

Evolution of Delhi Architecture and Urban Settlement

Author: **Janya Aggarwal**

Student at Sri Guru Harkrishan Model School, Sector -38 D, Chandigarh 160009

Abstract

Delhi remains one of the oldest surviving cities in the world today. It is in fact, an amalgam of eight cities, each built in a different era on a different site – each era leaving its mark, and adding character to it – and each ruler leaving a personal layer of architectural identity. It has evolved into a culturally secular city – absorbing different religions, diverse cultures, both foreign and indigenous, and yet functioning as one organic. When one thinks of Delhi, the instant architectural memory that surfaces one's mind is one full of haphazard house types ranging from extremely wealthy bungalows of Lutyens' Delhi to very indigenous bazaar-based complex settlements of East Delhi. One wonders what role does Architecture in Delhi have played or continue to assume in deciding the landscape of this ever changing city.

Delhi has been many cities. It has been a Temple city, a Mughal city, a Colonial and a Post-Colonial city. In the following research work the development of Delhi in terms of its architecture through difference by eras has been described as well as the sprawl of urban township that came after that.

The research paper revolves around the architecture and town planning of New Delhi, India. The evolution of Delhi from Sultanate Era to the modern era will provide a sense of understanding to the scholars and the researchers that how Delhi got transformed to New Delhi.

Keywords: Architecture, Sultanate, Delhi, Era, Mughal architecture, Lutyens, Qutub Minar, Traditional Design, Taj Mahal, Red fort, Tombs, British Colonial Rule, Parliament House, India Gate, Red Fort, Modern Architecture, IIT, Town Planning, Rashtrapati Bhavan, Supreme Court, Forts, Mosque, Post Colonial, Arabic, Style

Introduction

1. Architectural Development during Delhi Sultanate Era

Art and architecture which was a combination of Arabic and Indian styles that took a new direction in the Delhi Sultanate period. It witnesses the evolution and development of Indo-Islamic Architecture by synthesising geometrical shapes, calligraphy, inscriptional art etc. This Indo-Islamic architecture manifested the aesthetic heritage of the new sultans that includes both religious and secular structures.

The Indo-Islamic architecture manifested the aesthetic heritage of the new sultans that includes both religious and secular structures. While indigenous architecture is Trabeate i.e. the space is spanned by means of beams laid horizontally; the Islamic form is Arcuate, whereby arches are used to bridge a space. The dome is the prominent feature of the mosque in contrast to the Sikhara of Hindu temples.

Features of Sultanate Architecture

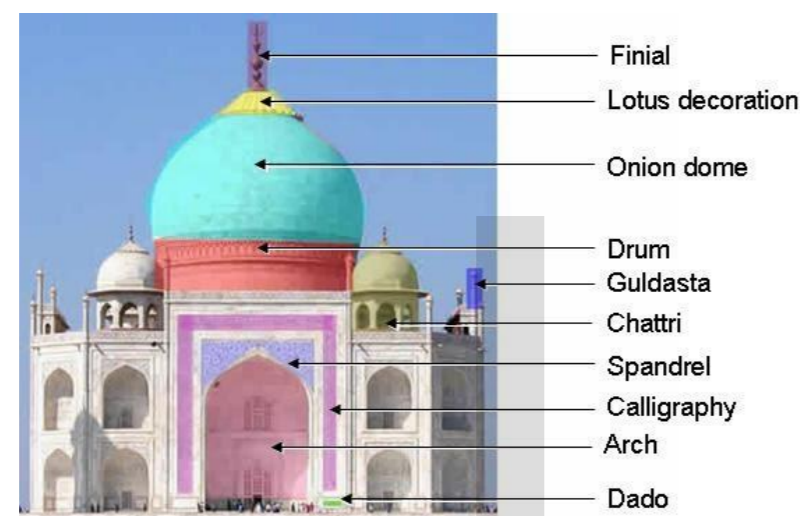


Fig.1 (Source: upload.wikimedia.org)

Glimpse of Sultanate Architecture

1. Arch and dome method which dispensed with the need for large number of pillars to support the roof and enabled the construction of large halls with a clear view.
2. Use of superior mortar to hold the stones.
3. Use of slab and beam method.
4. Decorative exuberance, such as use of geometrical shapes, calligraphy, inspirational art etc.
5. Synthesis of indigenous motif such as ball motif, lotus etc.

1.1 Qutub Minar



Fig. 2 (Source: s-media-cache-ak0.pinning.com)

The Qutub Minar is a towering 73 meter high tower built by Qutub-ud-Din Aibak in 1193. The tower was built to celebrate Muslim dominance in Delhi after the defeat of Delhi's last Hindu ruler. This tower is the highest tower in India, complete with five storeys and projecting balconies. The first three storeys of the Qutub Minar are made of red sandstone and the last two are made of marble and sandstone. In order to celebrate advent of **Muslim dominance in Delhi** and in the celebration of **victory of Aibak over Rajput rulers, Qutub Minar's** constructed. It was started to construct in 1199, and proved the excellent sample for **Islamic architecture**. It was the marker of **shadow of God** over east and west. It was known for the minaret. Every tourist must visit this place in Delhi, since it represents an excellent example of **Indo-Islamic architecture**. This architecture was started in 1199, taken around twenty years to complete and then established itself as the **greatest historical building** in 1219. It is the great example of Mughal's architecture.

1.2 Tomb of Balban



Fig.4 (Source: upload.wikimedia.org)

The tomb of Ghiyas ud din Balban, the last sultan of the Slave dynasty (1200-1287), is a good example of Indo-Islamic architecture. The masonry structure is notable for being the first arch built in the country. It also housed the first dome, although nothing of it remains today; the oldest standing dome is at the Qutb complex, visible from the Tomb of Balban. It is located next to the ruins of a medieval settlement.

1.3 Alauddin Khalji's tomb and madarsa

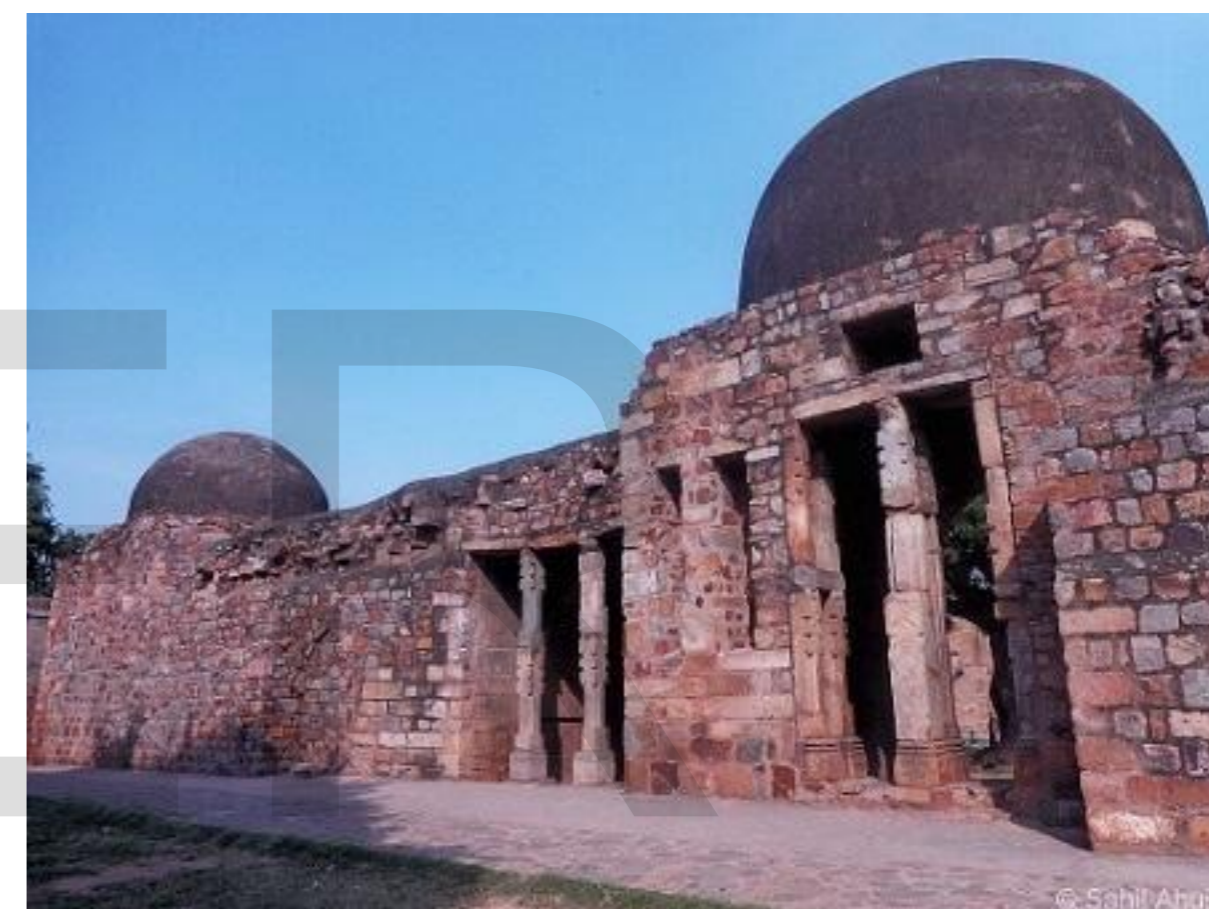


Fig.4 (Source: 4.bp.blogspot.com)

Ala al Din Khalji's (reg. 1296 - 1316) madrasa is situated in the southwestern piece of the Qutb complex. It tends to be seen past Iltutmish's qibla divider expansion to the Qutb mosque. The L-formed madrasa comprises of the school, composed around a quadrangular court, with Khalji's own burial chamber on the southern corner.

