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**INDIA, National Context**

Background Paper Update, by Akhtar Badshah

**DELHI, Urban Context**

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**ASIAN GAMES VILLAGE, DELHI, INDIA**

Project Summary Paper, by Akhtar Badshah

Prepared for

**The Aga Khan Program for Islamic Architecture**

## INDIA

### Primary Information

Country:	Republic of India
Capital:	New Delhi
Population:	690.2 million
Growth Rate:	1.4%
Density:	200 persons per square kilometer
Urban:	24%
Urban Growth Rate:	3.7%
Area:	3,288,000 square kilometers
Geography:	India's topography has three major regions: the sparsely populated Himalaya Mountain region, which extends along the north border; the heavily populated, well-watered and fertile Indo-Gangetic plains; and the southern peninsula, including the tableland of Deccan Plateau.
Climate:	The climate varies from tropical in the south to temperate in the north. South of the Himalayas, the temperature rarely goes below freezing and reaches as high as 43°C during summer. Rainfall ranges from 1,000 cm. annually in the northeast to less than 12 cm. in the northwest.
Languages:	Hindi, English, and 14 other official languages
Religion:	84% Hindu, 11% Muslim
Currency:	Rupee (RS 11.26 = US\$ 1.00, July 1984)
Per Capita Income:	US\$ 190
Major Cities:	Calcutta, Bombay, Delhi, Madras, Hyderabad, Bangalore, Ahmedabad
Production:	Agriculture 38%
	Services 35%
	Industry 27%

## INDIA

### National Context

India, situated between 8°4' and 37°6' latitudes, dominates the South Asian subcontinent. It is bounded on the east by Bangladesh, Burma, and the Bay of Bengal; on the west by Pakistan and the Arabian Sea; and on the north by the People's Republic of China, Nepal, and Bhutan. It measures 3,214 kilometers north to south and 2,933 kilometers east to west, has a land frontier of 15,200 kilometers, and a coastline of 6,083 kilometers.

The topography has three major regions: the sparsely populated Himalaya Mountain region which extends along the north border; the heavily populated, well-watered and fertile Indo-Gangetic plains; and the southern peninsula, including the Deccan Plateau.

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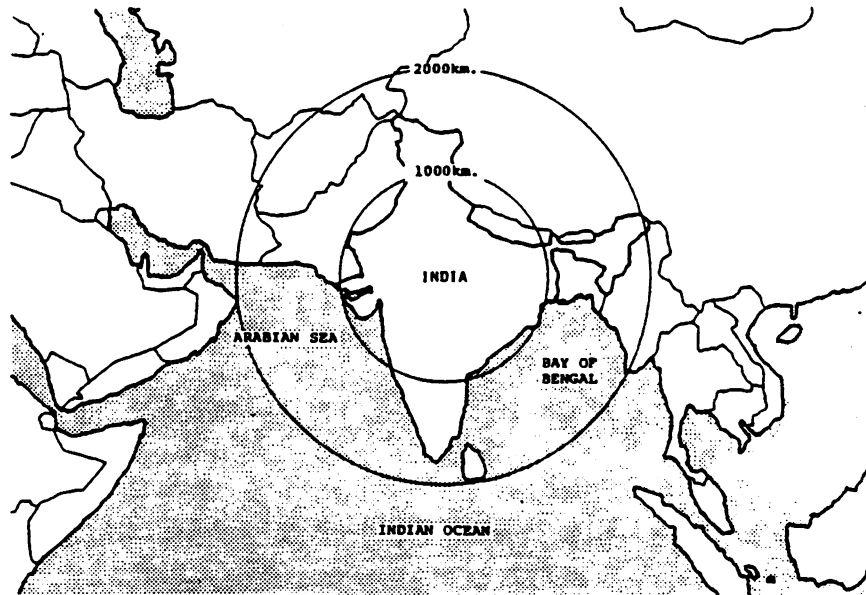
### PEOPLE

Two major ethnic groups predominate in India: Indo-Aryan in the north and Dravidian in the south. 84% of the people are Hindus, 11% Muslims, and the remainder Christians, Sikhs, Jains, Parsis, Buddhists, and others. According to the 1961 census, 1,652 mother tongues were reported. However, about 87% of the people speak one or another of the 14 principal languages identified in the Indian Constitution. English is widely used in government, business, and education throughout the country.

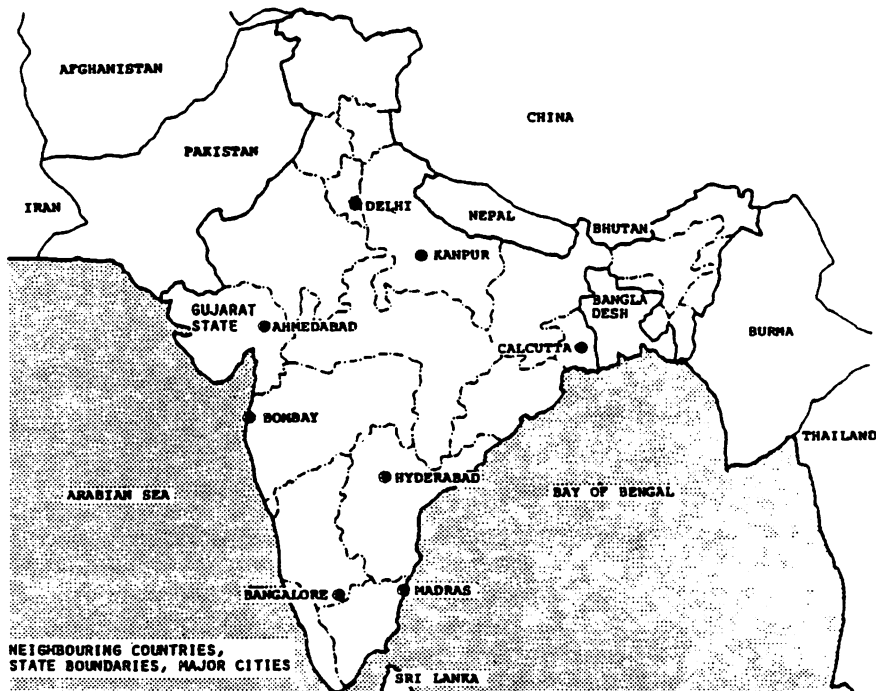
### HISTORY

Recorded history in the Indian subcontinent spans some five millenia. Between 3,000 and 1,500 BC, a number of settlements in the Indus River Valley had developed into complex urban centers based on commerce, trade, and agriculture. Islam came to India in the 7th and 8th centuries AD through Arab merchants. The Mughals reigned from 1,526 to 1,707.

## INDIA NATIONAL CONTEXT



LOCATION OF INDIA



NEIGHBOURING COUNTRIES,  
STATE BOUNDARIES, MAJOR CITIES

source: Mayank Shah, "Chawls Popular Dwellings in Bombay." M.I.T. Thesis, 1981



The first British outpost was established in 1619, and a direct rule of the British Crown in 1857. After partition of the Indian sub-continent into India and Pakistan, India became independent on August 15, 1947. The Constitution was adopted on January 26, 1950, and the country was declared a democratic republic.

#### ADMINISTRATION

India is a sovereign democratic republic with a parliamentary form of government. The President, elected by an indirect electoral college, is the head of the Indian Union. Executive power, however, rests with the Prime Minister. Members of the Cabinet are chosen from among the two houses of the Parliament and are responsible to it. The two houses are the "Rajya Sabha," or the Council of States, with members elected indirectly by the state and territorial legislatures; and the "Lok Sabha," or the House of the People, whose representatives are elected directly by the people.

By 1974, there were 21 states and 9 union territories. The governmental structure at the state level is similar to that of the central government. A State Governor, appointed by the President, is aided and advised by a Cabinet of Ministers, headed by the Chief Minister.

The self-governing bodies at the village, block, and district levels are the "Gram Panchayat," "Block Panchayat," and "Zilla Parishad," respectively. In large towns and cities, the local self-governing body is the Municipality.

The judiciary is a single, integrated, hierarchical system, with the Supreme Court, the High Courts at the state levels, and lower courts at the district and local levels. In many states, at the village level judicial bodies with limited powers called the "Nyaya Panchayat" try cases of minor offenses.

#### ECONOMY

India has a mixed economy with a small but growing public sector. Gross fixed investment in the public sector as a percentage of gross domestic product rose from 2.3% in 1950-51 to 9.2% in 1978-79. A large share of public investment is in the fields of energy, industry, social services, transport, and irrigation. Public savings account for 22.9% of total domestic savings estimated for the sixth plan period (1980-85), while the

balance of 77.1% is generated in the private sector, largely through household savings.

Between 1950-51 and 1978-79, the average rate of growth of national income was 3.5%, of agricultural production 2.7%, and of industrial production 6.1%. Per capita income has grown at an annual rate of 1.3%, and per capita consumption at a rate of 1.1%.

#### POVERTY

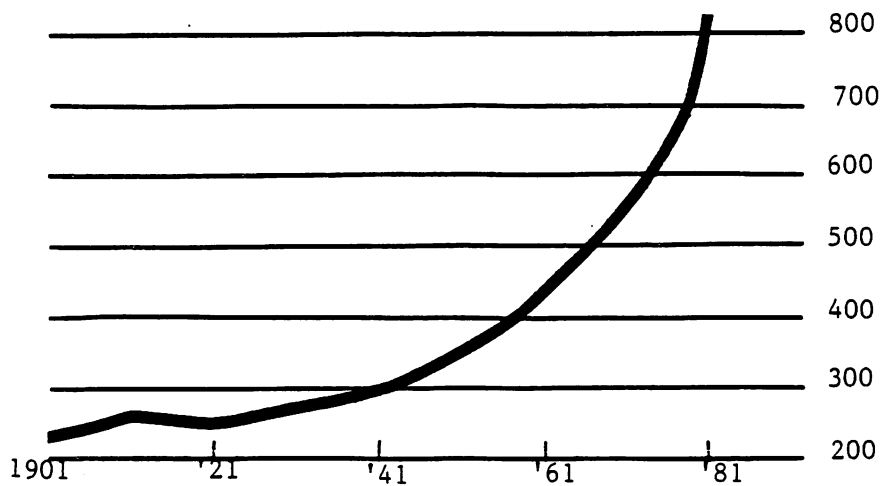
The economic development of the last three decades has made possible a perceptible increase in average per capita income, from RS 466 in 1950-51 to RS 730 in 1978-79 (both at 1970-71 prices). In spite of this increase, the incidence of poverty in the country is still very high. IBRD defines the poverty line as the mid-point of the monthly per capita expenditure class having a daily calorie intake of 2,400 per person in rural areas and 2,100 in urban areas. In 1979-80, the mid-points in India were RS 76 in rural areas and RS 88 in urban areas. Nearly 50% of the population is below the poverty line.

