

DOCUMENTATION ISSUES

The Chandigarh Sector

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The neighborhood unit (Sector) in Chandigarh was conceived as a self-sufficient, repeated element to create the matrix of the city along with the hierarchical circulation system defined by the 7Vs¹ to disburse traffic in an orderly manner. This arrangement was interfaced with a designed landscape at the behest of Le Corbusier and Dr. M. S. Randhawa whose passion for bio-aesthetics realized a city where landscape and built forms created a patina of the most charming capital of the modern world. Seven decades later, the city's flowering landscape and modernist architecture continues to make it one of the best neighborhoods in which to reside.

In the modern world, while the automobile has overtaken city life, the Chandigarh Sector still maintains its walkability and here "pedestrian predominance" can still be perceived. The Chandigarh Sector is a comfortably sized walkable neighborhood unit which has its origins in the Roman quadra. Easy to

traverse on foot, according to Le Corbusier (1887-1965), the sector is a self-sufficient neighborhood unit – a microcosm in which all amenities and day-to-day needs of the citizens are provided within walking distance. Each sector has a neighborhood shopping area, a school, a community center or club,

and a dispensary or health center with a religious amenity such as a temple, mosque, church or gurudwara. Open spaces and parks connect these sectors in the north-south direction offering a view of the Shivalik hills located north of the city. The houses are two to three stories and do not obscure the mountain view. The city gently slopes to the south and thus the drainage is taken care of.

Each sector measures 800 x 1200 meters (m) and could be accessed only at four pre-determined points to maintain the insular and introverted character. Entry was either through the V₃ (fast traffic road) or a V₄ (slow traffic meandering market street). At the junction of the V₃ and V₄, the V₅ loop road (slow traffic sector circulation road) – that formed roughly the figure 8 through the sector – connected and gave access to the sector dwellings and other amenities designed by Jane Drew (1911-1996), Maxwell Fry (1899-1987) and Pierre Jeanneret (1896-1967), the team of architects who actually were responsible for the fabric of the sector and thus the city. They were assisted by the Indian collaboration of architects Manmohan Nath Sharma (1923-2016), Urmila Eulie Chowdhury (1923-1995), Jeet Malhotra (1929-), B. P. Mathur (1926-1976) and Aditya Prakash (1924-2008).

The beauty of the sectors of Chandigarh is a fusion between the built forms and the landscape elements. Low-rise cubic built forms and the designed landscape together create scenic avenues, sector gardens and greens, play areas and open spaces. For much of the landscape design in Chandigarh the credit goes to Dr. M. S. Randhawa (1909-1986), its first chief commissioner – an avid botanist with a passion for landscape gardening – who defined this as bio-aesthetics.² For Dr. Randhawa, landscape gardening was primordial for city planning and beauty and aesthetics lay largely in flowering trees, greening the landscape and overall garden landscape design ethics. According to him, the plantation must include flowering trees which characterize the beauty and aesthetics of the city, a source of passive learning for school children and citizens alike! The flowering trees were along the avenues, the V₄ market street, the V₅ loop, the V₆ (houses' access roads) and V₇ (foot paths and cycle tracks) streets that led to the dwelling and the sector green that ran North-South. The fabric of the city emerged from the dictates of a shoestring budget to build, a social dictate to fulfill the needs



01 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. The Chandigarh Masterplan, a fusion of buildings and landscape signifying the bio-aesthetics advocated by Dr. M. S. Randhawa, 1951. © Wall model at the Chandigarh College of Architecture.

of an egalitarian society in a democratic nation and the vagaries of climate that had almost six seasons – a harsh summer and winter and a fierce and tumultuous monsoon. Being a government city that was to cater to employees who worked in the administrative capital of erstwhile Punjab, there were 13 categories of house types distributed within the sectors. The larger villa type houses with fruit gardens and orchards were distributed in the northern sectors, while the duplex and smaller units densified the southern sectors of Chandigarh. The commonality and the notion of a classless society was depicted through similarity in material and massing. This idiom of functional zoning replaced the zoning by class as was prevalent in the country.

After having suffered the loss of capital of Lahore to Pakistan, the life in the capital city for the newly truncated state of Punjab, Chandigarh, the brainchild of Pandit Nehru, was to be the last thing in beauty and simplicity in the world. Unfettered by the traditions of the past ushering in a new bright future in the words of Jawaharlal Nehru, the city was to be the role model for future town planning in newly independent India – a new democratic nation.

The avid interest of Dr. Randhawa in art, as well as landscape gardening - a collector of seeds, plants with a passion for travelling –, set the tone for the creation of a Landscape Advisory Committee that would oversee the landscape plan of the city. During his travels in the Himalayan region, Burma, and overseas Dr. Randhawa collected varieties of young flowering trees that he brought back to plant in Chandigarh. Thus, was born the first nursery in the city in sector 23, where original mango groves existed, and the environs gave the impression of a mature countryside. Thereafter, Dr. Randhawa established contacts with the Lal Bagh at Bangalore, Lac Institute at Ranchi, Pune among other cities to create Chandigarh's seed nurseries which continue to flourish and provide seeds and plants to the region. Dr. Randhawa personally supervised the landscaping and planting of these along the avenues of the city.