At present, the burial place structure itself is in remnants, and reproductions are simply theoretical. It is realized that Khalji's burial place has two littler chambers on the eastern and western sides, associated by a restricted way; late unearthings have uncovered graves inside them. The dividers of these chambers bolstered arches on an octagonal base with pendentives aiding the progress. The three structures (the burial chamber itself and the two littler loads) are contained inside a typical fenced in area divider with an unmistakable entry around it for circumambulation.

The L-molded madrasa is a progression of individual cell-like condos utilized for strict educating. They run along two edges of a patio

1.4 Tughlaqabad Fort



Fig.5 (Source: http://www.jagranjosh.com/imported/images/E/Articles/tughluq_tomb.jpg)

Tughlaqabad Fort is a destroyed post in Delhi, worked by Ghiyas-ud-din Tughlaq, the originator of Tughlaq line, of the Delhi Sultanate of India in 1321, as he built up the fourth noteworthy city of Delhi, which was later surrendered in 1327.

Tughluqabad still comprises of exceptional, monstrous stone fortresses that encompass the unpredictable ground plan of the city. The inclining rubble-filled city dividers, an ordinary component of landmarks of the Tughluq administration, are somewhere in the range of 10 and 15 meters high, bested by battlemented parapets and fortified by roundabout bastions of up to two stories stature. The city should once have had upwards of 52 doors of which just 13 remain today. The braced city contained seven water tanks.

Tughluqabad is isolated into three sections:

1. the more extensive city territory with houses worked along a rectangular matrix between its doors
2. the fortress with a pinnacle at its most elevated point known as Bijai-Mandal and the remaining parts of a few lobbies and a long underground section
3. The adjoining castle territory containing the illustrious habitations. A long underground section underneath the pinnacle despite everything remains.

2. Mughal Architecture

Mughal architecture is the distinctive Indo-Islamic architectural style that developed in northern and central India under the patronage of Mughal emperors from the 16th to the 18th century. It is a remarkably symmetrical and decorative amalgam of Persian, Turkish, and Indian architecture. The Mughals were also renowned for creating exquisite gardens in the Persian *charbagh* layout, in which the quadrilateral gardens were divided by walkways or flowing water into four smaller parts.

2.1 Tomb of Humayun

One of the most stellar accomplishments of Mughal architecture under Akbar is the tomb of his father Humayun, situated in Delhi. Commissioned in 1562 by Humayun's wife, Hamida Banu Begum, and designed by a Persian architect, Humayun's Tomb was the first garden tomb on the Indian subcontinent and the first structure to use red sandstone on such a large scale. It is also the first Indian building to use the Persian double dome, with an outer layer supporting a white marble exterior—a material not seen in earlier Mughal architecture—and the inner layer giving shape to the cavernous interior volume. The use of indigenous Rajasthani decorative elements is particularly striking, including the small canopies or *chhatris* (elevated, dome shaped pavilions) surrounding the central dome. It boasts the use of the *pietra dura* technique, with marble and even stone inlay ornamentation in geometrical and arabesque patterns on the facade of the mausoleum, and *jali* or latticed stone carving decoration. This style of decorative facade was an important addition to Mughal architecture and flourished in later Mughal mausolea, including the Taj Mahal. important addition to Mughal architecture and flourished in later Mughal mausolea, including the Taj Mahal.

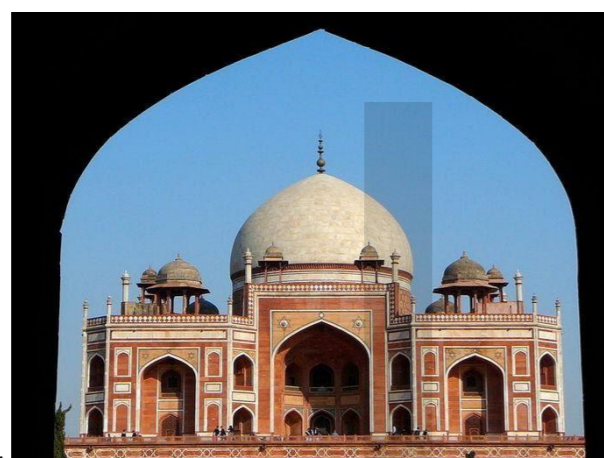


Fig.6 (source: <https://courses.lumenlearning.com/boundless-arthistory/chapter/the-mughal-period/>)

2.2 The Taj Mahal



Fig.7 (source: <https://courses.lumenlearning.com/boundless-arthistory/chapter/the-mughal-period/>)

Located in Agra, the Taj Mahal is a white marble mausoleum built between 1632 and 1648 by Shah Jahan in memory of his third wife, Mumtaz Mahal. Constructed by 20,000 men, it represents the Islamic garden of paradise and is widely regarded as the greatest achievement in Mughal architecture.

The mausoleum rests in the middle of a large square plinth and has four almost identical facades, each with a large arch-shaped doorway. It is topped by a large double dome and a finial, combining both the traditional Islamic motif of the crescent moon and the Hindu symbol of the trident, associated with the god Shiva. The central dome is adorned with a lotus design and is surrounded by four smaller *chhatris*, each of which also has the same lotus motif. Four tall minarets extend from the corners of the plinth.

The exterior decorations of the Taj Mahal include calligraphy, abstract forms, verses from the Koran, and vegetable motifs, executed in paint, stucco, carvings, and *pietra dura* work. The interior decorations also feature inlay work of precious and semi-precious gemstones. Muslim tradition forbids elaborate decoration of graves, and the bodies of Shah Jahan and Mumtaz Mahal are interred in a plain crypt underneath the mausoleum. However, the inner tomb features two cenotaphs, or false tombs, that are richly decorated with inlays of semi-precious stones forming vines and flowers and surrounded by *jali* screens, or latticed screens with ornamental patterns constructed through the use of calligraphy and geometry.

2.3 Red fort



Fig.8 (Source: https://en.wikipedia.org/wiki/Red_Fort)

The **Red Fort** is a historic fort in the city of Delhi in India, which served as the main residence of the Mughal Emperors. The Red Fort has an area of 254.67 acres (103.06 ha) enclosed by 2.41 kilometres (1.50 mi) of defensive walls, punctuated by turrets and bastions and varying in height from 18 metres (59 ft) on the river side to 33 metres (108 ft) on the city side. The fort is octagonal, with the north-south axis longer than the east-west axis. The marble, floral decorations and double domes in the fort's buildings exemplify later Mughal architecture.

It showcases a high level of ornamentation, and the Kohinoor diamond was reportedly part of the furnishings. The fort's artwork synthesises Persian, European and Indian art, resulting in a unique Shahjahani style rich in form, expression and colour. Red Fort is one of the building complexes of India encapsulating a long period of history and its arts. Even before its 1913 commemoration as a monument of national importance, efforts were made to preserve it for posterity.

The Lahori and Delhi Gates were used by the public, and the Khizrabad Gate was for the emperor.^{[16]-04} The Lahore Gate is the main entrance, leading to a domed shopping area known as the *Chatta Chowk* (covered bazaar).