#### INDUSTRIES

The progress of industrialization over the last thirty years has been a striking feature of Indian economic development. Industrial production has increased almost fivefold during this period. The industrial structure has also been widely diversified, covering almost the entire range of consumer, intermediate, and capital goods. Impressive as these achievements are, the rate of growth in this sector has not been uniform. After a steady growth of about 8% during the first fourteen years, the fluctuations began, approaching near-stagnation in 1966-68, reaching 9.5% in 1976-77, and dipping to 1.4% in 1979-80.

#### HEALTH

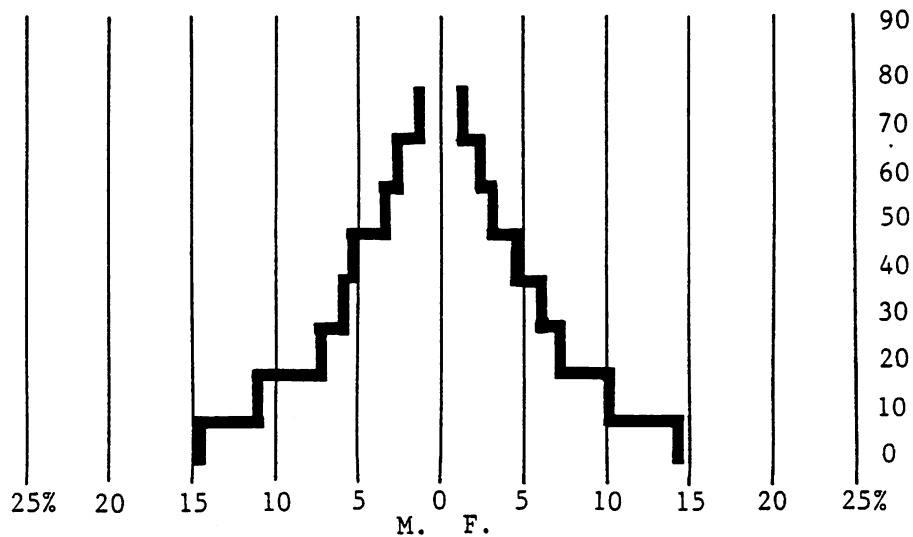
In spite of several significant achievements, the health care system in the country still shows some weaknesses and deficiencies. Development has to a large extent been limited to the promotion of curative and clinical services in the urban areas. The infrastructure of sub-centers, primary health centers, and rural hospitals reaches only a fraction of the rural population. The incidence of malaria has shown an upward trend since



NATIONAL POPULATION GROWTH

horizontal: dates, vertical: population in millions

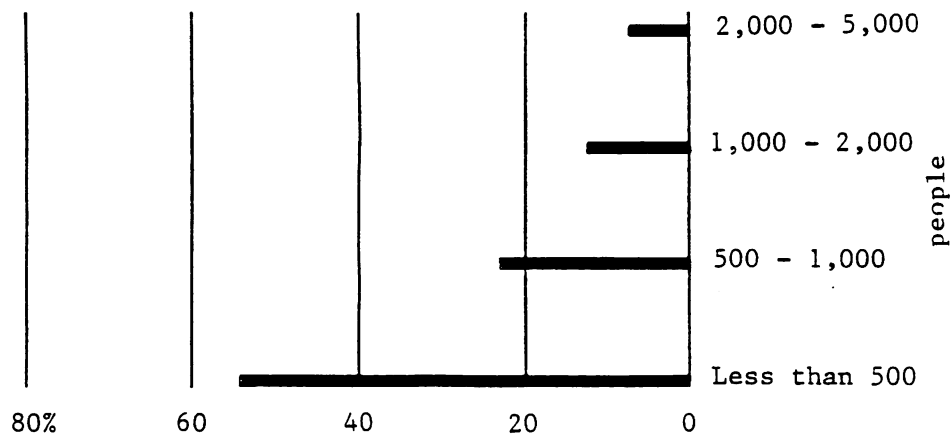
source: India, A Reference Annual, 1974, Govt. of India



NATIONAL POPULATION DISTRIBUTION (1971)

horizontal: percentage, vertical: ages

source: India, A Reference Annual, 1974, Govt. of India



RURAL POPULATION DISTRIBUTION

horizontal: percentage, vertical: village population

source: India, A Reference Annual, 1974, Govt. of India

1965. Nearly 2% of the total population in the country is estimated to suffer from radiologically active lesions and the incidence of tuberculosis continues to be high. There are an estimated 9 million blind people in the country. The increase in sex-ratio indicates the need for greater attention to maternal and health care.

The 1981 population of the country, 659 million, represents an increase of 83% over the 1951 population. The annual growth rate in 1978 was 1.9%. The prevalent high rate of mortality in general and infant mortality in particular has inhibited the acceptance of family planning. The infant mortality for 1976 was as high as 139 per thousand in rural areas, 80 in urban areas, and 129 for the country as a whole.

#### EDUCATION

Despite a network of over 650,000 schools and colleges, the employment of over 3 million teachers and an annual budget of RS 30,000 million, it has not been possible so far for the education system to achieve the goal of universal education of all children up to the age of 14 years, as stipulated in the Directive Principles of the Constitution. For every three children enrolled in primary and middle schools, one other eligible child is left out. Family pressures, economic necessity, the not-too-relevant nature of curricular programs (particularly in rural areas), and the lack of facilities and equipment in schools seem to be even stronger deterrents than shortage of physical plant.

#### TRANSPORTATION

The principal modes of transport in India have been railways and roads. Between 1950 and 1978, passenger traffic by rail doubled to 177 billion passenger-kilometers, and freight traffic quadrupled to 163 billion ton-kilometers. In the same period, automobile traffic is estimated to have increased by a factor of 10, to 250 billion passenger-kilometers, and truck traffic by a factor of 14, to 77 billion ton-kilometers. Air transportation has grown steadily from 0.3 billion in 1955-56 to 3.4 billion passenger-kilometers in 1977-78.

#### SCIENCE AND TECHNOLOGY

In the last thirty years or so, 119 universities affiliating 1,650 colleges, 5 institutions of technology, 150 engineering colleges, 100 medical colleges, and 350 polytechnics have been established; and about 150,000 qualified and technical personnel are graduated every year. The total pool of scientific and technically qualified manpower is estimated to be about 2.5 million. The total expenditure on science and technology is now close to 0.6% of the gross domestic product.

## **DELHI**

### **Urban Context**

Delhi, the capital of India, is situated on the banks of the river Yamuna at 700 feet above sea level, latitude 28°38' north and longitude 77°13' east. It encompasses an area of 573 square miles, and has a population of 6 million (1980). Delhi is not only a capital city--it is also a historic one, with its grand monuments, and imposing ruins.

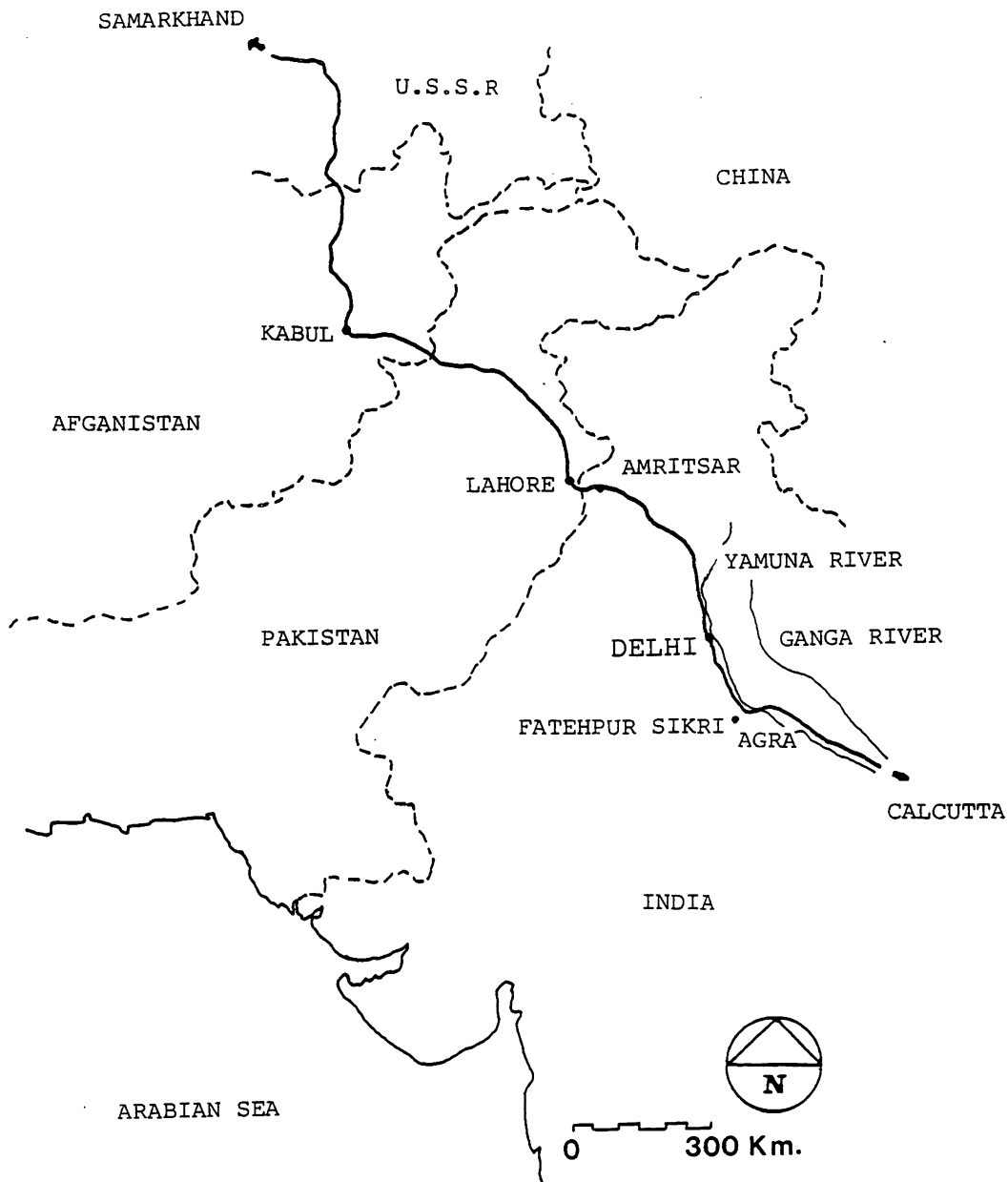
Winter, with temperatures ranging from 52°F to 70°F, usually runs from November to February. Summers are extremely hot and dry, with temperatures ranging from 77°F to 117°F; they usually last from March through July. The monsoon occurs between August and October, with an average annual rainfall of about 25 inches.

