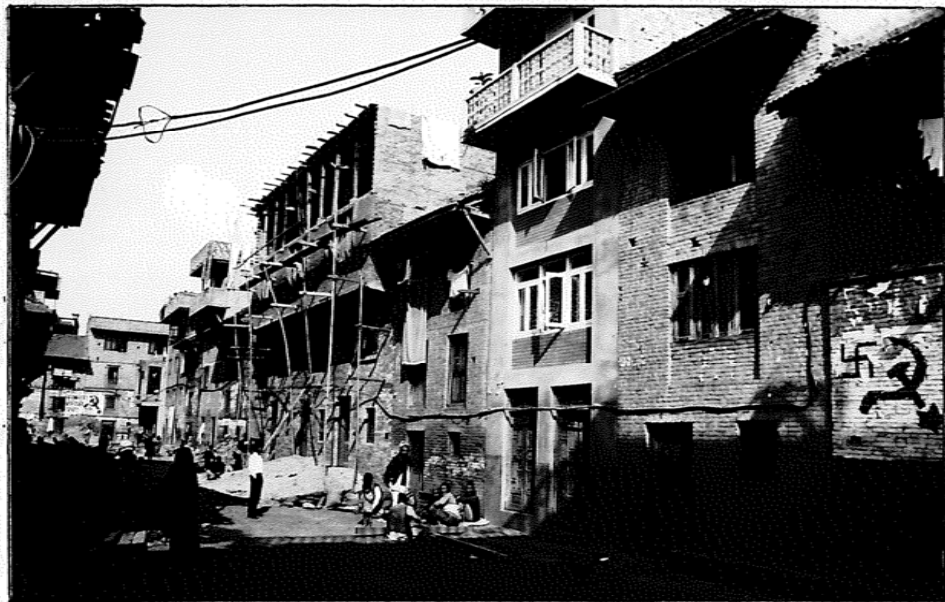
New construction at Ukubaha and the Oasis Hotel at Krishna Galli suggest that in the future some restrictions will be necessary to control the overall length of buildings. When a new building replaces 2, 3, or 4 older buildings, the character of the street is dramatically changed for the worse. In developed countries, making new long buildings "look like" several attached smaller buildings addresses this preservation issue. Given the present ineffectiveness of building controls, such issues should be left for later stages of development, that is, after the most critical issues of height and cantilever are brought under control.

Earthquake reinforcement

Another issue for future consideration is the review of structural designs for their resistance to earthquakes. Given present construction norms, which include undersized reinforced concrete frames and brittle brick walls set in cement mortar, the next earthquake will devastate most buildings of recent construction.

Below: typical examples of floor-to-floor height, number of floors, and rooftop development of new construction in Patan. Given variables in building plinth height, roof configuration, and rooftop structures, overall height can only be specified by both the maximum floor-to-floor height and the number of floors allowed.





The eating of public space by cantilevers

Upper left and lower right: the loss of public space through invasive cantilevers at Mangalbazaar and Gabaha. The cantilevers support balconies and walls of extended rooms. Upper right: on the main road in Pulcok, the beauty and order of the traditional street have not been destroyed by cantilevering floors and balconies. Lower left: cantilevered building at Kwalalhu, built 1991. The complex design of the projecting balconies, floor space, and overhangs not only eats public space, but also is an eyesore in this important corner of the World Heritage Site Monument Zone.

CANTILEVER

Cases and Analysis

Roof construction: the basic issue

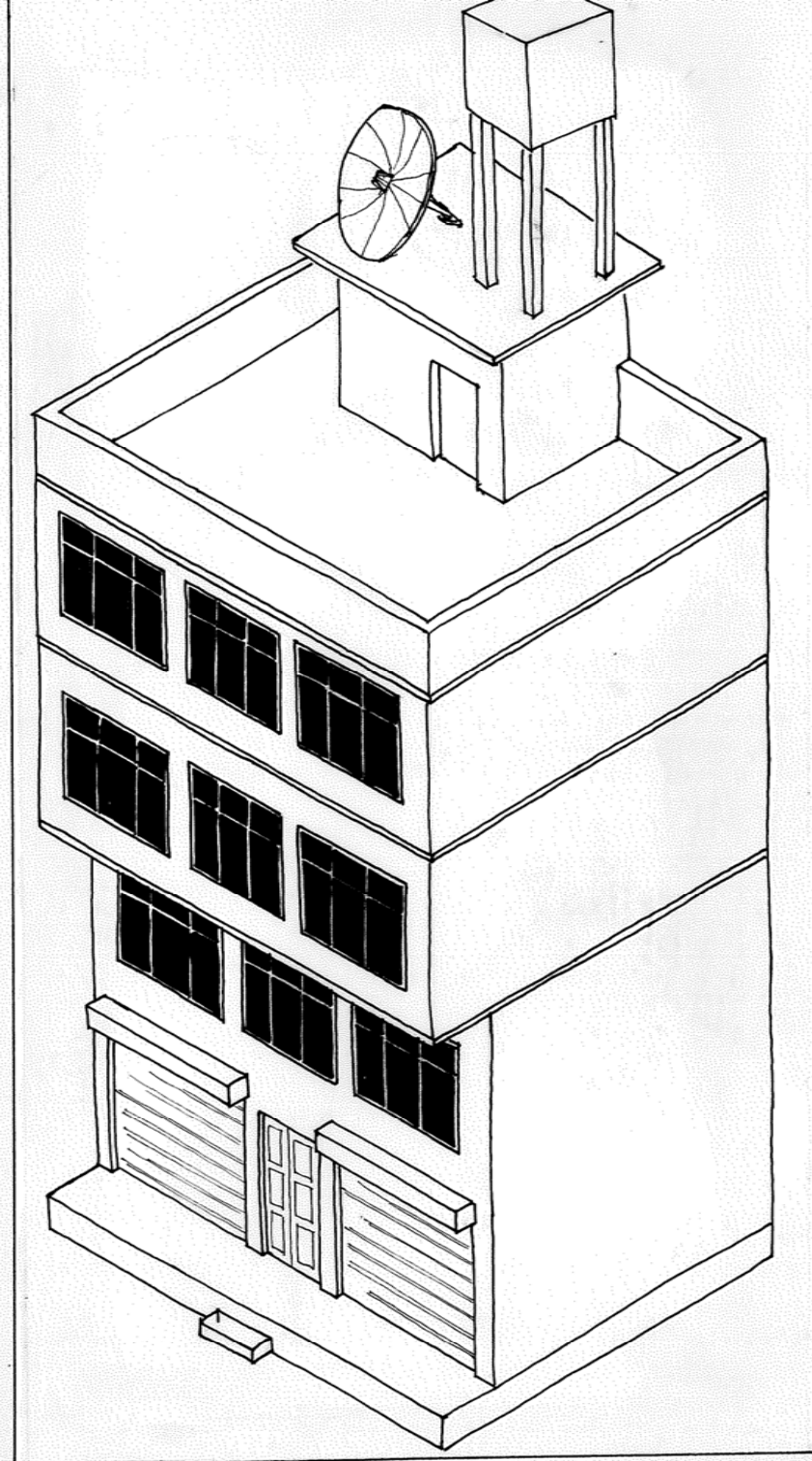
Sloped roofs are clearly a positive feature for the preservation of the historical city character both inside and outside the Monument Area. The sloping roof links the residential quarters with the temple roofs, whose squares the house define. The question is how to encourage sloped roofs given the less costly and more space-efficient solution of flat reinforced concrete slabs, the universal norm today? Furthermore, where traditional tile roofs survive, they are generally deteriorating to be replaced with corrugated zinc sheets. Subsidy programs and incentive guidelines, as discussed above, must be explored.

In fact the best way to reduce the number of new flat roofs would be to provide emergency repair subsidies, preventing the further deterioration of traditional buildings which leads to rebuilding and replacement. This is discussed in detail in the concluding recommendations for future activities.

Cantilevers

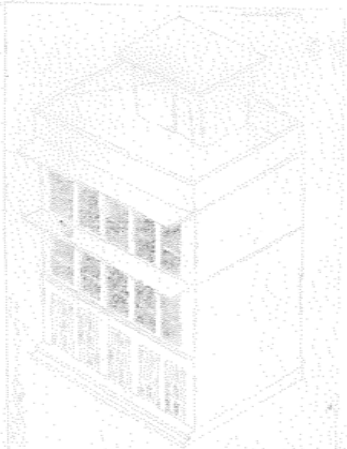
If flat reinforced concrete roofs cannot at this moment be ruled out, present guidelines must at a minimum address the most potentially destructive building feature associated with concrete frame construction, namely, the cantilevering slab. As outlined in the introduction of this study, the encroachment of public space is the most dangerous feature of present developments: the cantilevering slab is the primary agent of this stealing of public airspace. The concrete cantilever "invites" buildings to extend their floor area by moving upper storey walls into the public streetspace and constructing balconie walls.

The serious consequences of this stealing of public streetspace by private cantilevers cannot be underestimated. Although the average Nepali claims not to be concerned with the "visual qualities" of his city--he would rather discuss improvement of urban services like water, electricity and sanitation--in the longrun, how the city looks will play a role in the value of urban property and the basic quality of life which a Nepalese city can offer. Cantilevering upper floors, in addition to exacerbating problems of light, air circulation, and electrical line placement in narrow lanes, produce the ugliest cities imaginable, especially in locations beside historical buildings. No developed country in the world allows such unquestioned sacrifice of the public airspace for the maximization of private floor area.

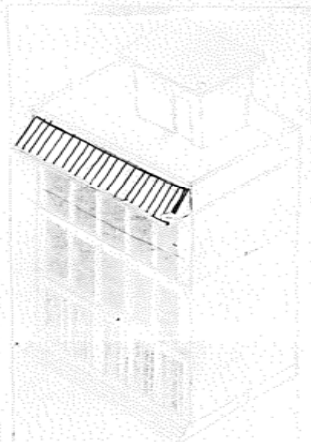


Public Enemy-- Number One

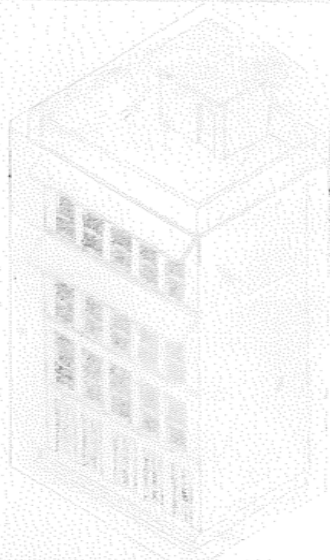
This sketch of a typical new building represents what most residents of Patan dream of. Public awareness must be raised about the destructive features of modern construction norms: increased heights, cantilevers, and



Regulating cantilevers: Option 1



Regulating cantilevers: Option 3



Regulating cantilevers: Option 2

Current Bylaws Draft

This dangerous development is acknowledged by the current draft for the revision of the Building Bylaws which emphasizes increased enforcement to prevent illegal building heights and building cantilevers. All cantilevers are prohibited in the core area. In a survey prepared by the drafting committee, 1725 violations of height and cantilever regulations have been identified in the core areas of Patan, Kathmandu, and Bhaktapur, some 900 of which are recommended for demolition.

In support of the drafting committee's strong stand, yet given the extreme difficulties of removing something already built, the Patan Programme recommends the implementation of the strictest regulations concerning building cantilevers to prevent further encroachment. At the same time, successful dismantling of even a *few* of the most serious encroaching buildings may be more realistic and achieve the aim of deterring further violations.

Cantilevers and necessary overhangs

In the prohibition of cantilevers, one must acknowledge that building overhangs of some sort are necessary for protection of the building facade from monsoon rains. If timber is at this time unrealistic to require, how to prevent the inevitable claiming of reinforced concrete overhangs as private space?

Several options can be considered. They are listed here, annotated with their advantages and disadvantages as well.

(1) **Allow flat cantilevers, but prohibit any wall or parapet or railing construction on the cantilever outside the line of the facade.** Monitor intensely to make sure these cantilevers are not used to extend private buildings into the public street or courtyard space. Prohibit reinforcing beams from extending under the cantilever: this reduces the load-bearing capacity of the cantilever for future wall placement thereon.

Simplest solution, but monitoring difficult.

(2) **Require all flat reinforced concrete cantilevers to be covered with a sloped construction which reproduces the shape of the traditional roof overhang (*pakha*).**

This reduces, but does not eliminate the risk of future encroachment. The effect of a "fake" roof would somewhat improve the traditional character of the urban area, although it would involve additional building costs. Owners would probably never complete this work and claim they've run out of money. It must be also mentioned that the primary visual effect of the traditional *pacha* is from below where timber struts and rafters are visible: concrete cantilevers—even if covered with roof tiles above—are no substitute for the traditional details.

(3) **Prohibit all cantilevers except for the roof overhang, requiring that this roof overhang in reinforced concrete be sloped to prevent future encroachment.** This is the cleverest solution in terms of ease of construction and prevention. The reinforcing iron bars which extend from the building can easily be "bent down", completely preventing future encroachment.

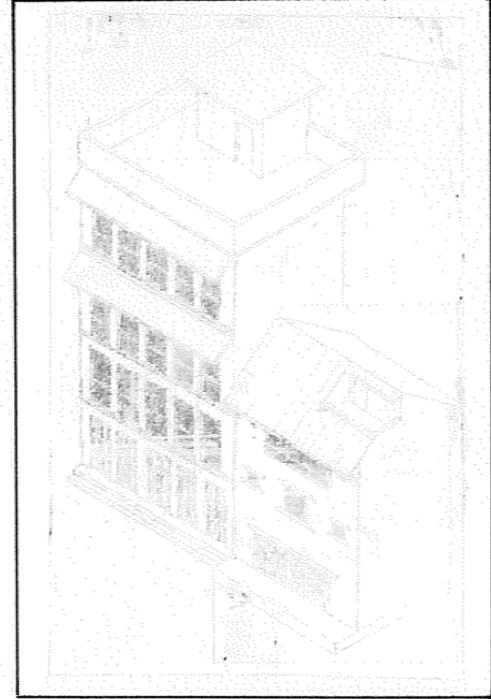
Cantilevers at intermediate floors

While considering these alternatives, an additional point should be kept in mind. Building cantilevers at intermediate floors (i.e. not at the topmost level), although providing additional sites for future encroachment, can help to reduce the visual impact of a taller new building. They suggest a lower roofline, and are reminiscent of the traditional arrangement of pacha below the top floor. This is generally found above the third storey of a four storey building.

The current Monument Zone Guidelines prohibit any visible concrete finish or structure in on principal street and courtyard elevations of the Monument Zones. As some roof overhang is necessary for practical reasons that means, in essence, that timber roof overhangs are the only "legal" solution (up to this point steel has not been mentioned as a modern material which should be controlled in the visible portions of the Monument Zone).

Achievable guidelines

One must then ask: is it effective to maintain such idealistic guidelines? On the one hand, in two cases directly on the Durbar Square (the Patan Chamber of Commerce and Sakya house) private owners agreed to provide the traditional tile finish on new sloping roofs. In this sense, guidelines which aim "high" in their goals may have convinced the owners that such a roof was necessary. On the other hand, for the 20 other recent buildings in the Monument Zone (which did not receive the same personal attention during the review, approval, and monitoring process), flat reinforced concrete roofs, completely visible, are the norm.



In the sketch above, one can see how an additional roof overhang above the third floor might reduce the impact of tall new buildings adjacent to much smaller older structures. When viewed from the street, this additional overhang (*pakha*) blocks the view to the upper storeys.



PATAN - SAUGAL TOL

Above: Saugah street elevation in 1970 by Wolfgang Korn showing the harmony of the traditional city created by 3 to 4 storey buildings with sloped roofs. Below: street elevation at Konti prepared by Institute of Engineering students, December 1992. The Konti elevation just north of Kvabaha shows how 6 storey "skyscrapers" almost twice the height of traditional buildings destroy the streetscape.

Urban environment and architectural harmony

In addition to the health and safety problems created by unregulated building heights, the historical scale and harmony of Patan's buildings is destroyed by current construction norms. Although individuals may not care about the "beauty" of their cities now, the chaos and ugliness of such skyscrapers may reduce longterm property values

BUILDING HEIGHT AND CANTILEVER Recommendations

Building height and cantilever are not only the most critical building features to be regulated, but also with streamlined guidelines could be monitored easily by inspectors without technical background.

Streamlined revised building bylaws must include the following:

HEIGHT REGULATION

-Streamline bylaws and regulation through definition of only two zones in the core area: (1) Protected Monument Zones and (2) all other areas within the core area.

-Fix maximum floor to floor height of eight feet for the entire core area.

-Control overall height through establishing maximum number of floors: four floors for Protected Monument Zones and five for core areas outside of Monument Zones.

-In Protected Monument Zones adjacent to significant temples or monuments, the Department of Archaeology can fix the maximum floor-to-floor height less than eight feet and can fix maximum number of floors at less than four.

REGULATION OF CANTILEVER

-Cantilevers in reinforced concrete are only allowed above the third and top floors in the entire core area. In no case can walls, railings, or any structure be built on these cantilevers except to provide a sloped tile roof (*jhingati*).

-In the Protected Monument Zone, the Department of Archeology may require timber framed roof overhangs (*pakha*) including jhingati tile cover and plain timber struts. The Department will specify at what levels they should be built. These timber roof overhangs will be added to the concealed reinforced concrete frame structure of the building.

Future development of regulation and enforcement strategies should include:

-Lobbying from HMG and/or foreign aid donors for increased and technically trained manpower and budget to support government offices involved with regulation and enforcement.

