

**Housing with Authority:  
The role of public and private architects in public housing in Delhi**

by

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Submitted to the Department of Architecture in  
partial fulfillment of the requirement for the Degree of  
**Master of Science in Architecture Studies**  
at the  
**Massachusetts Institute of Technology**  
June, 1991

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**Abstract**

The main concern of this thesis is the role of the architect in the design and production of public housing. The argument presented here is that the method of procurement of architectural skills affects the architectural quality of the product, and that architectural design is driven by more than professional 'idealism'.

The case studies that form the basis for the discussion are two middle income housing projects built by the Delhi Development Authority (DDA). One was designed in-house by DDA architects and the second by a private architect. Working within similar constraints of economy, bureaucratic requirements and time, the results produced were very different. On the basis of the difference in architectural quality, I analyse the methods of procurement of architectural skills, for both the private and the in-house architect.

The issues that were raised by the case studies as being the part of the process of procurement were categorized into four broad areas: (i) The DDA and its administration of architectural skills; (ii) the nature of housing as the product; (iii) the nature of the professional establishments; and (iv) the architects, themselves as professionals.

The process of procuring architectural skills had implications on the architect's performance and his response to design issues. Thus, the qualities of livability, efficiency of land use and aesthetic design that were present in one project and not in the other were linked to the fragmentation of work in the professional system, the manner in which compensation for work was made, the nature of the project itself, in terms of visibility. They also had to do with the staffing of the architectural offices and the research carried out by them.

Rather than make normative judgments about the quality of the projects, this thesis identifies the constraints under which decisions were made by the architects in both cases and highlights the issues that lay behind them.

*Thesis Supervisor: John deMonchaux*  
*Title: Dean, School of Architecture and Planning*

## Acknowledgements

Like everything else, this thesis is for my parents, for their support, encouragement and bottomless faith.

I would like to acknowledge the tremendous role that Prem played, for the data-collection and frantic mailings that made the thesis possible from this continent. I extend thanks to my advisor, John deMonchaux, for finding time in his strained calendar to offer guidance and advice; my reader, Professor Lawrence Vale, who read the rambling drafts and strove to make sense of them, I would like to thank for his time and interest. I would also like to thank Professor William Doebele for his patience and thoughtfulness, and for the vital encouragement.

The thesis process was made bearable by the presence of friends - Anu provided the support and the laughs, both deliberately and unwittingly! Geno was the link to the normal world, and provided crucial comments on the drafts. Maitreyi and Avik, for all those calls to the studio and food to sustain us, a heartfelt thanks. I would like to thank Kelly for his thoughtfulness and Archival Bonding, and for all the encouraging pats on the back.

However, this thesis and its author would be long gone, were it not for Dave's support, encouragement and unflagging help. Without him, the thesis experience would have been a lonely one. And having made it to the end, even the production would have collapsed, but for his painful edits, tireless typing, and excitement at seeing the product.



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- Division of Labor
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## **Introduction: Housing with Authority**

"Architects are a particularly interesting group to study in the context of housing for a number of reasons. They aspire to be the leaders of the building team, and thus gain a critical position in the housing process. They are a professional group with a strong interest in the quality of life of the people who occupy their buildings, and yet they are often vilified for producing dwellings which they would never consider occupying themselves."<sup>1</sup>

"Housing as environment, influenced by socio-cultural forces, would be a reflection of civilization and culture, and the strategy for housing policy could not be governed by any one of these forces, such as the pure statistics of the situation, but must value all factors, with the physical manifestations becoming part of the vocabulary through which the other considerations may be reflected."<sup>2</sup>

For a resident of Delhi, possibly the most dominant and all-pervasive form and environment - a part of every day life - is the familiar sea of public housing built by the Delhi Development Authority (DDA). It exists in every part of the city - creates new residential areas where previously there were none, and has become synonymous with the 'experience' of the city. These endless monoliths, miles of whitewashed expanse, are an intrinsic feature for people from all levels of society - for the poor who are employed as domestic help in the homes, for the middle-class masses who live there, and for all the other residents of the city who have friends or relatives residing there.

There is an honesty about architecture - the built form stands as evidence, the open means to judge for everyone who wishes to do so. There is also a finality about it - once built it is difficult to alter. Perhaps the most crucial feature is

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<sup>1</sup> Peter Malpass, "The role of the professional in local authority housing," *RIBA Journal* (June 1975): 9.

<sup>2</sup> Martin Pawley, *Architecture versus Housing*, New York: Praeger Publishers, p. 88.

the trust that is implicit in hiring an architect; what the client buys is a service, not a product, which he cannot easily examine and assess until it is too late. The responsibility of the service and the product lies with the architect. It is the role of the architect in housing that is the main concern of this thesis. As the title suggests, the focus is on housing produced by a public authority - the DDA. I examine the structure of this authority and evaluate two projects with different architectural inputs in order to assess the nature of the architect or architectural service that serves the system of DDA housing.

Domestic architecture will always be open to criticism on one dimension or another. Life-styles change, the relationships between peoples change, and aesthetic values change. The provision of housing units and residential areas which meet people's aspirations is difficult in a situation of limited resources.

The architectural debate on housing in India has tended to focus on the issue of form. On one hand housing for the poor has been under debate with respect to user participation in design, self-help, self-build, regularization of unauthorized colonies and the role of squatter settlements in the city. On the other hand, architects have been concerned with finding the right vocabulary for designed housing and large-scale projects. Architects have been looking at Shahjahanabad (Old Delhi) (Fonseca 1969), the stores of Tiruchirapelli (Patel 1976), the *pols* of Ahmedabad (Doshi 1974), the aesthetics of Jaiselmer (K. Jain 1982) and the self-built *bustees* of Indian cities (Payne 1977, Das 1983)<sup>2</sup>. The danger, as Grover (1967) warns, is that these patterns

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<sup>2</sup> Erve Chambers and Setha Low, eds., *Housing, Culture and Design*, (Philadelphia: University of Pennsylvania, 1989), *Cultural Importance of Housing Design Policy* by Jon Lang.

will be incorporated into public policies for housing design with all their deficiencies and will be applied in contexts in which they are not valid. What is more important to understand is the set of variables that link house form and environment.

Public sector housing, such as that built by the DDA, on the other hand, attracts opprobrium in terms of aesthetics, the quality of construction and the inappropriate disbursement of revenues. Observing an ensemble of middle-class housing, a writer declared:

“In private practice, with these results one would have to close down, but civil service gives a protection.”<sup>3</sup>

The DDA, since 1961, has been the single largest builder in Delhi. Its tendency to stick with the standardized designs, byelaws and building codes seem to stem from its reasoning that mass-scale middle income housing has no design relevance. However, the quality of ordinary building plays an important role in determining the nature of the city. An architectural journal pointed out in 1961:

“We worry about forming an Indian architecture. This is crazy. Without realizing it, we are building it right now. The architecture of the new housing colonies will symbolize - at least as far as history is concerned - ‘Indian Architecture in the mid-portion of the twentieth century’.”<sup>4</sup>

The main argument of this thesis is that the system by which the DDA procures architectural services for its housing projects affects the form and the quality of the housing produced. By analyzing the key variable of

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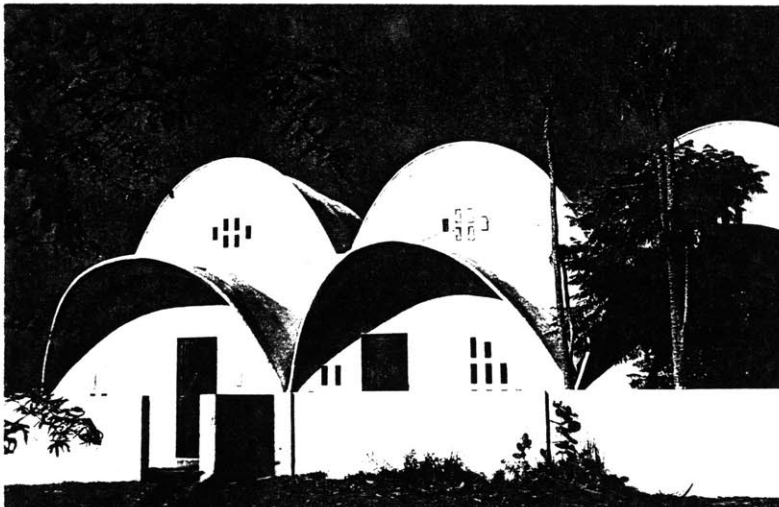
<sup>3</sup> Norma Evenson, *The Indian Metropolis*. (New Haven: Yale University Press, 1989),

<sup>4</sup> Editorial, *Journal of the Indian Institute of Architects*, (Jan-March 1961): 1

architectural services, we can identify areas of responsibility. An understanding of these, in turn, has the potential to improve the quality of housing. The main focus will be the role of the architect in the process and the product of housing.

## The Role of the Architect in Housing

The role of the architect in housing for the very poor has been debated on several counts, some of these being: (i) cost efficiency: it is often believed that the poor can build cheaper and better themselves (Turner, Abrams) and (ii) flexibility: where it is said that architect-designed housing does not incorporate the flexibility required in dwellings for the poor. In middle-class housing, however, the issues for architects to deal with are different. Building their own houses is uneconomical and undesirable for the salaried middle classes in Delhi. They do not have the required resources in terms of labour, time, and materials available to them. It is the wealthier classes who can either supervise and



[1] Anil Lual: Low-cost housing, New Delhi, 1976



[3] America's Best Home Plans is sold and published in New York city and sold by newstands throughout the country



[2] Advertisement for a new development near Princeton features the name of New York architect Robert Stern

manage house-building themselves, or employ professionals such as architects to do so.

In Delhi, with the increasing strength of the professional and trading classes in the cities, any housing strategy would necessarily have to cater to the needs of the middle class.

"Mass housing by housing boards and development authorities, regardless of lip-service to housing for the poor, is generally aimed at this class of people."<sup>3</sup>

When architects were party to the interventions of public authorities in both first and third world countries, together they directly designed only a small amount in the overall supply.<sup>4</sup> According to Gutman(1985), architects in Europe and the U.S. first got involved in the subject of housing (as opposed to monuments) as a building type due to the professions interest in the problems of public housing. Also, the development of ideas and prototypes for this category of housing was largely the work of architects in the U.S., Europe, and the U.K.

"Until Norman Shaw designed the middle class suburb of Bedford Park in 1876, no architect in England found a place in the history of nineteenth century architecture who also played any significant part in the development of the housing movement."<sup>5</sup>

In the U.S. in 1921, the Architects Small House Bureau offered 250 different designs to suit all sorts of conditions, incomes and aspirations. Robert Jones, the Bureau's technical director claimed that the "architecture

<sup>3</sup> M.N. Buch, *Planning the Indian City*, (New Delhi: Vikas Publishing House, 1987),

<sup>4</sup> Pawley, *Architecture versus Housing*

<sup>5</sup> J. N. Tarn, *Working Class Housing in Nineteenth Century Britain*, (London: Lund Humphries Architectural Association, 1969), pp.17.

profession was demonstrating its sense of civic responsibility by providing a service, making a reasonable profit and offering a rational approach to the housing business."<sup>6</sup>

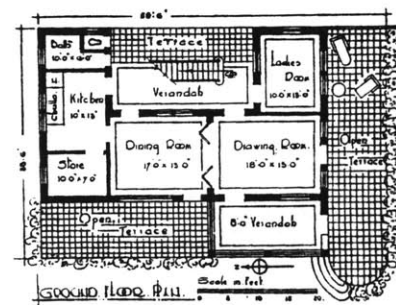
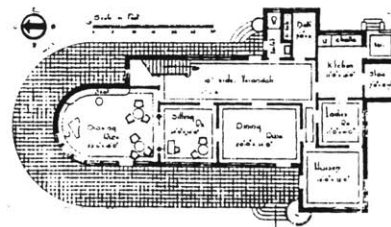
The AIA saw profit for architects in the bureau and was quick to endorse and sponsor it. According to Gutman, designing stock plans, which are often sold through magazines or plan shops, was until recently the dominant way in which architects contributed to housing.<sup>7</sup>

In India, an engineer by the name of R.S. Deshpande was a well-known proponent of the modern movement. He was the author of a popular series of books on home designs, beginning in 1931. The books represented a layman's guide to residential planning and construction, including numerous model house designs. It seems significant that the Indian counterpart as designer of stock plans for homes was an engineer and not an architect. Within the projects designed by the DDA, too, the engineers on the team have, arguably, greater control over the form and design of the layout. This authority of the engineers is due to the priority given to economy in building services. This issue is discussed in greater detail in Chapter Four.

The DDA is the largest builder of housing in Delhi and has been so since 1962. Considering the scale of its operations and the impact of its construction on the city, the quality of the housing produced by it is significant to not just the residents but politicians, planners, architects, and any one who has a stake in the city. How, then, does this DDA housing come to be built as it is and what is the role of the architect in the product and its qualities?

<sup>6</sup>Wright 1981, pp.200

<sup>7</sup> Robert Gutman, *The Design of American Housing*, (New York: Publishing Center for Cultural Resources, 1985).



[4] Model house designs from "Modern Ideal Homes for India," 1930, by R.S. Deshpande

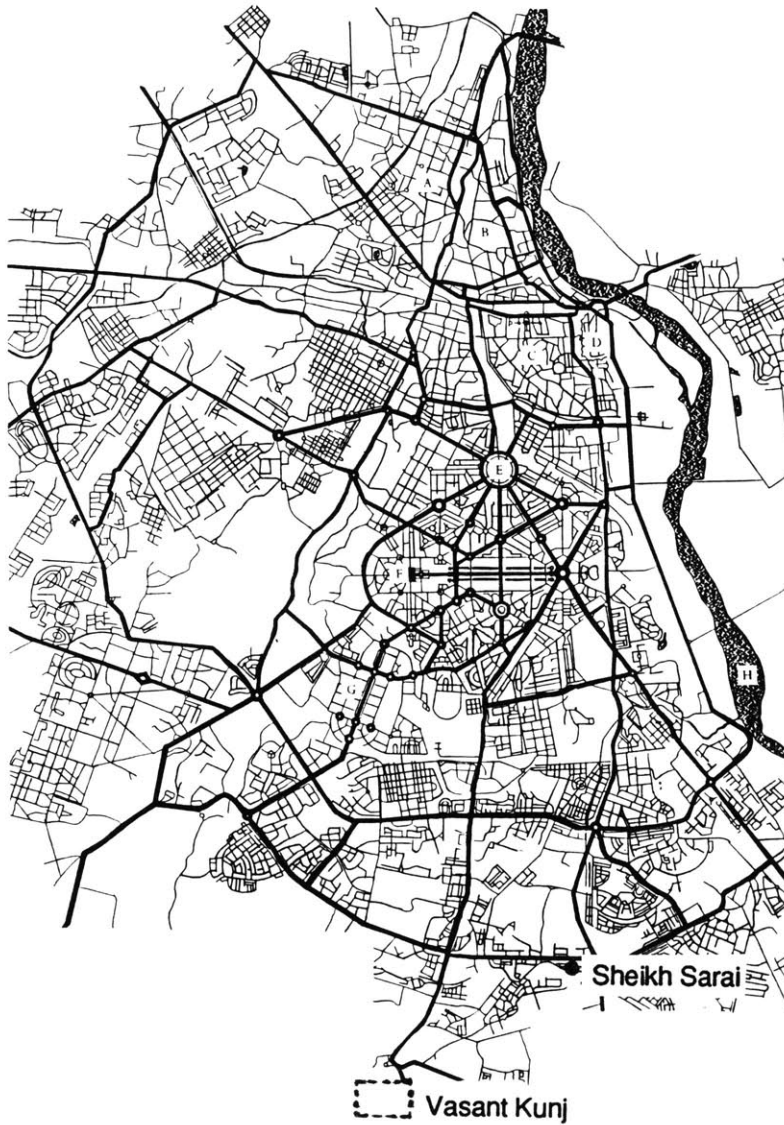


I will use the framework of two projects to illustrate the issues concerning the architect and the nature of the architectural profession in the context of public authority housing. The case studies are both residential developments by the DDA for middle to low income families. Though dissimilar in scale, that is, number of units in the project, location, time of construction, the two projects offer critical areas of comparison in the input variable of architectural services. One of the projects is located in a residential area of South Delhi known as Sheikh Sarai, while the other is located on a site to the south-west of Sheikh Sarai. The latter project is called Vasant Kunj.

The two case studies of Vasant Kunj and Sheikh Sarai represent the two variations in architectural services employed by the DDA for middle to upper income housing. The Sheikh Sarai scheme, for which design work began in 1976, was designed by a private architect, while the Vasant Kunj scheme was designed by the in-house team of DDA architects. By examining these two schemes for the constraints within which the architects worked, in either case, I have attempted to highlight and identify some of the priorities of the architects and their values in the practice of the profession.

Why is a knowledge of the architect's priorities important, it could be asked. That question can, in part, be answered by the two different products in the projects that I will examine. Different priorities and a different environment to work within led to varying architectural qualities in the projects. By identifying the factors that were responsible for the difference, we can work with those factors to achieve a desired 'quality' in housing.

[5] Map of Delhi showing location of Sheikh Sarai and Vasant Kunj projects



The methodology of isolating one project of each kind and drawing issues based on the study of each has some obvious limitations. The two case studies are not identical to each other; nor are they perfect prototypes of the two methods of procuring architectural skills. There are variables between the projects such as location, infrastructure provision and motivations. However, a comparison is possible between the architectural merits to understand the priorities of architects and the DDA.

## **The Difference in Architectural Qualities**

The two projects at Sheikh Sarai and Vasant Kunj demonstrated different architectural qualities in their design. Despite a similar target population, the middle class, similar constraints of economy and time, the products were very different. My analysis of the architectural qualities of the two projects is based on the variable of architectural services.

Both projects were analyzed at the level of the site and the individual units. The Sheikh Sarai project appeared to be more carefully thought out, with clear concepts of public and private spaces and a hierarchy of open spaces. The building blocks and massing was used to create clusters with interior courts and interior shaded streets. There was also a greater consciousness than in the Vasant Kunj project of the aesthetics of the design, while maintaining high levels of privacy within the dwelling units. There was a greater variety of unit designs than at Vasant Kunj, and the layout had a higher density. At Sheikh Sarai, pedestrian and vehicular access and movement was clearly demarcated and separated with parking restricted to the periphery of the site. At Vasant Kunj, there was no organization of pedestrian traffic as separate from vehicular traffic.

What was it about the two methods of procuring architectural skills for the two projects that resulted in different architectural qualities? The answer to that question had to do with a series of issues that each method raised. It was not enough to say that one project was designed by a private architect and the other by an in-house public architect. The features of each caused the difference in architectural product. These features are summarized below, before going on to explain their origins in Chapter One.

The difference in architectural quality of the two projects can be seen as stemming from four main categories:

(i) the DDA as an institution; (ii) the nature of the product being housing; (iii) the architectural establishments; and (iv) the architects themselves, as professionals.