2.4 Safdarjung Tomb



Fig 9(source: hehistoryhub.com/wp-content/uploads/2014/04/Safdarjung-Tomb-Images.jpg)

The Safdarjung Tomb also referred to as 'Safdarjung Ka Maqbara' is a garden tomb in New Delhi, India, made of marble and sandstone and built in late 18th century as mausoleum of Safdarjung, a statesman who remained the Wazir ul-Hindustan (Prime Minister of India) during the reign of Ahmad Shah Bahadur. This mausoleum built by Safdarjung's son Nawab Shujaud Daula remains the last monumental garden tomb depicting Mughal architectural style. The Safdarjung Tomb, designed by an Ethiopian architect marks the last colossal garden tomb of the Mughals. Although the Safdarjung Tomb was designed and constructed in line with the famous historical monument, Humayun's Tomb, the tomb of Mughal Emperor Humayun in Delhi, it lacked in both grandeur and style compared to the latter. The mausoleum constructed on an elevated platform is surrounded by a huge square garden measuring 280 metres (920 ft) on each side with a courtyard and a three-domed mosque housed inside the compound that is enclosed within a wall.

The tomb that is built of red and brownish-yellow colored sandstone has a high terrace and is capped with a massive central dome. Slabs from the mausoleum of Abdul Rahim Khankhana were used in its construction. The two-storied main entry gate of the mausoleum gives an excellent view of the monument. Intricate designs are made on its facade, the back side of which houses several rooms and a library. A translated version of an Arabic inscription etched on its surface reads "When the hero of plain bravery departs from the transitory, may he become a resident of god's paradise". Its square shaped central chamber has a centrally placed cenotaph and 8 partitions. Rococo plaster is used in the embellished interior of the mausoleum. The rubble walls inside the tomb adorn a number of depressed arches as also octagonal shaped 'Chhatris' or towers on each of the four corners. Predominantly the tomb has rectangular chambers with the corner chambers being octagonal in shape. Four polygonal towers with kiosks are placed at each corner of the main tomb. The actual graves or burial chambers of Safdarjung and his wife Amat Jahan Begum are placed in an underground chamber of the monument.

3. British colonial period

Prominent colonial architectural style of DELHI: The architectural style of the British period is very prominent in Delhi and is represented by the Central Secretariat, Parliament House or the ' Sansad Bhavan ' and the President's House or Rashtrapati Bhavan , formerly the British viceroy's house, the splendid Rajpath , India gate and New Delhi combining the best features of the modern English school of architecture with traditional Indian forms. The British followed various architectural styles - Gothic, Imperial, Christian, English Renaissance and Victorian being the essentials. In 1911 King George V passed an order declaring that the capital would be moved from Calcutta to Delhi . The city was planned systematically, combining 20th century architecture. Sir Edwin Lutyens was responsible for the overall plan of Delhi.

3.1 Parliament House



Fig 10.(source: https://en.wikipedia.org/wiki/File:New_Delhi_government_block_03-2016_img3.jpg)

Parliament House: The Central Hall of the Parliament has been intended to be round fit as a fiddle. The vault is 98 ft. (29.87 meters) in distance across and is accepted that it is one of the most radiant vaults on the planet. The Central Hall is a position of chronicled significance in India for two reasons: The exchange of provincial capacity to the Provisional Government under Nehru in 1947 and the encircling of the Constitution by the Constituent Assembly occurred in this very corridor. Initially, the Central Hall was utilized as the Library of the recent Central Legislative Assembly and the Council of States until 1946, when it was changed over and refurbished into the Constituent Assembly Hall.

3.2 India Gate



Fig 11.(source: https://en.wikipedia.org/wiki/File:India_Gate_in_New_Delhi_03-2016.jpg)

India Door: The Gate is filled in as a one of a kind update for all the warriors who has a spot with Indian Army and to all of the people who have given their lives doing combating for the affirmation of their country. It is seen as that around 90,000 and more contender's names have been encoded over the dividers of India portal which is an extraordinary thing in itself. The unequivocal india gateway building explains you that there is a gigantic way which is moreover known by the name of Rajpath close to the completion of which is manufactured a 42 meters high India Gate that was as of late known by the name of All India War Memorial. The arranging of India Gate was done by notable organizer Sir Edwin Lutyens . Staying behind the entryway is an empty sanctuary made out of sandstone, in like manner organized by Lutyens , and awakened by a sixth century structure from Mahabalipuram.

3.3 Rashtrapati Bhavan



Fig 12.(source: https://en.wikipedia.org/wiki/File:Forecourt,_Rashtrapati_Bhavan_-_1.jpg)

Rashtrapati Bhavan : The Rashtrapati Bhavan is a large and vast mansion with four floors and has 340 rooms. It is built on a floor area of 200,000 square feet (19,000 m²). It faces east. A straight east-west road, Rajpath , starts from the huge square, Vijay Chowk , in front of Rashtrapati Bhavan and ends at India Gate on the western end of the road. The ancillary dome-like structure on top of the building is known as a Chuttri , an integral part of Indian architectural design. (This picture shows one of the Secretariats , designed by Baker, which are not part of Rashtrapati Bhavan .)

3.4 Supreme Court Of India



Fig 13 (source: <https://telanganatoday.com/supreme-court-rules-favour-delhi-government>)

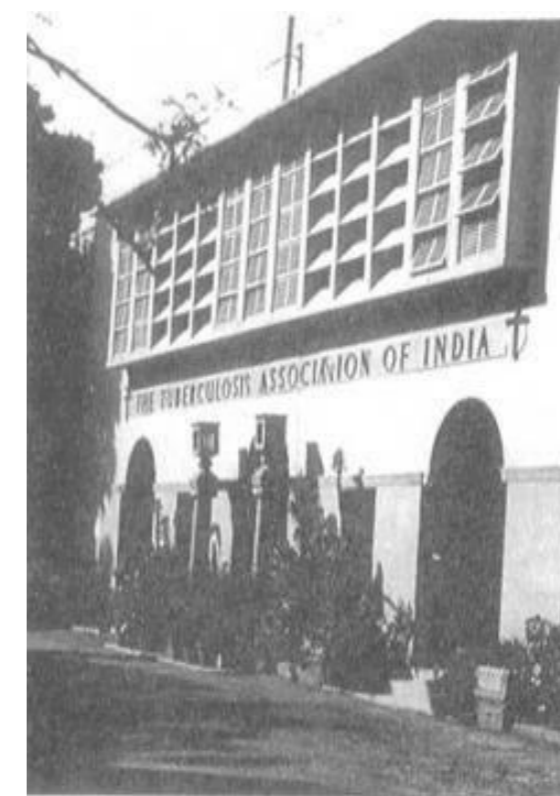
Supreme Court of INDIA: The primary square of the Supreme Court building was based on a square plot of 22 sections of land and the structure was planned by boss designer Ganesh Bhikaji Deolalikar who was the principal Indian to head CPWD and planned the Supreme Court Building in an Indo - British compositional style. He was prevailing by Shridher Krishna Joglekar . The Court moved into the current structure in 1958. The structure is molded to extend the picture of balances of equity with the Central Wing of the structure relating to the middle light emission Scales. In 1979, two new wings—the East Wing and the West Wing—were added to the complex. In all there are 15 courts in the different wings of the structure. The Chief Justice's Court is the biggest of the court situated in the focal point of the Central Wing. It has an enormous vault with a high roof.

3.5 Central Secretariat



fig 14.(source: en.wikipedia.org)

Central secretariat: The Secretariat Building was arranged by the unquestionable British creator Herbert Baker in Indo-Saracenic Revival design. Both the indistinct structure has four levels, each with around 1,000 rooms, in the inside yards to make space for future augmentations. In continuation with the Viceroy's House, these structures also used cream and red Dholpur sandstone from Rajasthan, with the red sandstone forming the base. Together the structures the planned to shape two squares. They have broad corridors between different wings and wide stairwells to the four stories and each building is topped by a beast curve, while each wings end with colonnaded display. An extraordinary piece of the structure is in conventional structure style, yet it solidified from Mughal and Rajasthani configuration style and subjects in its designing. These are clear in the use of Jali, punctured screens, to shield from consuming sun and tempest storms of India. Another component of the structure is a curve like structure known as the Chatri, an arrangement extraordinary to India, used in old events to offer assistance to explorers by giving shade from the rankling Indian sun.

Fig 15 (Source: <http://delhi-architecture.weebly.com/post-1947-developments-buildings-part1.html>)

Walter Sykes George (1881-1962) was an English architect in the post Independence era. (He had designed the St Stephens College, built in 1941). George's design for the Tuberculosis Association Building in New Delhi shows a modification of the prevalent International styles. The building's adjustable lightweight horizontal louvers place it clearly in a contemporary Modernist context. George's use of materials in the building does, however, show continuity with much Anglo-Indian architecture of the 1930's.