-Lobbying from HMG and/or foreign aid donors for funding to pay compensation money to landowners where preservation concerns require reduced height and/or traditional architectural details at special sites within the Protected Monument Zones.

-Research and development of "incentive guidelines" which encourage certain key traditional details in the Protected Monument Zones in exchange for other concessions. For example, if an owner agreed to provide a timber roof structure covered with jhingati tiles, he might be allowed to build another half or full storey.



DEMOLITION AND PRESERVATION

Introduction and Cases

In much the same way that our discussion of building regulations identified and addressed the most critical issues of height and cantilever, so in any discussion of preservation efforts, discussion must first focus on the preventing the destruction of historical structures. To preserve Nepal's artistic and historical heritage, saving extant historical buildings and monuments is a pre-condition for development of strategies to regulate adjacent new construction.

Recent losses

Some of the significant historical structures recently destroyed in Patan include:

Kvathabaha—one wing destroyed

Ibahi—one wing replaced by modern structure with carpet factory, another wing significantly damaged through insensitive renovation.

Ubabahi—north wing destroyed summer, 1992.

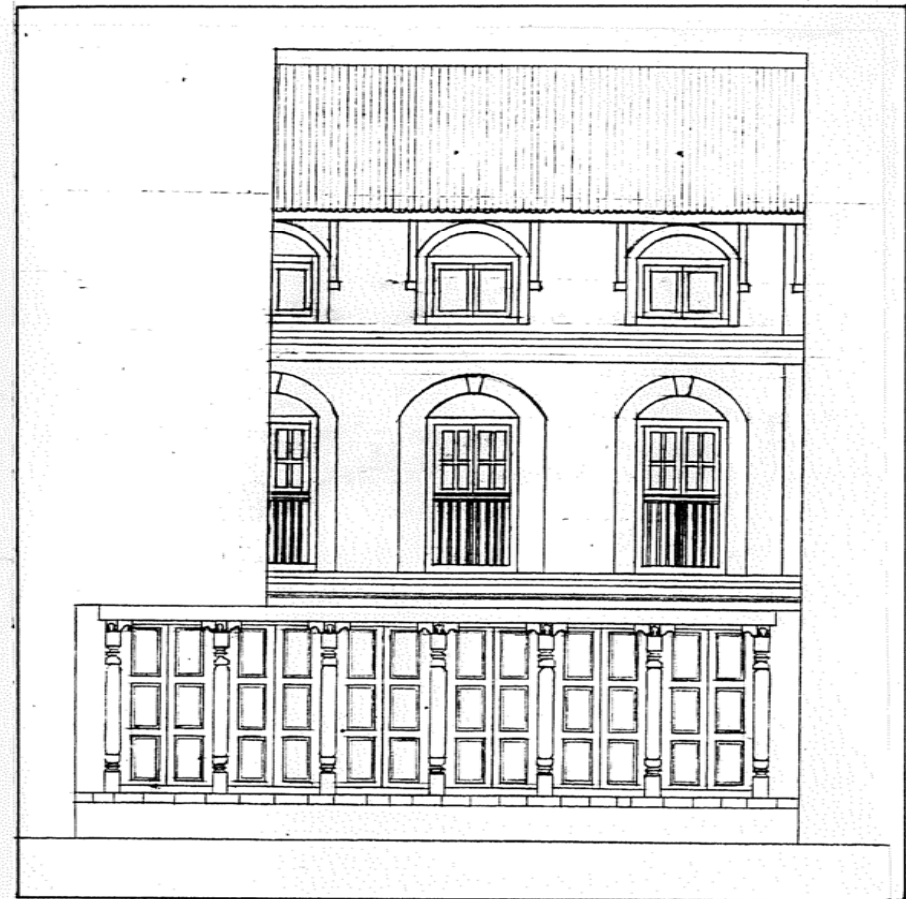
House division

Due to extraordinarily high urban property prices in the Kathmandu Valley and inheritance conventions which divide property equally among sons, many buildings are destroyed, or rather "half-destroyed", through the dividing and distribution of buildings among several heirs. Even when the division of the property does not immediately replace the historical building or part of it, the convention of dividing property vertically, rather than horizontally by floor, creates substandard circulation and interior layouts. The few windows of the historical facades are often cut in half by new partition walls, inserted to demarcate the property division.

Qualities of the historical building stock with respect to modernization

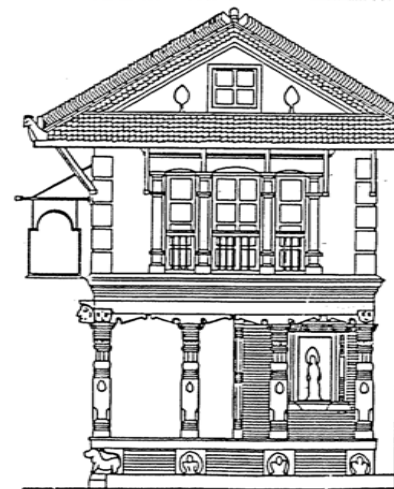
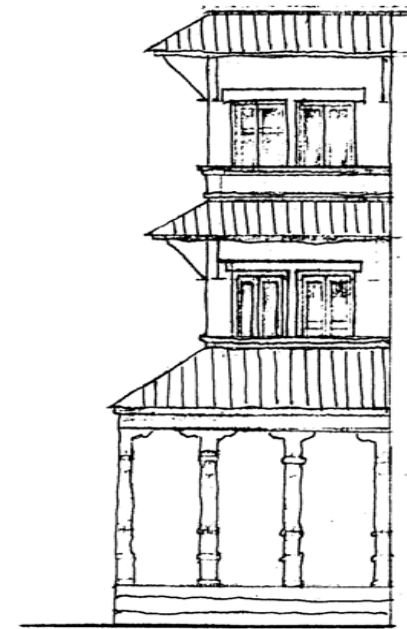
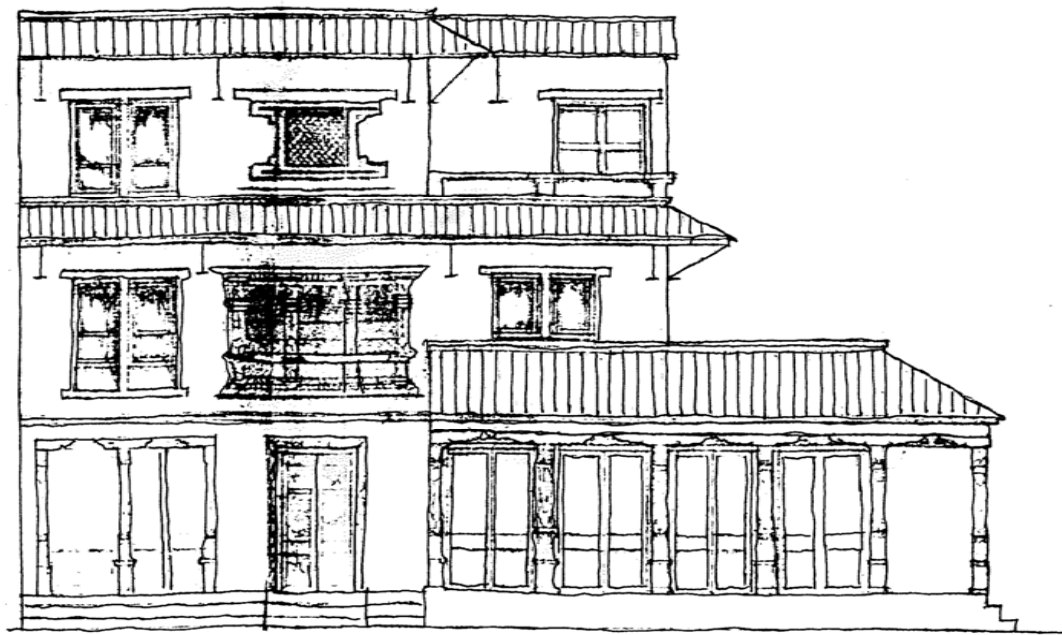
Preservation of historical houses in Nepal faces several serious obstacles due to the construction norms and qualities of the buildings themselves. (1) Traditionally these houses did not include a damp-proof course above the foundation, making ground floor area damp and cold and damaging ground floor masonry construction and plaster finish. (2) Minimal ceiling heights and low percentage of door and window openings in the facades of the pre-1900 buildings do not meet current tastes. (3) The renowned carved timber windows of Nepalese craftsmen similarly do not easily accommodate glazing or insect screen demanded by modern use.

Right: this historical house at Svatha in the Protected Monument Zone is typical of many in the historic cities of the Kathmandu Valley. It preserves carved doors and windows which are more than 200 years old, although the structure was rebuilt after the 1934 earthquake. It is not an outstanding historical monument *per se*, but is critical to the character of the World Heritage Site Monument Zone. It stands adjacent to the 17th century Radha Krsna Temple, defining the fine square at Svatha. It faces destruction as division of the house into two properties (sliced vertically down the middle) makes the interior layout of rooms and windows substandard for modern use.



A 60 year old house near Taumadhi in Bhaktapur, where property division has led to the destruction of half of the house's historical features.





Sarasvati Pati and adjacent historical house, Patan Darbar Square
 Above left: proposal by Lalitpur Chamber of Commerce for reconstruction.
 Below: reconstruction drawings by Erich Theophile based on historical photographs and extant historical elements.

Contemporary trends

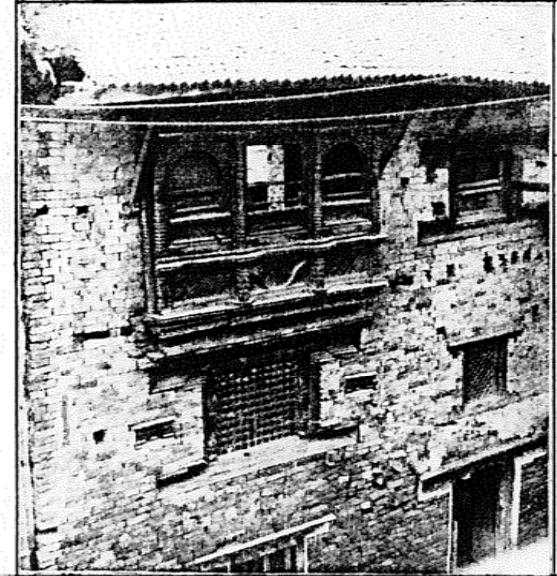
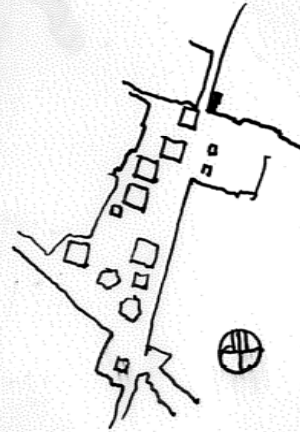
Investment of the Rupee, which if left unspent will only be deflated, drives a building boom in the Valley among all of the middle and upper classes. This trend is the most dangerous threat not only to the preservation of privately-owned historical buildings, but also to the preservation of an historical buffer zone around the public monuments. Although the dilapidated condition of the historical buildings is certainly an obstacle to preservation, this trend to invest even leads to the replacement of buildings which are in good repair.

These new structures are potentially unsympathetic to the historical fabric because they are often developed as rental properties, i.e. apartment buildings of sorts, which encourages maximizing rentable floor area.

Sarasvati Pati and adjacent historical house, Patan Darbar Square

This corner site included an intact 18th century residence and a 17th century timber resthouse with 1934 European style structure above. This dismantling and reconstruction of two important historical structures at the northern end of Patan Darbar demonstrates several critical points.

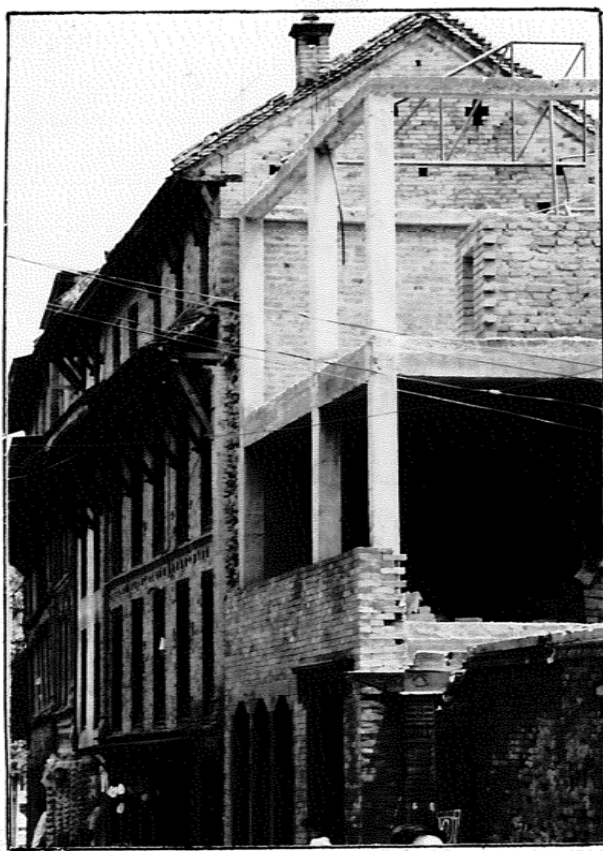
First, for preservation considerations, the buildings should have been repaired and restored without complete dismantling. At the time of dismantling, as is it is now, existing bylaws allowed dismantling of historical structures, even in this UNESCO World Heritage Site. Secondly, the project showed clearly how much additional professional expertise is necessary to rebuild rather than repair historical buildings. Repair could have been accomplished with supervision by the Department of Archaeology. Reconstruction necessitated complete working drawings at scale 1:50 and 1:10 provided by a foreign expert in restoration working 3 full months to produce the drawings, supervise construction, and during construction to provide revised designs to accommodate mistakes made intentionally and unintentionally by the owner, the Lalitpur Chamber of Commerce.



Sarasvati Pati and adjacent historical house, Patan Darbar Square
Above inset: location map showing building's position on Patan Darbar. Above right: photographs of the corner building, Sarasvati Pati, and adjacent house before demolition. Below: elevation of Patan Darbar north showing Sarasvati Pati by E.F. Sekler and M. Doyle, 1982.







**Sarvasvati Pati and adjacent historical house,
Patan Darbar Square**

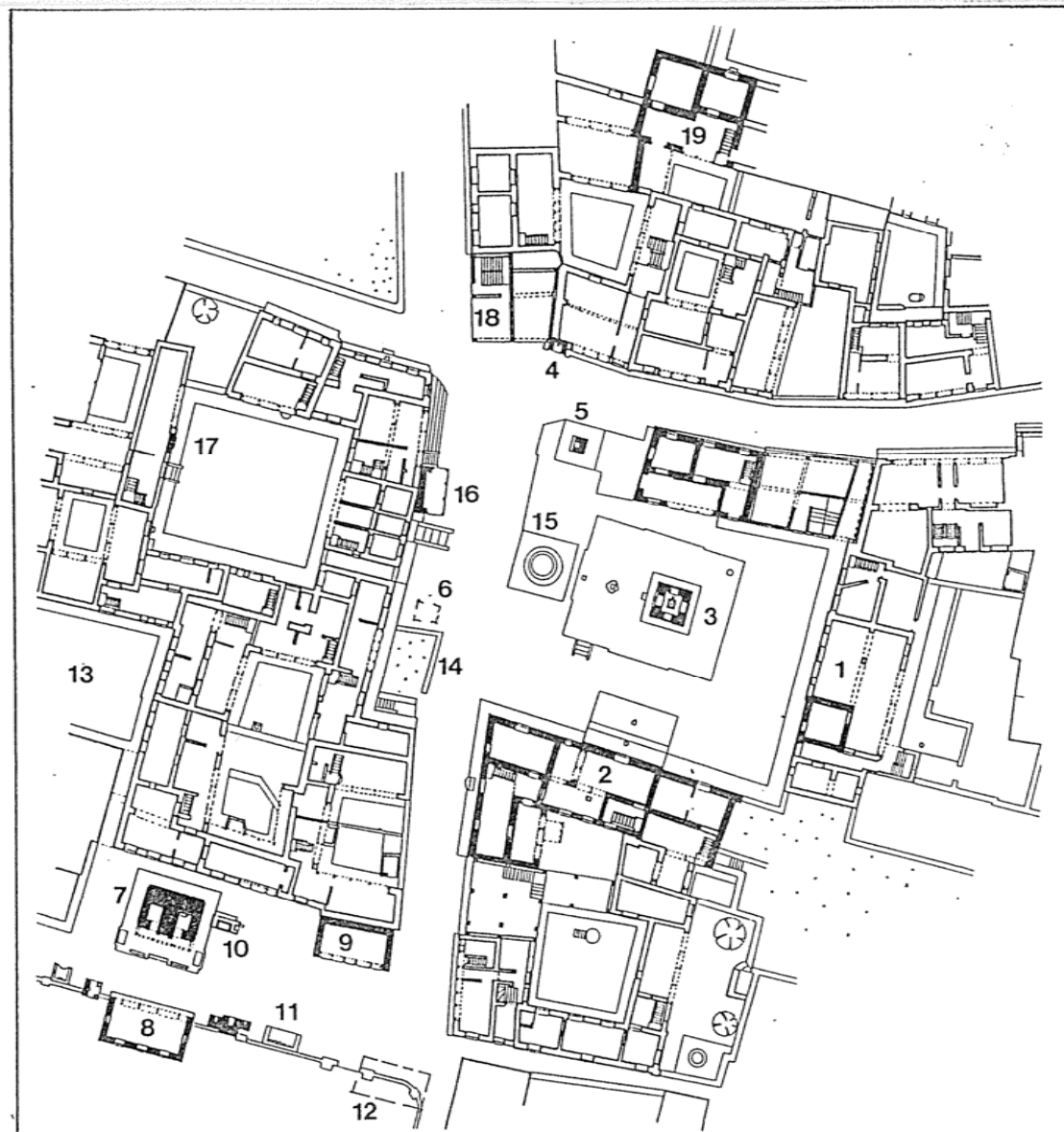
Opposite: additional construction drawing provided to compensate for mistakes made during reconstruction. Such additional design work is typically necessary in reconstruction projects.