The city is unique in many ways, primarily due to its blend of old and new. Physically, it combines an old, densely developed walled city dominated by a highly-convoluted street pattern and, only a few hundred feet away, a relatively new city with long, straight avenues and geometrically arranged Moghul gardens.

### **HISTORY**

Historically, Delhi is not so much one city as the site of a succession of cities. Because of its strategic location controlling movements between the northwest frontier areas of India and the fertile valley of the river Yamuna, Delhi has been the seat of numerous dynasties controlling northern India, dating back to 1050 BC, when it was known as Indraprastha, under the Pandavas. It is in fact several cities, all overlapping and intermingling, of which only two constitute the Delhi of today: Old Delhi, which grew around the Moghul walled city of Shahjahanabad; and New Delhi, the capital city designed by Sir Edwin Lutyens.

After Independence in 1947, the population of Delhi increased drastically due to the sudden influx of over 500,000 refugees from Pakistan, necessitating emergency action and resulting in inevitable growth. The population since then has been increasing rapidly, following the typical urbanization trends seen in all the major cities of the developing coun-



DELHI ON THE "GRAND TRUNK ROAD" - THE TRADITIONAL  
ROUTE FROM CENTRAL ASIA TO INDIA

tries, calling for new urban planning and development strategies.

In 1961, the Delhi Development Authority (DDA) formulated the Master Plan for the 9th City of Delhi in an attempt to reduce traffic congestion, pollution, and the load on the infrastructure.

Today, Delhi is the third-largest city in India, surpassed in size only by Calcutta and Bombay.

#### URBAN ADMINISTRATION

The Delhi Union Territory (the city's present official name) has an area of 573 square miles; of these 447 square miles are rural, with some 300 villages. The entire area, except for the Delhi Cantonment (army base), is under the authority of the Delhi Administration, which functions somewhat like a state government, controlling the police, higher education, etc., but which is largely under the control of the country's central government. Associated with the Delhi Administration is a popularly-elected but comparatively powerless body, the Delhi Metropolitan Council.

Urban growth in Delhi is shaped by the activities of independent organizations having jurisdiction over land development, the supply of infrastructure, and the operation of municipal services.

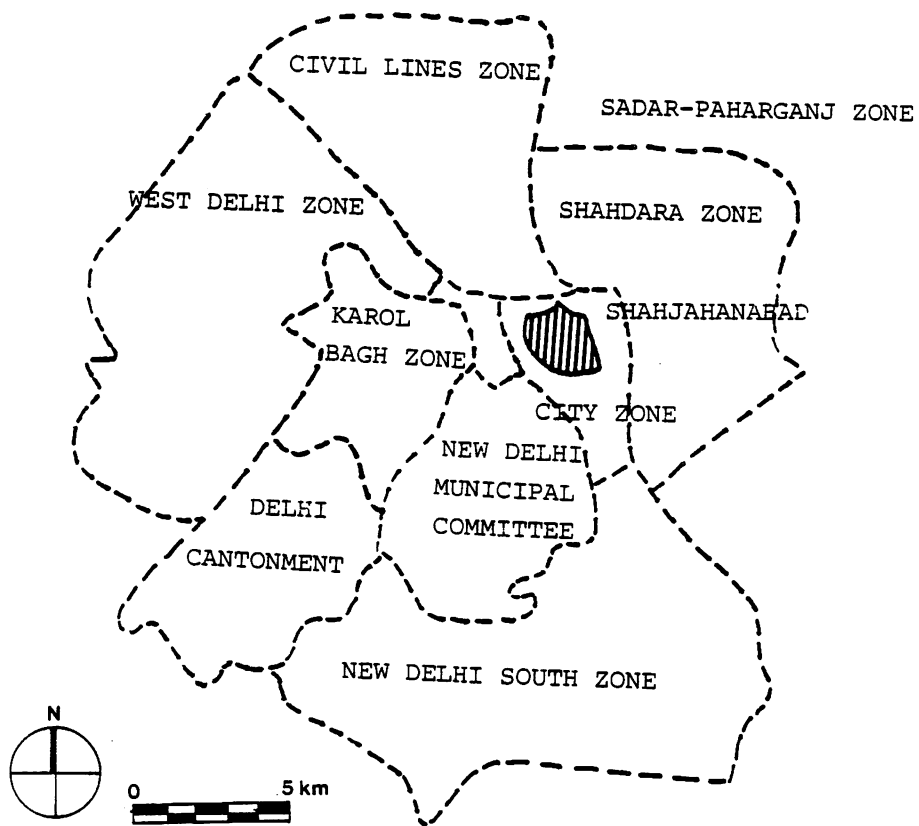
The Town and Country Planning Organization oversees the development of the National Capital region.

The Delhi Development Authority (DDA) is an autonomous planning and development agency, empowered to enact zoning regulations. The DDA came into existence in 1957 and developed the 1961 Master Plan for Delhi. All development within the Walled City and in urban Delhi is undertaken by DDA. It also has the sole responsibility for slum improvement and resettlement of slum dwellers and encroachers. This originally was the function of the Municipal Corporation but it was transferred to the DDA on the theory that a development authority could more effectively tackle these problems.

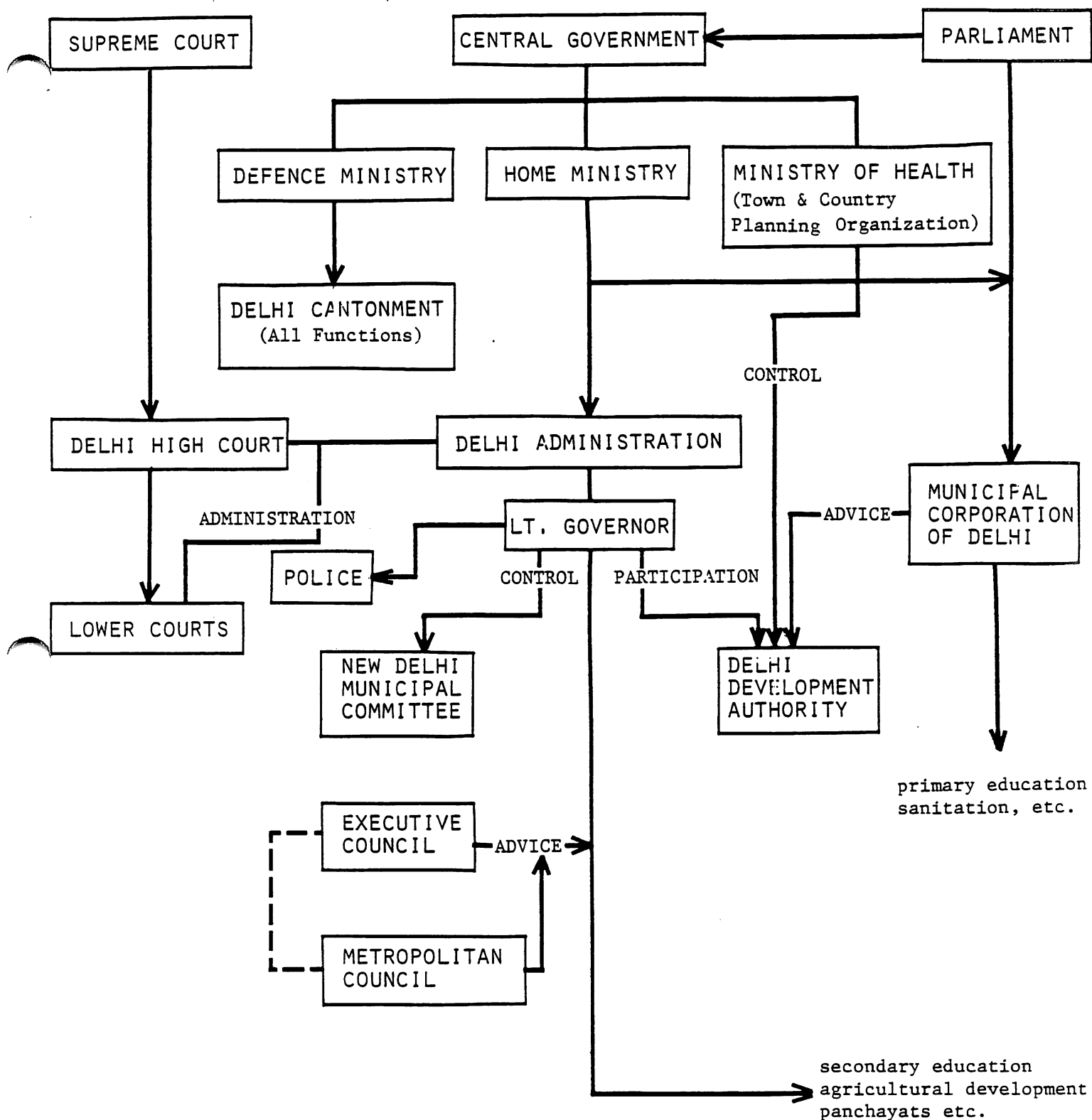
The Authority has a chairman (the Lieutenant Governor) and a Vice-Chairman, plus eleven other members: two Members of Parliament, two Municipal Councillors, and seven officers of the central government. The DDA also has an advisory council made up of ten elected representatives and ten members drawn from social service organizations or government agencies.

The major projects undertaken by the DDA have included the development of the Master Plan for the Ninth City of Delhi, in 1961; the "System of Land-





ZONES OF THE MUNICIPAL CORPORATION OF DELHI



### MAJOR AUTHORITIES IN DELHI

source: Philip Oldenburg, "Big City Government in India, Councilor, Administrator, and Citizen in Delhi."

scaped Areas," in 1969, a project to improve the quality of the urban environment in Old Delhi; and, in 1980, the Asian Games Master Plan, which included three design competitions (the Asian Games Village, a 25,000 seating capacity indoor stadium, and a swimming stadium), a 75,000 capacity open-air stadium, several major flyovers, and new hotels and other facilities to house the Games.

#### ECONOMY

Delhi has a multi-faceted economic base. As the capital city, it accommodates most of the country's administrative machinery, including the headquarters of all government organizations. A large area of the city therefore is occupied by residential buildings housing government employees.

Delhi can be characterized as a service center, the city being neither predominantly commercial nor industrial in nature. A large portion of the population (about 41%) is engaged in office work, while about 47% is in trading or industrial activities.