The central and state pwds and their offshoots such as the DDA (estab provisionally in 1955 and finally in 1957 when it absorbed the Delhi Improvement trust) continued to work much as before Independence. They were primarily involved in the design of public buildings and large-scale housing developments. The design efforts of the architects of the CPWD in New Delhi have made a major impression on the city. Many of the buildings such as **Vayu Bhavan, Krishi Bhavan, Udyog Bhavan, Rail Bhavan (below, left), Vigyan Bhavan (below, right)** and the **Supreme court** (1952) use *chattris* and *chajja's*, and are topped by domes to give an Indian character. The plain cubical mass of a government conference hall, the **Vigyan Bhavan**, which was designed by **RI Geholote** of the CPWD for large international conferences, uses elements from Buddhist, Hindu and Mughal architecture. The large entrance is of black marble and glass and is shaped in the form of a chaitya arch of the Ajanta style, symbolizing "the Indian heritage of peace and culture." The arch motif became an easily recognized and frequently employed symbol of Indian identity, applicable to a wide variety of structures.

4.2 Supreme Court

Fig 17 (Source: jagranjosh.com/general-knowledge/supreme-court-of-india-1437204181-1)

The **Supreme Court** was designed by **Deolalikar** in an Indo British architectural style as it is located in Lutyen's complex. It is regarded as rather heavy headed. For example the *chattris* have square 15 by 15-inch columnar supports which stand in strong contrast to the elegance of those at Fatehpur Sikri or in Lutyens or Baker's work.

Towards the next decade-the sixties

The sixties realized the nearness of Joseph Allen Stein onto the design scene of Delhi. His work of the period - the India global focus (1959-62) and the American International School (1962-68) - comes more out of the American Empiricist convention than the European Rationalist and its anxiety for symmetrical calculation especially in the sitting of structures.

His later work in the Ford Foundation building (1969) and Triveni Kala Sangam and the UNICEF building (1981) shows a ceaseless scholarly turn of events. Not many different planners have held so free and reliable a line of thought. In spite of such works, it was crafted by Gropius and the worldwide style that overwhelmingly affected the more youthful draftsmen of the period.

It is possible to probably perceive those architects who intentionally or accidentally followed in the European Rationalist show energized by Le Corbusian lines of thought and the people who were Empiricists following in the steps of Wright, Stein and Kahn.

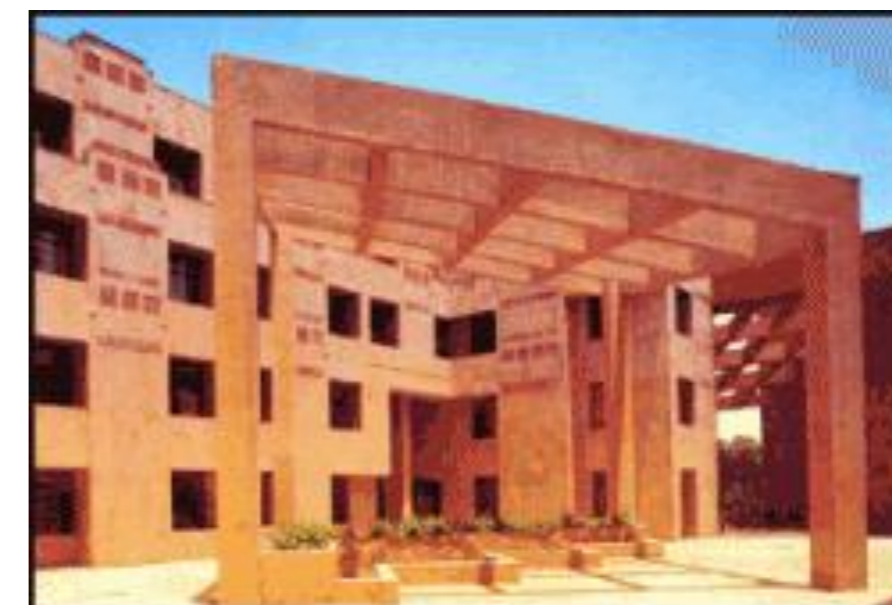


fig18.

4.3 The Indian Institute of Technology

Campus (1961) designed by **Jugal Kishore Choudhary** show impact of Rationalist reasoning. The IIT Delhi is a less immediate picture of Le Corbusier's work than the Punjab University plan. It comprises of the scholastic structures, lodgings and

4. The Tracking of Post Independence Developments

Senior architect (1953-70), and then Chief Architect of CPWD (1970-4), Rahman was responsible for many of the buildings that give central Delhi its present character; the **post and telegraph building** (1954), the **auditor and general controller's office**, the **Indraprastha Bhavan**, the **WHO building** (1962) and the **multi storey flats at RK Puram** (1964) and the **Patel Bhavan** (1972-73).

It was the work of Gropius and the International style that overwhelmingly influenced the younger architects of the period. During the 1950's the influence of the international style began to be widely evident in houses, whether Mistri or architect designed.

Level groups of enormous glass windows, unsupported flights of stairs and cantilevered yards were the principle highlights. Plinths became lower, living and lounge areas were joined and, in houses for the affluent, restrooms got appended to rooms. Windows in numerous houses started to be recessed and solid balances started to show up on the exteriors. The massing got level. Strengthened cement turned into the material of the advanced period for houses as well as significantly more for open structures.

4.1 Tuberculosis Association Building

examination offices and workforce and staff homes. The previous comprises of three story equal squares and a seven-story square opposite to the longest of the three story locks, which it joins to the organization. The structures are connected by secured ways, which structure patios, a marriage of Oxbridge and Le Corbusian designs.

The use of concrete for the main blocks contrasts with the rough stone aggregate of the lecture theatres and the multi story staircases provide sculptural elements penetrating the courtyards.

4.4 Akbar Hotel



Fig. 19 (Source: <https://www.architecture.com/>)

The Akbar hotel (1965) intended for the Delhi Municipal Committee owes a ton to the Unit'ed' residence by Le Corbusier. This structure, which shaped piece of another business place worked in south Delhi during the 1970s, repeated a large number of the characteristics of the Chandigarh secretariat in its utilization of cement and its sculptural surface example.

It is a thirteen-storey solid section building, which structures some portion of a bigger business complex. A help floor isolates the rooms above from the normal zones on the lower floors. Like the Unite, the rooftop has "collective offices"- for this situation, an eatery, nursery and little outside theater. A two story curvilinear shut sticks out at the base, repeating the type of the MillownersBuilding in Ahmedabad. It houses eateries and parlors.

4.5 Shri Ram Centre

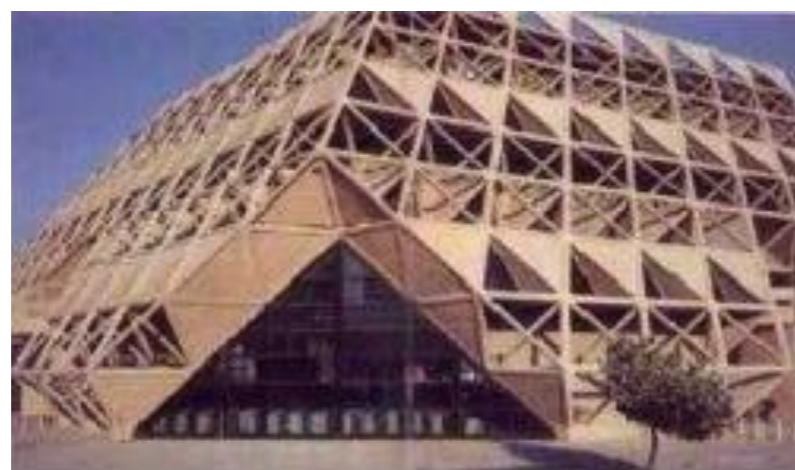


Fig.20 Source (<http://delhi-architecture.weebly.com/post-1947-developments-buildings-part1.html>)

Prasad's other work, which plainly gets on Le Corbusier's idea handled is the Shri Ram focus of a private trust advancing move, dramatization and music. Like a lot of Prasad's works of the period, it is worked of strengthened cement and communicates, through compositional structure, the assortment of capacities the structure is to house. For example, the performance center is in a barrel shaped structure and the practice spaces are as a rectangular mass. A considerable lot of the spaces need to fill an assortment of needs and subsequently are open finished in plan; there has likewise been a significant exertion to have the inside and outside spaces connected together.

The work in India that followed the Empiricist approach initially owed an incredible obligation to Richard Neutra and Frank Lloyd Wright; it was more insightful in managing the neighborhood settings. Later the impact was proceeded through crafted by Louis Kahn. Stein and Mansigh Rana (Jawaharlal Nehru Memorial Library) (1968)

Structural buildings



Source: <http://delhi-architecture.weebly.com/post-1947-developments-buildings-part1.html>

Architecture in India has had a long building custom and basic architects, for example, Mahendra Raj and H.K. Sen are among those whose community oriented work with engineers made numerous creative structures. Raj's works incorporate the Delhi material Mill (1970), the Permanent Exhibition complex (Pragati Maidan-1972) and the National Co-usable Development Corporation building.