Above: adjacent historical house under construction--the r.c.c. frame was not approved by the Department of Archaeology.

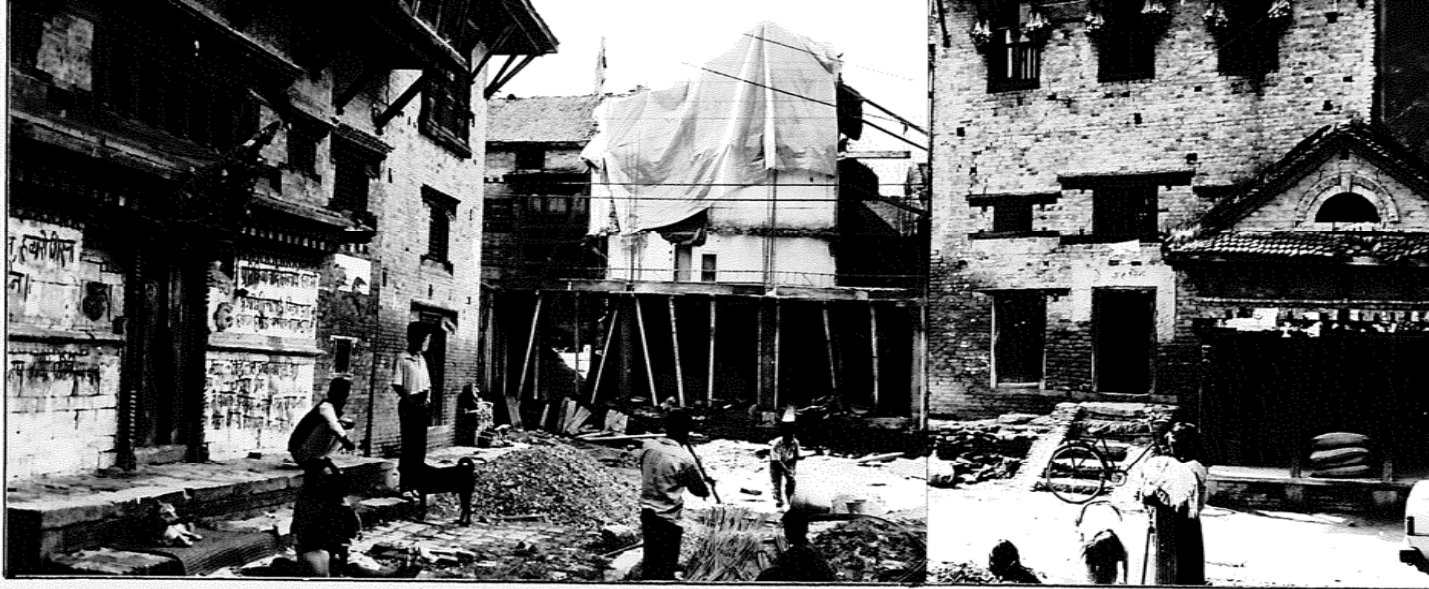
Right: above the Sarvasvati Pati as completed, November, 1992; below, the Pati in 1982.

Below: Sulimha Square annotated location map and inventory, scale 1:2000.

Opposite page. Above: view west showing construction of new house, November, 1992. Below left: view northeast showing destruction of the traditional roovescape by a ten year old 5 storey house. Below right: view through the concrete frame construction on the site of the former sattal, map #18. Sketches by Deepak Pant.

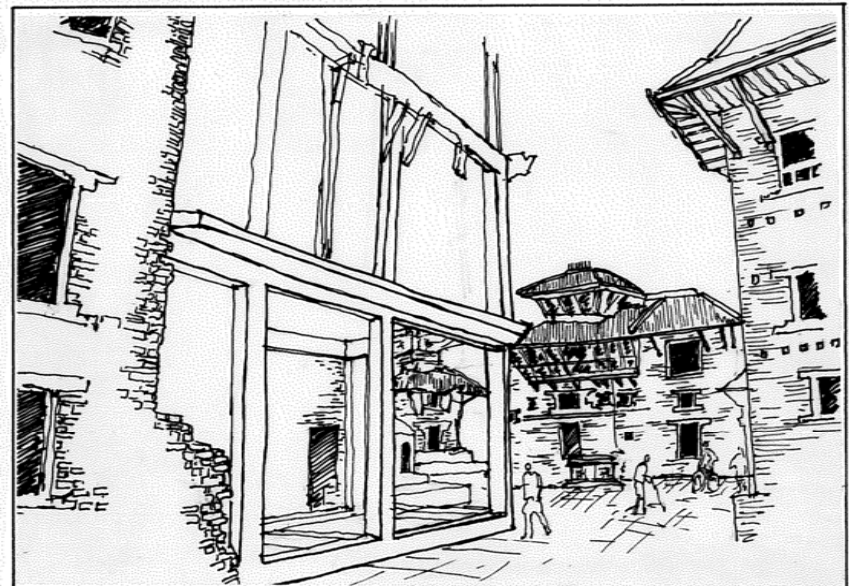
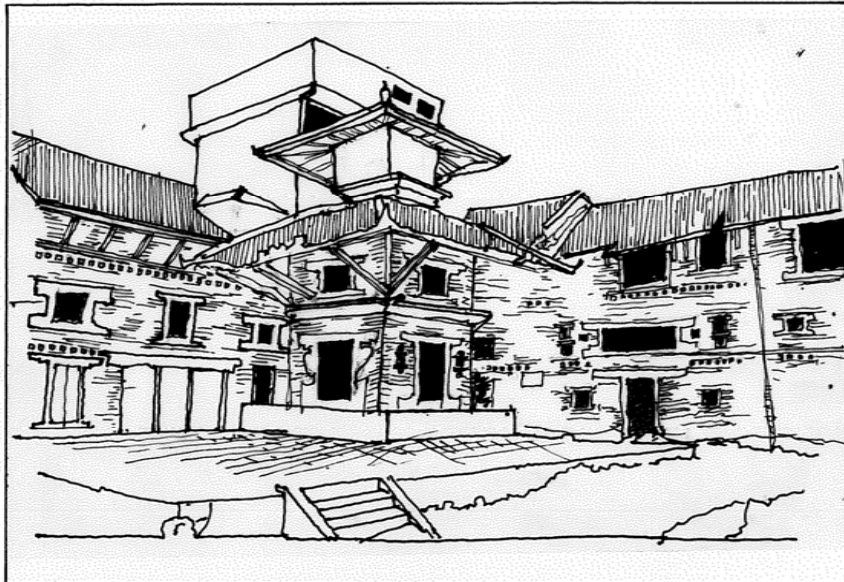


- 1 Gayahbājyā's house, today the house of his descendant, Surjenāth Rājupadhya
- 2 Āgā housing the esoteric shrine of the Sulimha Rājupadhya, one of six branches (kavaḥ) of Brahmins in Patan
- 3 Ratneśvara temple with liṅga, a two-storeyed pagoda of the 17th century
- 4 Shrine to Gaṇeśa, the guardian (dvārapāla) of the square
- 5 Remains of a 17th century Nārāyaṇa temple called Santana Gopāl, not rebuilt after collapse in the 1934 earthquake
- 6 Site of former Nārāyaṇa temple, whose remains from the 1934 earthquake were cleared in 1970.
- 7 Caṇḍeśvarī temple, a three storeyed pagoda, erected in 1663. One of the ground floor chambers is dedicated to Gaṇeśa, the other remain empty ("dyah maru" literally "no god"), as Gayahbājyā did not become a Siddha. Between the two chambers are three holes, the triangular one representing Caṇḍeśvarī or Nāsadyah the others representing Bhairava and Bhairavī.
- 8 Phalcā used as bhajanghar for music performance. Renovated in 1975, the anniversary ritual of the phalcā is performed on the occasion of balacaturdaśī in December.
- 9 Phalcā, a three-storeyed sattal for public use which collapsed in 1952. A neighbor has renovated the ground floor arcade (now occupied by Kusle-tailors) to secure the use of the roof as his outdoor terrace (kauṣī).
- 10 Jaḥdhū, a fountain for drinking water
- 11 Digyudyah (ancestral shrine) of farmer castes from Tahnani and Konti. An annual ritual is performed three days before the fullmoon in November (Yahmaripunhi).
- 12 Site of the former phalcā where samay (ritual food of five varieties) used to be offered by the Rājupadhya to Lakhe Śreṣṭha from Patukva.
- 13 Akhaḍanani, the courtyard where Gayahbājyā is said to have brought the Aṣṭamātrikā from Harasiddhi.
- 14 Site of former phalcā, which collapsed in 1934 earthquake. During Indrajātrā, Yamadyah was displayed here.
- 15 Well (tū), which is still in use
- 16 Phalcā of Amaliguṭhi, established by the Jyāpus of neighboring Mikhābāhā. Once a year during the month of Mangsīr amali fruits and beer used to be offered here to the untouchable Poḍe.
- 17 Hanumān or Hamva Shrine at Hamvacok
- 18 Site of former sattal established by the Maskey clan and demolished in 1990
- 19 Āgā housing the esoteric god of the Maskey clan



Sulimha Square

The speed of the destruction of historically important structures is best illustrated by recent developments at Sulimha Square. Patan Programme identified this square as one of the most historically important and intact architectural ensembles just one year ago. Replacement of the sattal (map #18) with an oversized residential structure and the destruction of an 18th century house defining the western edge of the square have destroyed the architectural harmony of the square, which had been considered a potential secondary monument zone. The house under construction on the western edge encroaches on the former resthouse site (map #14).



PRESERVATION Analysis

Anti-demolition

At present only the World Heritage Sites are **gazetted Monument Zones** following the provisions of the Ancient Monuments Act, section 3-1. Preservation in these areas is attempted through the control of building permits for new construction. Any application for new construction is subject to a special review process. This process aims at making new structures more compatible with the historical environment, but it has no provision to protect buildings of artistic or historical significance from demolition. This fundamental inability to safeguard historical structures in the Ancient Monuments Act may be inherited from earlier Indian models which focused on the preservation of **archaeological sites** and were thus more concerned with controlling new construction than preventing destruction of the remaining monuments on the site. The exclusive use of the the terms **taun** (place) and **ksetra** (area) for purposes of monument designation in the Ancient Monuments Act -- with no mention of the buildings or monuments themselves-- also suggests a derivation from laws regarding archaeological sites. At the ruins of archaeological sites, the danger of new construction may overshadow the danger of dismantling.

In UNESCO World Heritage Site Monument Zones **lack of legal provision to control demolition** of historically and artistically significant buildings and building elements violates the UNESCO "Convention Concerning the Protection of the World Cultural and Natural Heritage", officially accepted by Nepal on June 20, 1978. Failure to protect valuable buildings and monuments from demolition will result in the removal of these sites from the World Heritage List.

DEMOLITION AND PRESERVATION Recommendations

*Introduce bylaw requiring demolition permits to be approved by the Department of Archaeology in Protected Monument Zone Areas and for proposed National Monuments, especially those which are privately-owned structures.

*The current January, 1993 draft of the revised building bylaws provides for such a permit, but does not define the penalty. If applicable buildings are demolished without approval from the Department of Archaeology, **at best NO new building permit should be approved for the site.** At a minimum, a stiff fine and strict reconstruction requirements should be imposed.

*Lobbying HMG for **increased technical manpower and budget** for the Technical Committee for Monument Zones, established under section 3a of the Ancient Monuments Act, and for the Department of Archaeology to deal with the increased



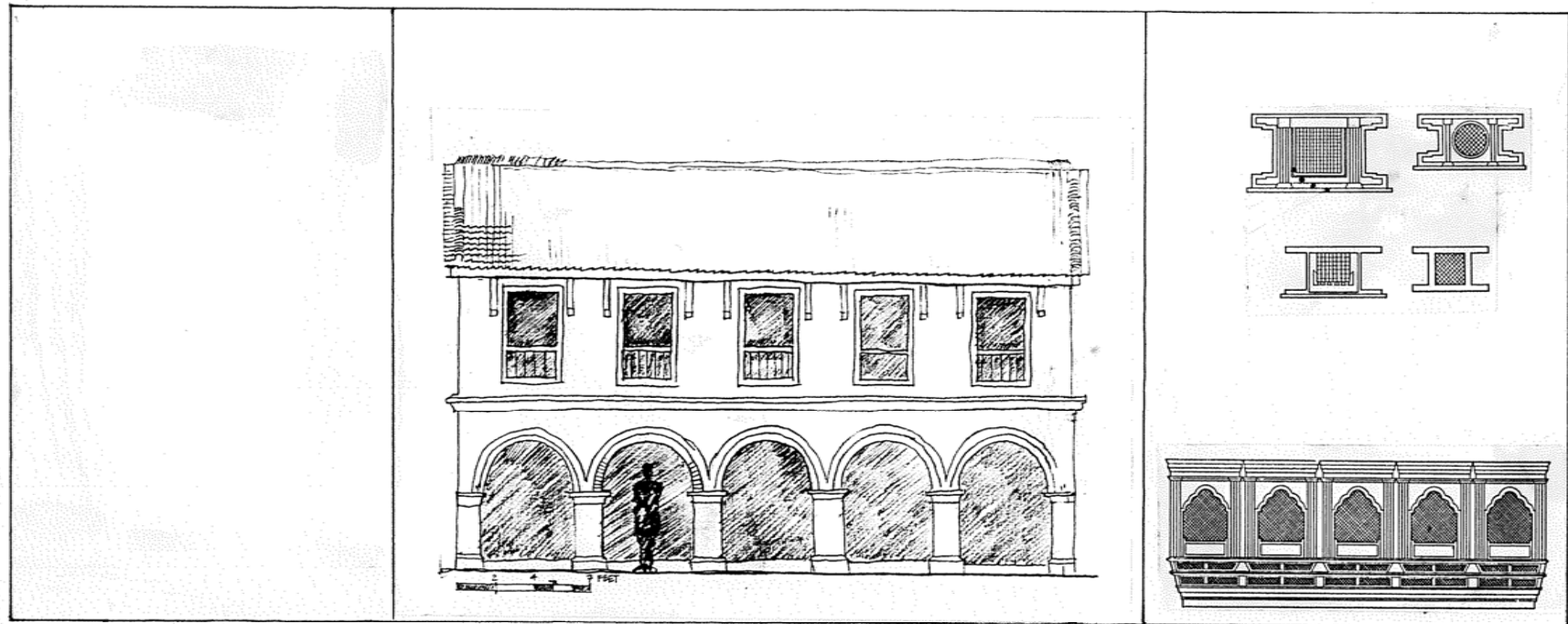
Preservation & new construction

Below left: owners' proposal for new window, Sakya House, Patan Darbar Square. The proposed ornate carvings were not approved by the Department of Archaeology.

Below center: simple 3'x5' window designs with plain railing (above the existing arches of the Sakya house), as proposed by the Department of Archaeology. (See focal case studies, chapters 1 and 4) Simple 3'x5' timber windows without carving and lattice are more desirable for new construction in Monument Zones—they provide a neutral but sympathetic backdrop to the fine historical examples. This strategy of simplifying design requirements to make the bylaws more achievable and to better meet international preservation standards has already proved successful in some 8 cases negotiated by the Department of Archaeology.

Below right: Drawings of traditional windows: copying such designs or producing harmonious new designs is difficult and unrealistic to require as current bylaws do.

Opposite page: Sattal (ca. 1934) at Kwalakhu below and as rebuilt in 1982 above. The well-intentioned new sattal with concrete struts well illustrates that new attempts to produce ornate carvings can become eyesores in the historical environment.



PRESERVATION AND NEW CONSTRUCTION

Windows, doors, and details

Introduction

The first step in any strengthening of building controls and enforcement must limit itself to regulation of building height and cantilever. Only when such regulation is possible is it realistic to tackle the much more issues of "building style".