### **The DDA**

With respect to the Authority, the issues that were raised dealt with:

**Division of Labor:** The DDA functioned through a disaggregation of work, and by dividing the project into various independent components. On the other hand, the private architect's office employed consultants for structural and services design, and the design was based on dialogue between consultants and architects.

**Salaries:** While the DDA architects were only paid salaries, as members of any bureaucratic organization, the private architect was compensated for architectural services by being paid a percentage of the cost of the project. Design elements such as density and variety of units had a monetary benefit to the private architect, while there were none for the public architect.

### **The architectural establishments**

**Staffing:** Raj Rewal's office is a professional establishment with trained architects. Projects are handled by teams of people with expertise in the various aspects of the project, headed by a project manager. The design of a project goes through various stages of improvement in the hands of the staff.

The DDA, on the other hand, is a bureaucratic public authority with the professionals forming a section of its members. The Architectural Wing consists of three or four

professionals, with the rest of the staff being labor that did not have any professional design input.

**Research:** In Raj Rewal's office, research usually preceded design solutions. In the case of Sheikh Sarai, the design drew on precedents from the old cities in Rajasthan, to incorporate their principles of designing for a hot, dry climate as in Delhi. The terraces, 'jali' details, and the massing with interior courts were elements that Raj Rewal has attributed as based on the city of Jaisalmer. The Architectural Wing in the DDA did not have a history of design-oriented research, and that did not change for the Vasant Kunj project.

### **The Architects, as Professionals:**

Though both Raj Rewal and Ved Prakash came from almost identical design backgrounds, they pursued different career paths as professionals. The implications of the paths they chose - public service and private practice - are discussed to illustrate the implications of choosing either .

This framework forms the basis of the two case studies. In both Sheikh Sarai and Vasant Kunj, there were also variables other than the method of procuring architectural services that eventually affected the end result in the projects. These are also discussed in each case study, to illustrate the perceptions that sometimes lead to a particular method of procurement of skills, and sometimes to the manner in which a project was finished.

The thesis is organized in four chapters. The first is an introduction to the context of public housing in Delhi. The chapter is divided into three sections. The first deals with DDA housing and the nature of its activities since it was created. In the second, there is a discussion of the middle



[6] Street profile, Jaisalmer

class of Delhi, the particular housing requirements of this group in society, and the limitations and flexibilities apparent in building for them. The third section of the chapter plots the landmarks in public housing for the middle class in Delhi, with respect to designs by both the DDA and private architects.

Chapter Two studies the Sheikh Serai project from conception to completion, with the focus on the architect's role. The chapter examines the design product and the process and summarizes the issues that emerged with respect to the architect and the authority. Chapter Three does the same with the Vasant Kunj project.

In Chapter Four, the various issues that emerged from the case studies are presented. The architectural differences between the projects are used as the basis from which to analyze the priorities of the architects and the DDA and how they were played out through the different methods of procuring the architectural service. The conclusion is in the form of a summary of the issues raised by this study, and their implications in the design of housing.

# **1. The Context of Public Housing in Delhi**

In order to understand the causes of the differences in the architectural qualities of the two projects, Sheikh Sarai and Vasant Kunj , it is important to understand the characteristics of the three actors involved - the DDA, the middle class and the architects of the projects. This chapter describes the origins of the Delhi Development Authority (DDA) and its subsequent role in providing housing for the middle class in Delhi. The chapter is divided into three sections which focus on three major issues respectively: (i) the DDA as an institution - its growth and role in the present context; and the manner in which it has procured architectural services through history;(ii) the middle class of Delhi - the people for whom the DDA has built profusely since the 1960s; and (iii) the response of architects to the needs of the DDA and the residents in designing housing.

The original objectives of the DDA were to provide a framework of development for the new and chaotic growth of Delhi. It gradually moved into constructing houses for that section of society that, while not wealthy, could afford to pay for the homes that the DDA built. This section of society was the easiest to build for: the growing middle class of Delhi. Providing housing for the middle class had implications on the nature of the architect hired and the product that was desired by all three actors. I will highlight those characteristics of the DDA, the middle class, and the architects hired to design housing for them that affected the resultant product.

## The Delhi Development Authority

### **Background**

In 1947, after the partition<sup>1</sup> and independence of India, Delhi witnessed one of the largest immigrations of people in history - an estimated half a million sought shelter in Delhi. As a result new townships on the urban fringe of Delhi were planned in 1948 by the Delhi Improvement Trust (DIT)<sup>2</sup> to house the immigrants.

Delhi, since it became the country's capital, has always enjoyed a favorable treatment in the matter of housing and municipal construction. Although in India land development and town planning are subjects of state governments, Delhi has the privilege and patronage of both the central and state governments which directly contribute towards land development and financial inputs for planing and housing in Delhi.<sup>3</sup> While the area of the Union Territory of Delhi of 573 square miles has continued unchanged since 1950, the urban area consisting of the Municipal Corporation of Delhi, New Delhi and Delhi Cantonment, grew from a total of 77.4 square miles in 1951 to 126 square miles in 1961. Housing before World War II was mainly in private hands, the government taking the responsibility of housing its own employees. During the war, due to the rise in the cost of building materials, low income housing was uneconomical and was therefore neglected. A backlog of housing need emerged for the government.<sup>4</sup>

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<sup>1</sup>The partition referred to in this chapter is the partition of India to create the country of Pakistan.

<sup>2</sup> The DIT was set up in 1957 to execute schemes to improve housing conditions, especially in the old city of Shahjahanabad.

<sup>3</sup> A.K. Jain, *The Making of a Metropolis*, (New Delhi: UBSP Distributors, 1990).

<sup>4</sup> Gerald Breese, *Urbanization in Newly Developing Countries*, (Englewood Cliffs: Prentice Hall, Inc., 1976).



The migratory population, which began to snowball rapidly in 1948 until the total reached 480,000 in 1951, became the responsibility of the government. An estimated 100,000 persons permanently left Delhi as a result of the Partition and the housing so released was rapidly occupied by migrants from other states as well as the first quota of refugees in 1948. The Ministry of Works and Housing, followed shortly by the Ministry of Rehabilitation, went to work. Between 1951 and 1958, out of a need projected by the Ministry of Housing for 142,000 dwellings, as many as 102,000 were actually built and occupied-to which private enterprise contributed 13,400.<sup>5</sup> These refugee colonies were the first form of public housing built by the Delhi government. New townships sprang up around these colonies, extending the limits of Delhi. The colonies acted as independent nuclei for further extension. They were each equipped with a market place, a shopping center, a temple and a gurdwara (a place of worship for the Sikh religion), a bank, police station, school, post and telegraph office, taxi stand, and the ubiquitous cinema hall.<sup>6</sup>

#### *The Formation of the DDA*

With the enlargement of various government and other activities after Independence, new housing colonies, offices, and commercial complexes sprang up in various parts of the city. Delhi started expanding in all directions and without any overall plan. The DIT had neither undertaken a civic survey nor a master plan. In 1951, the government appointed the Birla Committee, also known as the DIT enquiry Committee, to examine the working and administration of the DIT. This committee suggested setting

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<sup>5</sup> Ibid

<sup>6</sup> R.E. Frykenberg, *Delhi Through the Ages*, (New Delhi: Oxford University Press, 1986), *Punjabi Refugees and Greater Delhi*, by V.N. Dutta, pp. 166

up a single planning and controlling authority for the development of the entire urban Delhi.<sup>7</sup>

In December 1957, the government replaced the DIT by passing the Delhi Development Act, which came into force on December 30, 1957. The Act and the body set up to carry it out - the Delhi Development Authority - had been set up with broad objectives and functions for the planned development of Delhi, the basic objective being to “promote and secure the development of Delhi according to the Master Plan.”<sup>8</sup>

The central government had been considering the formation of a Central Regional and Urban Planning Organization believed to be the first of its kind in any Asian country.<sup>9</sup> Albert Mayer was asked to assemble and provide background material and continuing consulting services to the Ford Foundation Team of Seven Specialists. Within the policy recommendations made by this Team, proposals for housing were conspicuous, partly to cope with shortcomings of existing supply and partly to deal with a major and rapidly increasing housing deficit. The policies recommended housing designed to meet rigid needs for economy within tolerable standards, with supporting facilities, employment opportunities, and amenities distributed according to a concept of large, self-contained communities.<sup>10</sup>

### *The Delhi Master Plan*

The Master Plan for Delhi was adopted in September, 1962. It assessed the existing deficiencies in housing, community facilities and services and projected the requirements for a population of an estimated 4.6 million in

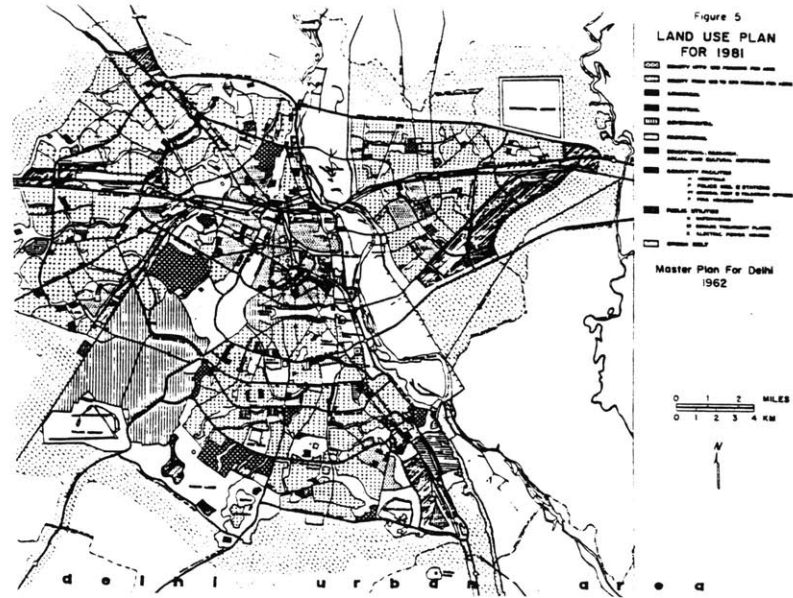
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<sup>7</sup> Jain, *Making of a Metropolis*.

<sup>8</sup> Master Plan of Delhi.

<sup>9</sup> Breese, *Urbanization*.

<sup>10</sup> Jain, *Making of a Metropolis*



1981. All operating agencies were obliged to comply with the overall framework of the plan. The Plan enlarged the functions of the administrative structure of the city and caused an immense expansion of the organization. From the urbanized area of 17,250 Ha. in 1958-59, it enlarged the urbanizable limit of Delhi to 44,642 Ha.<sup>11</sup> From an annual budget of the DIT of less than Rs. 10,00,000, the DDA budget has today multiplied more than 900 times (That is more than the entire budget of the states of Punjab and Haryana). From 40 workers in 1957, the DDA has more than 40,000 employees today.<sup>12</sup> The Master Plan did not conceive built housing by public agencies, but this became the major housing program of the DDA.

### *Hierarchy and Structure*

With the exception of a few members nominated to the DDA from amongst the elected members of the Municipal Corporation and the Metropolitan Council of Delhi, the majority of members are official members. The post of

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

chairman of the Authority belongs to the Lt. Governor of Delhi and, therefore, the Authority functions directly under the Ministry of Works and Housing. The Lt. Governor of Delhi is a nominee of the President of India. As a non-elected post, he enjoys tremendous discretionary powers and an autonomy of decision-making. The unique position of the DDA, being independent of the Delhi Administration and responsible directly to the Ministry of Housing, has vested in it the powers of central government decision-making at the city level. As an agency that controls development in the city, it exercises great power, which also makes it vulnerable to corruption and clientelistic practices.

The hierarchy of the organization is also a reflection of the manner in which decisions are made. The relative level of autonomy of decision-making decreases down the chart and subject or issue gets disaggregated. Hence, while the proposal to build a new housing project would be made by the Planning Commissioner, it has to be sanctioned by the Lt. Governor and the Vice Chairman. Following that, the various Directors decide on the components of the project, such as location, area of land, number of units, dwelling unit size, target groups, etc. The Chief Architect makes decisions regarding the design of the units, the site layout and other architectural details. Similarly, the engineering wing and the Chief Engineer design the service layout for the project and its connections to the existing infrastructure of the city.

With respect to housing projects, there is a further disaggregation even for review within the DDA. There is a Quality Control Wing that supervises materials and construction to see if they meet the required standards. The Quality Control Wing is headed by the Chief Engineer of the DDA. The Development Control Department of the Planning

Wing reviews projects to check if they defer to the existing byelaws, codes and standards in the city.

The Engineering Wing of the DDA plays a major role in the design and construction of DDA projects. It is headed by the Engineer Member and is assisted by eight Chief Engineers, two Directors and a Chief Architect. Within the Engineering Wing exists a unit known as the Central Design and Research Organization and Service Planning Unit. There is a budget of more than Rs. 3,000,000,000 per year, most of which is used for construction and design purposes. The unit undertakes the structural design for buildings and the planning of peripheral services with respect to large development schemes.<sup>13</sup> Also under the charge of the Chief Engineer is a Central Design Organization (CDO), which provides a nucleus for preparing structural designs for multistory buildings and also lays down guidelines for the smaller design units in the DDA. Housing schemes are undertaken and constructed based on the designs supplied by the CDO.

The Engineering Wing, therefore, is responsible for issuing guidelines based on structural principles, for finalizing the materials and technique of construction to be followed in a project and also for specifying the service layout and provision in a housing project.

#### *Target Population*

The move towards building for the middle class later led to the DDA hiring private architects to design some of its projects. When costs were high, the DDA concentrated on reducing the housing shortage and its contribution represented the main source of supply of housing for the lower income groups. However, the combination of high costs, high quality and low density led to prices above the

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<sup>13</sup> Gazette of India: Extraordinary

[8] DDA: A middle class housing project in South Delhi



lower end of the private market. In other words, when housing policy was concerned with reducing overall shortage, the public sector emerged as serving mainly the rather better-off sections such as the middle class. The DDA has now concentrated its energies on building housing for the middle class even as the poorer sections remain without housing. The units built by the DDA are sold on the basis on an ownership basis. For Lower Income Groups (LIG) and Middle Income Groups (MIG), the cost of the land, construction and a 15% departmental fee is charged. The entire cost is payable in installments over a period of fifteen years in most cases, except the Self Financing Scheme (SFS), which pays in installments during construction.

### **Registration and Allotment of DDA housing units**

The allotment of DDA housing units is done on the basis of registration with the DDA, for which an initial deposit has to be made. The registration fee varies with the

various income categories of the DDA. For MIG housing, the registration fee is Rs. 7,500 (US \$500). while for the SFS housing, the fee ranges from Rs. 10,000 - 15,000. The assessment of demand through registration is not periodic but adhoc, which results in long waiting period. The units are allotted on the basis of a lottery. The broad categorization by income is the only information base of the DDA regarding the residents. From this, units of varying sizes and numbers of rooms are generated to cater to the needs of each income category of the DDA.

While the priority is housing for the LIG and the Economically Weaker Sections (EWS), the decision to build is taken with reference to the numbers under the various categories of income groups. All DDA housing also carries resale restrictions, which do not vary with the income category it falls under.

### **Salaries**

The administrative organization of the DDA is typical of a central or local government bureaucracy in India. The agency is governed by a series of posts within a hierarchy. Each of these posts carries with it certain professional requirements and a fixed salary range. The salaries are accompanied by benefits or 'perks', and include health insurance, travel allowances, "dearness" allowance<sup>14</sup> and leave periods. All DDA officers, however, are guaranteed of having a house allotted to them in a DDA housing project.

Project work is set up in the same manner for most DDA projects. At the head of the project team is the Commissioner of Planning of the DDA. Next in the chain of command are the directors of: (i) City Planning (deals with the site itself, number of units, economics, etc.); (ii) Perspective Planning (deals with long-range goals of the

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<sup>14</sup> An allowance that compensates for inflation.

DDA, effects of the project in the city and the agency); and (iii) Area Planning (deals with neighboring areas within the city and surrounding towns).

The Planning and Development Control Wing has a section called the Housing and Urban Project department. This department deals with urban housing, commercial projects, landscape projects and miscellaneous other proposals. With respect to housing it prepares layout plans, detailed working drawings, and development plans for implementation in various schemes.

The specific nature of DDA administration of architecture will be discussed with respect to both Vasant Kunj and Sheikh Sarai in the second and third chapters of the thesis. However, the study of the organization and its unique position in the administration of the capital city brings several features to light. The DDA exercises discretionary powers due to its autonomy in decision-making. Within its own internal hierarchy, the Planning and Engineering Wings are key units that have the greatest powers of decision-making in projects. The Architectural Wing enjoys autonomy in the site layout and unit designs, within the constraints of standards, byelaws, and design guidelines prepared by the Engineering Department. Hence, both responsibility and autonomy in the Architectural Wing are low.

### **The Middle Class in India**

Within the DDA, the original intent of providing housing for the poor was overshadowed by their move to construct housing for the middle class and upper middle classes of the society. In the following section I will discuss the importance of this growing section of people in Delhi and their requirements and concerns with housing that they seek.



The Punjabi refugees of the Partition days mostly came from urban areas in west Punjab. Of the total number of refugees, almost all of them had been city dwellers.<sup>15</sup> Their natural inclination towards government services caused a steep fall in the population of traders after 1947, but it started to grow again steadily. In relation to residents, refugees began to improve their economic status in terms of employment, income and standard of living. In the mid-70s, the strong middle-class and upper class orientation of policy in India continued. The rural sector was pushed aside as industry and the city surged ahead, further increasing migration into the city.<sup>16</sup> The middle class elite continued to expand, their productive base maintained and perpetuated. This elite established themselves by influencing future patterns of planning and growth.

With independence and the influx of refugees, the housing needs escalated astronomically. Partition in 1947 resulted in a large influx of refugees from West Punjab and encouraged a new building boom in the city. The Public Works Department (PWD) geared up its efforts to set up homes for the multitudes while private developers provided for the affluent. Public mass housing in its early stages, therefore, catered almost exclusively to the lower-middle and middle income families. In the 1980s, the growing middle classes consolidated its hold over the economic processes.<sup>17</sup>

The DDA put up numerous housing schemes for the middle class on the land acquired by it. These projects were designed and executed by the DDA in-house staff and proliferated in various parts of the city. In terms of the physical form, they represented a predictable visual - endless rows of housing, forming an ocean of building mass.

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<sup>15</sup> Ibid.

<sup>16</sup> Romesh Thapar, " *Space and Society*

<sup>17</sup> Ibid.

Quantitatively, the units provided were running a hopeless, losing battle with demand. However, for those who were fortunate enough to get one, these units gave a tremendous financial and social security.

The earliest DDA-constructed housing for the middle classes was entirely designed by its in-house team of planners, architects and engineers. In the third section of this chapter I will discuss some of the landmarks in public housing in Delhi in the 1960's, when the DDA went into middle class housing production as a primary function.