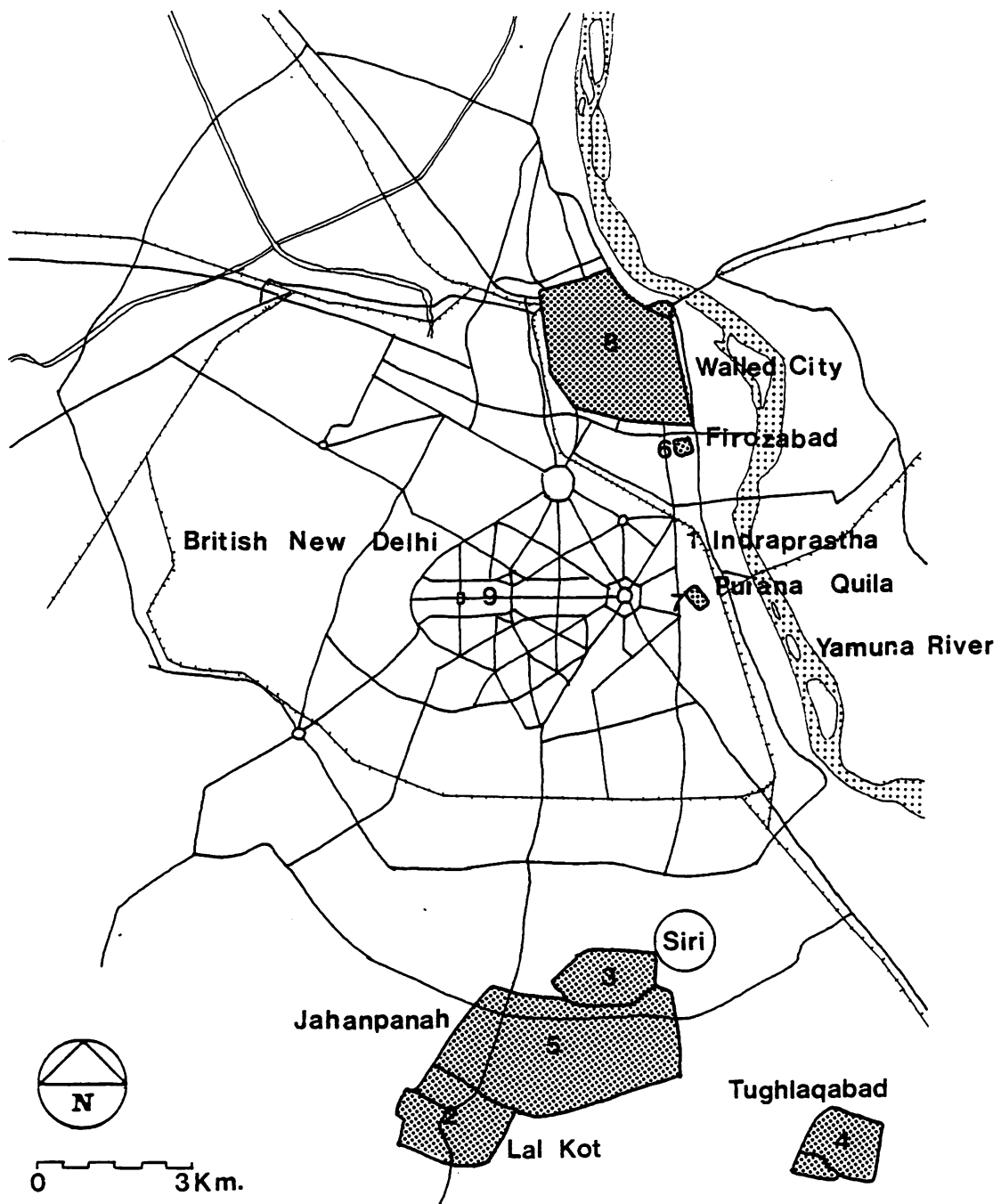
Whereas New Delhi houses all the big business bureaus and governmental institutions, it is the Old City which forms the central business district of metropolitan Delhi. The physical confines of the Walled City include 23% of the shops in Delhi, 44% of business establishments, 40% of the industries, and 20% of the restaurants. Primarily small-scale cottage industries have flourished here (handicrafts, metal work, etc.) while the large heavy industries are in towns on the immediate outskirts.

#### DEMOGRAPHY

Population growth is extremely high, as Delhi is doubling its population every decade. Density is also high, and ethnic composition very diverse.

##### Delhi Population Growth

1950	500,000
1960	2,000,000
1980	6,000,000
2000	8,000,000



**LOCATION OF ASIAN GAMES VILLAGE**

Densities in the Old City differ radically from those of New Delhi. Whereas the density in places is as high as 1,000 persons per acre in the Walled City, it is as low as 20 persons per acre in New Delhi, with the area south of the Central Vista developed at a mere 5 persons per acre.

Almost all of the low income groups are housed in Old Delhi. As a result, it has a much lower per capita income than New Delhi, inspite of its being more industrialized. Moreover, along with the increase in density in Old Delhi, there was a failure to relate employment centers to housing. Land for a proposed Civic Center was partly allocated for other uses, and the ridge and green belt were compromised for large government installations. Commercial sprawl rather than concentration in sub-central business districts occurred widely, and non-conforming industrial activities spread.

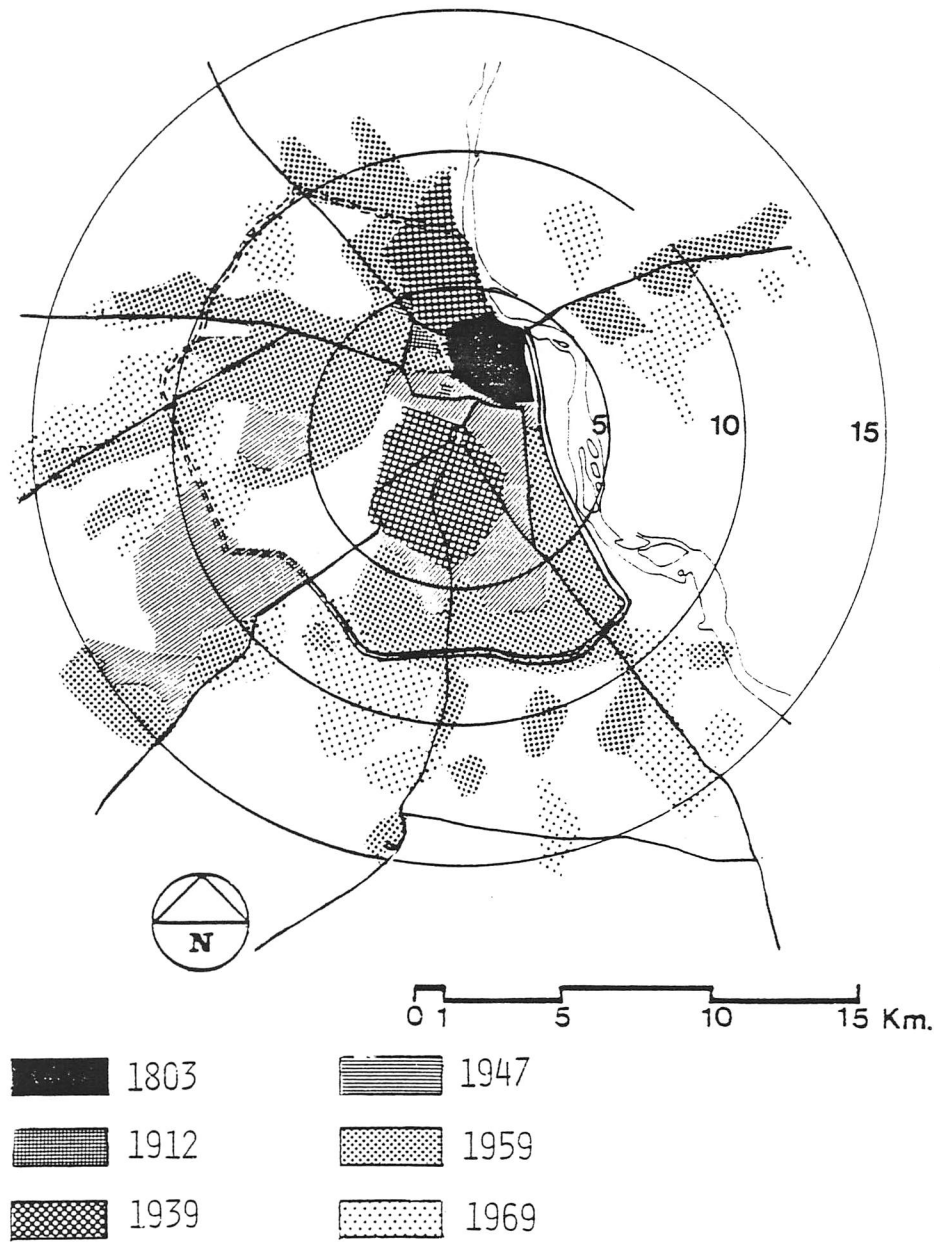
#### LAND USE

The 1961 housing deficit of 150,000 dwelling units was shown to have increased to 380,000 by 1970. Little progress had been made in providing housing for low income groups, and there was extensive unauthorized residential construction. In addition, commercial use was infiltrating residential areas, provision for many community facilities was lagging, and the neighborhood concept had failed to materialize. Slum population, excluding squatters, was estimated at one million. Although one-tenth of the squatter population of half a million had been resettled, there were still 1.5 million estimated to be living in substandard and slum areas.

Ring towns have not been developed as anticipated in the Delhi Master Plan of 1961, and a review showed that over the period 1957-70 the number of cars in the city had increased 730%, motor cycles and scooters 1,870%, and bicycles 325%. The proposed circulation network designed to minimize need for travel and ensure smooth circulation of goods and people was only partially completed and the length of trips had actually increased.

Among the accomplishments attributable to the Master Plan during the ten-year period were the improved quality of new neighborhoods, creation of parks out of unsightly areas, four new river bridges, and an increase in the water supply level.

## GROWTH OF URBAN DELHI



Project Reference Sheet

Project Name: Asian Games Village

Location: New Delhi, India

Consultants: Raj Rewal Associates

Contractor/Builder:

Client: Delhi Development Authority

Implementing Agency: Delhi Development Authority

Date of Commission: 1980

Implementing Status: Completed

Estimated Cost:

Summary Description: The Asian Games Village, a 14-hectare complex of 700 units, was initially constructed for the 1982 Asian Games, but was pre-planned for permanent residential re-use. Conventional construction methods were employed, and the layout and design draw on traditional Indian elements and offer a mixture of public, commercial, and residential uses. Houses and apartments are arranged in clusters overlooking the connecting pedestrian walkways. Each unit has private open-to-sky space as well as access to communal gardens. Symbolic gateways separate the different groupings to give a sense of community. Units are designed for easy maintenance and have provisions for natural ventilation and lighting.