Guidelines and "fitting in"

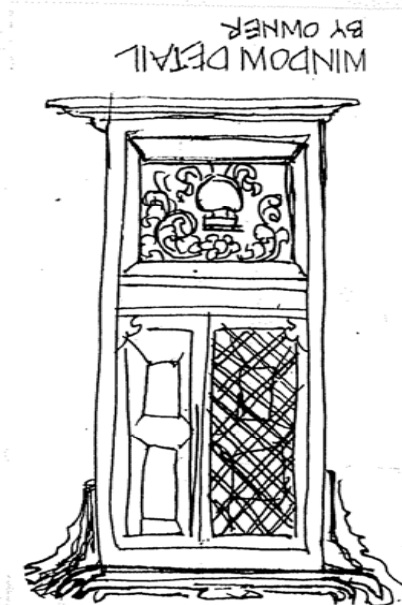
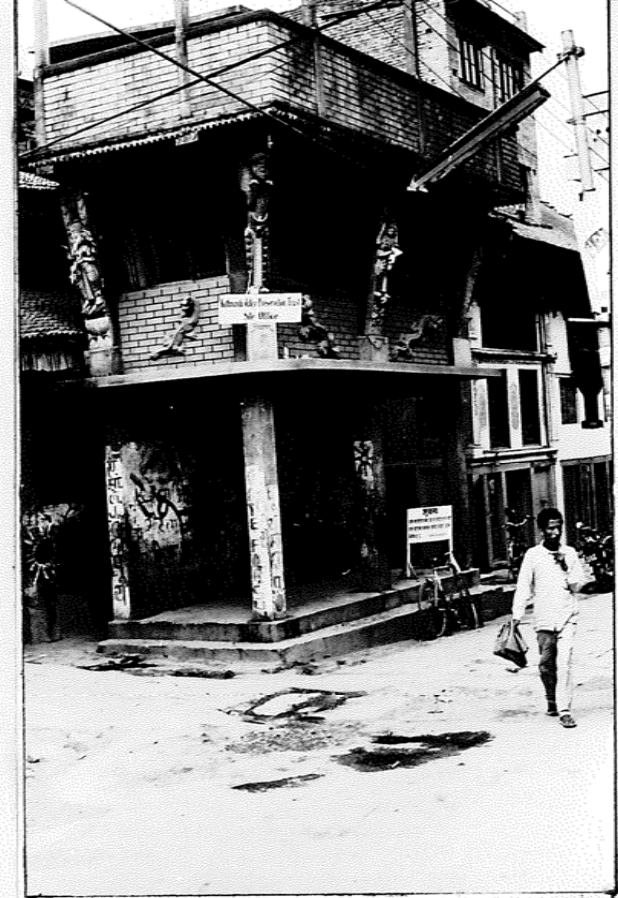
Every set of guidelines which aims to control the meeting of old and new architecture must contain many aesthetic and philosophical biases-- not only about what good architecture looks like (how original, what style, appropriate materials, how functionalist etc) but also, and more specifically, about what a successful meeting of old and new should look (i.e. how much contrast, how independent, how distinguishable, how fake, how enhancing, revivalist, etc).

Given the present state of chaos here in the regulation of the built environment, it would be idealistic to indulge in such philosophical discussions at length, but it is worth mentioning that some of the simplest, most achievable design guidelines fit very well with international criteria for new construction in monument zones.

Preservation criteria

Many well-intentioned efforts to build new structures in Monument Zones with traditional style and details may in fact be **destructive** to the historical area. The protected monuments are of unique artistic and historical significance! They should not be made to "compete" with unartistic, poorly crafted, ill-proportioned, or over-sized modern interpretations. According to accepted **international preservation norms** (i.e. Charter of Venice, 1964), new buildings should be designed as more neutral background elements in historical streetscapes. Not replicating historical buildings, but **rather designing plain** new structures, which harmonize visually with the monuments-- especially in size and height and materials. This simplifies design requirements by focusing on **floor height and overall size**, critical to the entire urban core area.

Thus in the design of new windows, doors, and shopfront openings (dalan) in the Monument Zones, one should not encourage reproductions of historical latticed and woodcarved windows (*tikhijhyah*) as the law now specifies¹, but rather encourage **plain timber windows** which harmonize by means of their size, proportion, and spacing. This might be one of the few instances where more enlightened preservation could even reduce building costs--especially where current Monument Zone Guidelines require new carved and latticed woodwork.



PRESERVATION AND NEW CONSTRUCTION

Windows, doors, and details

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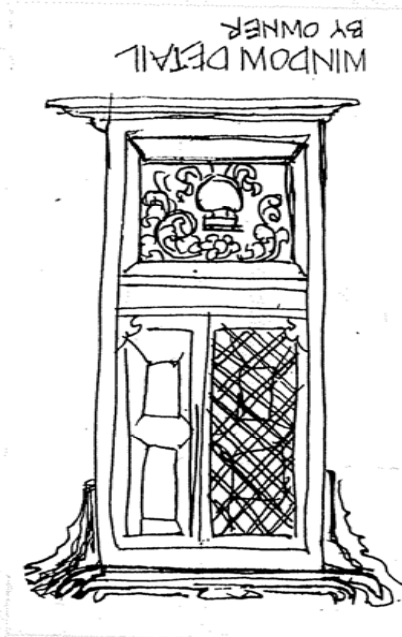
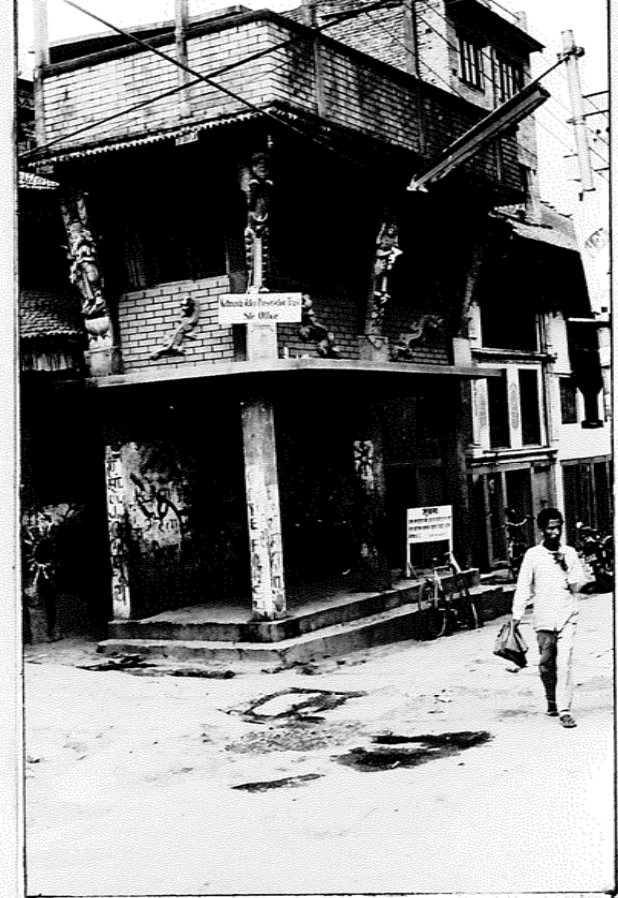
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Preservation criteria

Many well-intentioned efforts to build new structures in Monument Zones with traditional style and details may in fact be **destructive** to the historical area. The protected monuments are of unique artistic and historical significance! They should not be made to "compete" with unartistic, poorly crafted, ill-proportioned, or over-sized modern interpretations. According to accepted **international preservation norms** (i.e. Charter of Venice, 1964), new buildings should be designed as more neutral background elements in historical streetscapes. Not replicating historical buildings, but **rather designing plain** new structures, which harmonize visually with the monuments-- especially in size and height and materials. This simplifies design requirements by focusing on **floor height and overall size**, critical to the entire urban core area.

Thus in the design of new windows, doors, and shopfront openings (dalan) in the Monument Zones, one should not encourage reproductions of historical latticed and woodcarved windows (*tikhijyah*) as the law now specifies¹, but rather encourage **plain timber windows** which harmonize by means of their size, proportion, and spacing. This might be one of the few instances where more enlightened preservation could even reduce building costs--especially where current Monument Zone Guidelines require new carved and latticed woodwork.

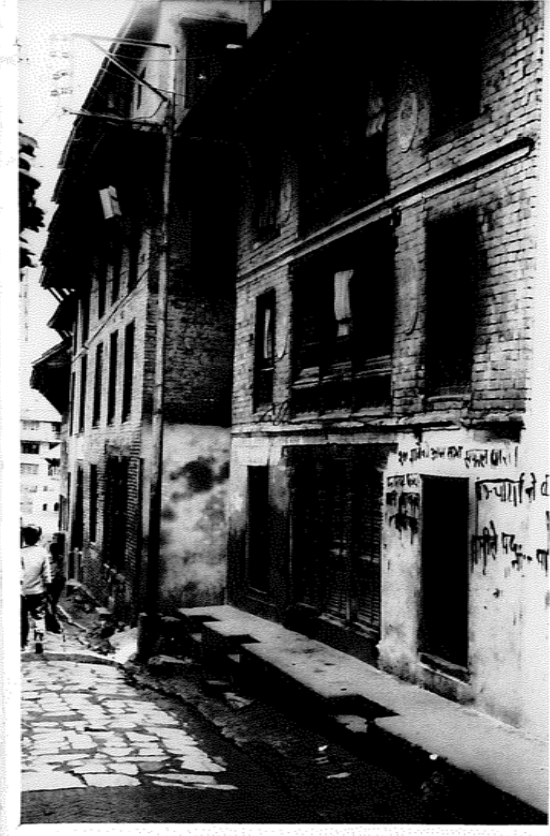
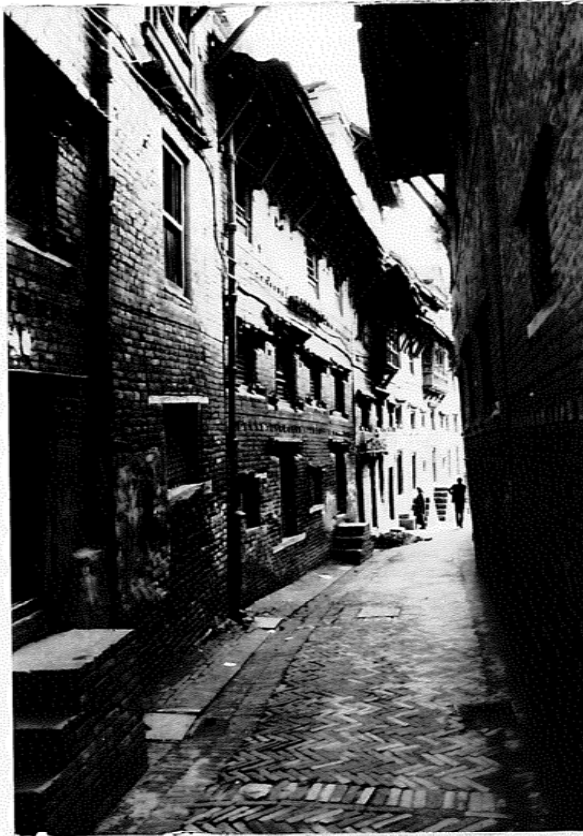


What are we preserving?

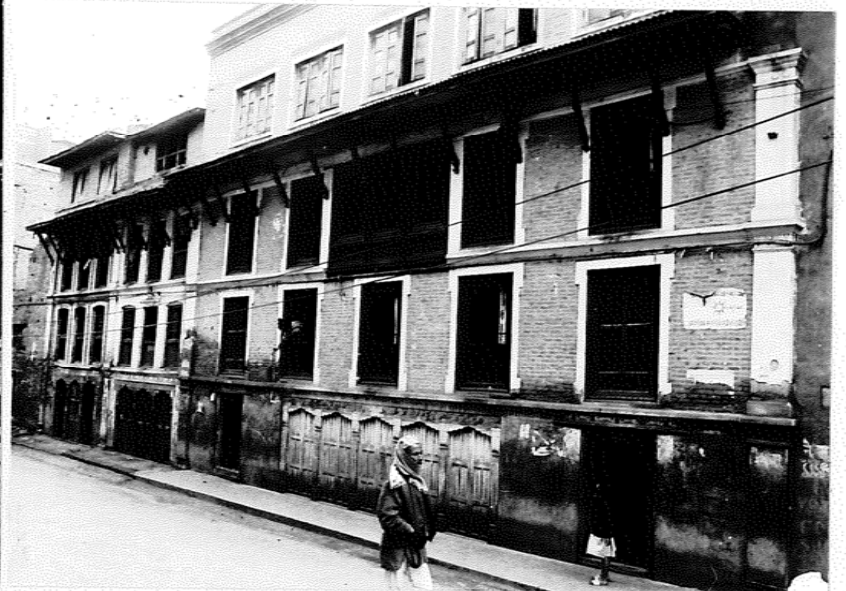
When one considers that 90% of the residential buildings which define Patan's historic townscape are built not in the "medieval" Malla style, but rather in the more European influenced style of 1850-1950, the idea of requiring Malla windows becomes more unreasonable.

And when one considers what a "good" new window should look like in Patan, it is clear that the most neutral window, (which in this case is also historical) is the vertical proportioned, approximately 3ft.x5ft. window. On the top floor a slightly smaller version of this window is generally found. Such a window also better meets modern requirements for glazing and ventilation in comparison with the medieval examples.

Below left: Bhaktapur Darbar lane with medieval windows. Center: at Konti in Patan 3' wide x5' tall windows of 50-100 year old buildings. Right: Thamel, Kathmandu modern "bay" windows. The current norm for new window size is 5' wide x 4' tall.



The typical window of Patan: 3' x 5' in size found in single units or slightly transformed in 3 bay *san jhyah*. Typical street scenes of Patan. Compare with Bhakapur lane opposite page.





Guidelines provide no guarantees: they must be thoughtfully designed and applied

Guidelines do NOT guarantee beautiful buildings. They are but a laundry list of many features which are typical or desirable, a catalog of requirements which may lead to unexpected and undesirable effects if not carefully designed. Given the great challenge of building control in the Kathmandu Valley, one must think simultaneously in terms of the most achievable and the most critical restrictions or requirements for new construction.

Study of some 100 new buildings in the cities of the Kathmandu Valley and how they destroy and/or enhance the traditional urban environment suggests the following rules of thumb.

Most critical: Overall height, floor-to-floor height, invasive cantilevers.

Critical: roof overhang, traditional materials—brick or plaster wall surfaces, no garish paint colors on plaster.

Desirable and important: traditional windows, doors, and shopfront arcades (*dhala*) are most critical.

Desirable: traditional building plinth design, cornices.

Additional: appropriately designed signage.

When one considers such a list as it would apply to a particular corner of Patan, one immediately sees that every site has its own characteristics—which can modify the above priorities.

A street where rooflines are relatively intact might make a new building's most important feature a sloped tiled roof. In a narrow lane, where the tops of the buildings are less visible, the wooden shopfront and first floor window design might be most critical. But if the narrow lane is adjacent to the Darbar Square and a tall building would interrupt the temple skyline of the World Heritage Site, one would rather keep the building lower.

In a row of plastered buildings built after the 1934 earthquake should one require the same brickwork in a new building as one would require in a baha courtyard where brick is the rule?

To effectively apply guidelines requires analysis of the surrounding area of any new building to decide what are the most critical features. Such analysis is best done by an architect with a feeling for and knowledge about historical buildings. At the time of this report, among all three government authorities responsible for bylaws enforcement, there is only one architect on staff.

Priorities: analysis of individual sites

Although both areas fall within the Protected Monument Zone, the largely intact historical streetscape at Cakabahi (above) merits closer attention to bylaws enforcement than the row of buildings at Nagbaha (below), where new buildings already dominate the historical courtyard.

Given the limited resources of HMG for building bylaws enforcement, areas within the monument zones which are largely intact should receive first priority for the time consuming activities of review of building application, proposals for revisions, and monitoring of construction.



PRESERVATION AND NEW CONSTRUCTION

Windows, doors, and details

Cases

The following cases provide a preliminary sampling of the construction techniques, design criteria, and visual effect engaged by effective control of new construction in historic environments in Nepal.

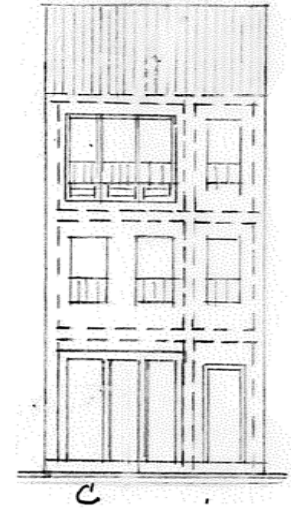
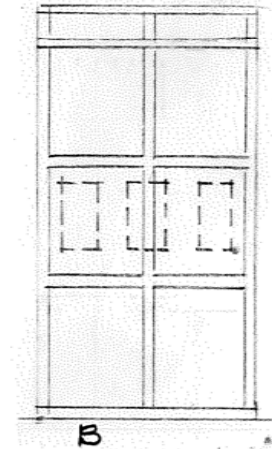
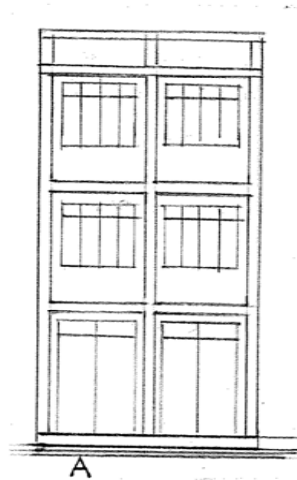


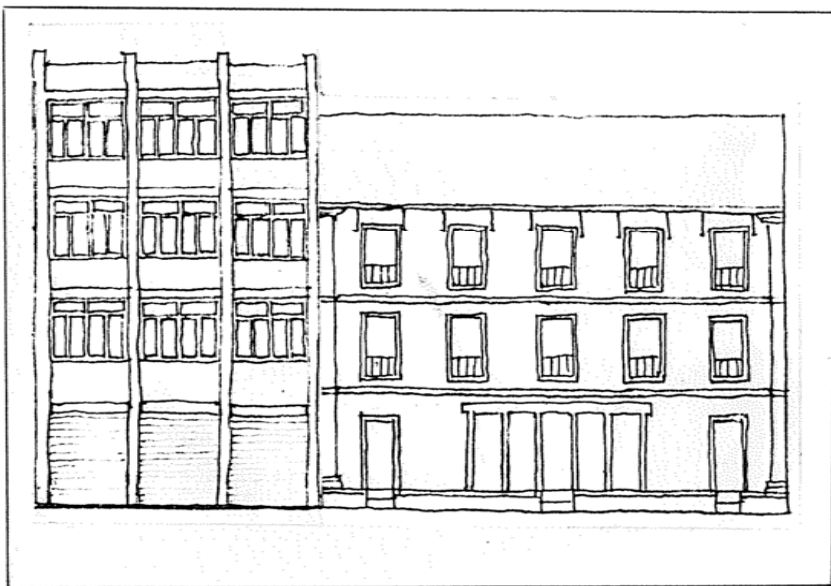
Above: when the r.c.c. frame is visible on the facade, it clashes with the historical row of buildings, which read as a more continuous brick streetwall.