The middle class, like everyone except the extremely wealthy, live within stringent budgets and the constraints of bad economic conditions in the city. Also, land values in the capital have reached disproportionate levels, to the extreme that DDA housing is the only form of housing that can be afforded by the higher income groups in the city. The middle and upper middle classes do not have the time and the resources available to build their own houses. They are excluded from housing developments by private builders by the very nature of housing provided by them. Builders such as the Ansals and DLF have been primarily responsible for the growth of the affluent South Delhi housing colonies such as Greater Kailash, Saket and lately, the Qutab Enclave near the airport. By keeping the substantial portion of their schemes as plotted development, the middle class are effectively excluded due to prohibitive land prices. DDA housing, then, as built housing that is ready to be moved into, represents the dominant form of housing available for the middle class.

The range of income in the middle class, however, is a characteristic that affects the design of housing for this particular group. The range of affordability within the section that is grouped together as the middle class needs a

similar range of design to satisfy the diversity of demand. By necessity, then, public housing for the middle class should offer a range of units sizes and types. Also, though primarily consisting of refugees from northern India, Independence had attracted migrants from all parts of the country.<sup>18</sup> The mix of cultures within this group, therefore, makes it difficult to design specifically for any one of them.<sup>19</sup>

### **Private Architects and Housing: post Independence**

While most of the public building and designing that arose as a result of Nehru's<sup>20</sup> progressive policies were designed by government architects, there were also some private commissions. In the 1960s, the challenge of urban housing yielded several interesting results.

"At that time, it was the domain of the most concerted efforts of the Indian architectural profession to address the issues of a developing society."<sup>21</sup>

Unlike the crisis of the slum where architects "pleaded impotence before the colossus of the problem, for the middle class they could atleast design, think and innovate as architects without the nagging 'angst' of irrelevance."<sup>22</sup>

In the fifties, a number of young architects had begun to travel abroad for education and experience, and returned to India in the early sixties with new ideas. However, the evaluation and questioning of identity for an

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<sup>18</sup> Breese, *Urbanization*

<sup>19</sup> Culture and rituals vary greatly even within the country. Thus a South Indian might have a very different requirement of the layout of the house from someone from the eastern or northern parts.

<sup>20</sup> Jawaharlal Nehru, the first Prime Minister of Independent India.

<sup>21</sup> Peter Scriver and Vikram Bhatt, "Contemporary Indian Architecture," *Space and Society*, (July-September, 1987), p.119.

<sup>22</sup> Ibid, p.119.

Indian architecture gave rise to discontent amongst the architectural community. A number of architects started to reexamine the existing town and villages in India. "A new architecture of associations was being explored."<sup>23</sup> Architects such as Ranjit Sabhiki and Ajoy Choudhary of the firm Design Group, began to make unusual moves in reeducating their clients to appreciate the high densities and congested, inward-looking spatial experience of traditional dwelling. Both Kuldip Singh, another private architect in Delhi, and the Design Group's efforts in this regard were pioneering as developer-built housing for the middle income was mainly in the form of independent units on the periphery of the city.

In 1963, the YMCA Staff Quarters designed by the Design Group rejected the concept of the apartment house as a monolithic slab, as popularized by Le Corbusier in the *Unité d'Habitation* at Marseilles. The project aimed at dealing with the climate by providing adequate cross-ventilation, shaded internal courts, and a system of alternating balconies protecting the major openings from the outside. But above all, "it sought to create consciously an environment evocative of narrow streets in older Indian cities with its juxtaposition of terraces at different levels and its dramatic impact of light and shade."<sup>24</sup>

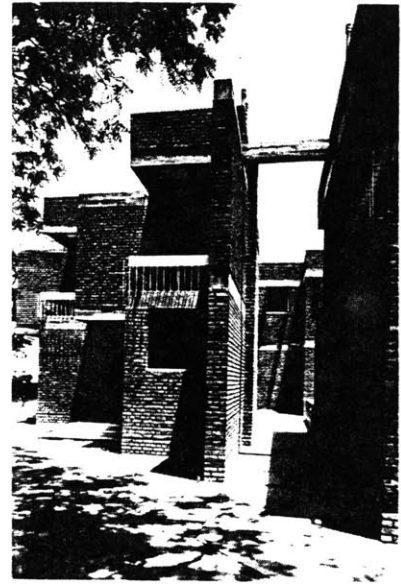
Drawing on traditional Indian morphological patterns has since become a common feature in most architect-designed housing schemes in the country. ".....a certain catharsis was sought for the guilt of the advantaged over the fearful disparities of the society."<sup>25</sup>

However dubious the appropriateness of such a morphology or its success in recreating the traditional

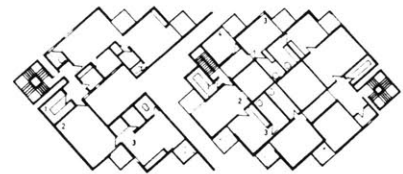
<sup>23</sup> B.V. Doshi, *Technique et Architecture*. (September 1985)

<sup>24</sup> B.V. Doshi, *Space and Society* (July-September 1987): 46.

<sup>25</sup> *Ibid*, p.58



[9] Design Group: YMCA Staff Quarters, New Delhi, 1963-65



[b] First Floor Plan



[c] Ground Floor Plan

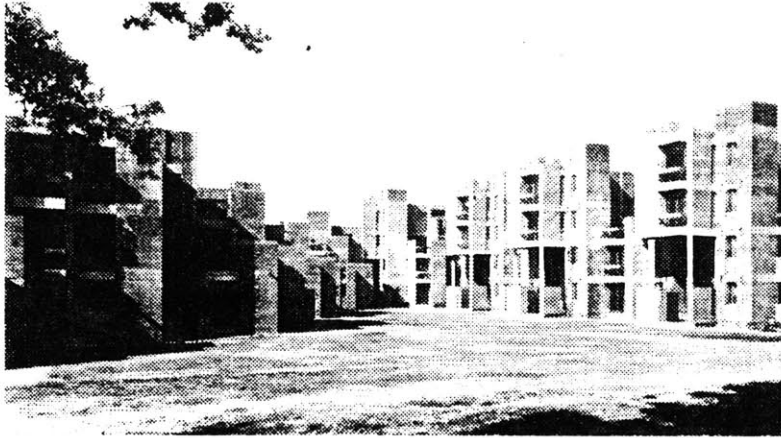
environments, it still represented an important step in the architectural thinking that formed the basis for housing and settlement form. A more detailed discussion of this issue takes place in Chapter Two.

The importance of the YMCA project lies in its breaking away from the overwhelming influence that Le Corbusier had in India, to provide a different and effective housing product. In the Y.M.C.A housing, the qualities of light, ventilation, privacy, and aesthetics were infused, using modern vocabulary, into post-Independence housing for the first time. Until that time, the DDA had been preoccupied with the statistical importance of its housing, and trying to house the refugees and homeless in the chaos following Partition.<sup>26</sup> Less than ten years after Independence, however, the clientele for DDA housing shifted to the middle and upper income groups in Delhi. It was not surprising, then, that in 1964, the year after the Y.M.C.A. housing was completed, the DDA hired a private architect, Kuldip Singh, to design a housing project in an area of South Delhi known as Hauz Khas.

The name of the development designed by Kuldip Singh in 1964 was Usha Niketan. This project broke with precedent both historically and conceptually. It was the first time that the DDA had commissioned a private architect to design housing for it. Subsequently, the DDA turned to private architects for the design of housing projects frequently, and until 1990, almost 20% of DDA middle income housing projects were designed by private architects. From time to time after the Usha Niketan scheme, the DDA commissioned private architects to design schemes which were subsequently used as models for its own designs. The in-house designs for middle class housing by the DDA could

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<sup>26</sup>Peter Serenyi, "From Lutyens to Young Indian Architecture," *Techniques et Architecture* (September 1985).

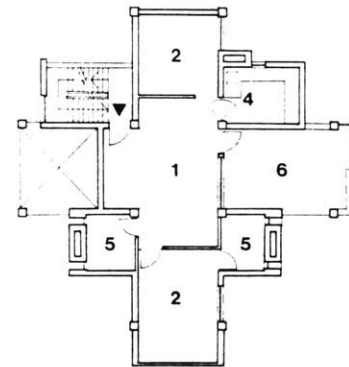


[10] Kuldip Singh:  
Usha Niketan housing, New  
Delhi, 1964.

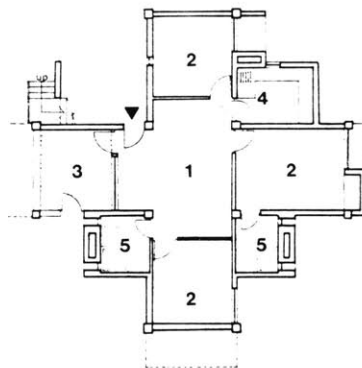
not achieve the standards demonstrated by the YMCA housing scheme. DDA architects were unable to reach the densities necessitated by the increasing land values in the city while also maintaining the standards appropriate for middle class housing such as sizes of units, open spaces, and privacy.

In the Usha Niketan scheme, Kuldip Singh combined Louis Kahn's living/ service space concept with Le Corbusier's long and narrow house concept. The concept created cruciform blocks in which the main axis terminated in double-storied spaces on opposite ends. Though the apartments occupy only one level, the terraces and courtyards take up two. In keeping with Kahn's principles, the architect placed the staircases, kitchens and bathrooms in separate service towers which abut the blocks containing the living spaces.

Though the Usha Niketan housing development was small in size (only 32 two-bedroom units), it provided an important model for the DDA to follow. Its handling of public and private open spaces, terraces, and courtyards represented a much needed improvement at only marginal cost. The terraces added about 200 square feet without any



[11 a] Usha Niketan housing,  
first floor plan



[11,b] ground floor plan

undue additional cost. The most important public space was the central court around which the units were grouped.

Following the Usha Niketan scheme, the DDA commissioned Kuldip Singh in 1972 for the design of a much larger housing development consisting of 600 units for a site in Saket. The size and layout of the Saket scheme had a very important reaction in the development of housing in Delhi, especially DDA housing. Until then, DDA housing was designed in small blocks of six to eight units, with each block independent of the other. This pattern, however, was not suitable for the large-scale housing schemes that the DDA had to undertake on a regular basis.

“The Saket scheme helped the agency develop larger housing blocks and differentiate more clearly between built areas and open spaces.”<sup>27</sup>

The Saket scheme was characterized by the use of four interconnected cruciform blocks around a central courtyard. Narrow vehicular roads and cul-de-sacs between the blocks provided additional access. At the core of the development was a series of extensive green spaces. However, due to the poor choice of materials and poor supervision by the DDA, the exposed brickwork specified



[12] Kuldip Singh: Housing at Saket, internal courtyard, New Delhi, 1972



[13] Housing at Saket, 1972

<sup>27</sup>Peter Serenyi, *Techniques et Architecture*.

by the architect developed seepages and had to be plastered later. The importance of the Saket scheme lies in its massing and linkage between blocks, which allowed a large number of units to be incorporated. The Saket housing enabled building larger blocks with clear demarcation between built-up and open spaces. The key feature of this complex was the careful articulation of spaces. DDA-designed housing schemes had consisted of a linear massing of units with a great deal of ambiguous open space that ends up being neglected and run-down. The housing designed by the Design Group and Kuldip Singh demonstrated a clear and visible hierarchy of private and public open spaces.

The three sections in this chapter dealt with the working of the DDA, the middle class population that it builds the greatest percentage of its housing for, and the trends in housing design in Delhi by both private architects and DDA architects. I illustrated the functioning of the DDA, and its existence as a bureaucratic public institution entrusted with the role of development control in Delhi. I showed that its functioning was based on the agenda that arose from the nature of its position in the administration of the city rather than the efficiency of functioning.

With respect to the middle class in Delhi, it was the range of incomes, cultures, and growing political clout that was important. Unable to meet the requirements of this group within the constraints of economy, land, and time, the DDA turned to a private architect for the first time in 1964 to design a housing project - the Usha Niketan project. What was different about the architects themselves and the manner in which the services of the architects were procured that could better address the requirements of middle income housing? To answer this question, Chapters Two and Three set out the differences in architectural quality of the two case studies, Vasant Kunj and Sheikh Sarai, and then analyze the process of their design.



## **2. A New Resource: The Private Architect**

### **Introduction**

The involvement of private architects in DDA housing created a different process and product in the DDA housing system. This chapter will examine one such project to define the priorities of private architects and the characteristics of housing designed for the DDA by them. The project I will study for this purpose is a middle-to-upper income housing project in an area of South Delhi known as Sheikh Sarai. The consultant hired by the DDA for the project was Raj Rewal, an architect well-known for his work in India, though not as yet internationally renowned as he would be on the domestic front. This chapter recounts the procurement of his architectural skills, his dealings with the DDA and the final project.

The methodology of examining one project to illustrate the process and outcome of employing a private consultant has obvious limitations. Though, in fact, each project is different due to the timing of the project, the location, site, scale, motivations, and various other factors, the study is useful to highlight some of the issues involved in the practice of architecture.

The case study is presented in two main sections. The first describes the architectural qualities of the project: those elements that were the result of an architectural design decision. The second section traces the evolution and the process of design to explain the characteristics of the product. The third section of the chapter is a summary of the issues that the study raised with respect to the consultants, priorities and values of the architect within the system in which he worked.

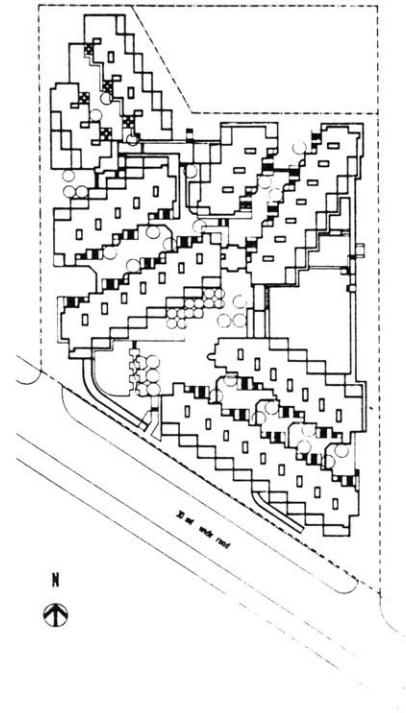
## Background

The Sheikh Sarai housing project is located within a densely populated residential area of South Delhi. The housing is about one kilometer south of the Outer Ring Road and has quick and easy access to all modes of transportation within the city. Its location near the Ring Road also allows access to most of the key areas of the city.

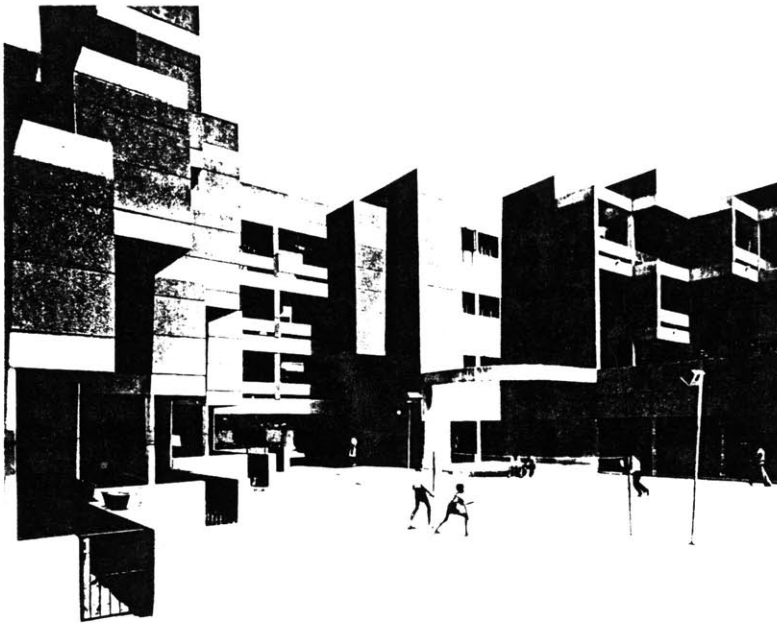
## The Architectural Context

In the mid-seventies, other housing projects - in most cases for cooperative housing societies - were being built by private architects using traditional housing design principles in a modern vocabulary to achieve high densities and a clarity of open spaces.

“In the creation of planned housing complexes, designers found opportunities to infuse modern architecture with evocations of traditional townscape.”<sup>1</sup>



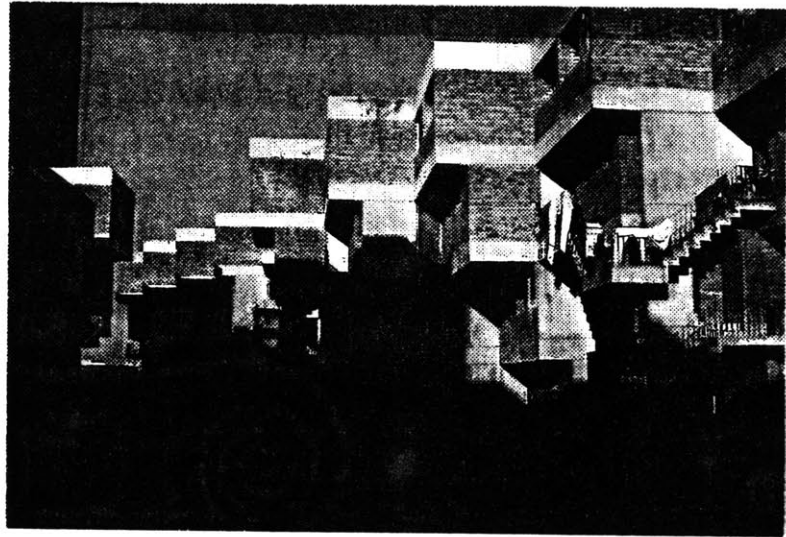
[14] The Design Group: Layout plan, Yamuna apartments, New Delhi, 1973-81



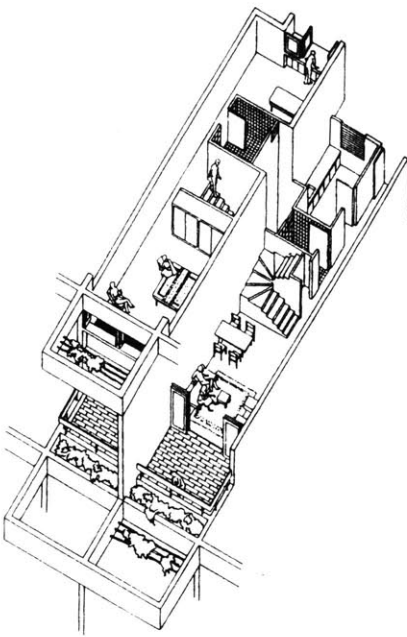
[15] Shared space in Yamuna housing complex

<sup>1</sup> Norma Evenson, *The Indian Metropolis*, (New Haven: Yale University Press): 231.