Each of the three architects Jane Drew, Maxwell Fry and Pierre Jeanneret had a role to play in the design of the sector. While they collectively agreed upon the layout, the design of subsectors, such as the Drew-designed villages in sector 22, was carried out individually. The variety was brought into the grain and texture of



02 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. The market street created the earliest Aesthetic Legislation with a distinct architectural control for the shops and flats, as well as the row houses called Marla housing. © Sangeeta Bagga.

the subsector with the work of the trio assisted by the Indian architects, yet it bore the identity of the three master architects Pierre Jeanneret, Maxwell Fry and Jane Drew. The resultant architectural character comprising low rise cubic built volumes with deep balconies with concrete parapets, the use of local, baked bricks contrasted with painted, lime washed and white plastered bands, the random rubble masonry from the bed of the river Ghaggar and the terracotta screens and *jalis* and sunbreakers fetched it the popular name the Chandigarh Style.³ The rhythm and the patterns of the city varied with single and double story and even duplex housing, which was modest born out of the East-West dialogue where the East signified the indigenous men and women and methods while the West was the import of modern ways of living. Ushering in modernity, the sector houses had an underground wastewater sewage system, being the first in the country. Its modern planning, even for the smallest category of peon housing, had a functional countertop for women to stand and cook, in contrast to women cooking on the floor in rural areas. Toilets were placed at the rear of house types. Pierre Jeanneret stayed in the city as its chief architect for over 15 years, while the English couple were on a three-year long contract to build Chandigarh. Besides the housing, fondly called the “peoples’ architecture,” the trio is responsible for realizing the educational, health care and public infrastructure of the city.

The softness and color hues that varied with the change in seasons were introduced into the urbanscape of the neighborhood through tree blossoms, shrubs, and gardens as part of Dr. Randhawa's bio-aesthetics. Landscaping and tree-planting in Chandigarh can be classified into three element typologies: firstly, the urbanistic elements, which require tree-planting; secondly, the manner and arrangement of the trees, i.e., the architectural disposition of the elements of tree-planting; thirdly, the selection of trees and their classification accordingly to the shape of the crown and color of the flowers. Urban elements affected by tree-planting are the roads, urban spaces with elements of architecture such as the Capitol, the university, commercial centers, and open urban spaces. Along the roads, trees are planted in single rows, in double rows or in multiple rows. In the green belts and other free urban spaces, the trees are planted singly, in homogeneous groups, in heterogeneous groups, or in large forest plantations.

Within the sector, the V4 street is the place where the most intense activity of the urban life of the sector is assembled and gives its own character to each sector. Consequently, each V4 is different from the others and was finished with special characteristics, because it was indispensable to create a great variety across the city. All the possibilities of nature were used to give each V4 a personality, which maintains itself in the whole width of the town and thus ties together five or six sec-

tors traversed by a V4. The V4 street was defined by double-story shops-cum-flats and single-story booths (smaller shops) along one side and three-story uniform row houses, called Marla housing, on the other side. The urbanity and the need for a certain image of the V4 brought about the need for definite architectural controls that would generate a uniformity and order in the built forms and guide the movement along the V4 street. Thus, was created the first set of architectural controls for both the houses and shops, to define an aesthetic legislation that would lend a continuity and uniformity and thereby identity in the street image. To strengthen the identifiable character further, each V4 street has been planted with flowering trees and colored foliage with different colors of flowers. For example, one V4 is yellow, another red, and yet another mauve. The residential areas are brightened up by masses of blossoms at different times of the year. Walking through the sector market, as well as the inner V6 and V7 streets abutting the dwellings, is a visual delight.

Chandigarh is one of the most carefully planted cities in the world. Recognizing the role and value of trees, a Tree Preservation Order was passed in early 1952 and a protective green belt – the Periphery set the limits to the built-mass. The role of tree cover has been understood well for microclimatic amelioration in Chandigarh. In the hot summer months, heavy masses of dark green leaves provide a refreshing shade. Under the shadow of the blue mountains of the Kasauli range, the buildings stand shaded by the tree canopies, the true friends of man. From the top of the buildings the vast horizon is

seen providing a play of colors throughout the seasons. In the monsoon, which is the most pleasant season in Chandigarh, clouds appear in all directions; they are raining in the east, their dark masses are visible in the south, and the scarlet of the setting sun is tinging the horizon in the west. The green domes of peepal, cheeku and mango trees, which have been retained, provide a touch of the country. Thus, Chandigarh's inhabitants find that the town and the country are blended, the fusion between the landscape and built forms has taken place; the result is harmony, and the link between nature and man is established.