R.C.C. frame construction and window placement

It is important to understand how the universal use of reinforced concrete frame construction directly influences the placement of windows on the facade.

Diagram A illustrates the typical r.c.c. frame of a new small house—2 bays wide with a large window in each bay.
Diagram B illustrates how the traditional layout of three windows on the first floor is not allowed by the central pillar.
Diagram C shows how the r.c.c. frame must be modified to allow a traditional facade layout.





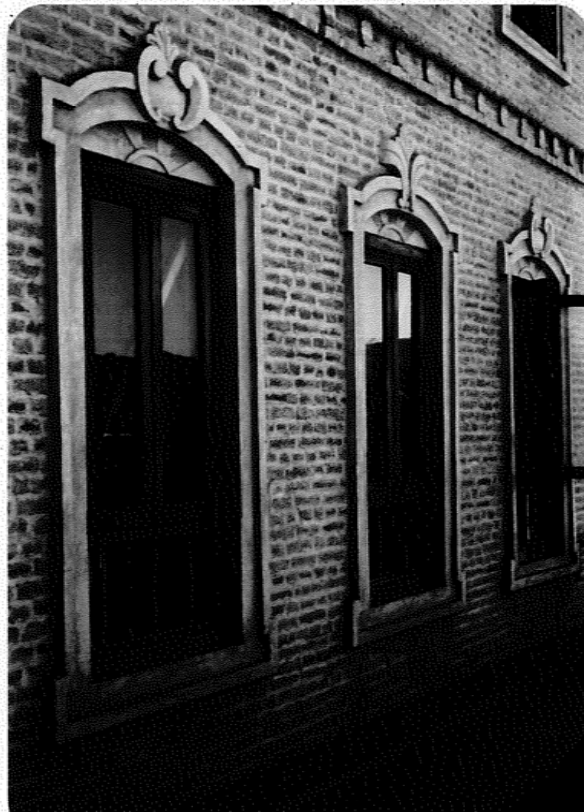
R.C.C. frames

The r.c.c. frame building is a totally different animal than the traditional bearing wall structures. When we try to make a new frame structure "look like" a traditional building, the design task is challenging as suggested by the diagram of new and old building types below suggests..

Above right: 1987 frame structure just outside the Hanuman Dhoka Monument Zone with Taleju Temple visible in the background. The protruding angled bays are especially destructive. The owner's good intentions are suggested by large scale dragon design ornament above the ground floor metal shopfronts.

Below right: in Patan at Haugah a white plastered frame structure destroys the harmony of the square included in the World Heritage Site.





Study - successful examples

New hotel construction in Dhulikhel suggests a basic design solution for the monument zones of the Kathmandu Valley cities. Important and here achievable features include: 3'x5' windows, sloped roof, plain timber struts and window railings, traditional cornice and pilaster design, traditional plastered window surrounds, and brick facade.

The study of existing new buildings which are relatively successful is a good starting point for the study of new construction and preservation. The fact that the buildings exist guarantees some measure of achievability.

Hotel Sun and Snow, Dhulikhel recent construction general and detail views.

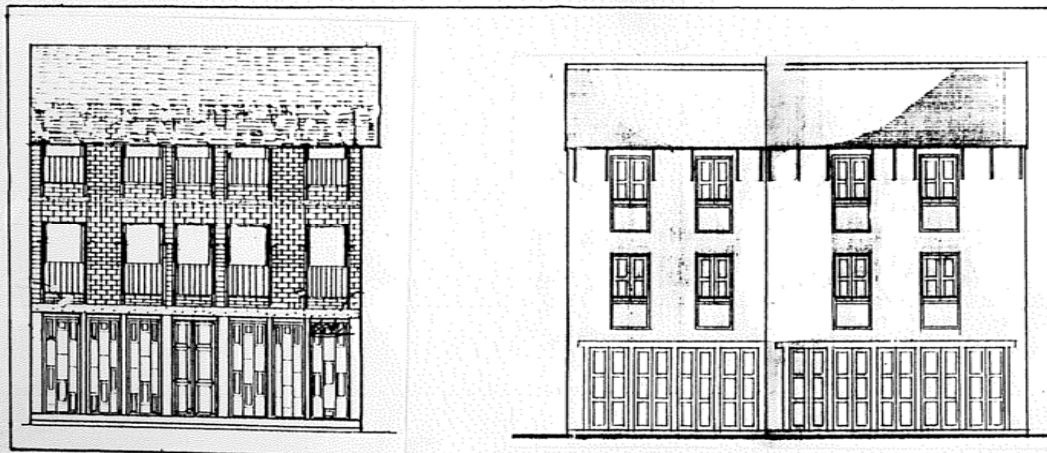
Bodnath: lessons and comparables

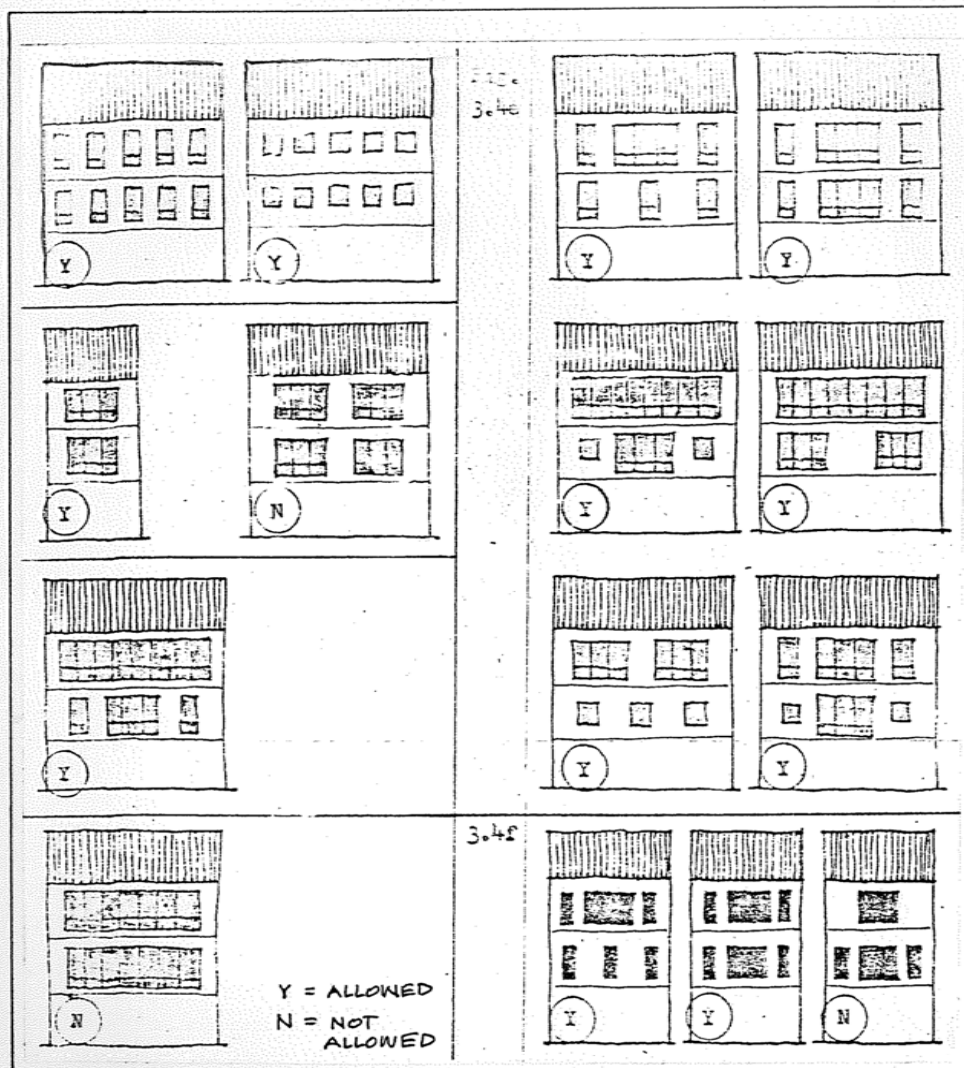
Intense building activity has rebuilt many areas around the stupa in recent years. Patan Programme reviewed several new structures per the request of the Department of Archaeology. These cases demonstrate the effects of different window types in new structures quite well. When new buildings repeat the simple 3' x 5" window type prevalent in the area, the effect is much more harmonious than when the "picture windows" are introduced, even when dressed up with carving and lattice details.



Above left: the traditional rhythm of windows. Center: contrasting windows, shopfronts, roof, and ceiling heights of old and new. Right: the picture windows fill the frame of the rcc structure unlike the spacing of the 3' x 5' windows.

Below : a successful proposal for a new structure using simple traditional windows (left) similar to a typical building of thirty years ago (right). The problems came during construction when floor heights were increased.



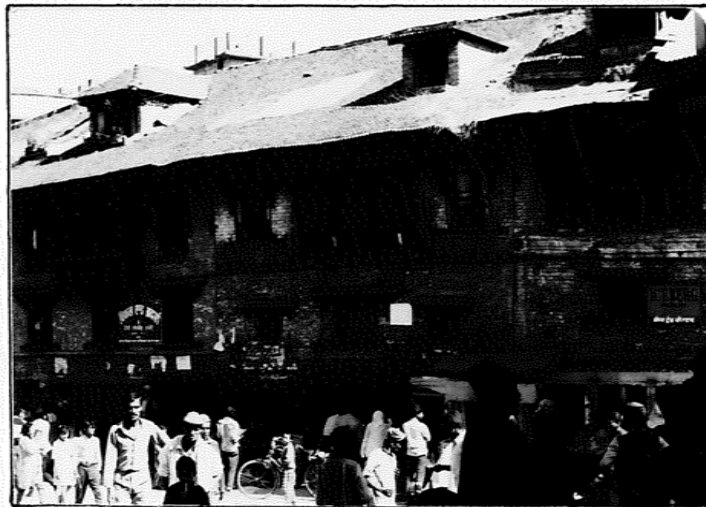
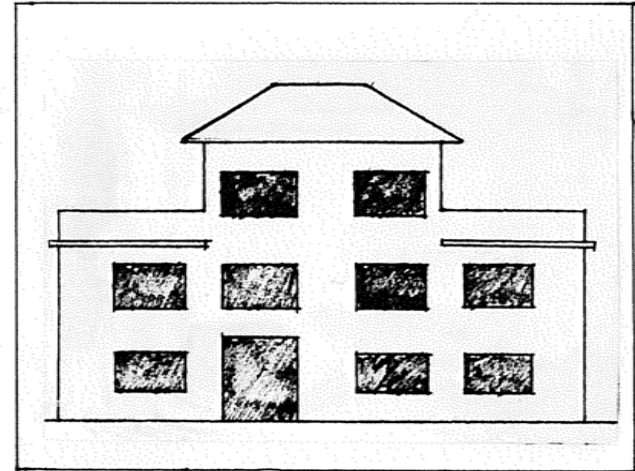
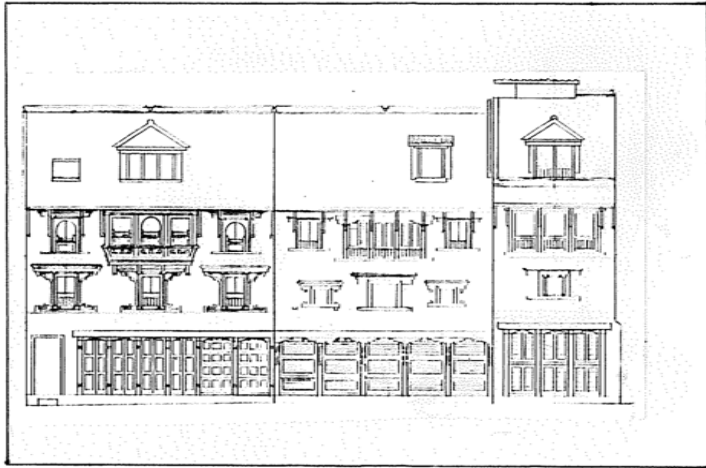


Bhaktapur lessons

One of the handbook pages developed by the Bhaktapur Development Project regarding facade layout of openings. Although such detailed recommendations might be sensitive, they are unachievable. One more realistic strategy would be to **only allow the simple 3' x 5' window type**---and let people place them as they wish.

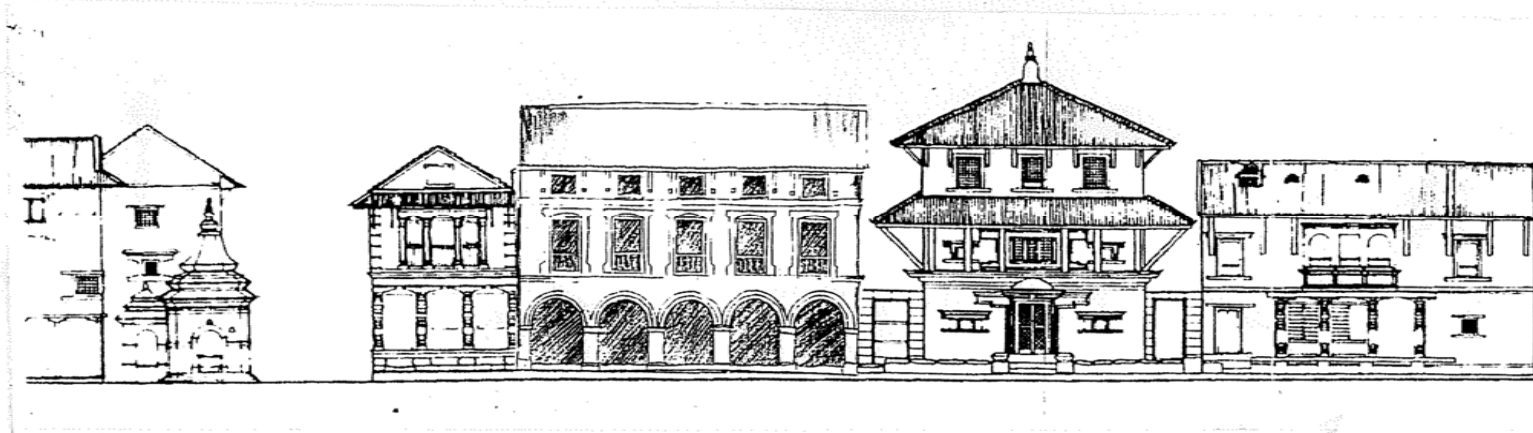
Medieval style is tough to copy.....

The subtlety of the historical facade arrangements is difficult to echo successfully in new frame structures, whose regular bays invite repeated identical windows instead of the richly varied examples of the historical architecture.

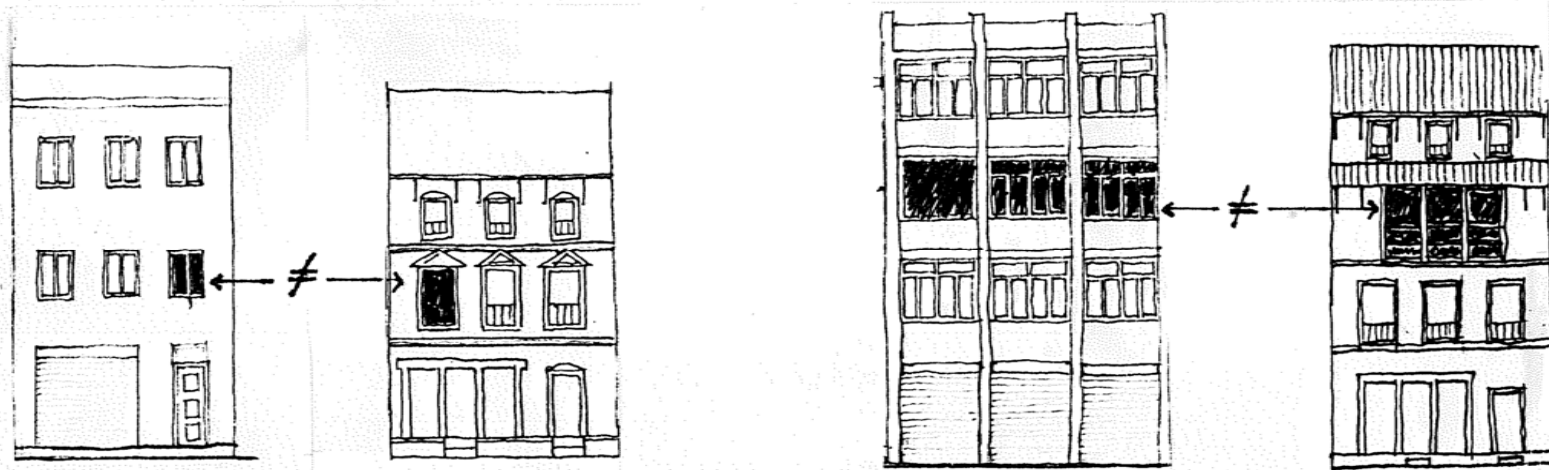


Window type and facade organization

Window type and facade organization: critical issues for new construction which should be further studies in the future. How to make a new building feel "right" in these cities. How to promote architecture which corresponds or at least seems related to the old?

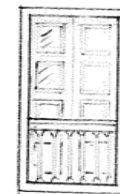


Below: lack of correspondences between old and new in window size, sill height, shape and placement. Above: Patan Darbar North. The central house is a proposed new design intended to echo the typical window patterns of Patan's houses--3'x 5' on the first floor; smaller windows on the top floor. (The ground floor arches were existing new construction.)