The period since the 1960's has been a time in which issues of social character have likewise been raised, in India, yet in addition in nations, for example,

France, which felt socially compromised by changes occurring in and around them, maybe the crucial issue with the Modern development was that engineers utilized the types of structures and urban plans as an image of progress and popular government instead of endeavoring to manage the more extensive exhibit of human needs.

The mathematical examples of Modernism got utilized as a lot of types for every single compositional work by various modelers. The examples of these structures got implanted in the psyches of the customers as articulations of progress. A significant part of the proceeding with Modernist work comprises of business structures, some of which stand apart in view of their unmistakable character. This character may emerge from their area they are single pinnacles in an in any case lower scaled manufactured condition or they have a structure not quite the same as the standard.

5. Town Planning In Delhi

Delhi is situated at 28.61°N 77.23°E, and lies in Northern India. It is at the outskirts of the Indian conditions of Haryana on the north, west and south and Uttar Pradesh (UP) toward the east. Two unmistakable highlights of the topography of Delhi are the Yamuna flood fields and the Delhi edge. The National Capital Territory of Delhi covers a zone of 1,484 km²



Fig.21 (Source: <https://earthobservatory.nasa.gov/images/92813/urban-growth-of-new-delhi>)

5.1 Status of urban settlement in the capital city Of Delhi

- The pace was animated during 1941-51 when the country was divided dislodged individuals started coming and settling in Delhi.
- With brisk urbanization, the urban zone in Delhi district has extended from 22% in 1961 to 62.5% of the outright zone in 2001.
- In 2001, around 702 sqkm of zone was assessed to have been created, obliging about 13.8 million masses.
- In 2011, the total population of Delhi was 16.75 million with 97.5 % urban masses.
- In 2021, around 978 sqkm of hard and fast urbanisable area will be open for obliging 23 million masses in Delhi.

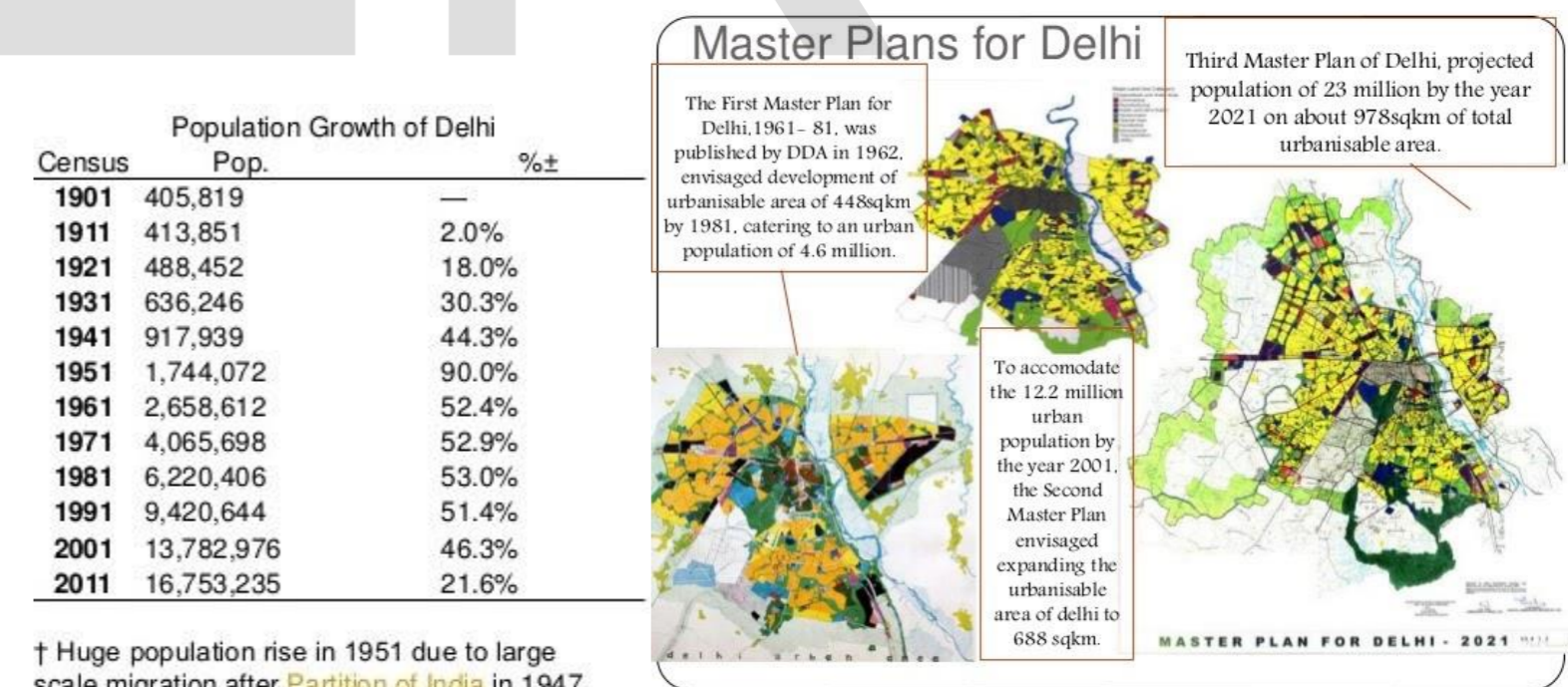


fig 22 (Source: <https://www.slideshare.net/psuttarwar/isocarp-presentation-brisbane2>)

5.2 Highlighting Important Chronological Events

5.2.1 The Town Planning Concept Shahjahanabad

DELHI - THE MUGHAL CAPITAL Delhi is a city that has seen both brilliance and demolition in its long. It has been ravaged, demolished on numerous occasions just to spring from its remains to turn into the capital of amazing administrations. Luckily, the strong and suffering society and legacy has withstood the trial of time and the city keeps on living. The core of Delhi can be found in Old Delhi, 350 yrs old. Its many-extended corridors are thin with age and clogged. No city mirrors the unending show of progress better.

Introduction - SHAHJAHANABAD

By the time the emperor Shah Jahan (1628-58) came to the throne, the Mughal empire had ruled continuously over northern India for almost a century and the artistic tradition of Mughals had reached a stage of maturity and refinement. During Shah Jahan's reign the architectural development was remarkable due to his interest and patronage of architecture. His buildings were characterized by sensitivity and delicateness.

fig23 (Source: <https://archistudent.net/town-planning-concept-shahjahanabad/>)

Background

The Mughal time frame from Akbar (1566-1605) to Shah Jahan was nearly long and serene; it was set apart by the advancement of urban communities. Shah Jahan set up habitations in Lahore, Agra and Delhi. In 1638, he established the frameworks of new capital, based on Lal Qila or Red Fort. The site for the new capital in Delhi was obviously fit as a union purpose of land courses, being midway found geologically. The site was arranged on the western bank of waterway Yamuna where a characteristic projection frame triangle with the land and the stream

fig 24 (Source: <https://archistudent.net/town-planning-concept-shahjahanabad/>)

Spatial Structure

Urban spatial structure of Shahjahanabad was not exactly equivalent to that of the other Mughal Capitals, since it was orchestrated and worked by one concentrated masterminding effort. The shurafa generally were orchestrated westward of the imperial home, along one of the two roads at Chandni Chowk, and began from the sovereign's regal living arrangement, thusly furnishing the city with an unequivocal structure. Those master social affairs passing on new agrarian things to the city most likely settled along the southern and south-south-western edge of the city dividers (Delhi passage and Turkman entryway): this is the spot foundations, for instance, Masjid gadarion (shepherd's mosque), Masjid kasai (butcher's mosque) were found. They all address "low situating dealers". The closer to the focal point of the city the more socially saw are the master settled there: weavers, creators of downy, representatives of seat horses, oil-extractors and producers of straw items, all of them addressed by their specific mosques. Further, toward Chandni Chowk, generally illustrative of the trading purposes for living, for instance dealers of surfaces, fish, meats and excess product, yet furthermore a part of the master social occasions getting ready items, for instance creators of water channels can be found, all of them are depicted by the spatial proximity to the superb house.