**ASIAN GAMES VILLAGE**  
**Delhi, India**  
Project Summary Paper

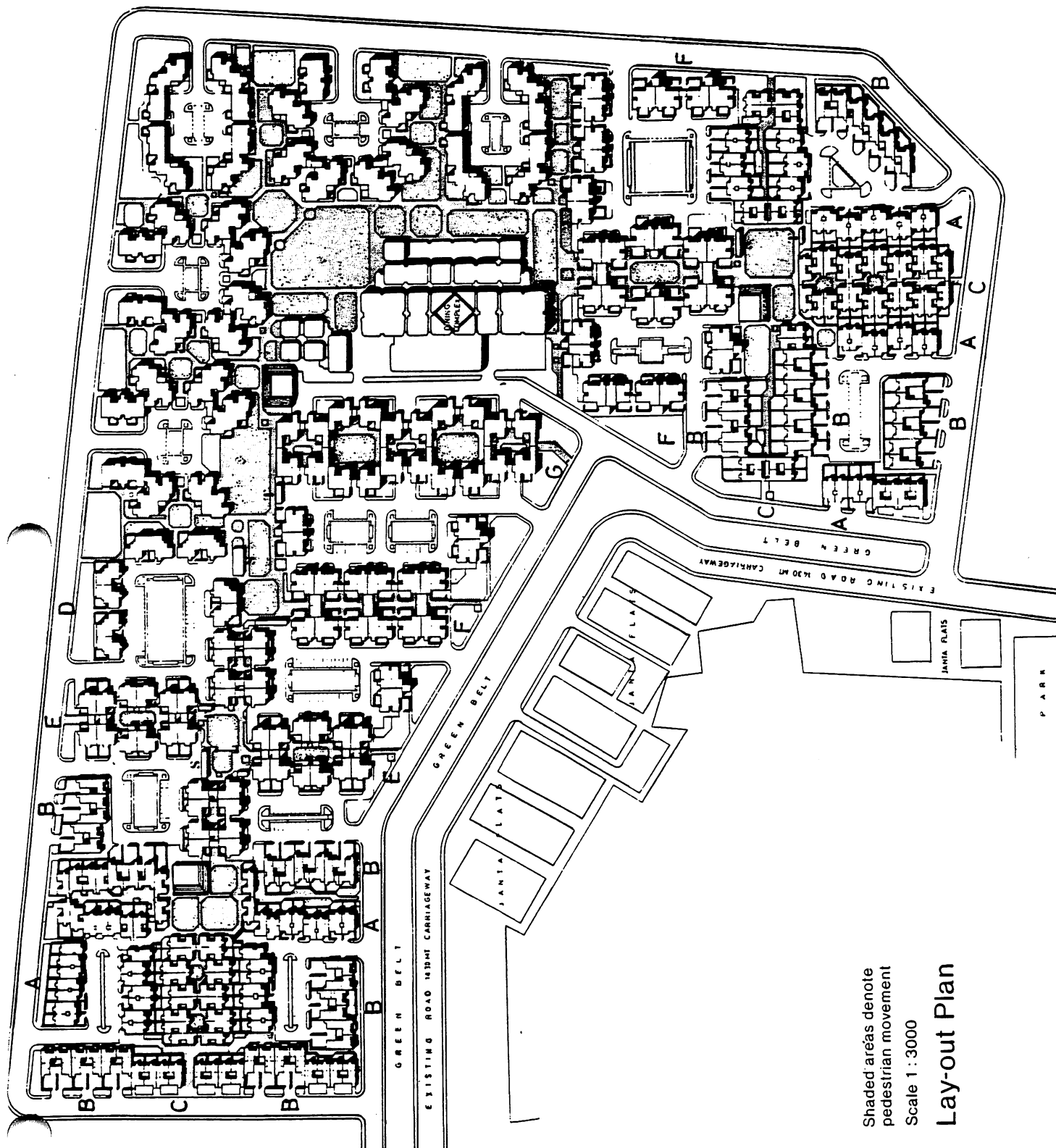
The Asian Games held in Delhi in November 1982 necessitated the construction of many new buildings, stadiums, hotels, and visitor facilities. Among these was a "village" to house contestants from the participating countries. For the design of the Games Village, a limited competition among five of India's leading architects was held by the Delhi Development Authority (DDA). The brief for the competition specified that the project designed for this particular purpose should, on completion of the games, become part of the DDA's housing stock and be sold to the general public.

The Asian Games Village is located near the medieval ruins of Siri Fort in South Delhi, where 35 acres were allotted by the Delhi Development Authority for some 700 housing units. The project took just under two years to build. The concept is based on a sequence of spaces, with a careful mix of recreational and commercial areas. Street alignments are deliberately interrupted by landscaped courts or squares, often defined by gateways, to create points of rest and changing vistas. A sense of enclosure and continuity of movement is maintained throughout the scheme. Density, building heights, and the mix of public and commercial spaces, give the whole village a feeling of intimacy and human scale.

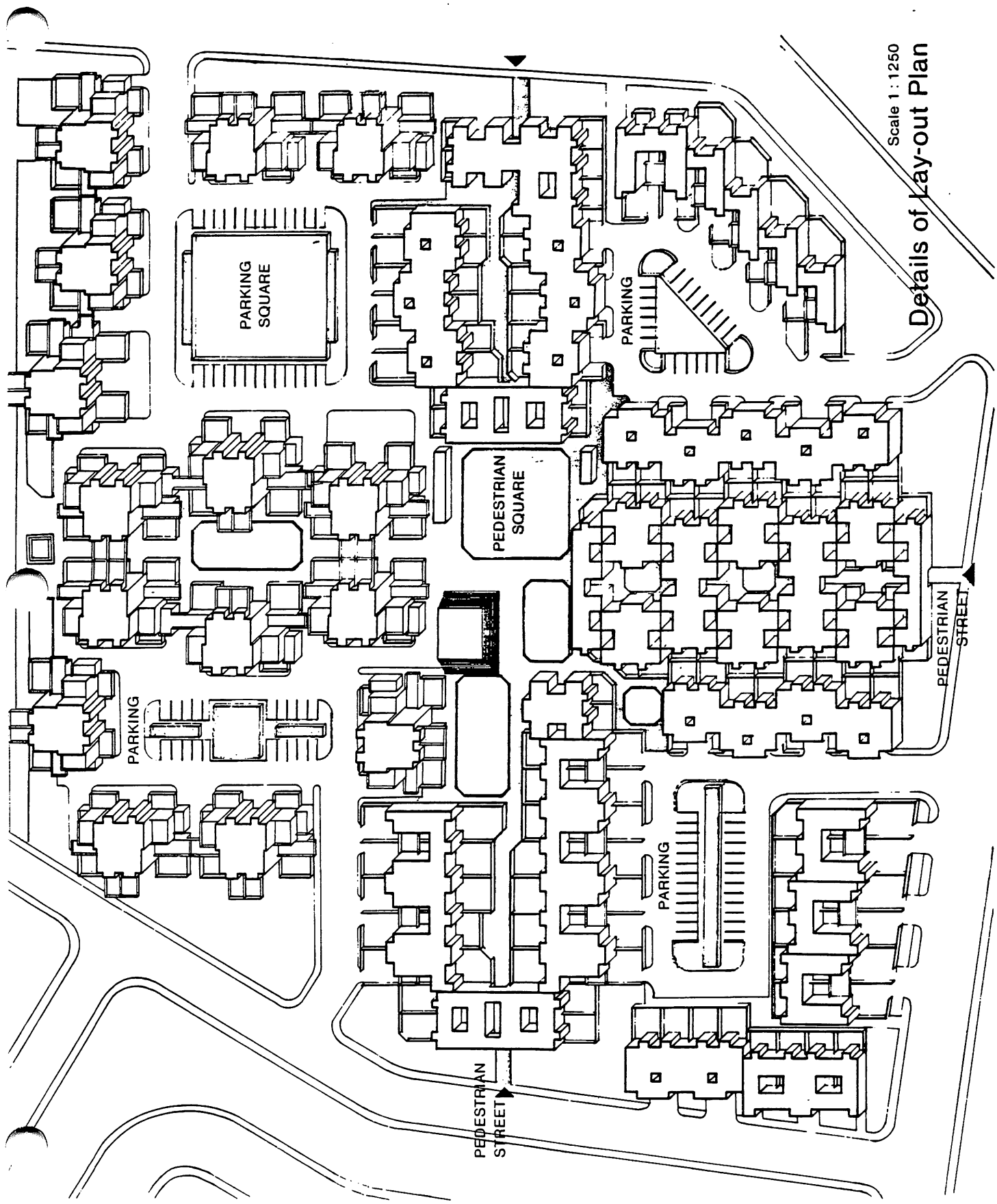
Narrow streets link all the housing units, to provide a setting for encounters among pedestrians and give a sense of belonging to the neighborhood. The design provides a honeycombing of spaces, clusters of residences amid a mix of wide and narrow streets, which tends to foster pedestrian circulation among the houses. The scale of these spaces allows inhabitants to participate comfortably in the life of the street and to carry on the important local tradition of keeping an eye on one's neighbors and habitually sharing experiences and conversations.

The design sought to incorporate another traditional element of old walled cities in India, the gate, or "darwaza," whose role of separating urban subareas was equally as important as its function of integrating the communities inhabiting them. In the Asian Games Village, the concept was