[16] Charles Correa: Tara Apartments, New Delhi, 1975-78



The Yamuna apartment complex by the Design Group was built between 1973 and 1981, and the Tara housing complex designed by Charles Correa was built in Delhi between 1975 and 1978. These housing projects, located in dense, residential areas of South Delhi, set a standard for the architectural community, atleast one that no private architect could ignore. The Yamuna complex was also the first which had stated allusions to traditional forms. According to Ranjit Sabhiki, a Design Group partner, "the winding traditional street with its community activity along it was recalled."<sup>2</sup>



[17] Tara Apartments:  
axonometric of apartment

In the case of the Yamuna apartments, the spatial hierarchy of the site is continued by having the interior grouped into private, semi-private and sacred spaces. The living and dining areas are connected to the street by balconies which form both a connection and protection from it. To one side of the living area is the kitchen, which also contains the family shrine where prayers are offered. To preserve the sanctity of this place it has to be kept out of the normal circulation routes within the apartment. The design of housing that responds to a future resident's needs so well is

<sup>2</sup> Ranjit Sabhiki, "Outdoor Space in the Indian Context," *Techniques et Architecture* 361 (Aug-Sept '85): 138.

possible in the case of cooperative housing where a clientele exists at the time of design.

## **The Architectural Qualities**

### *Site Level*

Like the other housing projects designed by private architects, the intervention at the level of the site was given as much consideration as individual units. The principal access to the scheme was existing and the architect capitalized on it to have access to the site at several points along the periphery, but restricted vehicular movement to parking spaces on the outer edges.

The project consists of 550 apartments with floor areas of 70 square meters, 95 square meters, 110 square meters, and 120 square meters. The density of the scheme is 100 dwelling units per hectare. Raj Rewal proposed a layout that consisted of two distinct zones the pedestrian areas and the vehicular areas. The dwelling units were linked to form clusters with interior courts. Movement within the courts was restricted to pedestrians while vehicular access was limited to the periphery. At Sheikh Sarai, the layout density of 100 dwelling units per hectare was about 11 percent greater than the Master Plan specifications.

The compact, dense development, both on the ground and above, maximized the use of space. All open space was controlled and deliberate and there is no room for accidental or neglected patches of green. The 'gateways', a common feature of privately designed housing projects by then, enabled a transparency despite the high density of the development. The open greens at strategic places facilitated orientation for the newcomer. A system of covered pedestrian streets and interior courts was set up by joining

[10] Raj Rewal: Sheikh Sarai,  
general view of housing



the blocks of units and keeping the right distance between them. The organization of the blocks similar to that in the traditional cities of Rajasthan.

“The Sheikh Sarai project resembles the morphology of medieval cities and its white composition, intentionally modern, is reminiscent of Udaipur.”<sup>3</sup>

### *Unit Level*

The units have several variations in type, although these are minor in each case. The need for economy of space and design is apparent within the interior. The units are compact and without the ambiguity of space that comes from having greater floor areas to negotiate within. Despite the compactness of both units and the clustering, every room is well ventilated. There are terraces attached to each unit. Raj Rewal carried over to the SS the parapets he developed for the French Embassy quarters, two feet high with jalis for a combination of privacy and circulation of air.<sup>4</sup>

## **The Design Process**

### **The DDA and the Architect**

According to the Master Plan, the Sheikh Sarai area was designated for the development of a mix of LIG, MIG and HIG housing units. However, due to financial constraints, the DDA introduced a new category of housing

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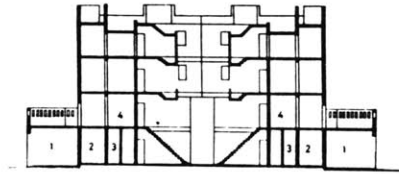
<sup>3</sup> Electa Moniteur, *Raj Rewal*, (Paris: Electa France, 1986): 40.

<sup>4</sup> Ibid.

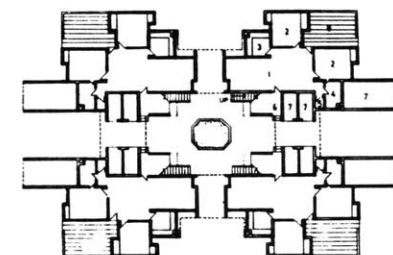
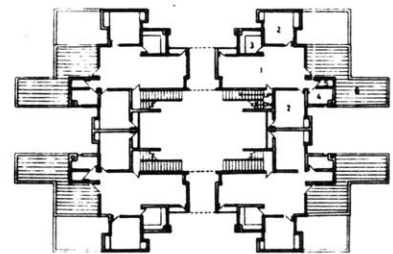
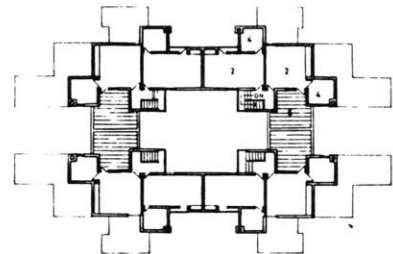
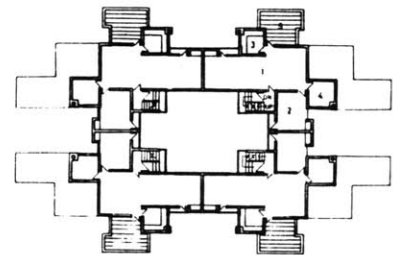
known as the Self-Financing Scheme (SFS). Within this scheme, the allottees had to pay for their units in five installments over the period of construction of the units. Persons registered for a unit were placed in a lottery and could state their preferences for unit type, layout and location. These requirements, and the fact that it was financially viable, caused the DDA to build a mix of MIG and SFS units in Sheikh Sarai. The consultant, Raj Rewal, was hired to design just one of the SFS units and not the pocket of MIG housing. The breakup of the units was as follows: Category One - 48 units (one bed); Category Two - 557 units (two and three bed units); MIG - 192 units (three rooms). Of these, Categories One and Two were part of the SFS. Raj Rewal was the architect for the units in Sector D only, which consisted of Category Two units only.

The DDA employed consultant skills only for the more expensive type of units. This decision cannot be explained simply on the basis that a private, well-known architect would ensure greater saleability of the units. Firstly, the DDA does not compete in the housing market but instead bases the decision to build on the number of people registered for the units. Secondly, for the SFS category, there is a registration fee of Rs. 10,000 - Rs. 15,000 (approximately U.S. \$ 1,250 - 1,875) which, in effect, goes towards the first payment of the unit. Making a registration fee mandatory acts as a commitment to buy and is a safety measure to ensure that the supply of units is based on accurate numbers of demand. The reason, then, for hiring a private architect seemed to have more to do with the visibility of the project than with a desire to enhance its economic value.

In fact, the SFS category is the only type of DDA housing that had some measure of design preparation prior to registration. The DDA prepares a brochure of the layouts

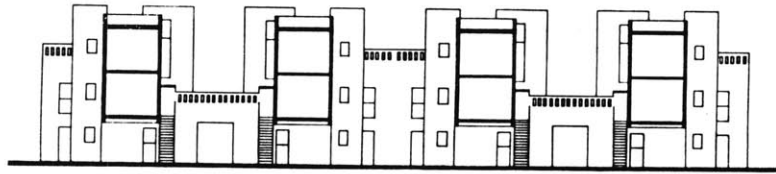


[21] Type B, section through module



[20] Sheikh Sarai, Typical floor plans, type B

[22] Section through type A units



of the units to be constructed, based on which people make the decision to register. One explanation for the registration fee, with respect to the DDA, is the need to have an accurate index of demand before undertaking a scheme that involves a large monetary investment and higher sale prices. From the point of view of the prospective buyer, a registration fee of Rs. 10,000 to 15,000, a sizable investment for any middle-class household, has to be based on some incentive in the form of a set of prepared unit designs and layouts from which to choose. The most plausible explanation has to do with the financial feasibility of hiring a consultant for the most expensive category of DDA housing. The consultation fee of 2.75 percent that Raj Rewal was paid for the project was justified, for the DDA, as is it was covered by the higher selling price of the units. The expense of hiring a consultant was not borne by the DDA but by the buyers of the housing units. The DDA, instead, were able to add a much acclaimed housing project to their credit.

### **The Architect as Professional**

Raj Rewal was also, by no means, just an 'above-average' architect. By 1970, he had an impressive string of projects and awards to his credit. The late 1960s were a very successful period in terms of architectural projects for his firm, of which Kuldip Singh and he were joint partners. One of the competitions they won was for a large DDA commercial office complex called Bhikaji Cama Place. It was also in 1964 that his partner Kuldip Singh, was given



the design of the Usha Niketan housing scheme by the DDA. Also in the sixties, he designed a pavilion for the Times of India at Pragati Maidan, the main exhibition ground of New Delhi where national and international fairs and other activities were hosted. Pragati Maidan was a publicized place that was always in the news regarding events held there. The project, therefore attracted a great deal of attention within the architectural circle and also within the public realm.

[23] Raj Rewal: Hall of States, New Delhi 1982, a later project at Pragati maidan

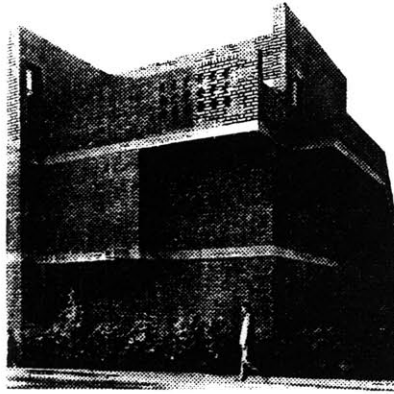
The Raj Rewal and Kuldip Singh partnership lasted until 1974. Following their break-up, the projects that were being undertaken at that time were divided on the basis of the person who had taken the lead in the design of each. In 1974, Raj Rewal entered and won almost all the significant competitions in and around the Delhi area. In addition, he had several large projects in Iran: two of university towns, a college campus and several office complexes.

For the Sheikh Sarai project, the DDA was looking for an architect “who had designed housing, and the basic criteria was the bio-data of the architect and the quantity of work done by him in housing, and his standing as an ‘above-average’ architect.”<sup>5</sup> While Raj Rewal by 1976 had won several big competitions in the city, he had no real experience in housing except the French Embassy Quarters.

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<sup>5</sup> Mr. Kaushal, ex-Chief Engineer of the DDA, 1974-1980.



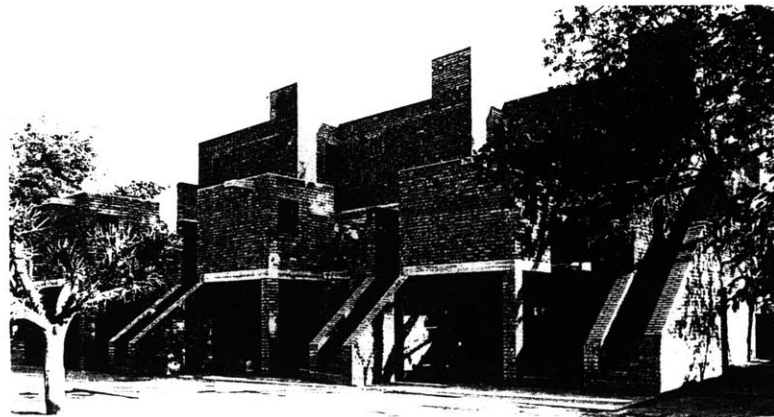


[24] Raj Rewal: Housing for Staff of French Embassy, New Delhi, 1969

The Usha Niketan housing which was commissioned to the firm was in large part handled by his partner at that time, Kuldip Singh. The Embassy quarters were a block of six units which were not designed under any of the constraints of a DDA housing project. However, the group of apartments exhibited several architectural qualities of merit. The units were small and the rooms and spaces within were designed to enable maximum utilization of the floor areas. In the ground floor units, the courtyard, a necessity in Delhi's hot and dry climate, provided an extension for the living room, veranda and kitchen. The courtyards and two feet high parapets of the roof terrace were designed to maintain the privacy of each unit, but were provided with 'jalis'<sup>6</sup> to allow for the free circulation of air.

### The nature of the product

The Sheikh Sarai project, in particular, raises issues about the architect's values and priorities due to it being his first housing project. The commission for a housing project, especially the first one, is important to any private architect as a 'foot in the door' to the realm of housing. The middle ground that middle-income housing occupies - where the



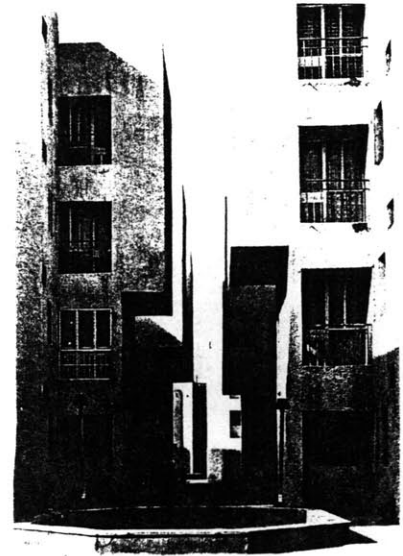
[25] French Embassy housing

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<sup>6</sup> Patterned openings in walls formed by the material of the wall itself.

need for economy is not as all-constraining as in lower income housing and where the potential for architectural 'art' exists - makes it a much sought after type of commission. For the architect, it is an opportunity to make a very visible mark in the city and also to explore formal issues in design. An architect who designs one large group housing scheme is almost certain to get another in the future. In the case of Raj Rewal, too, the Sheikh Sarai project was followed by that of the Asian Games Village and the housing for the National Institute of Immunology. So the Sheikh Sarai project was a milestone for the architect for two reasons: (i) it was a housing project - the first of its kind for the architect; and (ii) it was a DDA housing project - the DDA being the biggest and most prolific builder of middle-income housing in the city. Though he does constructed public projects such as commercial complexes, district centers, and educational institutions, too, its role in housing by far overshadowed its involvement in non-housing projects.

The DDA did not interfere much with design issues in Sheikh Sarai and left designing to the discretion of the architect. For the consultant, this was the ideal working relationship, where he was at liberty to design the housing as long as it met DDA requirements of density, massing, services, and building codes. When these requirements are congruent with those of users there is no conflict in the priorities that the architect sets. However, when the clients needs are at odds with those of the residents, the architect uses his discretion to decide the priorities in design; and the result being the outcome of his prioritization. The architect's clients may be regarded as the general public, the public authority and the actual users of the housing. The problem is, in what order of importance should the clients be placed?



[ 26] An interior street with irregular volumes



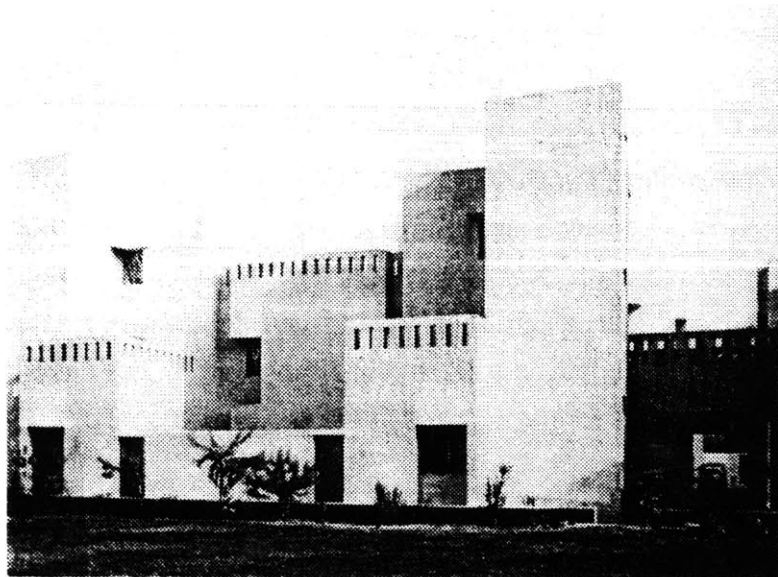
[27] An interior street punctuated by entrances to apartments of type B

## **Division of labour**

As with all DDA housing projects, the architect was not involved in the initial planning stages. The Planning Wing of the DDA demarcated the various pockets of the project and fixed the number of units in the category of housing. These were part of the brief that was issued to Raj Rewal and Associates for the project. Also specified were the estimated costs of construction, the layouts and the general areas to be developed - as standards to be maintained by the architect. The architect was free to choose the material for the construction and the construction techniques.

## **'Compensation' for Architectural Services**

The structure of fees for the project is an important issue in gauging the architect's priorities. The unusual in the method of payment was employed by the DDA for Sheikh Sarai. They decided to pay Raj Rewal in six installments at the stages of: (i) primary design, (ii) finalization of design, and (iii) completion of the construction. The fees were settled at 2.75 percent of the cost of construction. However,



[28] General view, Sheikh Sarai

this percentage was not to be paid on the cost of the entire project but had a specific break-up. The architect was to be paid 2.75 percent of the cost of the first fifty units and one half percent of the cost of the remaining units if their design remained the same. Raj Rewal, however, built the blocks in groups of fifty to sixty units with minor variations within each group. Thus, this earned him a fee of 2.75 percent on the cost of the entire project.

The DDA senior architect whom I questioned about this method of payment explained it as a measure of economy that was always enforced when hiring consultants for housing projects. The DDA felt that it was an unnecessary bonus in the design of housing to be paid a percentage of the cost of the entire project if there were no variations in the design of the units. By tying up the fees to design variations, they were ensuring that money was not spent on undeserving design efforts. If they did end up paying the fee on the cost of the entire project, as in the Sheikh Sarai project, it was justified in their view by the greater variety of unit designs. To the DDA, then, this mode of payment was an economic safety measure against undue payments. For the architect, it provided an incentive to bring in variations in unit type and design.

This system of tying up fees to the architectural output can be viewed as both positive and negative. From conversations with architects and engineers at the DDA, it was clear that the DDA did not intend the structure as an incentive to achieve a greater choice of units for buyers, but as means to economize in the payments made to the private architect. The structure of fees, for the DDA, acted as a means to cut costs. In terms of the design output, it worked as an incentive for the architect to increase the number of unit designs.

The negative aspect of this process is that it links monetary rewards to a desired element: variety in unit design. It could be argued that the outcome was more important than the means in this case, and if the result was greater flexibility of choice for the buyer then the means were unimportant. There is no evidence to suggest that the architect created unit variations only to avail of the increase of payments. However, it might be worth conjecturing whether or not the architect would have considered providing a similar choice of designs in the absence of such an incentive.

Since the architect's fees are based on the cost of the project and the fact that a higher density implies more units, it is distinctly advantageous to achieve a higher density. This is different from a project designed by in-house architects who are only paid salaries and have no direct monetary gains from increased densities. However, during the interview with the architect, he stated that housing projects implied a financial loss to the architect. Variations in the units increased the costs to the architect with respect to the investment of time required. The architect asserted that the DDA did not adequately account for this in their method of compensation.