The urban design of the city ranges from the hierarchical road network to the smaller elements, including street furniture. The sector has a comprehensive layout, its beauty is complimented with utilitarian, simple and functional elements such as bus stops, sector signage, drinking water fountains, reading rooms, and even bollards that were modest in material and design and enhanced the simplicity of the setting. These have been generously provided in the sectors. While walking or bicycling along the streets it is easy to sight the end walls of school buildings and hostels embellished in brick murals to convey values and messages to students and visitors in equal measure. Even the standard design of boundary walls of buildings and houses in the sector contributes to the desired urbanity as well as identity in the neighborhood. The aesthetic legislation has stayed well with the residents of privately-built and -owned houses, as they have adopted the same or similar variants from the vocabulary of the government housing stock. Through the neighborhood one can

see the use of public art through utilitarian objects, which is symbolic of the functional society of the Modern Movement.

More than 70 years since the first sector was laid out, its structuring elements, i.e. the Vs and the original layout, have been conserved in letter and spirit. The landscape has matured, and more vegetation has come up under the Greening Chandigarh annual mission, the nurseries have flourished too and multiplied with a dedicated botanical garden under the Chandigarh administration and strict compliance to The Tree Preservation Order of 1952. Under the smart city mission, pedestrian and cycle tracks dedicated for walkers and cyclists within and across the sectors have been refurbished and introduced. During the recent global COVID-19 Pandemic these tracks served their purpose to the best as opportunities for cycling and walking were made available to citizens from all walks of life and the city even experienced a shortage in bicycle supply due to its soaring demand. The city managed well in the crucial times and credit for this must be given to the conservation of the original layouts of the sectors, resulting in a fairly low density of traffic, congestion, availability of civic amenities and infrastructure, and good air quality due to the abundance of soft landscape, tree cover and even medicinal and herbal gardens coupled with the civic sense and pride of the residents in conserving the manmade and natural resources of the sectors individually and the city collectively.

By this, the sector planning of Chandigarh has served as a role model for developing Mohali and Panchkula almost like its offsprings! Together, Chandigarh and these



03 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. The V3 sector dividing street: shaded street and a wall like insular character, as no V3 street opens into the sector. © Sangeeta Bagga.



04 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. The Vs loop road that leads to dwellings through V6 and V7 roads. It has different varieties of plantations: tree blossoms, which form a riot of color and a play of shade and shadow while walking through the sector during different seasons. © Sangeeta Bagga.



- 05 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. Houses along the V4 market street: the terracotta, brick screens acting as sun breakers, cross-ventilation and privacy elements in response to hot and humid composite climate on a shoestring budget. © Sangeeta Bagga.

two cities form a tri-city agglomeration nowadays. Mohali is a virtual extension of the Chandigarh sectors in the southwards direction, while Panchkula is separated from Chandigarh by the Ghaggar river and railway line. Nevertheless, the quality of life and convenience of the sectoral grid of Chandigarh is visible in its replication in the smaller towns in its hinterland.

Notes

- 1 The 7Vs is the hierarchical road system to convey traffic from intercity to the city and finally to the dwellings in an ordered manner.
- 2 The Chandigarh Style as it came to be popularly called was born out of: the use of local materials, such as sand and stone from the nearby Ghaggar river, cement from the factory set up at Surajpur on the outskirts of the new town, and clay bricks from the kilns set up in the periphery of the city; the repetitive use of these elements along with plastered, painted and lime washed overhangs, sunshades and verandahs (that were used as sleeping terraces at night) created by indigenous men. In other words, materials and methods to deliver a rich vocabulary that was climate responsive. The low rise cubic forms interspersed with green spaces contributed as well to the definition of this architecture as the Chandigarh Style.
- 3 Bio-aesthetics was a term defined by Dr. M. S. Randhawa in his book *Flowering Trees. India – The Land and The People* (1965) and several of his writings. He established the connect between the aesthetic value of trees and landscape elements and their biological benefits. Further, according to him trees in Chandigarh had the role of adding the element of beauty to the city, by the immense variety of flowering trees that embellish the avenues and create a rich visual and delightful experience for people as they traverse through the city by foot, bicycle and car. These flowering trees and fruit bearing trees also provide the habitat for fauna, birds and other forms of life and, thus are beneficial for the ecosystem of the city.

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(Chandigarh, India). Architect and PhD, she takes a keen interest in the ecological, social and conservation concerns of Chandigarh. Professor at the Chandigarh College of Architecture (CCA) since 1999, she became its first woman head in 2017. She has led the postgraduate studios focusing on the city's sustainable cultural landscape, being professor of Urban Design, Theory of Design, and Architectural Design Studios. She is also involved alongside the management of the World Heritage Site Capitol Complex of the works of Le Corbusier and is a long-time Berkeley Prize committee member.



- 06 Le Corbusier with the collaboration of Pierre Jeanneret, Maxwell Fry and Jane Drew, Chandigarh, India, 1950-1965. The house types within the sector contributing to its grain and texture. Two to three story government houses uniformly and variably mixed with privately-owned and -built houses, interspersed with community greens, tot lots, and gardens that formed subsectors of the individual sectors and maintained its insular character. © Sangeeta Bagga.