Shaded areas denote  
pedestrian movement  
Scale 1 : 3000  
Lay-out Plan



Scale 1:1250

Details of Lay-out Plan

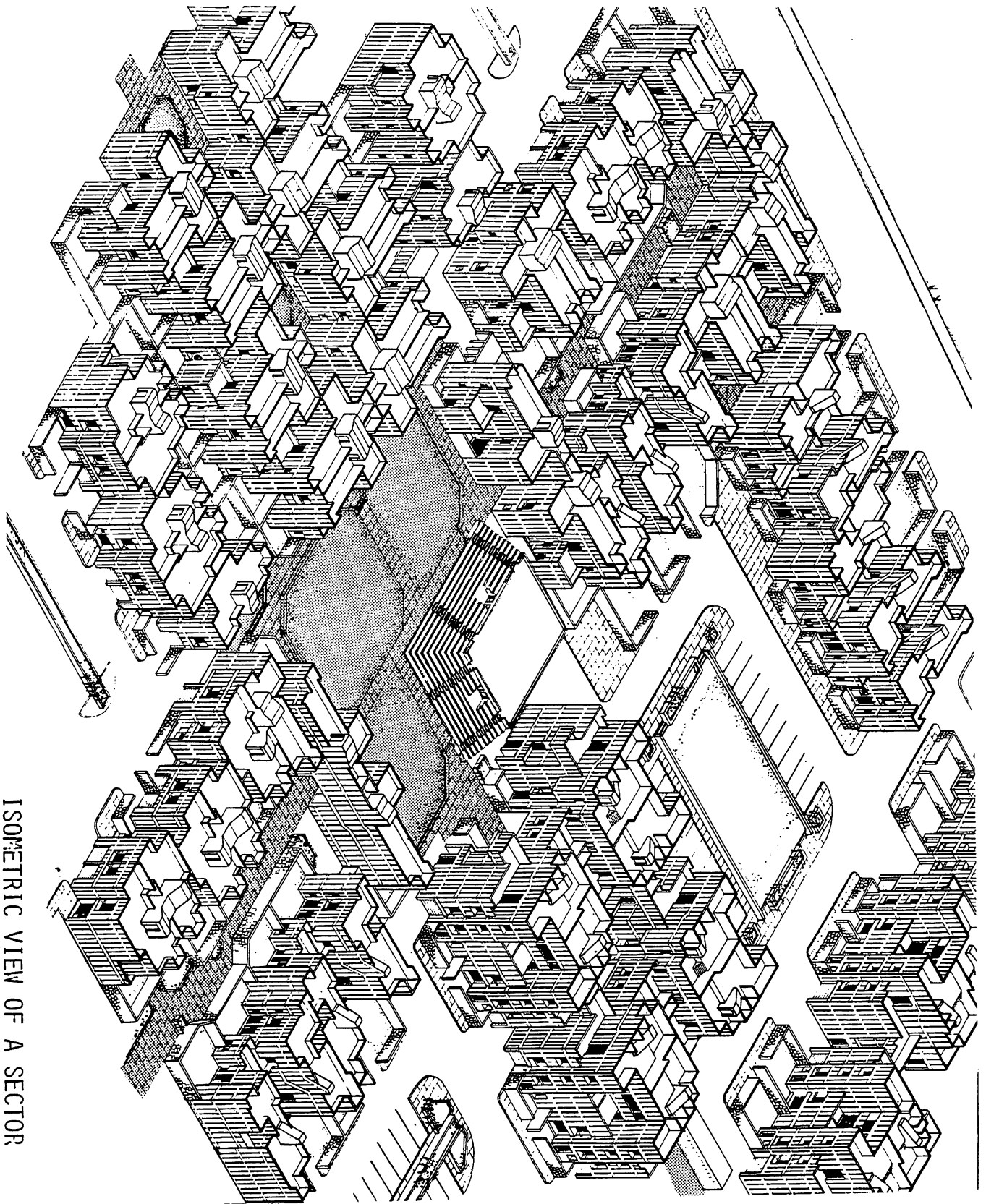
used to define spaces visually. The gateways separate the neighborhoods at ground level but are constructed with walkways above connecting the two sides of the street. Other traditional elements were embodied in the design, from the provision of multi-purpose spaces to the use of visual symbols that give a sense of continuity with the past.

**Site Plan:** The central feature of the site plan for the housing complex is a large dining hall, intended ultimately to be converted into a commercial and recreational complex. There are approximately 700 housing units in two- to four-story structures (200 town houses and 500 apartments) at an overall density of 70 units per hectare. The plan originally submitted by the architect was later modified to have 710 units, of which 520 were designed by the architect and 190 by another firm.

Peripheral roads connect to cul-de-sac parking areas and individual garages or carports attached to the residential buildings. Vehicular and pedestrian movement are segregated but closely interlinked for convenience. Bicycles and scooter garages are grouped around the entry points of building clusters. The central spine of the layout is reserved for pedestrian movement and connects with the various neighborhood pedestrian courts and streets. About 80 percent of the houses and apartments have access from exclusively pedestrian paths as well as from parking squares. The pedestrian spine has several focal points. For example, in one segment, several pedestrian streets culminate in a neighborhood square with shops and small recreation areas.

The apartments vary in size from 90 to 200 square meters. Each unit has private open-to-sky space (either a courtyard or a terrace) in addition to shared use of a larger communal garden area. The clusters of houses connected by walkways have terraces overlooking the internal pedestrian lanes, to give occupants a feeling of involvement in community activities. The overall site plan aims at preserving a sense of continuity and identity with diversity, by linking different types of clusters through an integrated circulation system.

**The Cluster Layout:** In an effort to avoid the common problem of creating the repetitive blocks of buildings typical of public housing projects, the design for the Asian Games Village strove to develop modules



ISOMETRIC VIEW OF A SECTOR

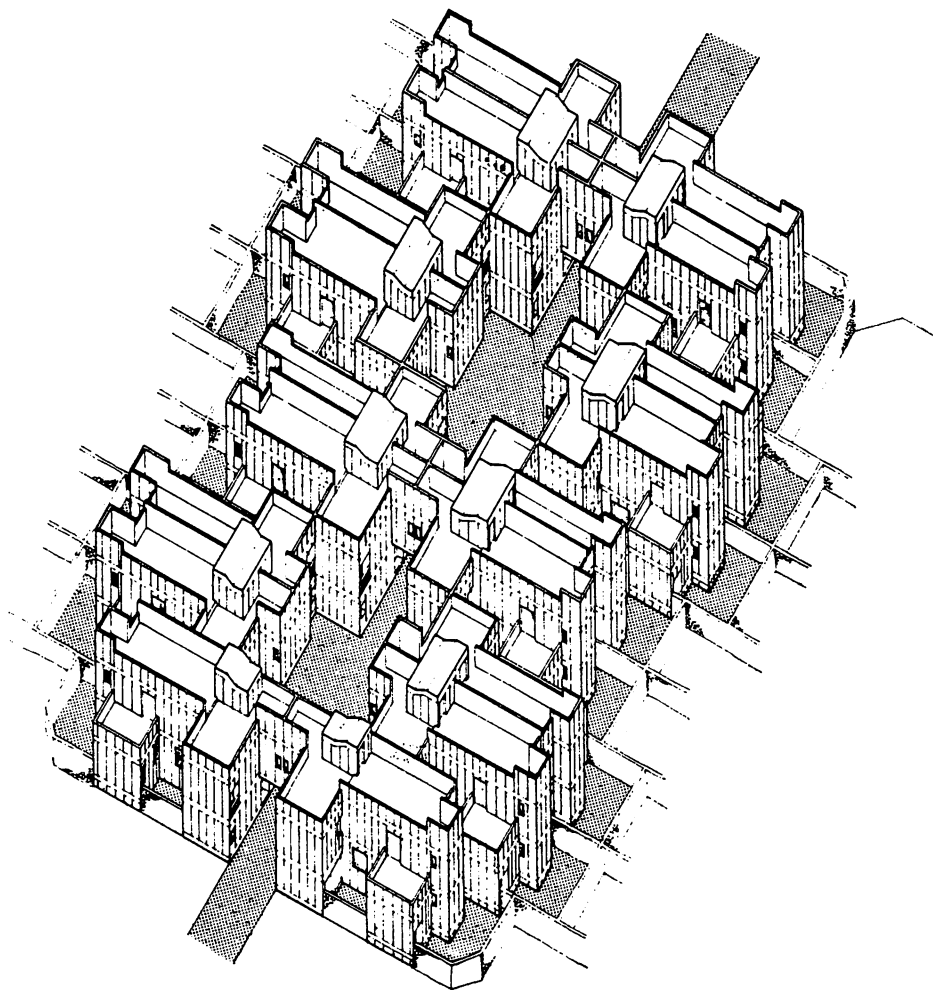
capable of being linked in a variety of ways to form streets, squares, and clusters. The basic modules vary in scale from an individual house to a group of apartment buildings. The clusters range in size from 12 to 36 structures. About two-thirds of the dwelling units are apartments. A typical block of dwelling units is designed so that it can be linked to another block on any side. A two-meter cantilevered projection on the street facade allows the frontage to be joined to another block, creating a covered gateway to a central court for 4, 8, or 16 housing units.

The cluster layout permits local pedestrian movement in covered passageways, and the entrance gateways punctuate the sequence of communal courtyards to define the neighborhood zones, creating a pleasant, cool, and urban environment, safeguarding individual privacy while fostering social interaction.

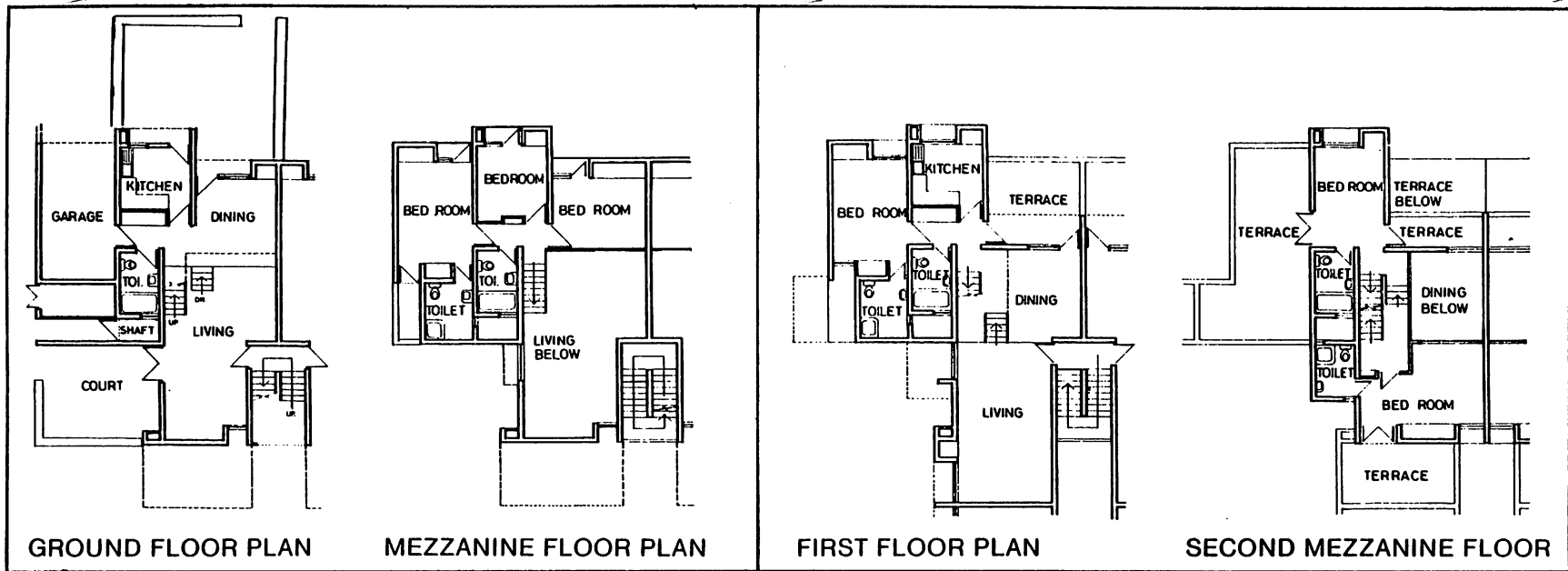
Construction methods were conventional, with minimal reliance on prefabrication; the basic construction materials were reinforced concrete and bricks. External walls were finished with a stone aggregate applied in-situ, and the courtyard walls are of Delhi quartzite stone. Pedestrian pathways were paved with white or red sandstone. The metal doors and windows of the houses are painted in bright colors, to create variety and give a sense of identity to the different units.