The architect's comments implied that the compensation by the DDA did not adequately cover the cost of designing the variations in units. However, the architects' fees were negotiated between the DDA and the architect at the outset of the project, when he was awarded the commission. Though I do not have information on the negotiations that took place, the architect was by no means obliged to accept the commission and its conditions. It is a well known fact that the architects are willing to cut their fees in order to gain the commission of a housing project. Some DDA commissions for housing have paid as little as 1% of

the cost of the project to private architects. As a general rule, and as is prevalent in private housing commissions, the architect's fee is in the vicinity of 4% of the project cost. That architects, and Raj Rewal too in this case, time and again accept housing projects for less, is an indication that they see rewards as not strictly monetary.

It should be recalled, however, that one of the reasons for employing consultants for DDA housing was to achieve higher densities than those that in-house designers had been able to achieve. That it could be done without compromising on unit sizes and layouts was demonstrated by Kuldip Singh in the DDA-built housing at Usha Niketan, and later, at Saket.

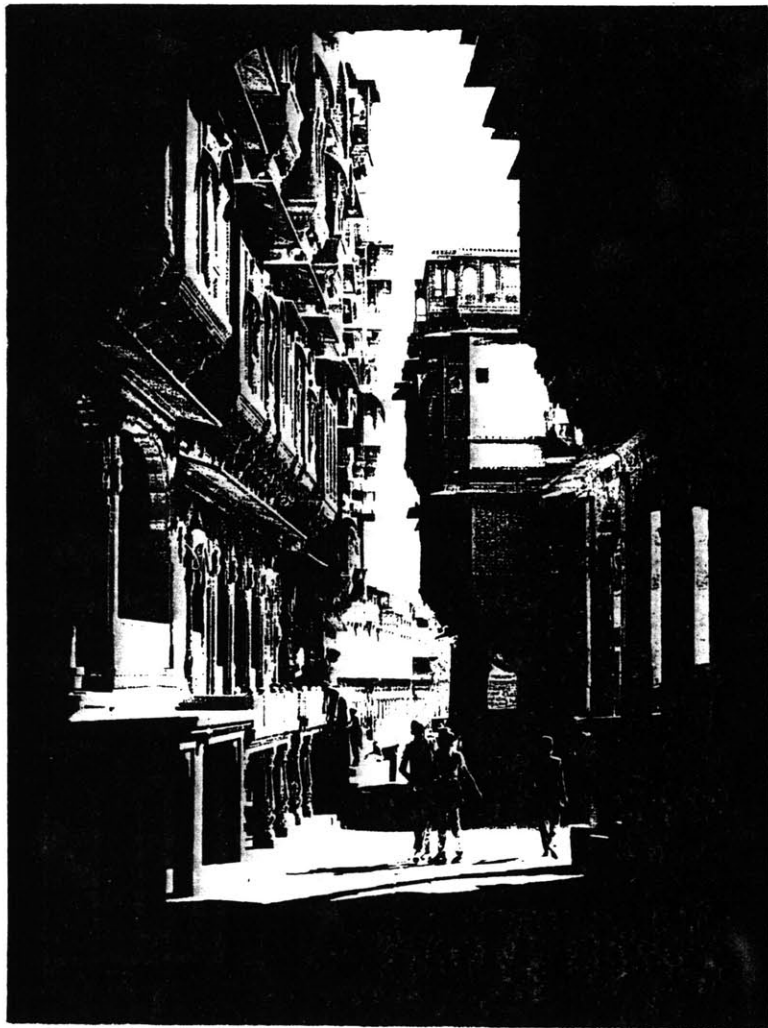
## **Research**

After the planning brief had been handed to Raj Rewal's firm, the architectural team that was responsible for the project undertook research on various middle income housing schemes that had been carried out in the city in the near past. They were also given instructions by Raj Rewal to research the precedents of street and housing groupings in some of the ancient cities of India. According to one architect at the firm who had been involved in the project, extensive and time consuming research had preceded any design moves by the architects.

## **Design Review**

The site layout and unit plans prepared by Raj Rewal and his firm were scrutinized by DDA's architects and then

by the Technical Committee<sup>7</sup> at the final stage. They were 'approved' by them and did not need any major modifications to satisfy DDA specifications. The plans were then sent to the Screening Committee and approved. The Screening Committee then set up a meeting with the DUAC for the review of the plans. The service infrastructure proposal was sent to the MCD for approval, although implementation was to be carried out by the DDA.



[29] Street view, Jaisalmer, Rajasthan

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<sup>7</sup> The Technical Committee is headed by the Vice-chairman of the DDA, in-house architects and engineers who examine the plan for architectural and engineering details and their feasibility. Following that, the plans are scrutinised by a Screening Committee. The Screening Committee consists of the Vice-Chairman, the Engineer member, Financial Advisor, Housing Commissioner, Chief Architect and Chief Engineer.

## Drawings

Raj Rewal's firm prepared a series of drawings to be presented to the DDA. The various aspects of the design were conveyed through detailed drawings or models. The firm constructed axonometric studies of unit clusters to indicate the gateways and interior streets, which were key concepts in the design. Pedestrian and vehicular paths were also indicated on the plans.

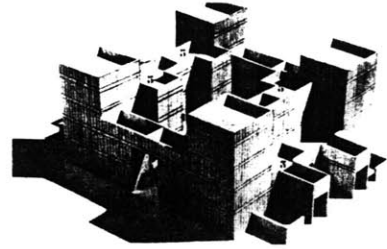
## Construction

Construction work for the project began in 1978. The implementation team of the DDA was set up on the basis of the zone within which the scheme fell. Each zone in the city had its own Chief Engineer, who had several senior and junior engineers assisting him. In addition, this engineering department was assisted by the Department of Architecture, the Department of Engineering, the Department of Quality Surveyors, the Department of Structural Design, and the Department of Horticulture. These departments of the DDA were each headed by individuals who conferred with others to make decisions about projects.

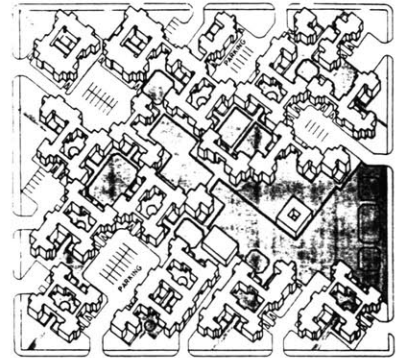
In the Sheik Sarai project, these departments only played a role of consultation, as when their opinion was sought in a matter of dispute. The various aspects of the project: landscaping, structural design and estimating, were handled by Raj Rewal's firm through consultants that they themselves hired. The project was not, then, at the mercy of the coordination required achieved in decision-making that would satisfy all the various departments within the agency.

The projected cost for the construction of the units was Rs 1200 per square meter which escalated to Rs. 1600 per square meter. The Category Two units projected at Rs. 75,000 were, therefore, handed over at Rs. 1,25,000 and the Category Three units from Rs. 1,30,000 to Rs.

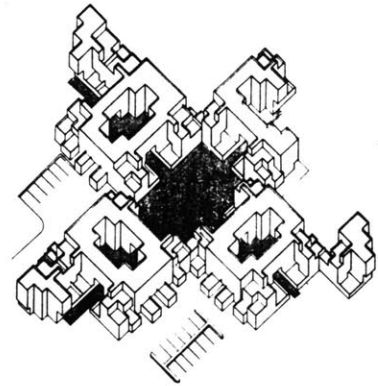
[30] Model of a type G block



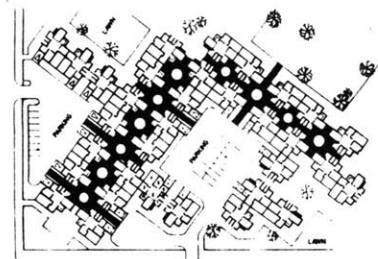
[31] Drawings by Raj Rewal and Associates - general axonometric



[32] Axonometric of cluster



[33] Pedestrian walks and semi-public gardens





1,80,000. These figures are interesting when compared to those for the Vasant Kunj units that I will discuss in the next chapter. The unit construction cost at Sheikh Sarai was less than the unit cost of construction at Vasant Kunj, despite the fact that the Vasant Kunj units were constructed by the DDA themselves, and Sheikh Sarai by a private contractor.

### **Site Supervision**

Though the construction and design were carried out by the consultant, site supervision for Sheikh Sarai still remained in the jurisdiction of the DDA. However, there was a shift in responsibility in this respect with the project. Though the site supervision was carried out by the DDA engineers in the same hierarchy as for all their projects, they were required to report progress to the consultant's firm. The architect, could, in this way, have some measure of control over site work and ensure that the design was being honored in the process of construction.

The layout, as developed by Raj Rewal and his firm, remained nearly unchanged in its implementation. According to Raj Rewal, the DDA, apart from specifying the various byelaws, codes and regulations to be adhered to, did not attempt to constrain or dictate the design. Construction work on the project was not undertaken by the DDA. The Ansals were awarded the project. The use of outside architects and builders for a scheme that was politically important could be seen as an indication that the DDA lacked faith in the abilities of their own staff to produce work of the quality desired. They could have been aware of their own limitations and sought the means to achieve the results that were not possible in-house.

## **Conclusion**

The Sheik Sarai housing project stands as yet another landmark in Delhi housing chronology. Much publicized and analyzed in architectural journals and periodicals, both in Delhi and other cities, the project was responsible for the DDA's middle-income housing to reach the limelight once again.

The analysis of the scheme yielded one important observation: that the elements of architectural 'quality' and merits of the project cannot be attributed as being driven solely by an architectural idealism. Other factors, that were part of the method in which the architectural skills were procured, contributed to the architectural qualities of the design.

The issues, then, that constituted the method of procurement of the architect's skills were:

**Division of work:** The multi-dimensional method of working in Raj Rewal's office led to an integration of the various aspects of the design, such as the structural design, landscape design and cost estimating. Although the supervision of the construction was carried out by the DDA Wings, the design proposals were handled by Raj Rewal's office.

**Salaries:** The architect was paid a percentage of the total cost of the project which implied that his fee increased with an increase in density. Also, the breakup of the fee was based on the variety of units - with a greater compensation for a greater variety of unit designs.

**The nature of the product:** The DDA was the biggest builder of housing in the city. Receiving a commission for housing for the DDA was an opportunity to get further

commissions in the future. The prospect was an implicit method of 'quality control' for the designer.

**The Architectural Establishment:** Though the set up of Raj Rewal's office was similar to that of the large architectural firms in the city, its administration was very different from that of a public sector organization. The firm was a professional architectural establishment, staffed by architects. The projects that were handled by the firm were done through teams or groups of professionals. Though the level of decision-making naturally differed with experience and period of service at the firm, there was communication and exchange of design ideas between all the architects.

**The Architect as Professional:** Raj Rewal is an architect with a series of awards and meritorious designs to his credit. Though qualities such as talent are not measurable quantitatively, the design work of the architect does stand as testimony. In the case of Raj Rewal, his designs of structures other than housing have received both criticism and praise from architects and the general public alike. The fact that he studied and worked both in India and abroad was an advantage in terms of being exposed to a greater realm of architectural thinking and practice.

**The Cost of Failure:** For an architect in Raj Rewal's position, the Sheikh Sarai project was an opportunity in design that was larger in scale than any of his previous projects in India. The attention received by the other DDA housing projects designed by private architects already presented an idea of what his own design would receive, regardless of the outcome. As an architect gaining a standing in the professional world in Delhi, he had a reputation to safeguard, with both the architectural community and the DDA.

These factors were the elements that constituted the method of procuring architectural skills. In Chapter Three, the same elements or issues will be used as the framework for the analysis of Vasant Kunj, the housing project designed by the in-house staff of the DDA.

### 3. The DDA and Housing

#### Introduction

Chapter Two studied the Sheikh Sarai project designed by a private architect: Raj Rewal. The project I will examine in this chapter is the DDA project at Vasant Kunj. The framework of analysis will be the same as that used for Sheikh Sarai, with the issues stated in the introduction driving the discussion of the process. The first section of the chapter describes the architectural attributes of the project. The second section describes the process, and the third synthesizes the discussion raised by the process of procuring architectural skills for the Vasant Kunj project.

#### Background

Though the Vasant Kunj project was planned with a goal of 18,000 constructed units, the land acquired by the DDA for the project had already been encroached upon by squatters. Consequently, there existed only enough land to build 12,000 units.<sup>1</sup> The total number of housing units of all types constructed by the DDA every year is approximately 5,000. In the last two decades, the DDA has developed and disposed of about 300,000 plots for various uses and constructed about 100,000 houses under various schemes.<sup>2</sup>

The Vasant Kunj housing project is one of the largest middle income housing scheme constructed by the DDA. The residential colony is spread over an area of 413.3 hectares. The land available for housing was about 382 hectares after reductions for the other planned functions had been made. It took the DDA five years to build the first 9,000 units. The remaining 3,000 are scheduled to be completed by 1992. The delay in construction was caused in most part by problems in water supply from the Municipal Corporation of Delhi (MCD), the local body charged with

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<sup>1</sup> Data from Mr. Chawla, present Chief Engineer, DDA.

<sup>2</sup> *Delhi: A Perspective for 2000 AD*, 1985.

the provision of services in the Delhi area. The construction and subsequent allotment of the units was planned in four stages. Of these four stages, the first three have been completed and allotted.

The colony is located on land in south-west Delhi. It lies south of one of the major universities of Delhi and is at a distance of about five miles from the Outer Ring Road, one of the main ring roads of the city. This access from the Ring Road is semi-finished even at this point, with a surface of loose gravel and dirt. Parallel to the Ring Road and cutting through the development is the Mehrauli-Mehpalpur Road. Sectors A, B and C are located to the north of this road and Sector D is to the south.

The phases in which the housing was constructed are separated by the major access road parallel to the Ring Road. Sector A, to the north-east, was the first sector to be completed. It was also this sector that was responsible for the publicity, adverse as it was, that the project received. This Sector A had collapsed like a house of cards only a few months after construction had been completed. The investigation that followed yielded the information that the entire sector had been built without foundations! It was subsequently rebuilt with the foundations, but not before the collapse had been reported in newspapers and journals in the city.

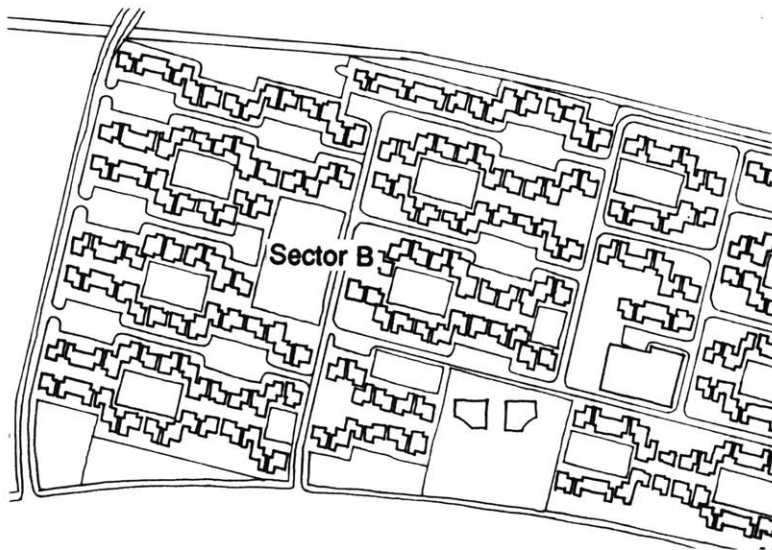
Each sector of the project is treated as an individual colony with its own services and facilities such as markets, schools and recreational facilities. The layout and assembly of the units in Sectors B and D are both similar and different from both Sectors A and C. Sectors A and C consist of two bedroom MIG units while Sectors B and D consist of two and three bedroom units built under the Self-Financing Scheme. For the purpose of this study, I will examine Sector

B as it is one the Sectors with a target group similar to that at Sheikh Sarai.

### **The Architectural Qualities**

The units are arranged in blocks of sixteen dwellings; four storeys with four units per floor. While some of the blocks of four are joined to the adjacent ones, the others have passages between them for the service pipes and infrastructure. These passages alternately widen to allow movement through them.

The density of the development in Sector B is 85 dwelling units per hectare. The clusters of units consist of about 96 units, each cluster bounded by vehicular access on all sides. The clusters have open courts on the inner side, the far side from the parking lots. However, the living areas of the units do not look onto these open courts. Instead, the service areas, the kitchen and bathrooms, that look onto the courts. The vehicular roads offer long vistas with rows of building blocks on either side. There is no clear hierarchy of spaces and access to the units from the parking lots, and thus there is no means of orientation for the visitor. The low density of the development allows the creation of open spaces, which,





[36] View from main access road

however, are neglected and run-down due to a lack of clarity of ownership and use. The unclear definition of spaces and hierarchical planning, coupled with the low density imparts a lack of cohesion to the project.

### **The Design Process**

Planning for the Vasant Kunj project was begun in 1982. It will be useful, first of all, to look at the administrative and ideological context within which the DDA architects were working. In 1984, the DDA was headed by the Lieutenant Governor of Delhi, H.L.Kapoor. Mahesh N. Buch, the controversial yet progressive chairman of the DDA had been transferred. With his transfer, the DDA had lost much of the zeal and enthusiasm in taking new directions in housing. It was during his tenure as chairman that the DDA first hired a private architect to design their housing scheme at Usha Niketan.

In the years since the Master Plan of 1961, planners and architects were rethinking its guidelines in terms of the areas surrounding Delhi. The need to view development in the light of the entire region led to the creation of a Statutory National Capital Regional Board in 1985. The first Statutory Regional Plan 2001, was being planned at this time. The



main focus of the plan was to relieve the capital city from additional pressures and to remodel the pattern of settlements in the region to avoid further congestion of the capital.<sup>3</sup>

Part of this thinking on decentralization was also filtering down to the planning of new settlements in the city. The DDA had two schemes planned that were unprecedented in magnitude, and which demarcated peripheral land for their development. The Rohini scheme for the resettlement of displaced squatters and other low-income households was getting underway with plans for a project area of 2,497.8 hectares. It was at this time that the Vasant Kunj scheme was also conceived. The scale and the parallel logic of acquiring outer city land for the project was concurrent with contemporary thinking on city projects.

### **Division of labor**

The architects did not initiate housing schemes; rather, they were told which sites were ready for development and what sort of housing was required. Their opinion and consultation was not sought in determining needs. Instead, they were asked to respond to given requirements by producing housing which conformed to minimum standards, byelaws, and other development controls. The efficiency of the architectural wing depended in part on the performance of the other wings, notably the planning wing, which was responsible for making sites available.

The Chief Architect had the final say in architectural decisions. “The architect has full decision-making authority in designing layouts as per the byelaws of Delhi and was totally

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<sup>3</sup>National Capital Region Plan report, p.4.

independent while designing units.”<sup>4</sup> The planning brief that was prepared by the Planning and Urban Development Wing specified the number, type, and size of units to be built and did not leave the architects free to conclude that a certain mix or type of development might be more or less desirable. The architects role was to produce dwellings in response to a planning brief, not to question that brief.