Planning of Shahjahanabad

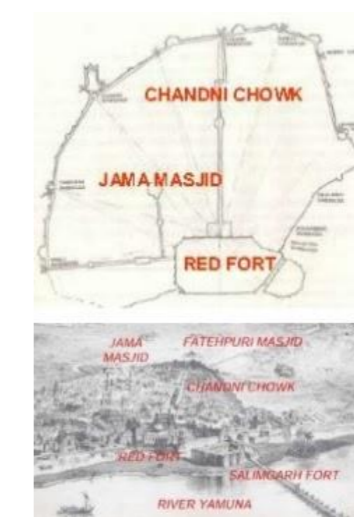
The city was arranged by hindu arranging standards of shilpashastra from vastushastra. The site was set on a high land as in the shastra and was kamukha or bow molded, for this guaranteed its success. The arm of the bowman was Chandni Chowk. The string was Yamuna waterway. The intersection of the two fundamental tomahawks is the most favorable point in the entire area and was in this way the red fortification.

The city form- Morphology elements

- The urban infrastructure was laid out in a geometric pattern.
- Shows traces of both Persian and Hindu traditions of town planning and architecture with the Persian influence largely accounting for the formalism and symmetry of the palaces gardens and boulevards. The designed infrastructure of Shahjahanabad comprised-
- The fort
- The Friday mosque (jama masjid).
- The other major mosques
- The bazaars around the Friday mosque.
- The elaborate system of water channels.
- The major gardens and the city wall.
- The arrangement of these planned elements was influenced by certain site features, which precluded absolute geometry.

5.2.2 The Fort and the Mosque

The Red Fort and Jama Masjid were thoroughfares that framed the city. From Lahore Gate ran a broad avenue with a covered arcade designed and paid for by Jahan Ara- that housed over 1500 shops. Today known as Chatta Bazaar. The remainder of Shahjahanabad took shape within the city walls with its havelis mansions, mosques, temples, Sikh shrines and the gardens of the nobility.

fig 25 (Source: <https://archistudent.net/town-planning-concept-shahjahanabad/>)

5.2.3 The Red Fort (Palace Complex)

The plan of the fort was made by Shah Jahan and two Muslim architects. The foundation stone of the fortified place was laid in 1638. Construction work began in 1639 and was complete in just nine years. The palace complex, located along the western river front was built as an ideal residence for the emperor, it was conceived and designed as a paradise on Earth. The layout of the fort was drawn on a formal geometrical plan actually an irregular octagon with two long sides on east and west. It had two gates, that on the west was called the Lahori Darwaza, while that on the south was the Delhi Darwaza. Bearing on the cardinal points, the elements of the fort were arranged in the geometrical pattern that reflected the life and customs of Mughal court.

5.2.4 Jami Masjid

The Jami Masjid was the principal mosque of the capital, the congregational centre and one of the most important institutions for the Muslims in Shahjahanabad. Shah Jahan commenced building the mosque in 1650, and completed it 6 years later. It was located at the central part of the city and on a raised foundation at the top of a hill 9m above the street level.

The mosque dominated the walled city as a visual as well as a spiritual symbol of supreme god. Its architectural design followed by traditional style, but improvements were made here as well. The courtyard was large and was enclosed by pillared corridors. Their layout, having a main entrance on the east, was geometric and the whole mosque faced west towards Mecca. Muslim urban life was closely evolved around the Jami Masjid.

5.2.5 Major Streets

The lanes in Mughal capital were generally thin and screwy. In any case, the significant boulevards in the new capital were structured as wide and straight. The east-west road called Chandni Chowk associated the Lahori Darwaza of the stronghold to the Lahori Darwaza of the city divider. It ran in an orderly fashion framing a wide avenue with wide vista. The Fort was noticeable from wherever in the city. This point of view see denoted another idea of town getting ready for the Mughal capital. Chandni Chowk is 1.4km long and run directly at the Fatehpuri Begum Mosque. It was worked as the focal pivot of the city.

Another central avenue the Faiz Bazaar or Akkarabadi Bazaar, was likewise wide and straight. It had a north-south hub and associated Delhi door of the fortress with the city dividers Delhi entryway and is about 1km long. These significant two avenues created as processional courses, just as business conduits. The lanes likewise expected significance for ceremonial occasions.

Five Main Streets

The basic network of the five main streets extended from Chandni Chowk and Faiz Bazaar to other gates and to different parts of the walled city. The streets were built as the spines of major activities and developed as commercial thoroughfares. They connected the Ajmeri Darwaza with the Jami Masjid and Turkman and Lahori Darwazas. Their intersections formed a landmark. Important buildings were located on these arteries. The other streets were less significant and were mainly built as access roads to the residential areas.

Mahalla / Katra

- There was a propensity of the urban communities' populace to settle by ethnic affiliations and to live in similar neighborhoods. The urban network and the Mughal capital was framed by such locale or wards, known as mahallas and katra. There were 36 mahallas in the walled city. Each katra had an encased space made among private and business structures having section to a katra made through an entryway.
- These patios were earth sound and gone about as primary ventilation shafts in a hot and parched atmosphere. Common open space was prominently missing all things considered so today. There was very little need felt for common open space, other than for love which is the reason the Jami Masjid was given an extensive yard.
- Thus, unmistakably arranging of a local location in the Mughal capital didn't accommodate social units.

Streetscapes

There emerges a hierarchy of streets in the layout of the city. The secondary streets were the ones which entered the south of the city from Chandni Chowk. (thus they were perpendicular for some distance and then assumed an organic form once deep in the city).

The secondary street structure also includes the streets that are parallel to the city walls- forming a concentric ring so to say, in the southern part of the city. They then intermingle at chowks with the third layering of streets, which derive their character from the fact that they are perpendicular to the main mosque, Jama Masjid.

Bagh

The north area of Chandni Chowk was occupied by a bagh called the Jahanara Begum's Garden. It was laid out in a planned fashion, in addition to the road planning of Chandni Chowk.

City walls

The layout of the city walls was based on a geometrical planning; i.e. to say, a polygonal plan with gateways. The four main gates were Delhi Darwaza on south, the Ajmeri Darwaza on the south-west, the Lahori Darwaza on the west and the Kashmiri Darwaza on the north. These important gates were positioned according to the basic network of the city, being laced on the cardinal points. The graphic representation of the city was indicated geometric planning and the geometric placement of the main gates.

Summary of Mughal Era features

- The new Mughal capital and the fort were designed as an ideal city and a paradise on Earth.
- The design and planning methods were geometric and provided for green areas (gardens) and water facilities.
- Principal elements in the town planning were the fort, the Jami Masjid, two major streets, city wall and gates, the Bagh, the Id-gah and the Karawan Sarai.
- The Red fort was designed as a symbol of Muslim power and as an ideal living space on a formal geometrical plan.
- The Jami Masjid was designed as a symbol of Muslim power and of the capital.
- Two major streets were developed as the central axis and as processional routes and they were new elements in the capital; the design and the planning method was a new concept in town planning in the Mughal capital.
- Planning in the capital did not provide planning of residential areas.
- The city wall and gateways were drawn on a geometrical plan. Urban forms and patterns developed on their own in response to the emperor's basic need and
- idea and little attention was paid to the social planning.

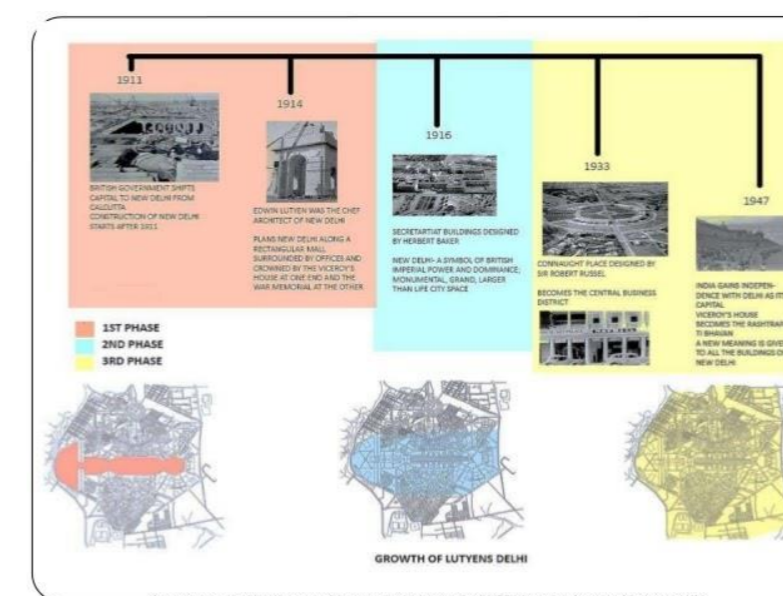


fig 26 (source: <http://www.archinomy.com/case-studies/1158/changing-image-of-lutyens-delhi>)

1911 – Foundation stone for New Delhi at Delhi Darbar On December 15, 1911, King George V and Queen Mary laid the foundation stone for New Delhi, at a Darbar under a purposely built Shah Jahani dome. The message was clear: the British were the legitimate successors of the Mughals and their new capital was intended to express the power of the Raj, just as Shah Jahan's capital had expressed the authority of the Mughals.



fig 27 (Source:

http://www.iicdelhi.nic.in/publications/uploads_diary_files/491816November112011_IIC%20Occasional%20Publication%20032)

Lutyens had initially designed Delhi with all the streets crossing at right angles, much like in New York. However, Lord Hardinge told him of the dust storms that sweep the landscape in these parts, insisting on roundabouts, hedges and trees to break their force, giving him the plans of Rome, Paris and Washington to study and apply to Delhi.