Great emphasis was placed on easy maintenance, which influenced the selection of materials and the decision to use exposed service ducts. Efficient and appropriate climate control was given due consideration. For example, the terrace parapets were perforated to allow for air circulation without loss of privacy.

The Asian Games Village is now administered by the Delhi Development Authority, as part of its housing stock. Allocation of housing began recently, with high priority being given to Indians working abroad in order to attract remittances in foreign currency.



ISOMETRIC OF TYPE 'C'

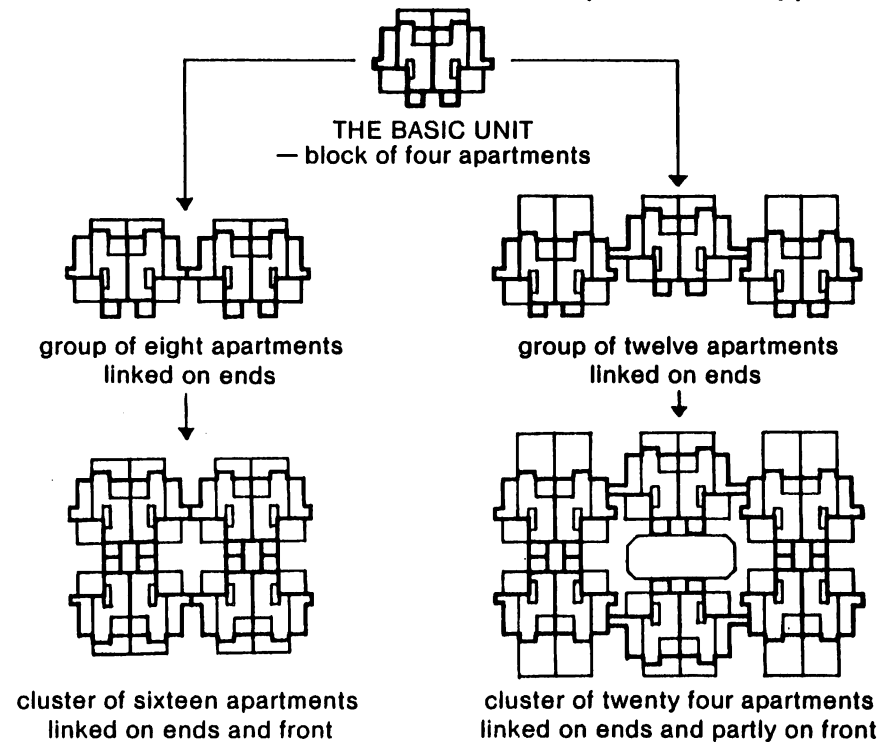


Apartment Type E1

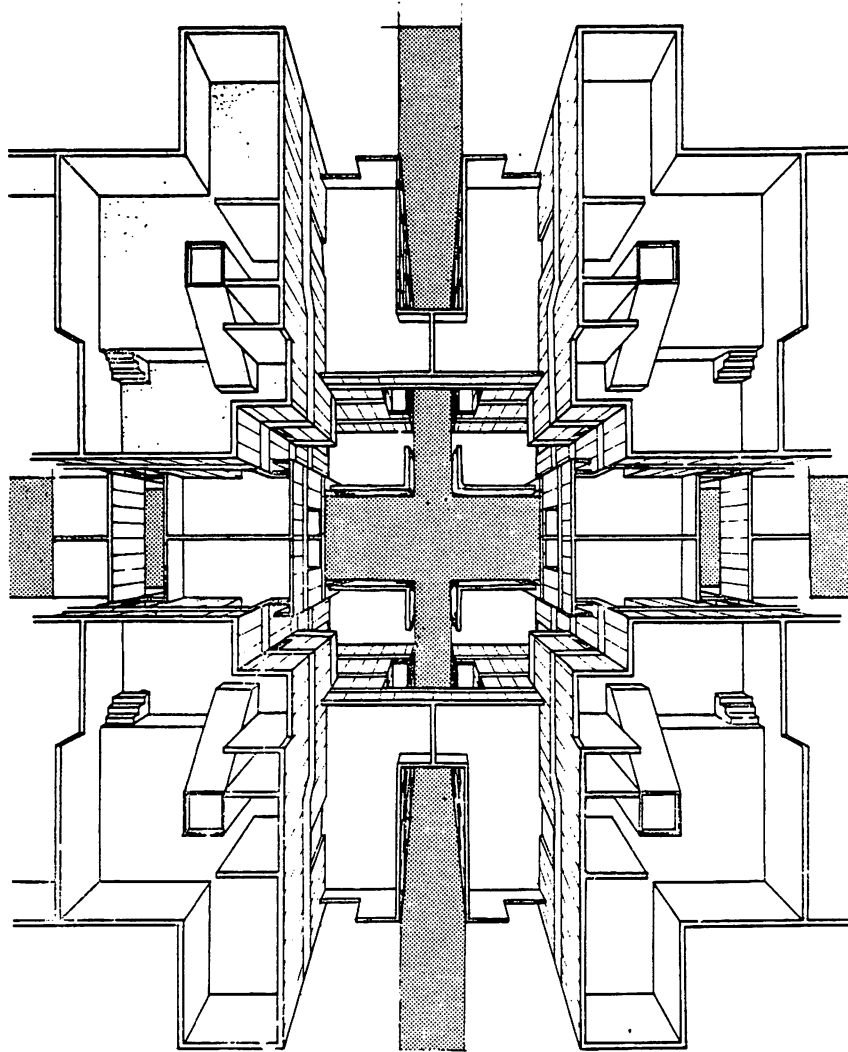
Apartment Type E2

## TYPE E

THE BASIC UNIT OF BLOCK IS DESIGNED IN SUCH A MANNER THAT IT CAN BE LINKED ON SIDES AND ON FRONT TO CREATE A CLUSTER OF 8, 16, 24 UNITS.

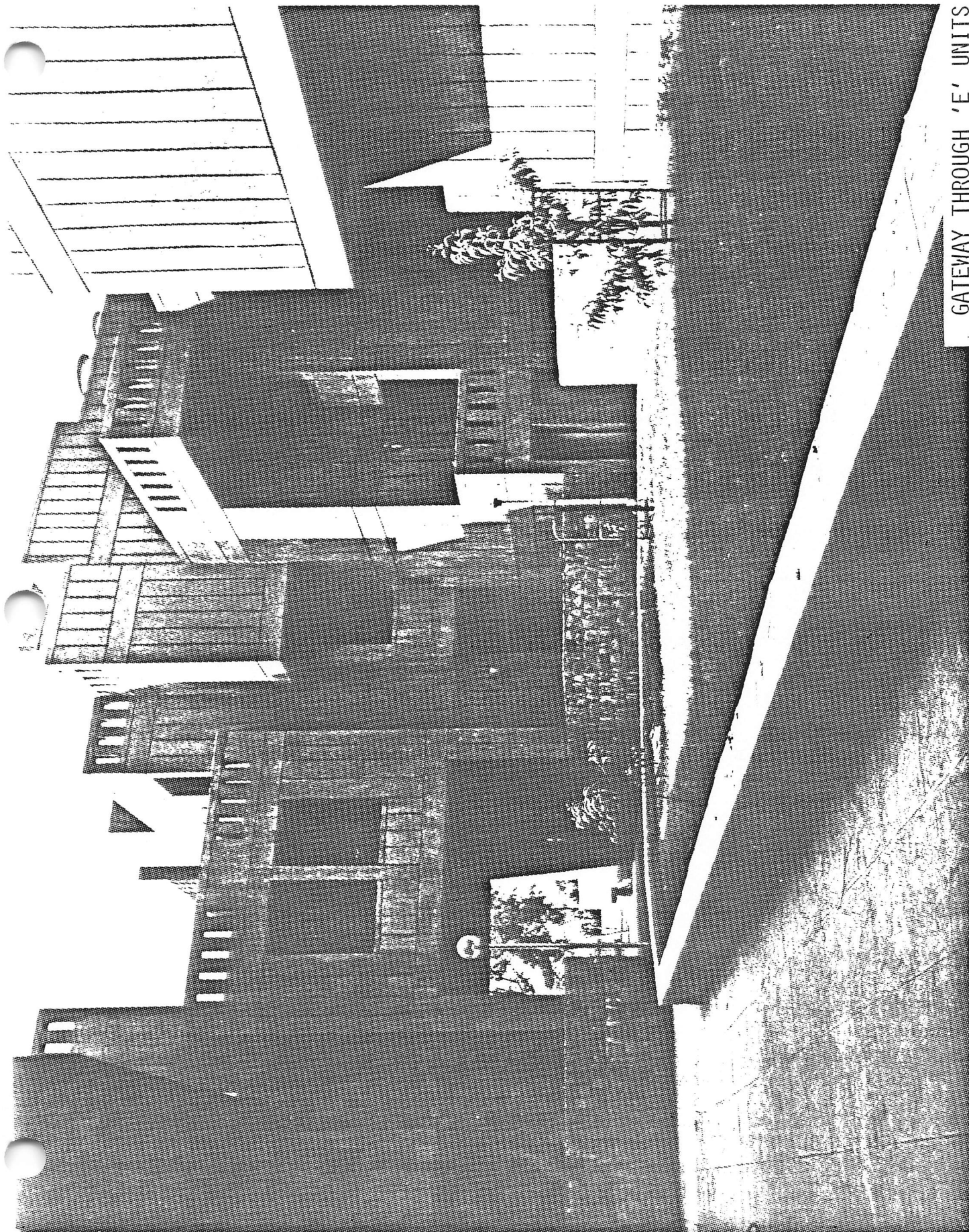


## Cluster of Typical Apartments



TYPE 'E'