## **Salaries**

The architects in the Architectural Wing of the DDA were not offered any monetary benefits related to the design of Vasant Kunj. In the absence of such an incentive, and due to the fact that the Wing was understaffed, the senior architects involved in the project maintained the minimum standards as stated in the planning brief. Increasing the density or the variety in unit types would have increased the already excessive workload for the architects and the draftspersons.

## **Visibility of the Project**

The DDA has constructed 75,700 dwelling units in the middle income and the SFS categories of their housing program. Construction on Vasant Kunj began when the majority of those DDA units had already been built. Vasant Kunj was another addition to this enormous number of housing built by the DDA, and did not attract much attention, except within the community of people registered with the DDA for MIG and SFS units. For these people, the project represented renewed hope of finally having a unit allotted to them. With respect to the public at large, the project was little more than an addition to the numbers of DDA housing. The

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<sup>4</sup> Interview with Mr. Khullar, Senior Architect, DDA, January 1991. Mr. Khullar a Senior Architect during the Vasant Kunj project.

architectural qualities of the project were the subject of little or no attention. Certainly, there was no mention in any of the leading architectural periodicals in the city of the housing before its construction.

### **Staffing**

Architectural work on the project was carried out by the members of the Architectural Wing: the Chief Engineer, two Senior Architects and six draftpersons. The Senior Architects sketched the initial designs of the units and groups that formed the building blocks, which were then scrutinized and approved by the Chief Architect. Based on the building blocks, the cluster plans and overall site layout were laid out. The draftpersons prepared the plans and all other preliminary designs after they had been approved by the Architects. The draftpersons did not have any architectural or technical input in the drawing process. Even the Chief Architect had a reactionary role in the process, where he would make suggestions based on the initial input of the Senior Architects.

### **Design Review**

The number of storeys is critical as all structures of four storeys or above fall under the purview of the DUAC and must be approved by it. Housing estates of the magnitude of Vasant Kunj would have to be presented before the DUAC simply on the basis of the scale of the area and the number of units in it.

The DUAC puts together an advisory committee consisting of practising professional architects of some standing in the city. The advisory committee screens proposals and then makes recommendations in keeping with its concerns for the overall development of the city. It is some indication of the DDA's autonomy in the administrative

system of Delhi that the scheme was not submitted to the DUAC until after thirty percent of the construction had been completed. The DUAC returned the plans without any recommendations, stating that their suggestions at that late a stage would be meaningless and that no significant changes could be made. The DUAC, despite its legal status, was helpless in its dealings with the DDA on this project. Information regarding the reason behind this occurrence was unavailable. Whether it was deliberate negligence on the part of the DDA, or whether it was just overlooked by chance, it spoke of the measure of autonomy and willful discretion that the DDA exercised when it so desired.

### **The Role of the Architect**

The architects played only a small part in the total process. Major decisions were either taken or implicit before the architect even put pencil to paper. Also, the policy pursued by the planning department severely restricted the range of possible architectural solutions. The architects were prevented from having a part to play in decision-making by the division of labour in the project team. Their role was to provide accommodation on a virgin site.

In designing the housing units and blocks, the architects had fairly clearly defined limits within which to work. The density, size, and distribution of the dwellings was provided by the planners. The architects had to achieve all of these standards within the cost restrictions. However, even in this respect, the engineers at the DDA had more control than the architects. The costing of the various materials suggested by the architect was done by the engineers, who then made recommendations about them to the screening committee. A final decision was taken on the overall budgetary cost before the tenders were floated.

The planners made a positive contribution at the layout stage by specifying the mix of dwellings. The concept of mixing dwelling types came from the effort to maximize the efficiency of land use. A mix that combined the higher density of middle-income housing with the returns from the upper-income units was a more efficient use of the land than the development of a single type. The house types developed in response to the planners were in part a development of types used in earlier schemes.

While the DDA has taken design cues from the housing designed for it by private architects or consultants, its learning process has been a selective one. Until this point, they had been building middle income housing as vertical, isolated blocks of three-storey mass-produced clones of a single layout. At Vasant Kunj, the blocks had moved away from that standardized design and had incorporated some variations in the form of individual balconies and duplexes.

Besides the method of procuring architectural input for the project, there were other elements that presented the attitude of the DDA towards the project. One of the major problems in the scheme today is the extent to which the project is unfinished. Although the concept of phasing is economically sound and viable, it has been used as a means to leave things unfinished to an extent that the private market could never risk doing. In low-income housing a high degree of completion reduces affordability. However, in this category of middle income housing, there is no public subsidy involved and the units are priced at market-value. In fact, the Vasant Kunj units sold at the same rates as the units at Sheikh Serai.

Cost control is a priority that is uppermost with both the sponsoring agency and prospective buyer. With respect to the DDA, the economics of housing are related to: (a)

initial investment in development, including the cost of land; (b) units costs of development; (c) maintenance costs; and (d) economics of scale. In the discussion of the middle-class in Delhi, one of the most important features of this group was the fact that this is primarily a salaried class of income-earners with limited budgets.

The Vasant Kunj development satisfies the DDA requirement of economies of scale and a low initial investment in land development. Also the location of the scheme on peripheral land kept the investment in land relatively low. It could be argued that these measures succeeded in keeping the unit costs of development low and thus allowing the units to be marketed at a price that was affordable to a larger target group. However, the residents of Vasant Kunj still lack a complete service infrastructure, adequate water supply and transportation links to the city.

The older pockets show a marked improvement over the newer ones by the presence of trees and green landscape elements. Gulmohar<sup>5</sup> and other shady trees make these areas look lived-in and welcoming in a way that is completely at



[37] View of housing blocks in Sector A

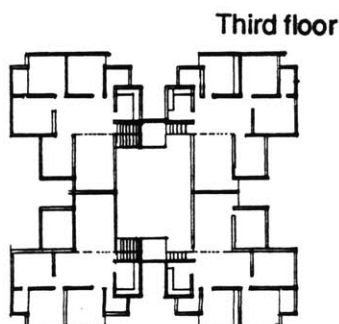
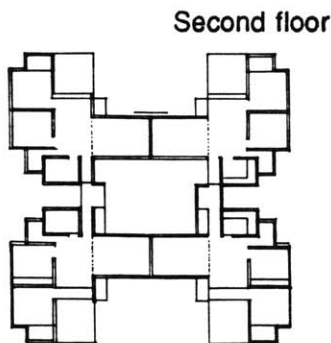
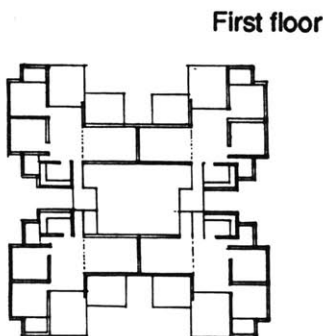
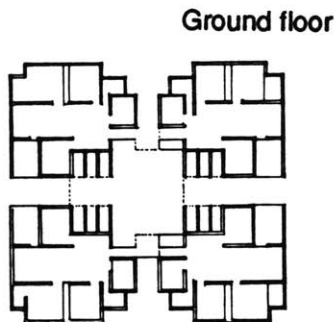
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<sup>5</sup> A large, shady variety of tree, that has very attractive red flowers in summer.

[39] Landscaping of yard by resident



[39] Unit plans.



odds with the dry, barren surroundings of the later pockets. In most part, the efforts of the residents themselves, in planting trees and flower-beds in the pocket-sized gardens and maintaining plants on terraces has imparted a softness and livability to the environment. These observations raise the question of whether the form, extent of finishing, and aesthetics that are controlled by the DDA is of any importance or is the ambiance and livability of the colony brought in by the residents themselves. That is, is the design and form of middle-income housing relevant in the creation of place or in the criteria that are important to housing?

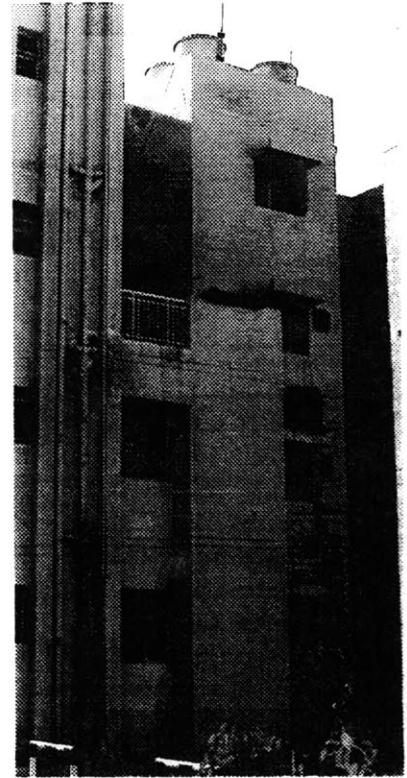
#### The dwelling units

The units in the colony are grouped into pockets within each sector with each pocket consisting of only one type of unit. The units range from two to four bedroom apartments and duplexes. Some of the units have balconies leading off of the living room or one of the bedrooms. The balconies, where they do exist, look onto the access spines between blocks and afford little privacy. Residents have dealt with this problem by erecting shelters in the form of pergolas or metal sheet roofing over the balconies. These provide some measure of privacy and also provide protection from the unwanted sun for the large part of the year.

#### Service Infrastructure

The project, until today, has been besieged by problems of water supply. The acute water shortage led to the proliferation of the modern element of DDA housing - the Syntex tank.<sup>6</sup> These characteristic black tanks are visible at some point in every apartment in the colony. In fact, the DDA would have done well to provide niches or sills in anticipation of these tanks.

While the colony does possess facilities such as markets, a high school, and several open (though ambiguous) spaces, its links to the main city are insufficient. The public bus system runs buses at an hourly frequency from the main road at the perimeter of the colony, and there is still no bus service within the colony. The average middle income household member is entirely at the mercy of the vagaries of the public transportation system, which is almost entirely constituted of the bus service. Sheer numbers of travellers have made bus travel a time-consuming and tedious routine for daily commuters. Vasant Kunj especially, being located at the present city periphery, is not yet linked to the main city in the way that the older, more established residential colonies are. The links to work and other inner city activities are crucial to the success of any housing program. Working with and insisting on the neighborhood concept, each with its own shopping, recreational, school and medical centers has been an important feature of the DDA's plan for its housing complexes.<sup>7</sup> Also, due to the availability of land, parking was provided for most of the units along the access street within blocks. It seems ironical that attention to parking facilities overrode the development of a public transportation link to the main city.



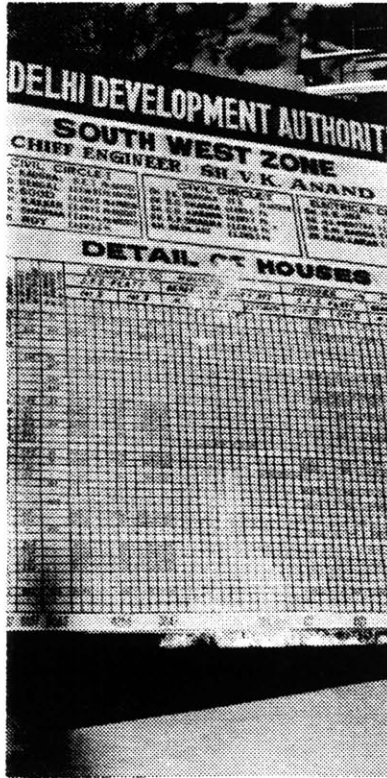
[40] Rear facade with syntex tank on window overhang

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<sup>6</sup> The Syntex tank is a moulded plastic tank used for storage of water by individual units. The daily municipal water supply lasts a couple of hours, during which time the tank gets filled and stores water to be used in the remainder of the day.

<sup>7</sup> Asok Mitra, *Delhi - Capital City*, (New Delhi: Thompson Press, 1970): 15.





[41] Schedule of housing on site

## The Residents

The population of the three constructed sectors of Vasant Kunj has been gradually increasing since 1985. The rate of occupancy has been low as most people who were allotted the apartments did not move in due to the water shortage problems and poor access links.

The Vasant Kunj development is a significant one for both the DDA and the middle class majorities in Delhi. For the buyer it represents the one affordable option for those seeking home-ownership in the city. In fact, one of the criteria of eligibility for DDA house is not owning any other property in the city. I stress this point to illustrate the nature of the demand for middle-income housing in Delhi. It is a seller's market where the future home-owner is a price-taker and also a quality -taker.

In the interviews conducted with the residents of the colony, the dominant view that emerged was that this Vasant Kunj was undoubtedly one of the 'better' DDA housing developments. The most common response had to do with the 'openness' of the colony: that it was far less cramped and dense than other DDA developments. This distinction in large part is related to the fact that Vasant Kunj was the first DDA housing project to be developed on peripheral land.



[42] Terraces looking onto parking lots

The openness of the scheme, then, could be said to be an attribute of the location rather than the quality of the planning or design. In fact, as with most public housing projects, little means of orientation exist within the colony due to the linearity of the scheme and the lack of any significant design elements.

One of the most striking aspects of the residents' reaction to the housing estate was that their resentment, when existing, was not directed towards the design or form of the housing but towards what they perceived to be the attitude of the DDA. In this respect, they were two grievances that stood out: (i) the indifference of the DDA towards general services such as the water supply, access routes and transportation; and (ii) the lack of any control over quality in the construction - pipes had sprung leaks, wall finishings were crumbling; and the plaster falling in chunks within weeks of completion of construction.

As one resident stated, "We were very fortunate to be able to get a house - but why does the DDA think it has done us a favour? After all, we are paying for the house." The term "DDA engineers" came up repeatedly in the conversations with reference to the built housing. This was largely due to the fact that all site supervision was carried out by engineers on the project team.



[43] Terrace with partial roof installed



[44] Informal market in the area along the road

## **Conclusion**

What, then, does this study of the housing process and the subsequent product say about the role of architects in public housing? Based on the framework set out in the introduction, I will summarize the issues raised by the Vasant Kunj project.

### **The DDA**

The approach of the DDA was to separate the complexity of a housing project into a series of standardized components. The objectives of the scheme were achieved by distributing relatively simple tasks to a number of people, none of whom were explained the totality of the system. This fragmentation of the work led to a rigid and unimaginative layout, with the guidelines of the engineering department taken as absolute.

The professionals in the architectural wing were paid salaries, with no compensation tied to merit in design or even to certain design outcomes such as higher densities or greater varieties of units. As a result, the minimum standards were maintained and the end product was another entry into the 'type' of DDA housing.

The project was not aimed at being different or pioneering by the DDA. There were no surprises in the design, or any outstanding features that would catch the eye of the general public or architectural critics. The DDA had nothing to prove. In fact, the size of the project more than redeemed its status; there was no need for design achievements.

The architectural input in the Wing was only by two or three people at a specific level. The Chief Architect's input was supervisory while the draftpersons, who formed the majority of the Architectural Wing, did not have any design input. There was also no research carried out prior to

designing user needs, based on previous housing built by the DDA, or even design precedents - as is usually the first step in most architectural design processes. The resulting form of the housing resembled that of typical public housing - bare and monotonous.

Housing, as it is conceived and carried out in the DDA, is a bureaucratically defined solution to a bureaucratically defined problem. The whole of the DDA's administrative machinery tends to reduce individuals and families to standard units of housing need, thereby desensitizing the officials to social reality.

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## **4. Architects and Bureaucracies: The Role of the Professional**

Chapters 2 and 3 studied two projects - one designed by a private architect, Raj Rewal, and the other by the in-house DDA architectural team, headed by the Chief Architect, Ved Prakash. The issues discussed there dealt with the nature of housing produced by the DDA and the differences brought about by the key variable of the architect and the architectural team. I concentrated on the role of the architects in order to reach an understanding of their position in the complex process of public authority housing.

This chapter deals with the institutionalization of the profession and the professional's role in housing, as exemplified in both case studies. The questions that arise are: what is the nature of the institutionalized form of control with respect to public authority housing, and how has it affected the performance of the architect. I will identify some of the key issues that arise from the institutionalization of the profession in order to find the middle ground that would best satisfy a complex system of requirements.

This chapter consists of two sections. The first section will summarize the architectural differences between the two projects studied in Chapters Two and Three. The second section will analyze those architectural differences on the basis of the evidence regarding the DDA and the design process of the projects.

### **The Difference in Architectural Qualities**

Putting aside those differences between the Sheikh Sarai and the Vasant Kunj projects that were caused by factors other than the architectural input, the analysis in this section will focus on the results of decisions made by the architects. Although Vasant Kunj was planned and constructed two years after Sheikh Sarai, and is much larger with respect to the area of the project and the number of units, the

similarities between them allow them comparison.

The Sheikh Sarai project demonstrates clear concepts of public and private, open and built space, as well as pedestrian and vehicular spaces. The clarity of design and function of the spaces lends to the maximization of efficiency in land use and built-up area. Within the grouping of 55 units, the architect provided ten variations of two and three bedroom units. Although the density achieved is 11 percent higher than that specified by the Master Plan of Delhi, the privacy and livability of the units was not sacrificed. Each unit has a terrace opening off from the living room or bedroom while privacy was maintained with high parapet walls and jalis for ventilation.

The gateways leading to the interior courts and pedestrian streets and opening onto larger public green areas are modelled street scale and concepts of desert cities such as Jaisalmer in Rajasthan.<sup>1</sup> Although the precedent and the connection to Jaisalmer may not be obvious or completely accurate, it creates an interesting urban landscape with aesthetic and experiential appeal.

On the other hand, the density of the layout of Vasant Kunj is 87 dwelling units per hectare, which is less than that at Sheikh Sarai. However, the open spaces are not modulated carefully enough to articulate clear uses. The space around the units, along the vehicular roads and between blocks, is neglected and run down.

The study of the design and development processes of both Vasant Kunj and Sheikh Sarai yielded several observations regarding the professionals and their priorities. In the next section, I analyze the evidence brought forward by the study of the processes to understand the reasons

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<sup>1</sup>Electa Moniteur, Raj Rewal, (Paris: Electa France, 1985).

behind the architects' decisions and the nature of their design agenda.

William Goode has described the process of professionalization, that is, the process of attaining professional control, as “a series of bargains struck between an occupation and society: in return for increased social status,”<sup>2</sup> The occupation imposes restrictions on the behaviour of its members in the public interest. The effect that institutionalization has had on professionalism in architecture can be debated on two levels: (i) the nature of the professional himself who has to deal with the institution; and (ii) the constraints imposed by the institution on the professional. In other words, is the quality of design by private architects better than that of in-house architects? Or is it just possible to implement better design by hiring a private architect rather than an in-house architect? In order to reach a conclusion on these questions, both professionalism and bureaucracy must be examined in themselves.

Sociological theory has tended to look on professions and bureaucracies as representing distinct and alternative methods of coping with complex problems, as they are based on fundamentally different principles.<sup>3</sup> Bureaucracy is characterized by authority, which in turn is legitimized by the position in the hierarchy, rather than by proven expertise. Professionalism, on the other hand, is a system based on a large amount of individual responsibility. In A.Etzioni's words, “the ultimate justification for the professional act is that it is, to the best of the professional's knowledge, the right act.”<sup>4</sup> The implication of bringing the two systems together are important not only to theorists, but also to the

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<sup>2</sup> A. Etzioni, *Semi-professions and their origins*, (Free Press: New York, 1969), The theoretical limits of professionalization by William Goode.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

professionals concerned and the people receiving their services.