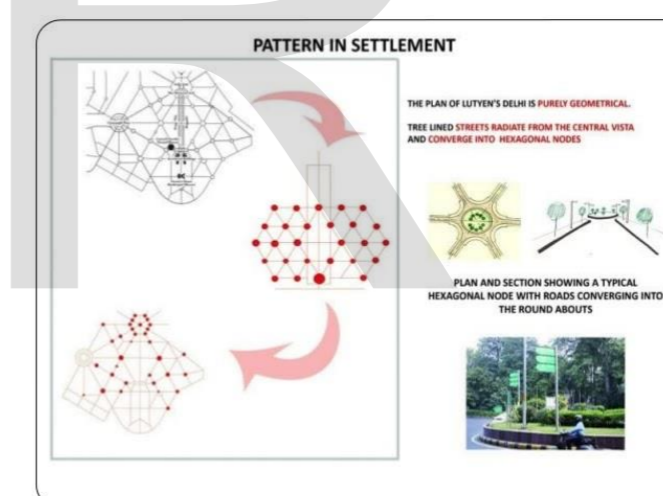


fig 28 (source: <http://www.archinomy.com/case-studies/1158/changing-image-of-lutyens-delhi>)

Lutyens' Delhi was planned on the most spacious garden city lines with the great avenues decorated with classical buildings with lush landscape.

The layout of Lutyens Delhi was governed by three major visual corridors, linking the government complex with:

- Jama Masjid
- Indraprastha
- Safdarjungs Tomb

Features

1. The plan reflects Lutyens' "transcendent fervor for geometric symmetry," which is expressed through amazing sequences of triangles and hexagons, through sightlines and axes.
2. Lutyens' plan is also remarkable for the generous green spaces, lawns, watercourses, flower and fruit-bearing trees, and their integration with the parks developed around monuments.
3. The attempt was to include all natural and historical wonders in the new city.



Fig. 29 (Source: <http://www.srmuniv.ac.in/downloads/townplanning.pdf>)

The Road Network

Besides the major Pathway, there were extremely wide avenues. The original design of the road network was capable of accommodating 6000 vehicles, however these avenues, had the potential of increasing their carriageway-the reason why the road layout has survived till today.

6. Lutyens' Delhi

Lutyens' Delhi In order to understand the imaginability of Lutyens Delhi, it is imperative to know its history and why the site was chosen.

History: The primary concern for the transfer of capital from Calcutta to Delhi was to locate a more durable and subtle public opinion: the intention was to express the achievements possible under the British Raj and as a stamp of the autocratic rule.

Criteria for Site Selection:

1. It was a well drained.
2. Constituted of slopes and plains between the ridge and the river.
3. Its eastern and southern margins were studded with monuments of vanished empires.
4. A broad crescent from Shahjahanabad and Kotla Firoz Shah, south to Tughlaqabad and the Qutub with tombs of Safdarjung and Lodhis as well as Jantar Mantar in the foreground could be viewed from the site.

Site location: Shahjahanabad was towards the north. On the west of the site, the natural limit was the ridge. The river formed the eastern limit. On south a line drawn from a point on the ridge, west of Talkatora to Safdarjung tomb and then due east to the river marks the southern limit. The tract between the line and the Qutub is designated for further expansion.

In general the road network consisted of diagonals and radials, at 30 degree/ 60 degree angles to the main axis, forming triangles and hexagons.



Fig.30 (source: <http://www.archinomy.com/case-studies/1158/changing-image-of-lutyens-delhi>)

6.1 Lutyens' Delhi - Zoning Of Government Complex And COMMERCIAL DISTRICT

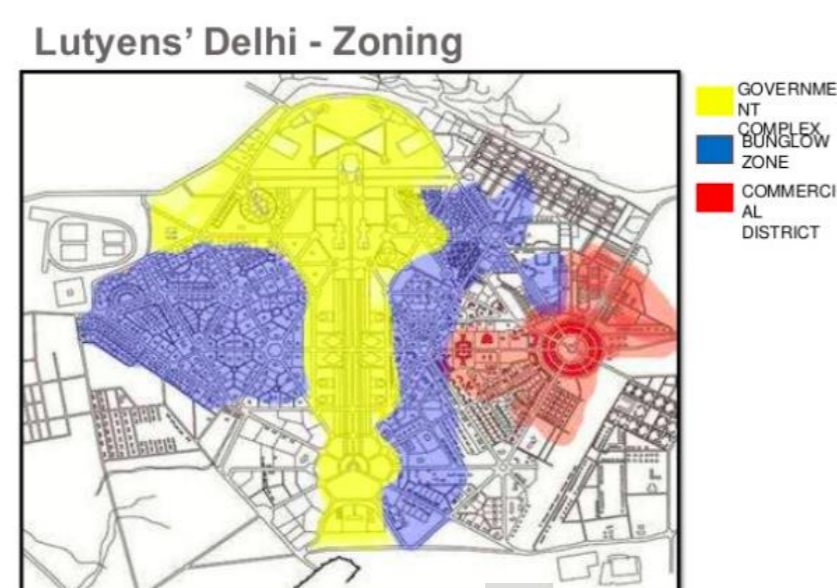


fig 31 (Source: <https://www.slideshare.net/mayunk50/capitol-complex-new-delhi-lutyens-delhi>)

1. Lutyens laid out the central administrative area of the city.
2. At the heart of the city was the impressive Rashtrapati Bhawan, located on the top of Raisina Hill. The Rajpath connects India Gate to Rashtrapati Bhawan, while Janpath, which crosses it at a right angle, connects South end with Connaught Place.
3. The Secretariat Building, which houses various ministries of the Government of India including Prime Minister's Office are beside the Rashtrapati Bhawan and were designed by Herbert Baker.
4. Also designed by Baker was the Parliament House, located on the Sansad Marg, running parallel with the Rajpath.

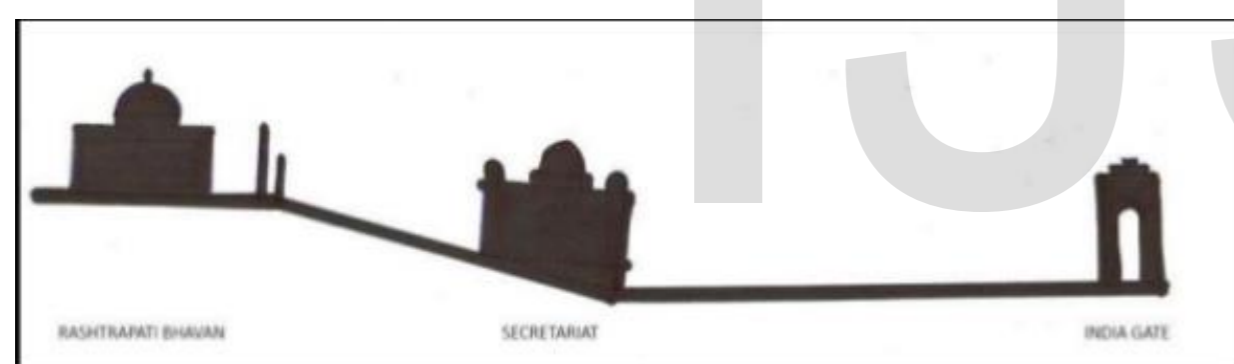


Fig. 32 (Source: <http://www.archinomy.com/case-studies/1158/changing-image-of-lutyens-delhi>) The Government Complex/ Administrative area)

Lutyen's grandiose Government House (Rashtrapati Bhawan) - located on Raisina Hill, and one of New Delhi's major thoroughfares, Rajpath, connects it to the Purana Qila Lord Hardinge chose the Raisina Hill for locating the viceroy's palace because:

The Rashtrapati Bhawan

- It was a well drained.
- Constituted of slopes and plains between the ridge and the river.
- Its eastern and southern margins were studded with monuments of vanished empires. A broad crescent from Shahjahanabad and Kotla Firoz Shah, south to Tughlaqabad and the Qutub with tombs of Safdarjung and Lodhis as well as Jantar Mantar in the foreground could be viewed from the site.