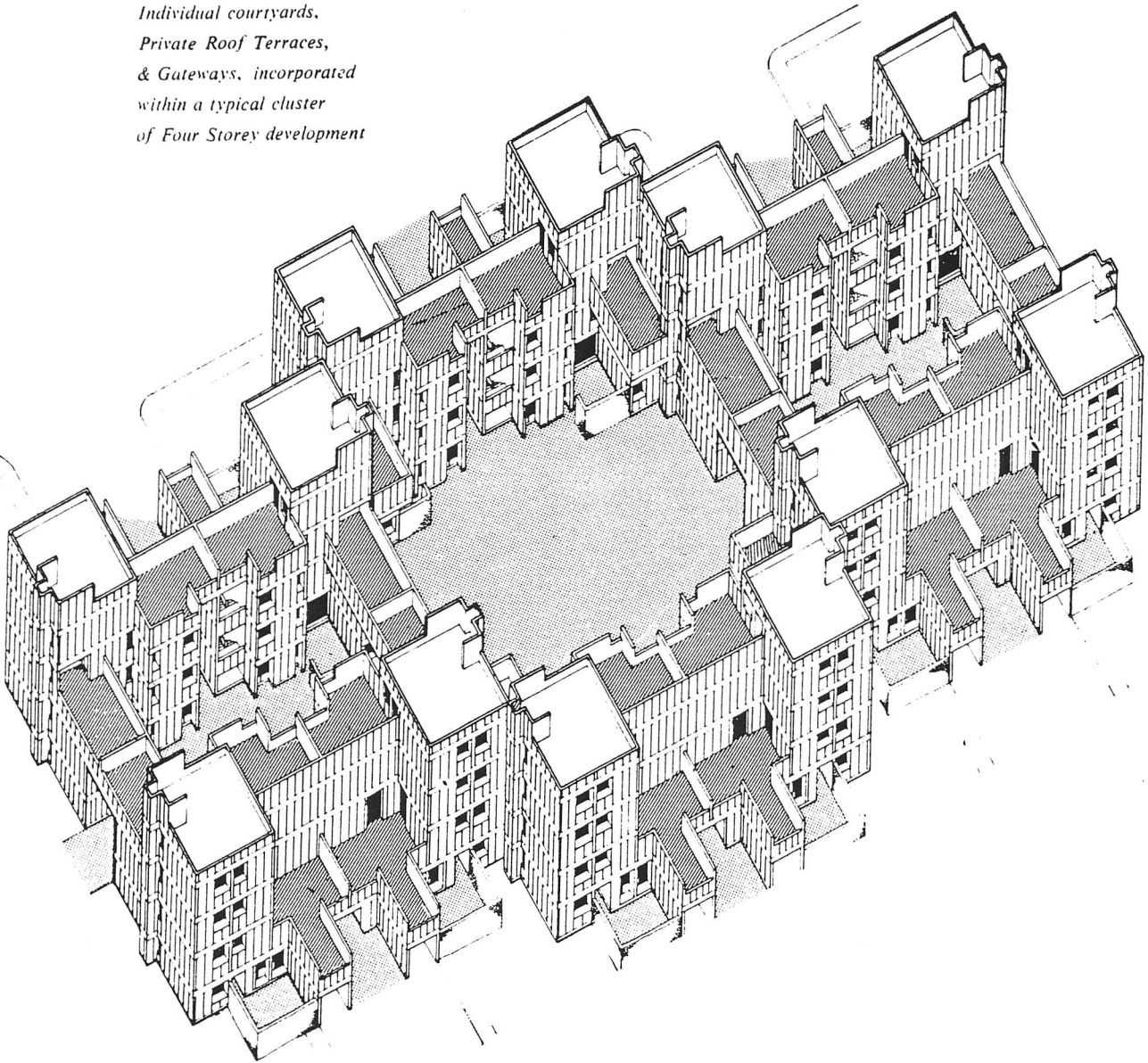


GATEWAY THROUGH 'E' UNITS

## Enclosure

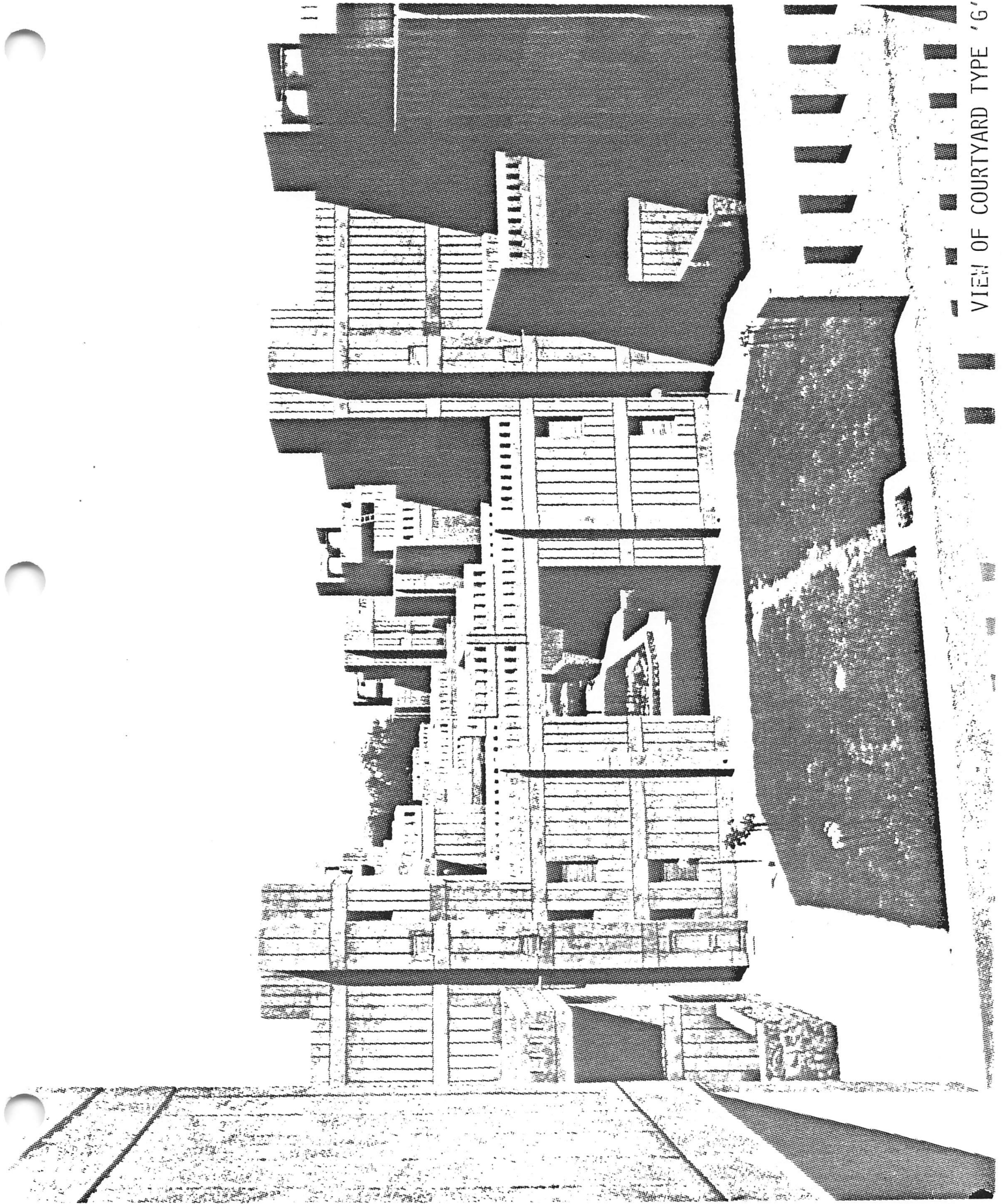
*Isometric below explains  
the hierarchy of  
private and public  
open spaces.*

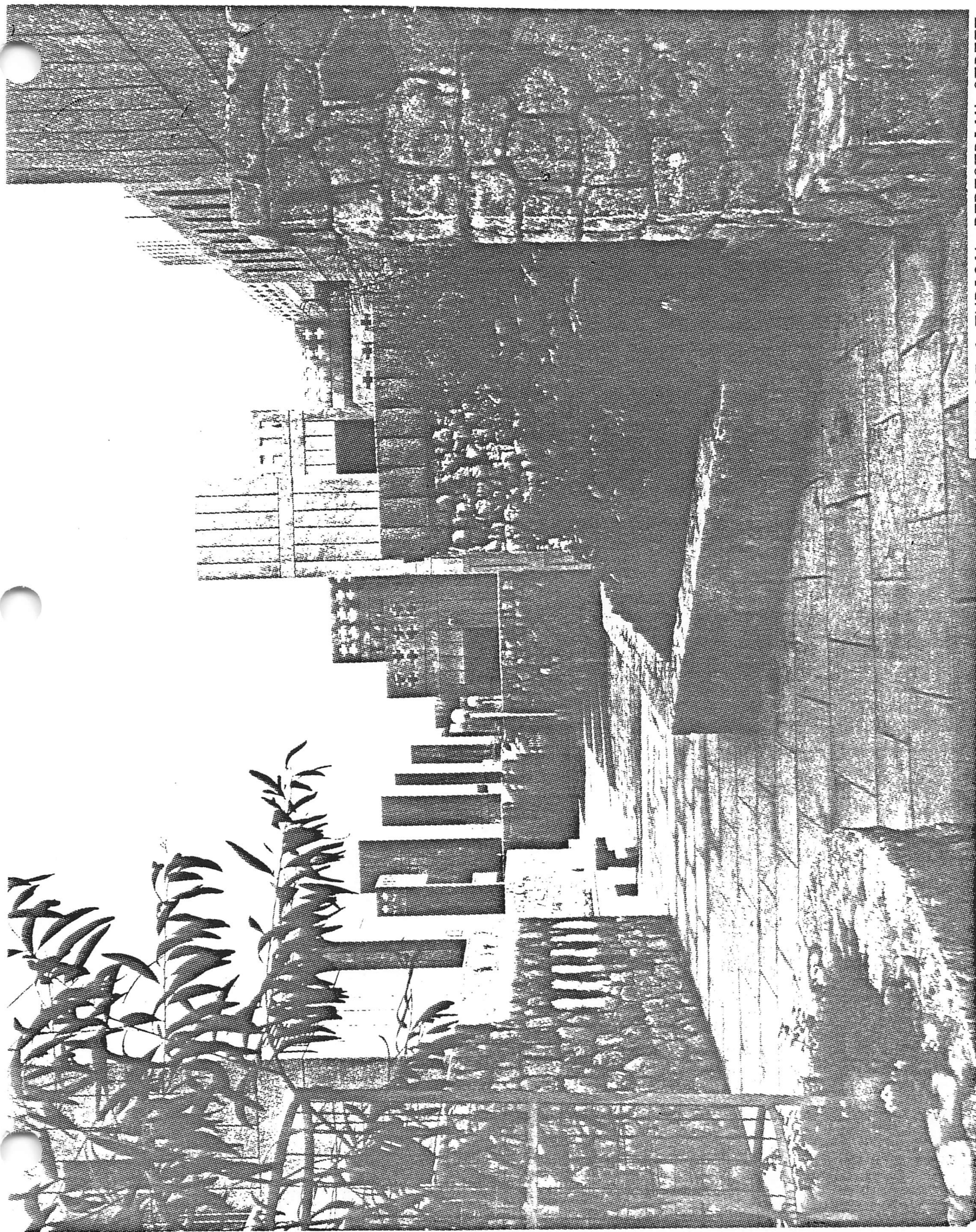
*Neighbourhood Squares,  
Individual courtyards,  
Private Roof Terraces,  
& Gateways, incorporated  
within a typical cluster  
of Four Storey development*



TYPE 'G'







VIEW OF A TYPICAL PEDESTRIAN STREET