In the case studies, I identified the issues that were responsible, directly and indirectly, for the outcome in the projects. I stated that the method of procuring architectural services affected the architectural quality of the two projects. However, it is not enough to identify the ways in which the architectural quality was affected. The significance lies in the understanding of what caused the difference in quality. As I will demonstrate in this chapter, the reasons fall into four major categories: (i) the nature of the public authority, the DDA; (ii) the nature of the project itself; that is, it was a housing project for the middle income group in Delhi; (iii) the nature of the professional establishments; and (iv) the architects themselves, as professionals.

In order to relate the differences in architectural quality to the key variable of the architect, I will compare those elements that were the result of architectural decision-making in both projects. In the second section I will explain the issues within the procurement of architectural skills that related to the difference in output. While it is not possible to establish a cause and effect relationship between the architectural quality and method of hiring skills, studying the priorities of the various actors involved is crucial to the understanding of what created the difference in the method. Some differences, however, relate to the very nature of hiring private or in-house architects without necessarily being an outcome of their design.



## **The DDA and architects**

### **Design incentives**

The manner in which the DDA administered the architect's role in each project has bearings on the outcome. The administration of the projects was different, which in turn affected the architect's design response. In both cases, the architects were not involved in the planning stages of the project but were handed planning briefs that contained information on the number of units required, optimum densities, maximum floor - to - area ratios, building codes, and standards. However, the very fact that Vasant Kunj was designed in-house by the DDA architectural wing made it open to greater supervision and control by the DDA 'elite' - the engineers. In the case of Sheikh Serai, the architect was required to present the design to the DDA at various stages in development such as concept design, unit design, site layout and finalization. According to Raj Rewal, there was no major contention on design issues and the DDA had been agreeable to the scheme as presented by his firm.<sup>5</sup>

The Vasant Kunj scheme, on the other hand, was subject to constant scrutiny by DDA engineers at all stages of design and development. In fact, there were no formal discussions regarding the design until the presentation before the Screening Committee. This was facilitated by the fact that all the various wings involved in the planning and design of housing projects are located within the same DDA headquarters.<sup>6</sup>

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<sup>5</sup> Raj Rewal stated that apart from a refusal to relax building standards for Sheik Sarai (FAR, ground coverage), the DDA were amenable to the design proposals by the architect.

<sup>6</sup> The DDA recently built another office block for itself. At present, however, the new building deals exclusively with housing administration such as allotment of units, registration lists, etc.

## The division of labour

The importance of the Engineering Wing in project design and implementation at the DDA cannot be overstated. The engineers are responsible for the design of infrastructure, site supervision, maintenance, quality control and cost control. The material and construction technique to be used in Vasant Kunj was decided by the Engineering Wing and not the architect, as it was in Sheikh Serai. The stress on economy with engineering supervision led to an oversimplification of the site layout to facilitate laying out the infrastructure.

“The engineers tend to place units in a linear, standardized manner.”<sup>7</sup>

“Detailing is invariably poor and there is no coordination with the structural engineers who go their own way creating various incongruities and design deficiencies,”<sup>8</sup>

Precise data on whether the architect’s output itself deferred to engineering priorities or that the design was modified by engineers was not available. It remains, however, that the administration of the project resulted in a stereotypical and unimaginative layout.

“A major legitimate grievance of the DDA architects is that they have been made subservient to the construction engineers, when as designers they should have an independent identity.”<sup>9</sup>

One of the reasons that engineers are associated with cost control in a project is the manner in which that issue is dealt with in architecture schools in the country. The architectural education in India has a greater emphasis on design as creativity, often unhampered by economic constraints.

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<sup>7</sup> Interview with Mr. Khullar, Senior architect, DDA, January, 1991.

<sup>8</sup> “Architectural Management - an essential environmental need,” S.K.Sharma.

<sup>9</sup> Ibid.

Design studios are structured around function and aesthetics but rarely around cost constraints.

### **Salaries/ Compensation**

The issue of salaries is another crucial factor as an issue of contention between private architects and salaried architects. In the Sheikh Serai project, Raj Rewal was paid a percentage of the cost of the project. That percentage was further broken up into payments based on design variation groups of fifty units. An incentive such as that to earn an increase in fees would be difficult to ignore under any circumstances. Having a well-staffed, competent architectural firm and staff to handle the changes made it easy to avail of the opportunity.

For the DDA architect, a scheme of the magnitude of Vasant Kunj implied a great deal of work and hours spent in first designing the minimum required types of units and then placing them on the site to attain the specified densities. An increase in the density beyond that required by the Master Plan would only mean an added quantity of work for the already understaffed and overworked Architectural Wing, in terms of preparing drawings and details. At no stage was there any sort of monetary or other compensation to be gained personally from either producing a variety of unit designs or in taking care to maximize density to increase the efficiency of land use and reduce the costs for the buyer. To a great extent, this issue is inextricably linked to the DDA's attitude towards the production of housing and houses. The driving force is to achieve the minimum specifications without undue effort. To the planners and management team of Vasant Kunj, or any other housing project, increasing the efficiency of the design and planning, and improving the architectural quality of the housing was not a matter of personal or even institutional pride, or even an objective. In such an environment, there is no incentive for the architects

to improve the quality of the project and the housing through their own individual efforts. There are no accolades or promotions or even minimal appreciation awaiting 'better' output on the part of the architectural team or even the Chief Architect.

### **Visibility of Projects**

The first DDA housing scheme designed by Kuldip Singh became the focus of much architectural and general attention in the city, and to some degree with architects all over the country. Through interviews with planners and architects it was clear to me that the projects designed by professional architects are viewed as models for future DDA projects designed in-house. However, the importance of having a 'name' attached to the design of housing cannot be overlooked. Though at the time of the Usha Niketan scheme, Kuldip Singh had not quite established his practice, he and Raj Rewal had won several competitions in the city, some of which were DDA projects. After Usha Niketan 'cruciform' blocks were published; the concept was then repeated both in Saket and Malviya Nagar. In fact, it could be said that Kuldip Singh was hired in the later schemes not just to design new housing but to repeat the characteristic housing design in new projects. The DDA was marketing an image, not just a product.

### **Access to Power**

The other aspect of public service, especially with an organization such as the DDA, is the access to power it affords to its staff. Although DDA architects or even the Chief Architects would never be millionaires solely on the strength of their salaries, they would never be uncertain of having a DDA house allotted to them in the project of their

choice, having repairs made whenever necessary, and probably getting DDA houses allotted to all members of their families and their friends. In a city like Delhi, where spiralling land values and costs of living have reduced the purchasing power of residents, ownership of a house is a tremendous security and investment.

In an institution such as the DDA, bureaucratic administration is far greater than professionalism due to the nature of its functions as a development agency. Autonomy and discretion in its structure have made it prone to clientelistic practices. At all levels in the hierarchy of the Authority, members have the ability to 'oblige' people with favors.

### **Architects and the nature of housing**

#### **The Identity of the Client**

The question of the identity of the architect's client is complicated on two levels: (i) the product of the architectural service being housing - in this case middle income group housing in Delhi; and (ii) the introduction of the public authority, the DDA. The problem often faced by architects while designing housing is that they are not aware of the identity of the people for whom they are designing; their needs, wants, and preferences. In the case of middle-income housing, the requirements of the user are even more obscure to the architect due to the flexible range of demands, not only in economic and social terms but even physical terms. The architect, therefore, is forced to make assumptions, ground by research, data, and a social and cultural awareness of the nature of requirements - en masse. He has, as Nabeel Hamdi has put it, to "serve the demands of this massive client body and yet respect the needs of the individual."<sup>10</sup> The other

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<sup>10</sup> Nabeel Hamdi, *Housing without Houses* (New York: Van Nostrand

conflict regarding the identity of the client is the presence of the public authority, the DDA. The DDA architect must defer to his employer regardless of his views and stands on the architecture of housing. He is constrained by his dependent position to consider his employer's position before that of his client, the nameless residents of DDA housing. In a sense, the priorities of his superiors at the DDA - become his own priorities.

In the case of the private architect or consultant, too, the identity of the client is confused. One of the architects I interviewed was part of a team of consultants hired by the DDA as urban designers for the Papankalan project.<sup>11</sup> When questioned about his working relationship with the DDA, he replied, "They did not interfere at all, they only demanded what was perfectly within their rights as clients."<sup>12</sup>

There is no doubt that the importance of meeting the Authority's requirements is primary. The consultant would not be involved if he was not able to do that. Also, the consultant has an independence of action that the salaried architect lacks. He could lose the clientele of the DDA without jeopardizing his career, whereas the salaried architect is forced to comply with this employer's priorities, or resign.

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Reinhold, 1990): 7.

<sup>11</sup> The Papankalan project is a new city project undertaken by the DDA for a population of 100,000 people.

<sup>12</sup> Interview by author with Professor Maitra, Professor of Housing at SPA and the Housing consultant in the Papankalan team, January 1991.

## The Architectural Establishment

### Staffing

The backing of an adequate and competent support staff is linked to these issues. Raj Rewal, and most of the established architects in the country run offices staffed by professional and qualified people. Raj Rewal Associates employs 18 people, all of whom are professional architects. Amongst these architects are two or three older, more experienced professionals who fill the role of project managers.<sup>13</sup> These project managers are responsible for key design decisions and are the people who are in constant contact with the younger architects working on the projects with them. As with most architects who have attained a certain level of respect and fame, the bulk of designing is no longer handled by them. For the Sheikh Serai project, Raj Rewal developed the concept of discrete pedestrian and vehicular spaces and the early sketches for the site layout for the scheme. Following that, under his supervision, the senior architects and their team continued to refine and detail the various units and other aspects of the project. Raj Rewal himself never made any drawings or sat at the drawing board. The bulk of the drawings were produced by the architects working on the project and the occasional 'trainee' on internship with the firm.<sup>14</sup>

The DDA Architectural Wing, on the other hand, is always under-staffed and over-worked. They have more work at any time than they can handle with care and quality.<sup>15</sup>

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<sup>13</sup> In India, the concept of Project Managers is different from what it is in the U.S. It is an informal post.

<sup>14</sup> All architecture school in India have a semester of required apprenticeship with an architect or an architectural firm in the country, for a stipend. For the employer, these trainees are form of cheap, qualified labour, and are generally put to work on presentation drawings and similar tedious work, which does not directly require a senior architect.

<sup>15</sup> This is freely admitted to even by the personnel at the DDA itself.

“Pressed for time, the public design offices produce routine stereotype designs without adequate studies relating to user requirements, functional efficiency and cost effectiveness of the designs, not to mention aesthetic and environmental values. A common practice in public design offices is to develop standard plans for almost all needs and palm them off for any project without consideration of site conditions and project specific requirements.”<sup>16</sup>

One of the major differences between the organization of the architectural systems is that the DDA employs a large number, about five or six, draftpersons whose job is to draft the architectural drawings for projects according to the instructions of the senior architects. Draftpersons - unlike architects - do not have the educational background and skills to deal with architectural decision-making. They prepare drawings from sketches and rough, dimensioned drawings handed to them by the senior architects. The private architect's office, Raj Rewal's office specifically, rarely employs draftpersons. In the event that they do, there is never more than one on the firm's staff at any one time. Instead, all the drafting and drawing work is done by the architectural staff. The design, therefore, undergoes a process of continuous refinement as at each stage there is an architect working on it who, regardless of his or her decision-making power, is skilled to detect flaws and rectify them in consultation with the senior architects.

The DDA's propensity to hire draftpersons as opposed to architects could be due to the fact that a draftperson's salary is lower than that of even an inexperienced architect. Though some more experienced draftpersons do gain architectural expertise and earn a great deal more than their younger counterparts, they are unlikely to be found working with the DDA. The DDA, due to an institutionalized salary structure, pays salaries based on 'posts' rather than individual

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<sup>16</sup>S.K.Sharma, "Architectural Management".



qualifications, and so a draftsman would be entitled to a particular salary with some level of negotiability for experience, but would not be likely to earn market wages.

### **Drawing and Presentation**

The third issue that is related to the staffing of the two architectural offices is that of drawing and architectural presentation. Drawings are the tools for communication of design ideas between the designer and the client. In the introduction of this thesis I had stated that the client buys a service and not a product from an architect. However, through the medium of drawings, the architect can convey the image and the design of the product even before it is built. While the stages between designing and completion are not always controlled by the architect and the end product can sometimes be different from the design, the *proposal* as designed by the architect *can* be conveyed. It is this presentation aspect of architectural practice that computers and computer graphics have exploited in the last two decades, with the ability to walk the viewer through the designed structure. By presentation drawings and tools I do not mean nicely colored and decorative drawings, but drawings that actually depict the extent of the design product. The detail and the type of communication used by architects forces the same honesty as the final built product; the design can be seen for what it is. Not only does it allow the client to visualize the design and make adjustments to it, it forces the architect to think holistically about the design, without neglecting those issues that are not immediately visible in the other drawings.

In the Sheikh Sarai project, Raj Rewal's firm prepared a series of presentation drawings for the DDA. Detail site plans showing pedestrian and vehicular paths, axonometrics of clusters showing the interior courts and gateways, and the

details of the unit plans gave the DDA a very comprehensive picture of what the project would look like. They also built models of clusters, showing the building mass and its relationship to the interior courts and streets. For Vasant Kunj, on the other hand, the drawings were restricted to site and unit plans, with no three-dimensional views or models to express the project. Had the DDA Architectural Wing been required to present extensive drawings or models that projected the design in all aspects, greater thought might have been given to the open spaces behind clusters and the visual corridors in the project - perhaps with better results.

### **Research on User Needs**

In the case of Sheik Serai, it being Raj Rewal's first major housing project, his architectural team carried out extensive studies of site and unit design of other schemes designed for the DDA by private architects<sup>17</sup>. They also researched design precedents in ancient cities such as Jaisalmer in Rajasthan. This issue of research arose in my interview with Raj Rewal, when he said that the aspect of research was neither recognized nor compensated by the DDA. The firm had spent a large investment of time and resources on the research for the project, even though these studies did not feature as a part of the DDA contract. The dense built-up areas and the network of gateways and open spaces grew out of the research on the streets and urban scale of Jaisalmer.

This kind of research on precedents and architectural models was not part of the design process in the DDA architectural wing. Raj Rewal's firm carried out the research through the initiative of their own designers. The DDA, in fact, has never conducted even post-occupancy studies or

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<sup>17</sup> Interview with Raj Rewal by author, January 1991.

attempted reports on user evaluations and reactions to their housing projects concerning livability and design.

### **The Architects as Professionals**

These issues here deal with the differences between the functioning of the private practitioner and the DDA architect. The most obvious variable, however, is the architect himself. It is worth questioning whether public service attracts architects who are just less talented than private practitioners. The design or outcome of the two projects studied cannot be taken as a demonstrable level of lesser or greater talent of the architect. This is because the distinction between what the architect is capable of in terms of design and what he eventually produces for the Authority cannot be made. The process and outcome of housing design for a bureaucratic organization might be a wholly inaccurate reflection, or no reflection of, the architect's talents in housing design.

Comparing the architectural backgrounds of the two architects for the Sheikh Serai and Vasant Kunj projects respectively, the biggest surprise was the discovery that they were classmates at the Architecture School of Delhi University. In 1957, when both architects under discussion graduated, the school did not exist as an independent institution but was affiliated to Delhi University. Unlike most of the older architecture schools in the country, such as the J.J. School of Architecture, the school in Delhi did not suffer from an excessive colonial hangover in terms of the schools beliefs and educational agenda. In fact, the school was one of the only ones with a very strong emphasis on housing, especially for the low-income in the developing country context. A graduate of the school, then, had a very strong background in both the theoretical and practical aspects of housing.

While Ved Prakash sought work in Delhi following graduation, Raj Rewal left for London to continue his education. He was employed in London for five years and went on to work with Michel Ecochard in Paris before returning to India. In 1962, the same year that Ved Prakash joined the DDA as an architect, Raj Rewal established an architectural firm in Delhi with another architect, Kuldip Singh. In addition to continuing his private practice, he also taught at the SPA from 1963 until 1970.

A comparison between the architectural beginnings of the Raj Rewal and Ved Prakash are relatively fair as neither had any foothold in the architectural community in the form of godfathers, relatives or even close friends. They began with similar backgrounds, yet one chose public service with the DDA while the other set up a private practice. One of the biggest attractions of public service is the job security that goes with it, and the assurance of a steady income, regular promotions, and a pension on retirement. Employment with a private architect, on the other hand is non-institutionalized to such an extent that as to be a possible avenue only for those who have an alternate means of supporting themselves. Most architectural firms do not offer health benefits, insurance, pension, or regular salary raises for their employees. On the other hand, to start an independent practice is a capital-intensive and painfully tedious process that, almost always, takes several years to yield positive results. For the average, unconnected, middle-income, fresh architectural graduate, public service represents a golden opportunity for employment. Even to a talented architect, the vagaries of private practice and the architectural profession are considerable hurdles if faced by pressure to gain financial independence. So, although it might be true that employment with the DDA attracts architects of lesser talents, it is not

correct to say that those are the only type of architects who are attracted to public service.

### Cost of Failure

Finally, the cost of failure of the housing projects is a key issue in the design efforts of the architects. Consequences of failure are applicable to the entire institution of the DDA, its Architectural Wing and the private architect's practice. To each of these units, the cost of failure has different implications.

To the DDA, the issue of failure of a project exists only with respect to structural failures or collapses of buildings. Unlike in the West, the notion of 'failure' for middle class housing does not exist in India due simply to the scale of the demand and the inability for supply to satisfy it. The Pruitt-Igoe housing project in St. Louis which had to be demolished due to the fact that it had become a shelter for increased crime and sordidness, as well as increased vacancy, DDA housing, no matter how bad, will not be demolished purely on social grounds. It is only on physical



[45] Leinweber, Yamasaki and Hellmuth: The infamous Pruitt-Igoe public housing project, St. Louis, 1957

grounds that a project is considered a failure. However, even in that case, as in Sector A of Vasant Kunj which was built without foundations and collapsed, the fault was remedied and the apartment blocks were rebuilt with the foundations.

To the architects in the Architectural Wing, the issue of failure has to do more with the inability to meet the standards and codes set out for each project. The anonymity and lack of responsibility within which they work keeps them at a distance from being blamed for failure. In the event of structural failure, it is the engineers who are held responsible, with the repercussions being diffused through the bureaucratic network of the DDA. The lack of accountability has freed the professional from the implicit requirement of quality.

For the private architect, on the other hand, the project and the client in themselves necessitate averting failure. The scale of the DDA housing projects assure success and failure in large measures. As a professional in a competitive market, the private architect is forced to safeguard his reputation in the design of any project. The stakes are higher than for in-house architects, who are safe in the mediocrity of DDA architecture.