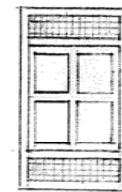




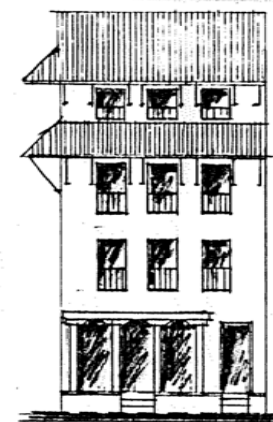
New house at Patan Darbar: views of new facade; sketches showing dissimilarity of old and new window designs and facade layouts.



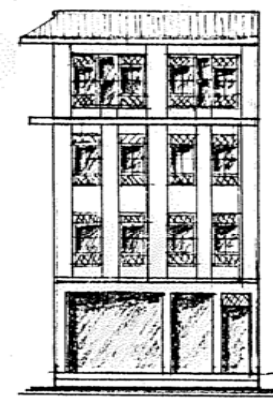
traditional window



new window



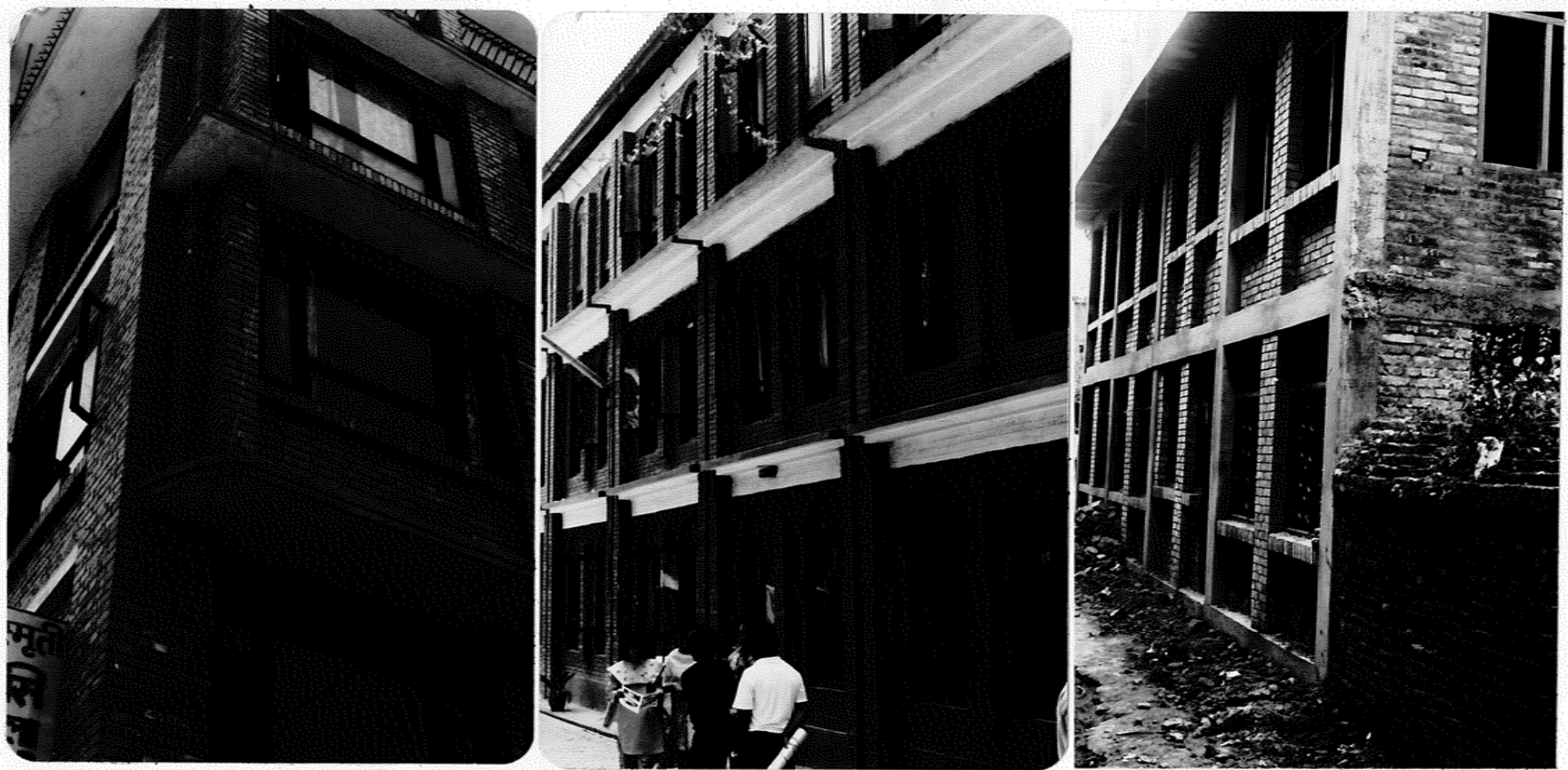
traditional facade



new facade

Division of windows

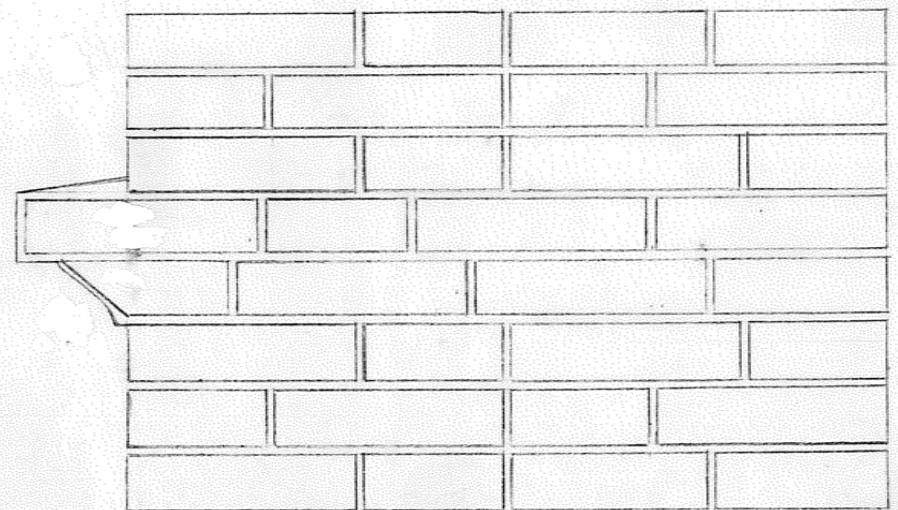
In addition to overall proportions, the divisions of the new windows should correspond in diagram to the historical counterparts in order to establish a visual connection. Above, the attempt to recall the vertical windows is not successful because decorative panels above and below the opening are introduced--the traditional openings have only the lower division created by the railing. Furthermore, the contrasting white paint on the window itself makes its square proportion read as the opening, not the overall unit with top and bottom panels (which is of the correct proportions).



Hard edges

The hard edges of cantilevers, inset areas in the brick facade, windows which open out, not in, and column structure articulated on the facade: all these are characteristics which scar the historical character of Patan.

Above: photos of typical new facade construction. Photo left: a detail of a house defining the southern edge of Patan Darbar Square . Right: a traditional cornice detail, cross section drawing.



Focal case study

Sakya House, Patan Darbar

Design alternatives

A building's effect in an historical townscape is much more than the sum of its "parts", the parts which individual guidelines attempt to regulate. The following case study, the material used for a training/brainstorming session with Department of Archaeology, demonstrates how many design decisions, economic, and preservation compromises can be involved in the development of a successful solution.

Architectural/preservation expertise

The key lesson of this case is the critical need for architectural design expertise for the effective application of guidelines. The completed building, although not fully in conformance with approved drawings, is successful enough to identify it as a model building. On the following pages are found:

(1) Building history in photographs and drawings documenting the historical building, modern structure, and improvements. This is a rare case in building controls where the story has a happy ending.

Design alternatives accompanied by a brief description in words of design goals. These comments served as springboards for discussion in the training/brainstorming sessions. All of these pages could be elaborated into further training programs.

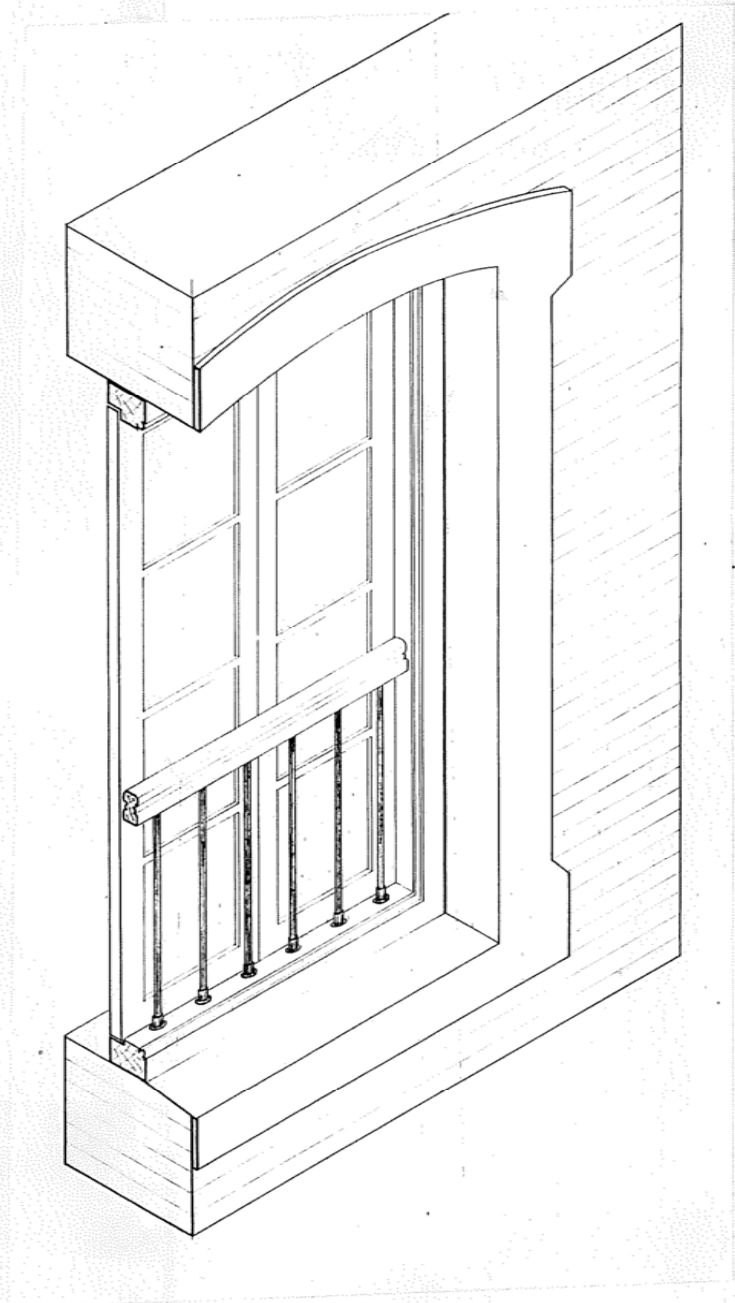
(See also chapter one focal case study for additional discussion and documentation of this project.)

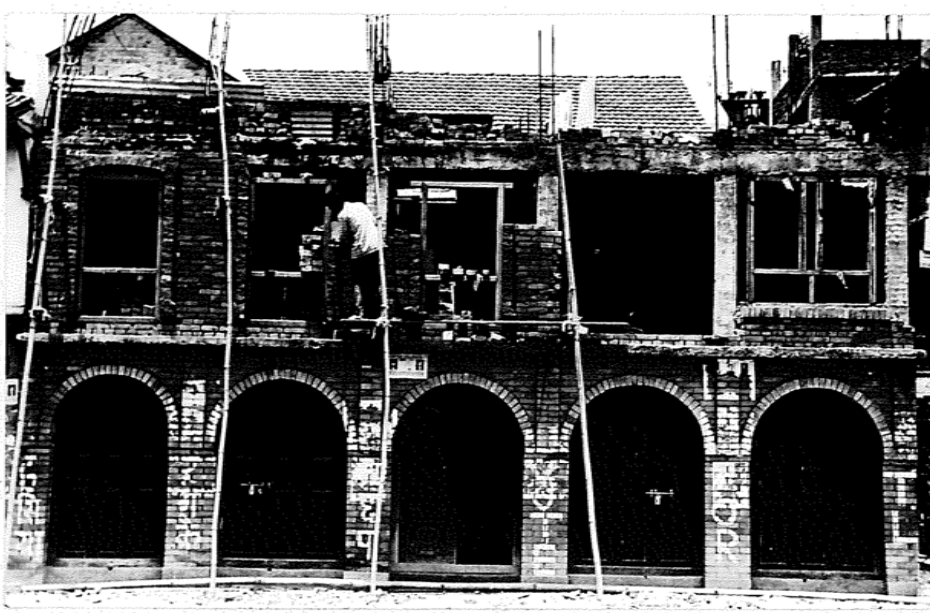
Application details: vagueness encourages non-conformance

Above: drawings of the window for Sakya house design. Regulating officials must provide such concrete specifications given the lack of design professionals involved from the owner's side.

The Nagar Palika application form demands the promise of every applicant to build new houses "in the Nepalese style" (line 23), although no requirements are specifically given. This provision applies to all city zones.

This is the same wording as the Monument Zone Directive which outlines the "traditional Nepalese style" as including: plinth (peti) vertical proportioned windows with latticed or shuttered openings, jhinghati roofs, brick on side facades (in addition to front facade), and carved or plain timber roof struts in the last article of its Directive.



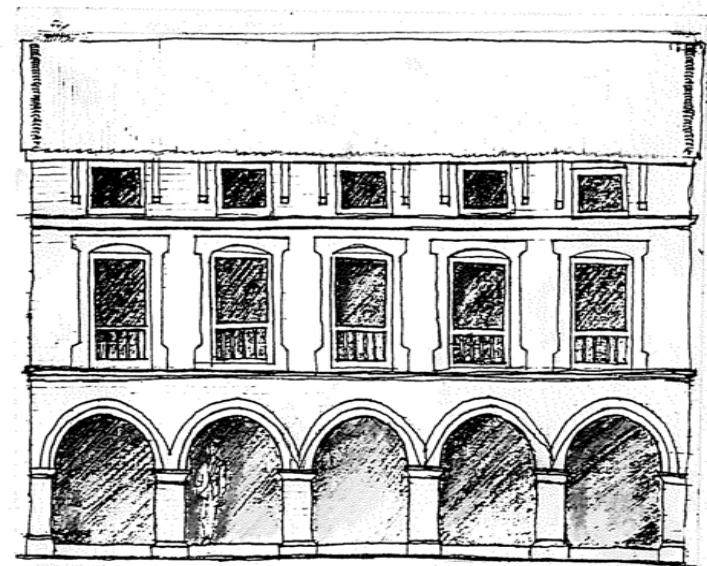
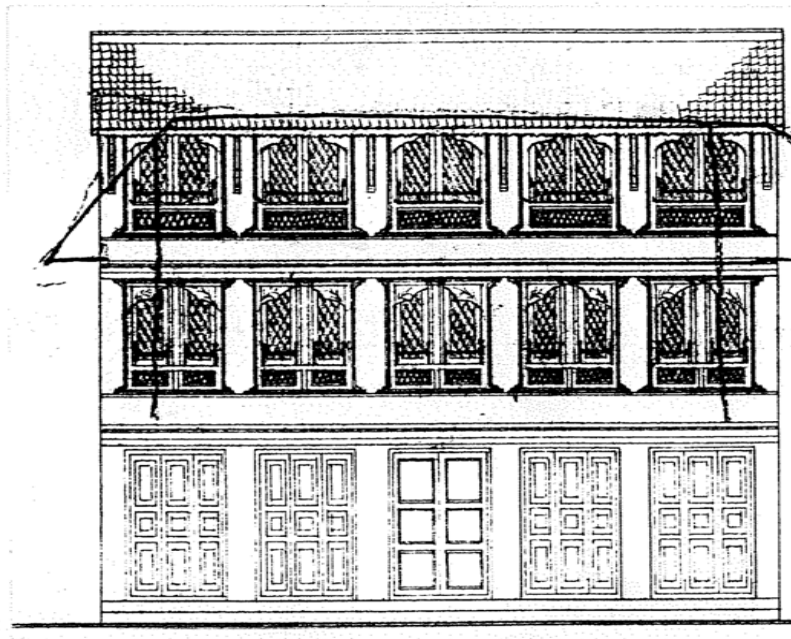
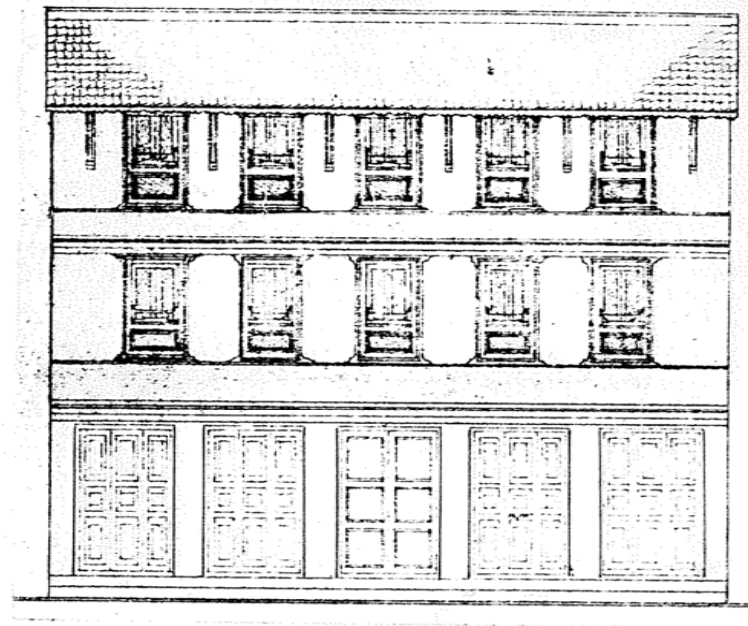
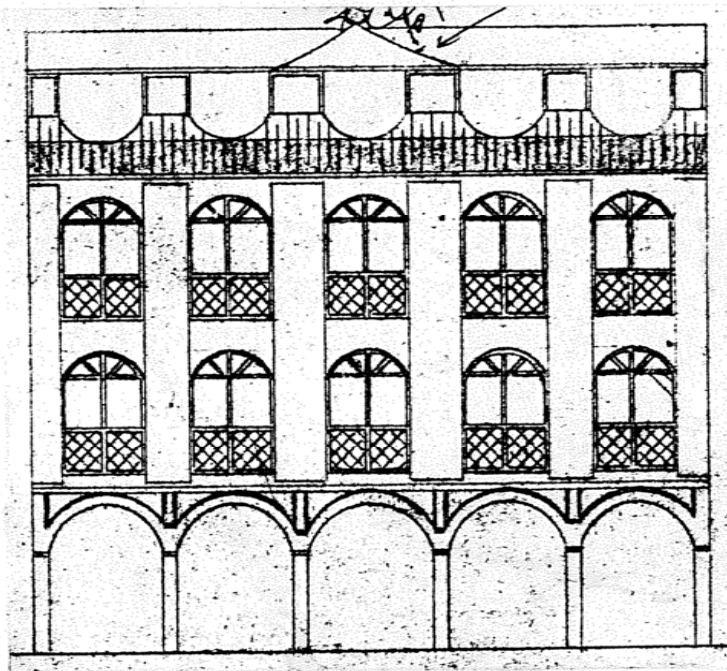


Building history in photos.