The sprawl of rehabilitation townships

- The parcelling of India brought its own issues.
- Delhi saw one of the biggest movement in mankind's history. Around a large portion of a million looked for shelter in Delhi; which was not set up for multiplying of its populace in simply 2 months.
- A complete of 36 restoration municipalities were arranged and created on all 4 sides of Delhi.
- These included Nizamuddin, Lajpat Nagar, Malviya Nagar, Patel Nagar, and so forth.
- These municipalities were moved toward the premise of 80 sq.yards (66 msq) plots for every family; unassuming single story asbestos concrete sheet roofed houses.
- These houses were offered at a sponsored cost of Rs.2000 to 10,000 with offices of long haul instalments.
- These were crisis ventures with no time accessible for perfect arranging.
- A national crisis was met with quick activity.
- Delhi began growing every which way with no general arrangement; the blockage proceeded and the city developed heedlessly.

7. Research Methodology

Research Methodology refers the discussion regarding the specific methods chosen and used in a research paper. This discussion also encompasses the theoretical concepts that further provide information about the methods selection and application.

A Research Method represents the technical steps involved in conducting the research. Details about the methods focus on characterizing and defining them, but also explaining your chosen techniques, and providing a full account on the procedures used for selecting, collecting and analyzing the data.

The most basic methods for data collection are:

Secondary data

Secondary data are data that have been previously collected or gathered for other purposes than the aim of the academic article's study. This type of data is already available, in different forms, from a variety of sources. Secondary data collection could lead to Internal or External secondary data research.

Internal secondary data research

- Particularly related to a company or organization, internal sources (such as sales data, financial data, operations-related data, etc.) can be easily attained and re-purposed to explore research questions about different aspects.

External secondary data research

- represents a study that uses existing data on a certain research subject from government statistics, published market research reports from different organizations, international agencies (such as IMF, World Bank, etc.), and so on.

Primary data

Primary data represent data originated for the specific purpose of the study, with its research questions. The methods vary on how Authors and Researchers conduct an experiment, survey or study, but, in general, it uses a particular scientific method. Primary data collection could lead to Quantitative and Qualitative research.

Quantitative research or empirical

-analytical research focuses on a certain research purpose, with its complementary research questions and operational definitions of the variables to be measured. This type of study uses deductive reasoning and established theories as a foundation for the hypotheses that will be tested and explained.

Qualitative research

- interpretative research focuses on analytically disclosing certain practices or behaviors, and then showing how these behaviors or practices can be grouped or clustered to lead to observable outcomes. This type of research is more subjective in nature, and requires careful interpretation of the variables.

In this research paper, secondary research methodology has been followed and various sources are referred for the data collection.

8. Conclusion

- Considering the scale, typology chain of command and the intricacy relating to development and advancement of Indian urban communities and the present insufficient limit with respect to arranging the urban communities, this course would grant information identified with urbanization, city locale linkages, arranging history, hypothesis, strategies of arranging, ideas and approaches, procedures, arranging and improvement arrangements, kinds of plans, execution of plans, projectization of these plans and contextual analyses enhancing different perspectives.
- Indian architecture has been impacted by history, culture and religion. It has been molded after some time, and various times have affected the structure and visual intrigue.
- Delhi's engineering legacy, alongside different components of culture, is a visual proof of its multifaceted characters and has enough structures that utilization at least one components of the Mughal architecture, enough that mirror the Hindu building impact in the development.
- Architecture during medieval India can be seen to be firmly associated with the nature and interlaced with interminable qualities which were profound established in the public eye.
- On the opposite when one occupies their look to a more present day and cold yet warming and unattractive architecture in Delhi today, it very well may be seen that it speaks to a general public's moving towards westernization and "westoxication" at the same time. Regardless, the genuine Indian soul of being perhaps the best host on the planet depicts itself in the most lovely way.
- In connection to modernization, the new advancements while facilitating our day by day schedule, has been bringing about more harm than advantage. The multifaceted nature of the issues are multi crease and according to the exploration it tends to be comprehended that the earth is genuinely being abused, regardless of whether it be for assets or the very setting up of the bits of architecture.
- The need of great importance is for youthful and sprouting designers to comprehend architecture according to society and its kin. It is critical to discover answer for these issues and make more natural and conservative travel arranged plans. Furthermore, last however not the least, the architecture ought to stay to be one which permits oneself to have a sense of security and act naturally.
- To finish up, Indian architecture is in a condition of motion where we have everything—investigations, openings, tries and developed sensibilities—and a positive development could yield incredible outcomes and perhaps help in re-finding what we have lost. The need of great importance is to not be diverted with what's going on around us, however to comprehend our requirements, our desires, our underlying foundations and work towards an architecture that adjusts to changing ways of life yet remains consistent with its qualities and personality; that conveys to individuals and shapes our general public; that helps in building recollections and gives us structures and spaces that can support till descendants.

- 1 <http://delhi-architecture.weebly.com/post-1947-developments-buildings-part1.html>
- 2 http://www.the-south-asian.com/jan2001/Delhi1_Jan_2001.htm
- 3 <http://sehar-emotions.blogspot.com/2015/12/dillitruely-made-of-great.html>
- 4 <http://www.gisresources.com/lutyens-delhi/>
- 5 <https://www.morphogenesis.org/media/delhi-architecture-weaving-the-past-with-present/>
- 6 <https://www.jagranjosh.com/general-knowledge/architectural-development-during-delhi-sultanate-era-1489751101-1>
- 7 <https://www.jagranjosh.com/general-knowledge/architectural-landmarks-of-the-sultanate-period-a-detailed-account-1490620114-1>
- 8 <https://www.youtube.com/watch?v=HS7Vr7GyUqg>
- 9 https://www.youtube.com/watch?v=f_lmJUrq_0
- 10 https://www.youtube.com/watch?v=ZUwo2Pa_RUE
- 11 http://delhi-hotels.co.in/Qutub_Minar.aspx
- 12 <https://qutubminarhistory.wordpress.com/qutubminararchitecture/>
- 13 <http://sandeep-qutubminar.blogspot.com/2015/06/>
- 14 <http://heritagearchitecturestyle.blogspot.com/2018/04/qutub-minar.html>
- 15 <https://www.qutubminar.org/qutub-minar-architecture.aspx>
- 16 <https://www.tui.in/destinations/new-delhi/tomb-of-balban>
- 17 <https://archnet.org/sites/5794>
- 18 <https://www.youtube.com/watch?v=3ppUmjbfzI>
- 19 https://en.wikipedia.org/wiki/Tughlaqabad_Fort
- 20 https://github.com/chinapedia/wikipedia.en/blob/master/Page.T/Tughlaqabad_Fort.md
- 21 <https://www.slideshare.net/shrutib26/history-town-planning-of-delhi>
- 22 <https://www.scribd.com/doc/27041213/Shahjahanabad-Old-Delhi-Walled-City>
- 23 <https://www.scribd.com/doc/62251160/Shahjahanabad-the-walled-city-of-delhi>
- 24 <https://www.scribd.com/presentation/349291086/Planning-of-Shahjahanabad>
- 25 https://www.slideshare.net/EACT_COEP/10-mughal-period-in-india
- 26 <https://studylib.net/doc/5722712/shahjahanabad>
- 27 <https://www.scribd.com/document/248132489/Shahjahanabad-Seminar>
- 28 <https://www.slideshare.net/archistudentportal/seminar-on-shahjahanabad>
- 29 <https://www.quora.com/What-is-the-history-of-town-planning-in-India>
- 30 <https://slideplayer.com/slide/6148697/>
- 31 <https://www.scribd.com/presentation/399101172/Town-Planning-India-mughal-Period-Abhijith>
- 32 <https://www.scribd.com/doc/300123213/Shahjahanabad-Old-Delhi>
- 33 <https://studylib.net/doc/5722712/shahjahanabad>
- 34 <https://www.quora.com/What-is-the-history-of-town-planning-in-India>
- 35 <https://www.scribd.com/presentation/311568273/historytownplanningofdelhi-140824105133-phpapp01>
- 36 <https://www.slideshare.net/archistudentportal/seminar-on-shahjahanabad>
- 37 https://www.slideshare.net/EACT_COEP/10-mughal-period-in-india
- 38 <https://www.scribd.com/doc/62251160/Shahjahanabad-the-walled-city-of-delhi>
- 39 <https://www.scribd.com/presentation/80656759/Lutyens-Delhi>

9. Bibliography