## **Conclusion: The Politics of Housing**

As architects move into salaried posts in large organizations they become subject to the constraints of bureaucratic systems. However, private architects are not completely immune to these constraints, but have to contend with them in some form. The nature of these constraints with respect to the bureaucracy itself define the method by which the architectural skills are hired and utilized. However, the additional constraints, which could be seen as part of the method of hiring, have to do with the product of the architectural input, the supporting architectural establishments and the individual and personal constraints of the architects.

At the outset of this thesis, I posed the question, "Does the method of procuring architectural services affect architectural quality in housing, and if so, in what ways?" The enquiry was sparked off by observations, both deliberate and accidental, regarding the housing built by the Delhi Development Authority. The variations in design and quality did not appear to have a particular pattern until the difference in architectural services was known.

In search of answers, I set out to examine two housing projects by the DDA, with the focus on one key variable: the architectural input. I traced the role of the architect in the process of design and development of the project and the eventual architectural output in the project. In doing so, the priorities of the architects themselves, as also those of the agency were highlighted.

In Chapter Four, the difference in architectural quality between the two projects were used as the basis for an exploration of the priorities of the actors involved. The specific aspects used for this purpose were: (i) the DDA as an institution and its dealings with the architects; (ii) the nature of housing as the product of the architectural input; (iii) the architectural establishments within which they

worked, and (iv) the architects themselves as individuals. The emphasis was on the observation that the "method of procuring architectural services" involved underlying values and priorities that eventually affected the outcome.

The DDA, as a development and housing authority, exists to provide housing in an equitable and economical fashion. The architect, as facilitator of that process, designs to maximize the benefits for the agency and the user, within the constraints of the resources. This thesis has attempted to highlight the view that, far from these idealized positions, both the bureaucracy and the professional are constrained by political realities and implications in their actions. The DDA seeks architectural services on the basis of the outcome that it desires, and to its meet specific agendas. Architects, both in-house and private, are constrained by personal motivations - the DDA architect by the need for survival and perhaps for power; the private architect by the reputation at stake or the need to consolidate his or her position in the architectural realm, relating to monetary gains. The existence of the beneficiary of the idealized intervention, the resident or user, is incidental.

"His (the expert's) professional assumption that he serves a client makes him lose sight of the fact that the Prince (the DDA, in this case) who hires him does not always control, or is not always a representative of the implementors and beneficiaries."<sup>18</sup>

The conflict between professional and bureaucratic interests is not unique to the DDA and Delhi, but is a universal one. During my research on the DDA, I also looked into the functioning of the London County Council. I was searching for the colonial influences on the formation of policy in the DDA through a study of the LCC. Though

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<sup>18</sup> Guy Beneveniste, *The Politics of Expertise*, (Berkeley: Glendessary Press, 1972)



there was no evidence stating that the DDA was modelled on the LCC, there were some marked similarities in the functions and administration of both bodies. The LCC, however, demonstrated a slightly different approach in the institutionalization of its architectural unit.

The LCC made, in the early 1960's, a move towards a "greater use of *architects* to design housing schemes"<sup>19</sup> where earlier they had been designed mainly by engineers. Over time, the major influence on standards and form in LCC housing were the changes in central government policy. The Dudley Report of 1944 provided minimum acceptable standards after WWI. It framed its recommendations about house design in terms of minimum room sizes and adequate circulation space. The minimum standards had to be achieved in order to qualify for the subsidy. Government was thus able to raise the standards and exert influence over the housing built while leaving them free to have their own schemes designed within this framework.

The estates/ projects of the Housing Branch of the LCC were under the control of a single architect. The architects individuality and creativity was not stifled by the nature of working in the public housing realm. They demonstrated in their housing a joyous determination to apply to council housing the same standard of architectural grace, the same depth of design that at present benefitted only the rich and fashionable."<sup>20</sup> The public housing produced by the LCC at this time was unique in that the character and quality of the Housing branch was already established by the Housing staff and each scheme attempted to live up to that established quality. They had succeeded in infusing a freshness of

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<sup>19</sup> Greater London Council, *Home Sweet Home*, (London: Academy Editions, 1976). italics are my own.

<sup>20</sup> Susan Beattie, *A Revolution in London Housing*, (London: The Architectural Press, 1990)

approach and an individuality of character in scheme after scheme.

Housing decisions, both for those who house and who are being housed, are an outcome of processes, both within and outside of institutionalized regulatory mechanisms. These mechanisms are, in turn, the result of social, economic and political forces. Any intervention within this realm would have to be based on a set of variables, certain "measures of quality"<sup>5</sup>, that would define 'good' housing. These measures, then, would be considered from two points of view: (i) the agency or institution supplying the housing; (ii) the users or residents.

Over the years a gradual consensus has been arrived at regarding the inability to derive 'normative' rules for the development of 'good' housing. However, there are elements of housing that can be considered valid in an expression of good housing, elements that provide the "right fit." These elements are not self-contained but take into account priorities and constraints of those involved and directly affected by them. They could also be expressed as lying between the norms and standards of the 'establishment' and those of the 'other' element, which for one reason or another are not always or totally complementary. The mass housing developed by the Delhi Development Authority in the sixties was alien to the people who moved into them. Developed along the lines of western low income housing, these developments presented a new kind of room layout, a new aesthetic, a new relationship of the building to the street, a new perception of scale, a new perception of the degree of monotony and numerous other alien qualities. However, the physical forms, densities and layouts of the housing projects did reflect some of the constraints within which the DDA had to work. Of course,

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<sup>5</sup> Based on discussions with John deMonchaux

as I will discuss later, these constraints could have been dealt with in a manner that was closer to satisfying user requirements.

In assigning culprits for failure and candidates for success, we may often be looking at wrong variables or, more importantly, missing the relationship between the sequence of events, existing circumstances at a particular historical moment, and the nature of the actors involved. The significance of 'good' or 'better' lies in the details of the process and outcome, the elements that made those processes and achievements possible.

The perception of "quality" in housing:

The development authority looks for substantial and effective implementation of housing projects - those that provide shelter to a large number of people at an optimum use of resources. This objective is stated in light of the fact that the DDA has been implementing large-scale housing projects for the middle and lower income groups and continues to do so till today. This was not originally a part of DDA policy as framed in the 1961 Master Plan for Delhi, nor in any of the subsequent Plans. However, the fact remains that such housing is being built and utilizes a substantial portion of the resources available to the DDA. In identifying the 'measures of quality' for housing, then, it is necessary to state the priorities of the actors involved wherein they are either common to them all or at least accommodating of the others.

The Authority or Establishment: The DDA exists as an authority, quite literally, on the basis of legal jurisdiction of its position. The owner of all land that has potential for development and the trustee of future developments, the responsibility vested in the DDA is enormous. It interprets regulations and enforces conformity in ways it sees fit; it

practices power. Its 'authority' is an explicit, willful form of control that can be utilized purposefully to either enable or disable the development of the city and its people. What, then, would be the objectives of a housing development program of the DDA that would perpetuate their measures of quality?

One of the primary benefits of the large-scale land acquisition program was to ensure control over land distribution and to stimulate some kind of equity in reservation and allocation. DDA-built housing, then, would necessarily be dictated by the constraints of 'economy' and 'efficiency' that would lead to 'effectiveness'. In other words, it would aim to provide the maximum number of housing units within a given resource, while also keeping the cost of development low.

The Residents: The user of public housing is an entity devoid of a personality for the Authority. Public housing built by the DDA caters to a clientele that is no more than a series of names on a registration list. As such, public housing is not built with any specific users in mind, but could still allow for the application of general measures of quality. User satisfaction would be a factor only in terms of its effect on economy and efficiency. Efficiency in housing production and management refers to the level of output of housing units for each unit of input resources such as finance, land and labour.

The Architect: The question then arises of the role of the architect in determining the quality of public housing. Architects working in the field of housing are confronted with a number of issues. They come from the existence of legal and administrative norms, and from the very status of the architect - from his or her ambiguous position between

state, power and society. The architects measures of quality would then reflect those of the client and the user - in this case the development authority and the residents.

From the point of view of the client, the criteria of economy and efficiency remain primary. A housing agency will encourage architectural innovation only as far as it serves to fall within the constraints or objectives of their program, or where the architecture itself can be used to promote its interests. If a specific project can be sold at a higher premium due to its physical qualities, the agency would do so if its agenda was to receive higher returns on its capital. The concept of cross-subsidies in housing projects uses this idea in the sale of its market units.

The role of the architect in housing has been discussed in a following chapter, and the reference to the architect here is in terms of his or her contribution to the 'measures of quality' of housing. So while both establishment and user are subjected to constraints, the architect, in a sense, bears the onus of interpreting their constraints to arrive at the solution that best addresses them both. The key issue for both bureaucracies and professionals is the awareness of the motivations behind the way decisions are made by all the actors, especially in a matter as politically and socially sensitive as public authority housing. Eventually the act of housing involved the resolution of conflicts in a physical, unchangeable reality. The outcome of compromises has bearings on the lives of those who did not make the decisions - the residents. As Guy Beneveniste has stated it, "My question, therefore, is not whether technocrats might animate a world of robots, but whether experts and planners accept the responsibility of their potential political role in society."<sup>21</sup>

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<sup>21</sup> Beneveniste, Politics of Expertise.



## Bibliography

- \_\_\_\_\_. "Housing the Middle Class - Delhi Development Authority Way." *The Indian Architect* 22 (November 1980): 202-206.
- \_\_\_\_\_. "Intricately woven fabric of housing, streets and spaces." *Architecture* 73 (September 1984): 122-123.
- \_\_\_\_\_. "Public Sector Mass Housing." *Mimar* 28 (June 1988):
- Abrams, Charles.** *Housing in the Modern World*. London: Faber and Faber, 1966.
- Ali, Ashraf.** *Politics of Urban Development: The Case of Calcutta*. Ph.D. Dissertation, Cornell University, 1970.
- Architecture Review* . "Housing and Environment (Special Issue) November 1967.
- Autar, Ram.** "Problems of Architects working in Public Sector." *Journal of the Indian Institute of Architects* \_\_\_\_ (---): 14-16.
- Bauer, Catherine.** *Modern Housing*. Boston: Houghton Mifflin Co., 1934.
- Beattie, Susan.** *A Revolution in London Housing: LCC housing architects and their work*. London: Greater London Council: The Architectural Press, 1990.
- Beneveniste, Guy.** *The Politics of Expertise*. Berkeley: Glendessary Press, 1972.
- Benjamin, Solomon.** "India: formal versus informal housing." *The Architectural Review* 178 (August 1985): 32-36.
- Bijlani, H. U.** *Urban Problems*. New Delhi: Indian Institute of Public Administration, 1977.
- Bopegamage, A.** *Delhi, a study in urban sociology*. Bombay: University of Bombay, 1957.
- Boudon, Philippe.** *Pessac de Le Corbusier*. Paris: Dunod, 1969.
- Breese, Gerald.** *Urban and Regional Planning for the Delhi-New Delhi area; Capital for Conquerors and Country*. New Jersey: Princeton University Press, 1974.
- Breese, Gerald.** *Urbanization in Newly Developing Countries*. Englewood Cliffs: Prentice-Hall, INc., 1966.
- Buch, M.N.** *Planning the Indian City*. New Delhi: Vikas Publishing House, 1987.
- Burnett, John.** *Social History of Housing*. London: David and Charles, 1978.
- Chambers, Erve and Low, Seta M., eds.** *Housing, Culture and Design*. Philadelphia: University of Philadelphia Press, 1989.

- Chibbar, Yash Pal.** *From Caste to Class; a study of the Indian middle classes.* New Delhi: Associated Publishing House, 1967.
- Coleman, Alice.** *Utopia on Trial: vision and reality in planned housing.* London. H. Shipman, 1985.
- Cooper-Marcus, Clare and Hackett, Phyllis.** *Analysis of the Design Process at Two Moderate Income Housing Developments.* Berkeley: University of California Press, 1968.
- Davis, Sam, ed.** *The Form of Housing.* New York: Van Nostrand Reinhold, 1977.
- Delhi Development Authority Administration Report,
- Delhi Development Authority. *Annual Town and Country Planning Seminar,* 1968.
- Donnison, D. V.** *The Government of Housing.* London: Penguin Books, 1967.
- Evenson, Norma.** *The Indian Metropolis.* New Haven: Yale University Press, 1989.
- Frykenberg, R. E.** *Delhi Through the Ages.* New Delhi: Oxford University Press, 1986.
- Gazette of India: Extraordinary
- Greater London Council. *Home Sweet Home: housing designed by the London County Council and Greater London Council.* London: Academy Editions, 1976.
- Gupta, Narayani.** *Delhi Between Two Empires, 1803 - 1931.* New Delhi: Oxford University Press, 1981.
- Gupta, Shiv Charan.** *Delhi: the City of Future.* New Delhi: Vikas Publishing House, 1987.
- Gutman, Robert L.** *Architectural Practice - A Critical View.* Princeton, N.J.: Princeton Architectural Press, 1988.
- Gutman, Robert.** *The Design of American Housing; A reappraisal of the architect's role.* New York: Publishing Center for Cultural Resources, 1985.
- Hamdi, Nabeel.** *Housing without Houses.* New York: Van Nostrand Reinhold, 1990.
- Illich, Ivan.** *Tools for Conviviality.* New York: Harper and Row, 1973.
- Jackson, Anthony.** *The Politics of Architecture; a history of modern architecture in Britain.* Toronto: University of Toronto Press, 1970.
- Jackson, William Eric.** *Achievement: a short history of the London County Council.* London: Longmans, 1965.
- Jain, A. K.** *The Making of a Metropolis.* New Delhi: UBSP Distributors, 1990.
- Jones, Rodney W.** *Urban Politics in India: area, power and policy in a penetrated system.* Berkeley: University of California Press, 1974.



- King, Anthony D.** *Colonial Urban Development; Culture, Social power and environment.* London: Routledge and Kegan Paul, 1976.
- Straus, Nathan.** *The Seven myths of Housing.* New York: A. A. Knopf, 1945.
- Lang, Jon.** *The Architectural Symbolism of Political Independence - India 1910-1960.* Urban Design Program, Philadelphia: University of Philadelphia, 1989.
- Levitt, Abraham.** "Bureaucracy, the Regulatory Agencies and the Architect." *Progressive Architecture* 46 (February 1965): 199-
- Malpass, Peter, ed.** *The Housing Crisis.* Dover, New Hampshire: Croom Helm, Ltd., 1986.
- Malpass, Peter.** "Professionalization and the Role of the Architect in Local Authority Housing." *RIBA Journal* (June 1975): 6-30.
- Marcuse, Peter.** *Ethics of the planning profession: the need for role differentiation.* Los Angeles: University of California Press, 1974.
- Marcuse, Peter.** *Housing policy and social indicators: strangers or siblings?* Berkeley: Institute of Urban and Regional Development, 1970.
- Meade, Martin.** "Eastern Promise." *The Architects' Journal* 180 (October 1984): 24-26.
- Misra, Girish Kumar.** *Distribution and differential location of public utilities in urban Delhi.* New Delhi: Indian Institute of Public Administration, 1979.
- Mitra, Asok.** *Delhi: Capital City.* New Delhi: Thompson Press, 1970.
- Moniteur, Electa.** *Architecture in India.* Paris: Association Française d'Action Artistique, 1985.
- Moniteur, Electa.** Raj Rewal. Paris: Electa France, 1986. (monograph).
- New Delhi, Housing and Urban Development Corporation.** *Economy in Housing Projects.* Second Edition, 1981.
- New Delhi, National Council of Applied Economic Research.** *Techno-economic survey of Delhi:* 1973.
- Noble, John.** "Appraisal of User Requirements in Mass Housing." *Architects' Journal* (August 1966):
- Oldenburg, Philip.** *Big City Government in India; Councilor, Administrator and Citizen in Delhi.* Tucson: University of Arizona Press, 1976.
- Pawley, Martin.** *Architecture versus Housing.* New York: Praeger, 1971.
- Prak, Niels L., and Priemus, Hugo, eds.** *Post-War Public Housing in Trouble.* Delft: Delft University Press, 1985.

- Rao, V. K. R. V. and Desai, P. B.** *Greater Delhi (A Study in Urbanization) 1940-1957.* Bombay: , 1965.
- Rapoport, Amos.** *House, Form and Culture.* London: Prentice-Hall, 1969.
- Regional Plan 2001, National Capital Region. National Capital Region Planning Board, Ministry of Urban Development, Government of India, December 1988.
- Ribiero, E. F. N.** "Streamlining Development Control Measures - a case study of Delhi." *Architecture + Design* 4 (July 1988): 61-65.
- Robson, William Alexander.** *Great Cities of the World; their government, politics and planning.* London: Allen and Unwin, 1954.
- Rosenthal, Donald B.** *The Limited Elite: politics and government in two Indian cities.* Chicago: University of Chicago Press, 1970.
- Serenyi, Peter.** "From Lutyens to Young Indian Architecture." *Techniques et Architecture* 361(September 1985):
- Serenyi, Peter.** "Timeless but of its time: Le Corbusier's architecture in India." *Architectural Design* 55 (1985): 55-87.
- Sharma, S. K.** "Architectural Management - An Essential Environmental Need." *Journal of the Indian Institute of Architects* 48 (July-September 1983): 14-17.
- Shoshkes, Ellen.** *The Design Process.* New York: Whitney Library of Design, 1989.
- Sinha, B. M.** "The Damaging Record of the Delhi Development Authority: From the Dubious to the Disgraceful." *Design* 27 (June 1983): 46-51.
- Somjee, A. H.** *Parallels and Actuals of Political Development.* New York: St. Martin's, 1986
- Taub, Richard P.** *Bureaucrats under stress; administrators and administration in an Indian state.* Berkeley: University of California Press, 1969.
- The Architectural Review* 187 (January 1990).
- Tzonis, Alexander.** *The Predicaments of Architecture: narcissism and humanism in contemporary architecture.* Cambridge: Harvard University Press, 1980.
- United Nations, New York: 1986. Department of International Economic and Social Affairs, Ppulation Policy No. 7, "Population growth and Policies in Mega-Cities: Delhi."
- Vollmer, Howard M., ed.** *Professionalization.* Englewood Cliffs, New Jersey: Prentice-Hall, 1966.
- Weaver, Robert C.** "Federal Housing Agencies Encouraging Good Design." *Architectural Record* 136 (August 1964): 103-109.

**Young Ken.** *Metropolitan London, Politics and Urban Change.* London: E. Arnold, 1982.

**Etzioni, A.** *Semi-professions and their Origin.* New York: Free Press, 1969.

**Cox, Kevin.** *Conflict, Power and Politics in the City.* McGraw Hill Co., 1973.

**Tarn, J. N.** *Working Class Housing in Nineteenth Century Britain.* London: Lund Humphries for Architectural Association, 1969.

**Thapar, Romesh.** *Space and Society* (September 1987):

**Bhatt, Vikram and Scriver, Peter.**

**Doshi, B. V.**

**Sabhiki, Ranjit.**