Upper left: the house being transformed--new 3'x5' windows (left) replace the larger bay units (right). See photo of house before alterations chapter 1-focal case study. Upper right: upper floor was built higher than approved and with larger

windows, fall 1992. Lower left: View, November, 1992. The top floor windows have since been reduced in height. Lower right: The nearby Bhimsen Sattal, a nearby building which served as a model for design improvements.

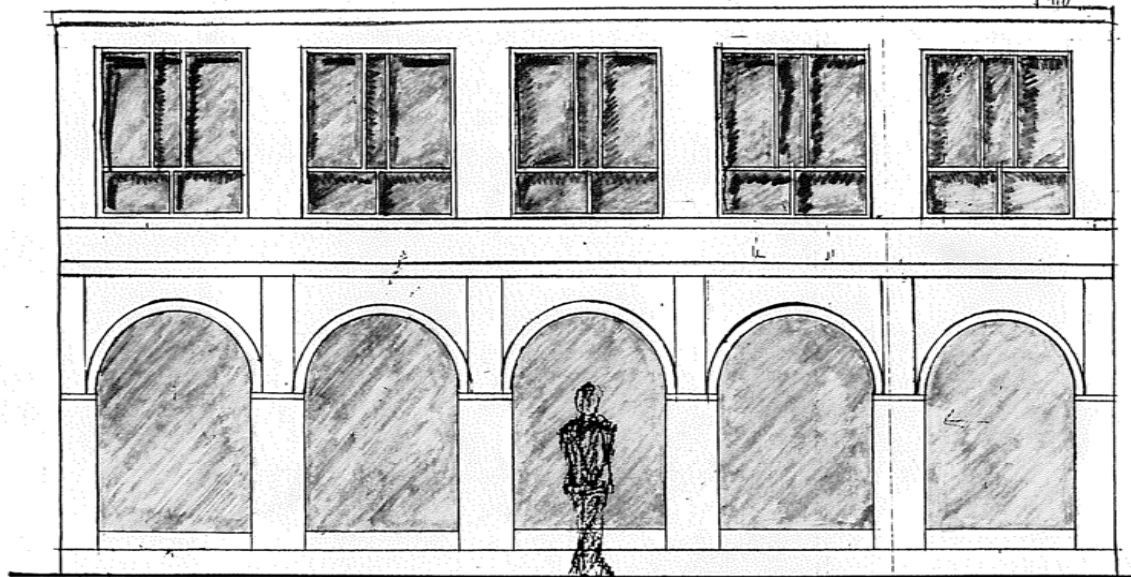




Building history in drawings.

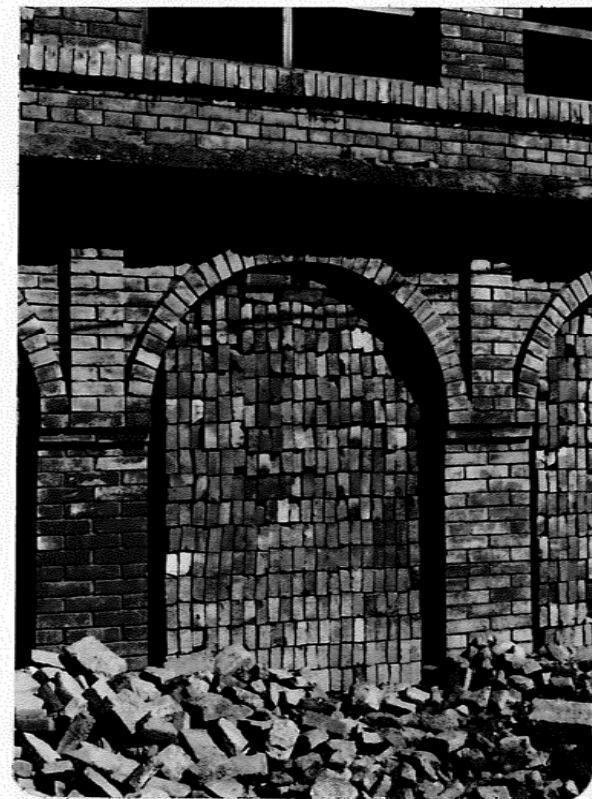
Upper left: proposal for new house on the site, approved some five-six years. Lower left: owner's proposal, summer 1991 with ideal roof sketched on by Department of Archaeology.

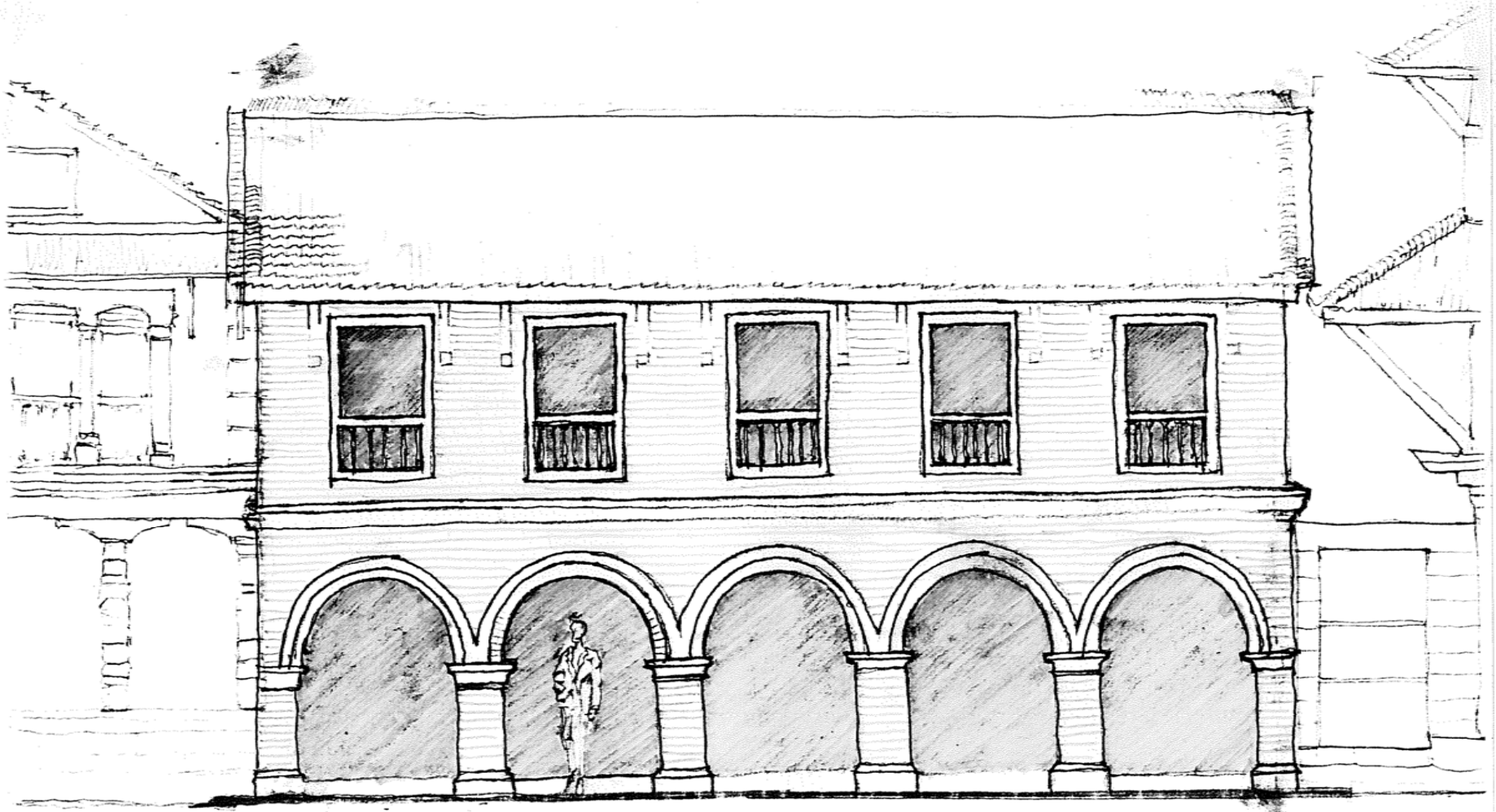
Upper right: owner's revised proposal based on discussion with Department of Archaeology, fall, 1991. Lower right: elevation proposal by Patan Programme, approved by Department of Archaeology.



Existing structure

Projecting reinforced concrete slabs together with square-edged horizontal brick courses and arch details give the building a "hard edge" unsympathetic to the adjacent monuments. First floor windows of a large almost square shape (4'-6" x 5'-0") and with typical "picture window" glass divisions look out of place beside the historical facades.

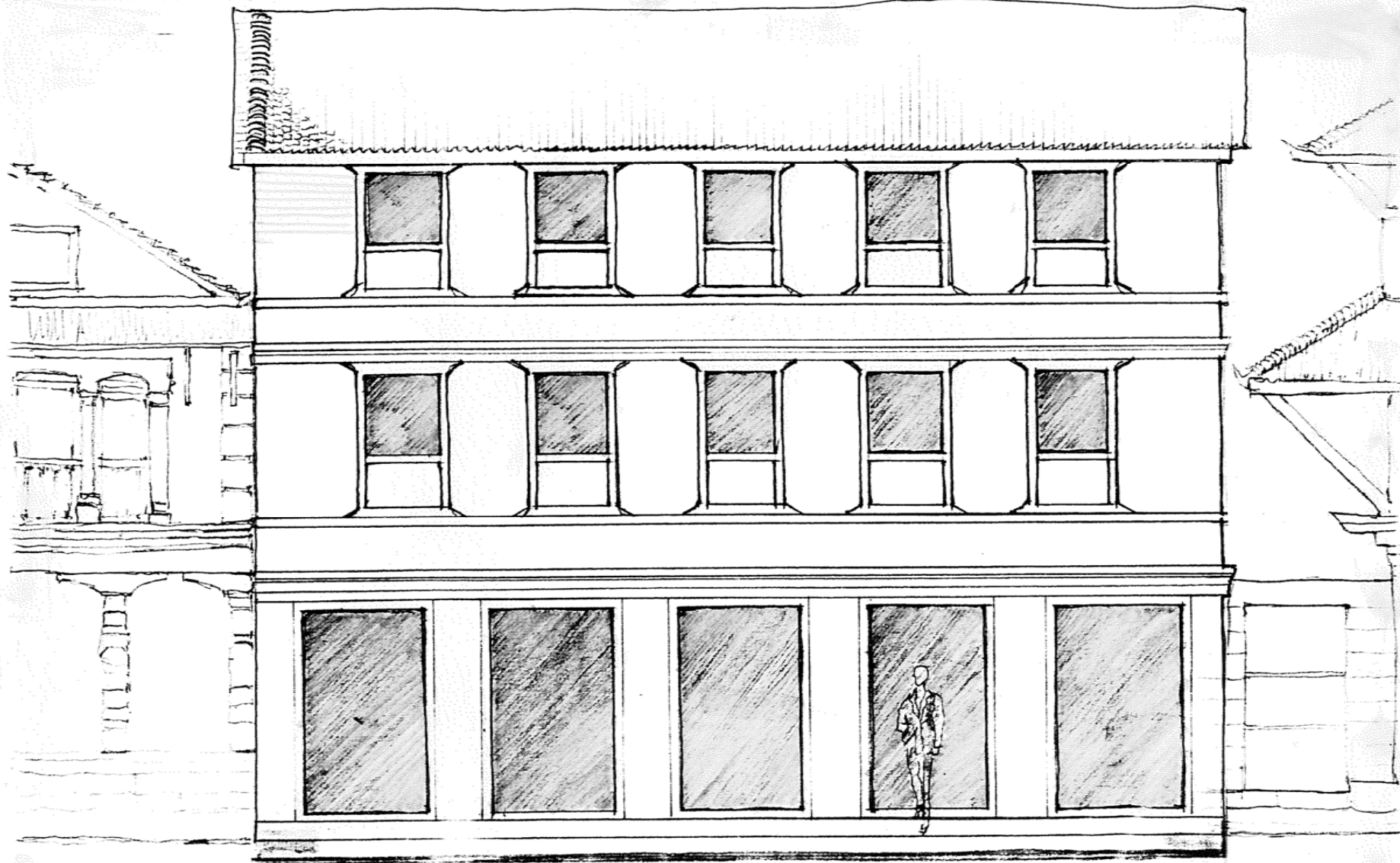




Alternative 1

Restriction to two floors minimizes owner's benefit for use of building. Although this small building suggests a pair with the sattal east of Ganesha Mandir, it seems rather plain, more like a village than Darbar Square location. One could argue for this low solution to preserve the historical scale of the square, but when standing on the square, a two and one half storey building seems acceptable, even desirable. In reality one perceives the eave board line of the building as the upper limit of facade more than in an elevational drawing which emphasizes the roofline.





Owner's proposal

Building looks much taller drawn to larger scale and shown with neighboring buildings than the application drawing suggested. Continuous plinth steps, projecting and square-edged brick courses under the windows, and tall storey heights are features (typical of almost all new buildings) which do not blend with historical buildings. Modern "Nepalese" style carved windows are reminiscent of hotel lobbies and seem uncomfortably boxed in by the strong horizontal lines of the facade.



PRESERVATION AND NEW CONSTRUCTION

Recommendations

As regulation of doors, windows, and details is useless unless combined with other key building features, the following outline summarizes recommendations from earlier chapters as well.

These recommendations focus on control in the Monument Zones, but are applicable to the entire core area as discussed below.

Realistic strategies for bylaws related to design

Given the challenges of building controls enforcement, a only realistic strategy will set only a few and very specific guidelines.

Based on this study, one can recommend that a focus on three essential design features and regulation strategies has the potential for preventing further destruction of the townscape.

(1) HEIGHT and CANTILEVER

Design goal: reduce height and eliminate cantilever, the first step in any development of building controls.

Regulation strategy: Limit floor-to floor height to 8 feet maximum. Define overall height limits more concretely in terms of how many floors can be built. Definition by overall building height are too difficult to measure, complicated by variations in building plinth height, street grade, and roof type, and potentially unfair.

(2) FACADE MATERIALS

Design goal: create continuity in the streetwall.

Regulation strategy: NO SURFACE MODULATION. Require smooth brick facade (no panels, stringcourses, articulation of rcc frame allowed). Horizontal cornices allowed in brick or plaster at floor levels as shown on page 71. As a general rule encourage brick, but allow cement and/or lime plaster alternatives for facade or for door and window surrounds.

(3) WINDOWS and DOORS

Design goal: create continuity in the streetwall, harmony with adjacent houses.

Regulation strategy: Require timber dhalan at ground floor. Metal shutters not allowed. Require timber windows 3'x5' as documented by Sakya house. Regulation of facade layout is unrealistic at this time.

Other recommendations

Demolition of monuments

Control demolition of historic structures in Monument Zones and those structures proposed as National Monuments through the introduction of a new bylaw requiring approval from the Department of Archaeology. See chapter 3.

Successful application and enforcement of bylaws requires professional manpower and budget.

The strategies here proposed are designed to reduce the necessary involvement of design professionals in the building control system. Nevertheless, without a commitment from HMG to provide qualified architects and engineers to run the system, control of the built environment will remain a pipe dream. Professional supervision and design is critical in the management of Monument Zones.

Necessary bylaw illustrations

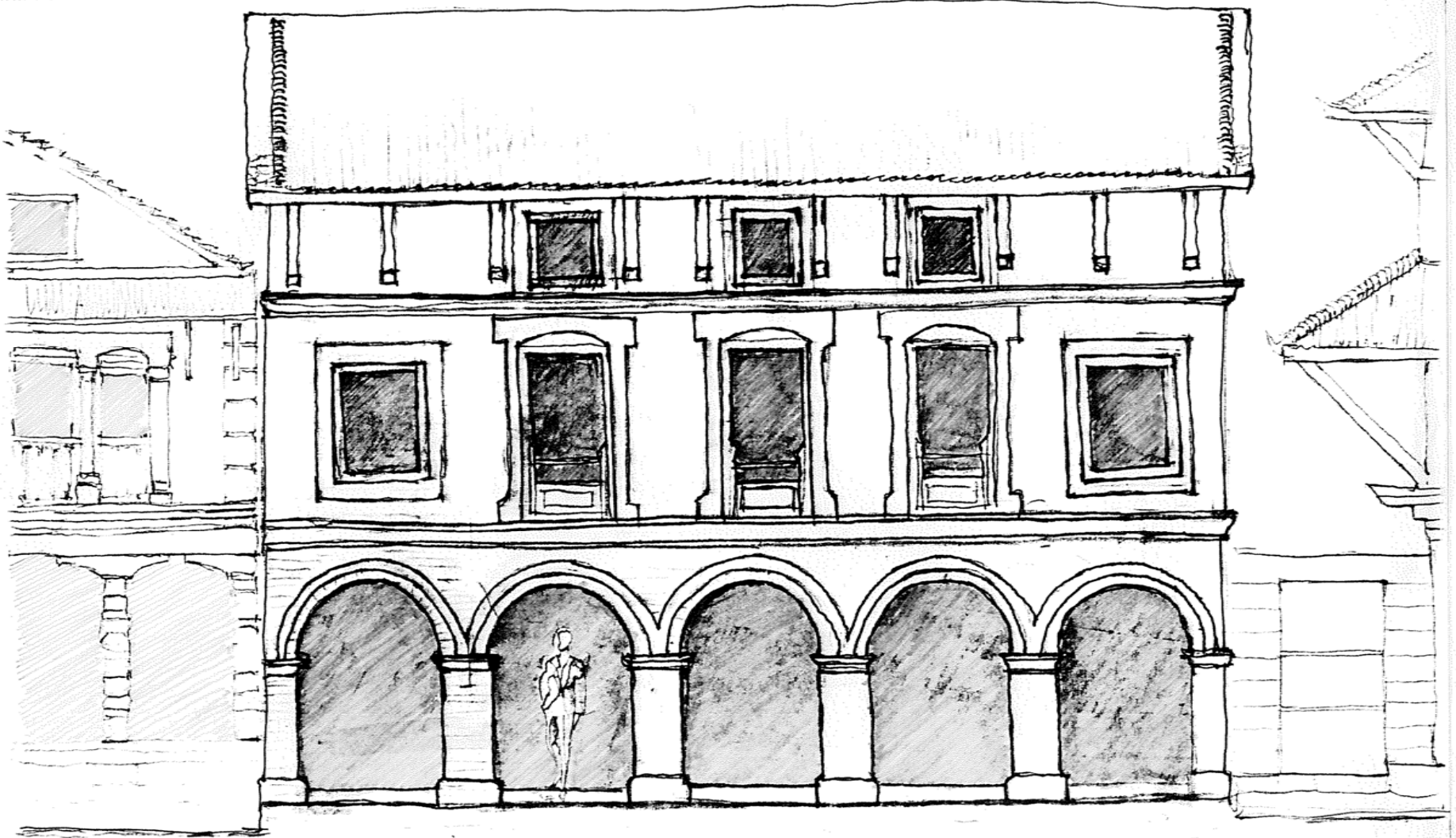
Bylaws must include simple and clear drawings which define "traditional Nepalese style". Architectural expertise will nevertheless be necessary to review drawings and suggest simple revisions to proposed designs for improvement.

Furthermore, a list of existing successful new buildings and "pieces" of buildings could be identified which would act as models, easier to understand for the layman or for the carpenter under contract to build a new house. The Sakya house on Darbar Square, for example, could be used to demonstrate requirements for new windows and cornices.

Monument Zones and core area

With the exception of door and window specifications, the design requirements outlined above could be applied to beneficial effect in the entire core area, simplifying review and enforcement procedures.

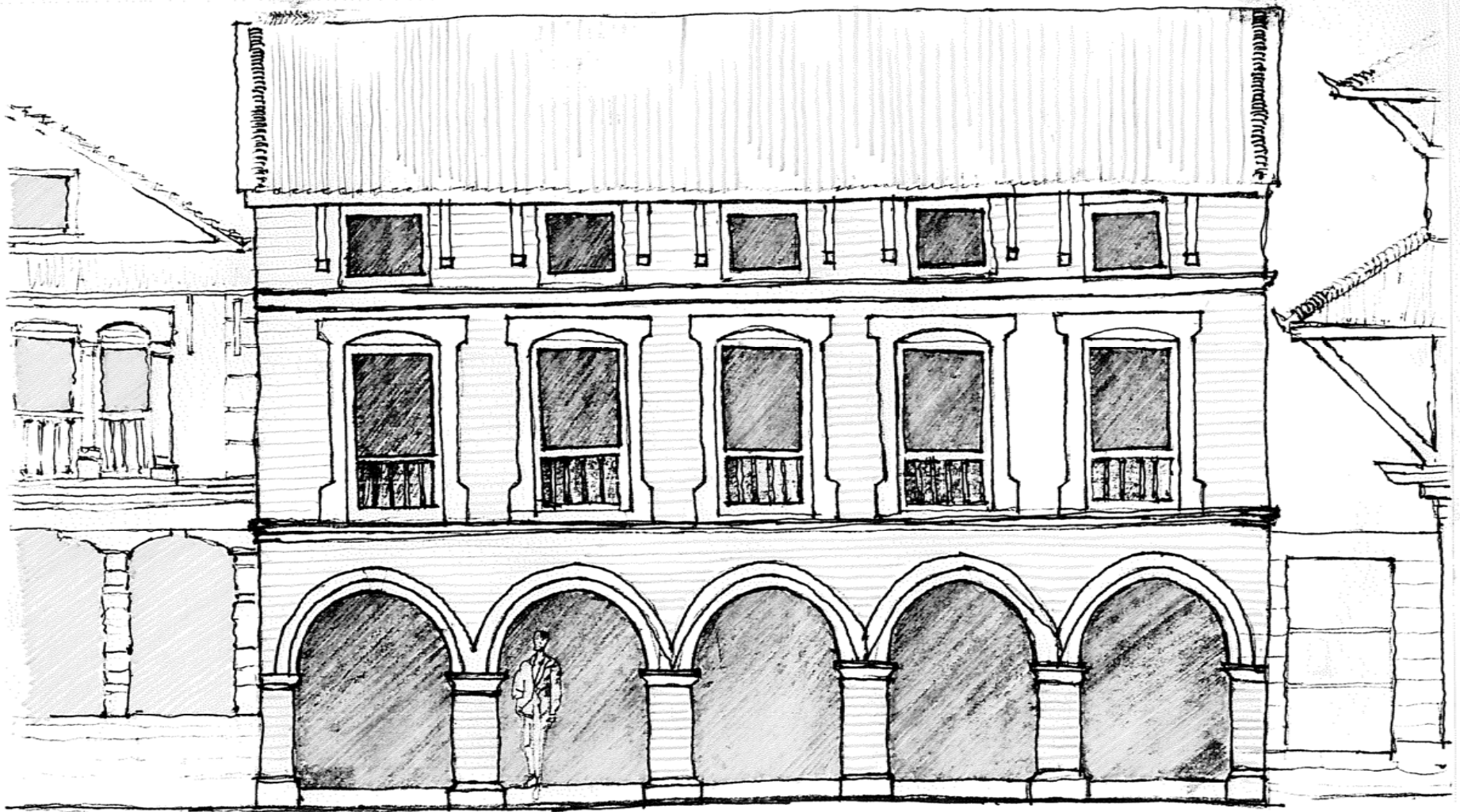
Ideally one would recommend that door and window requirements also be applied in the entire core area to maximize the order and historical character of the entire core area. Recall that many great monuments outside the protected area will suffer beside ugly new neighbors, as well demonstrated at Mahabauddha.



Alternative 6

By eliminating the two end windows on the upper floor, the weight of the facade composition is placed on the three central bays. It recalls, but does not copy the central weight and focus of traditional facades.

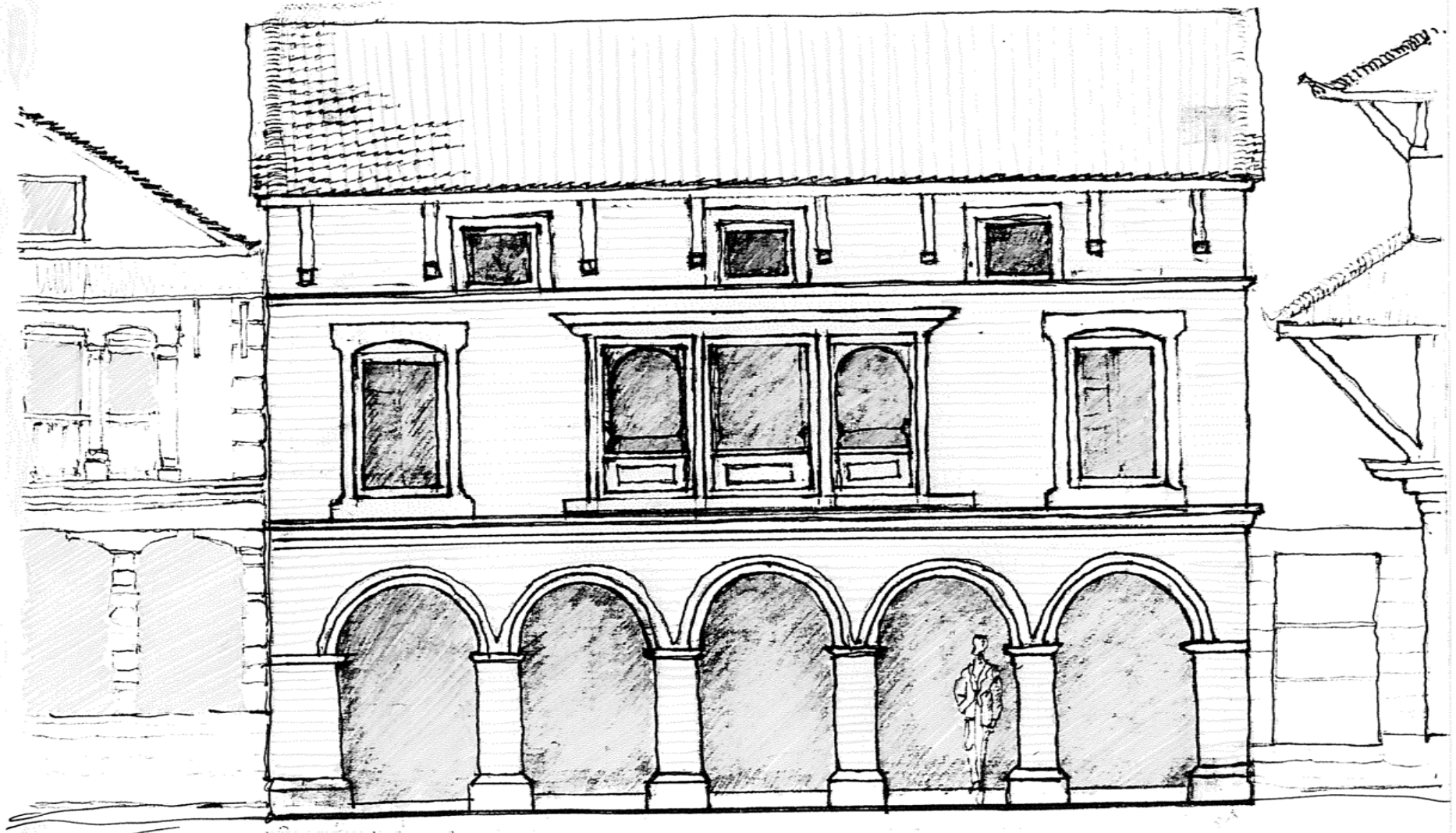




Alternative 4

The height of the first floor windows of the existing structure is maintained, while making them more narrow to suggest the vertical proportioned windows typical of many streets in Patan. The solution is acceptable, but less elegant than alternatives 5 and 6.





Alternative 3

If the arches are maintained, how can the repetitive and grid-like arrangement of openings be improved? Here a san jhya-like central bay window creates the central weight and focus of traditional facades. Like alternative 2, this project would involve enormous design and supervision time to achieve a beautiful new timber facade element, one which would not feel "fake". The arches, although not found in the local medieval architecture are common elements in more recent traditional buildings. When dressed up with plaster surrounds and cornice, these arches are reminiscent of many traditional buildings (as at south end of square), while also suggesting a more public sattal-like quality, appropriate to the square.

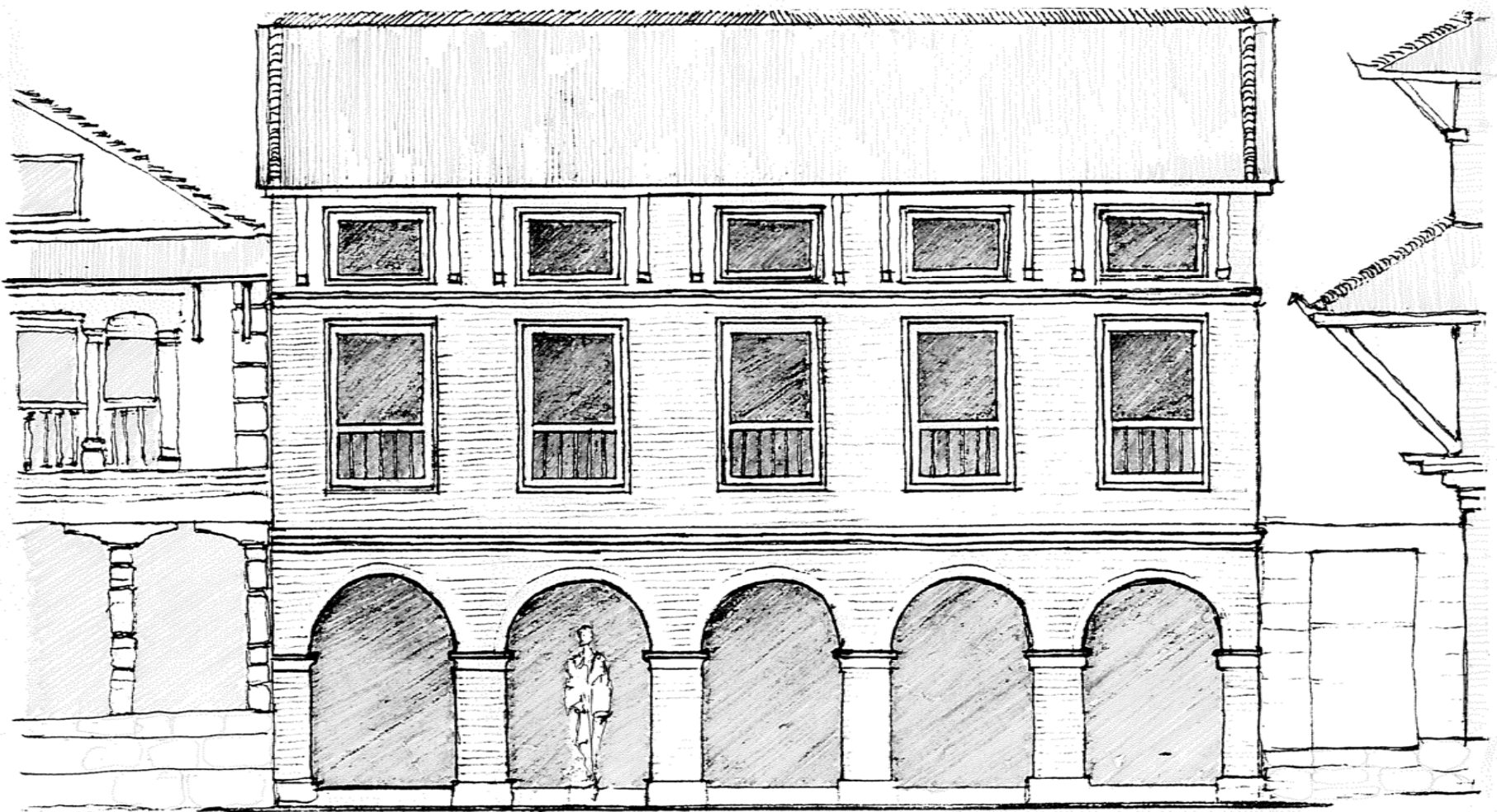




Alternative 2

As the owner wanted to eliminate the arcaded ground floor, his proposal substitutes repetitive dalans in the structural bays. These dalans feel crowded and overly tall. This variation inserts a central 3 bay dalan flanked by smaller doors, which echoes the composition of the nearby satal. Disadvantages of this solution include the major structural intervention in ground floor structure and the difficulty of achieving a high quality and beautiful traditional dalan without enormous supervision.





Alternative 5

Taller first story windows come down almost to the height that one can reach them from ground level. This more vertical window together with plaster surrounds not only serve as a memory of the historical building, but give the building a sense of importance appropriate to the square.





THE OLD AND THE NEW

Left: A new "skyscraper" rises directly beside Patan's most important Buddhist monastery, Kva Baha.

Right: Elevation of this new "skyscraper" demonstrates just how unsympathetic the new skyscraper is to its older neighbors: 3 floors of the new building are equal in height to 4 floors of the older house next to it!

The first step in the strengthening of building control must be to improve and enforce building height regulations--otherwise Patan will never be Lalitpur, the "beautiful city", ever again.

This measured drawing was prepared by 2nd year students of the Institute of Engineering, Pulchowk Campus, as part of a training course in architectural