

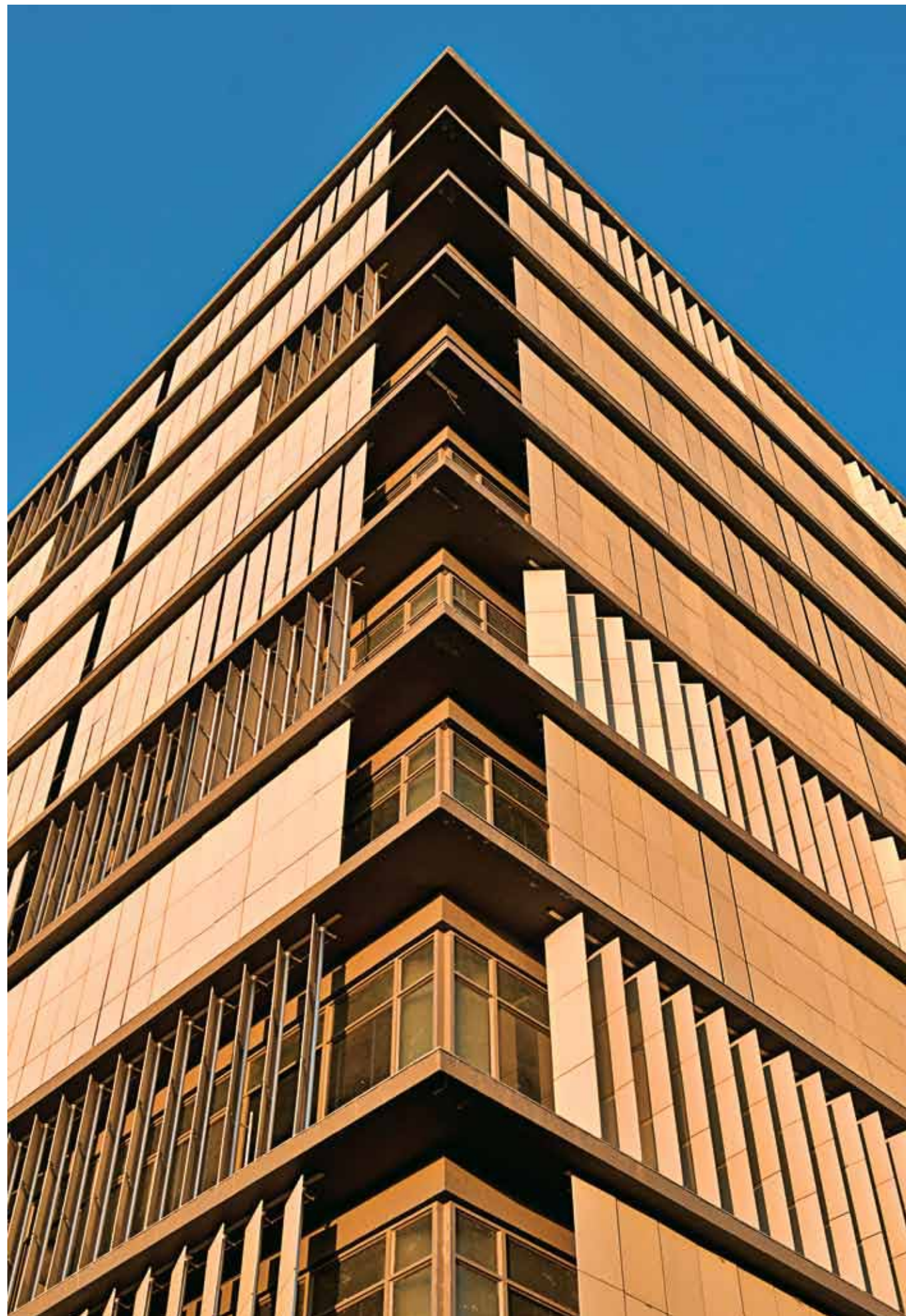
domus

Volume 01 • Issue 01 • November 2011 / **Bimal Patel** louver as protagonist / **Jürgen Mayer H.** waffle urbanism / **Prabhakar B. Bhagwat** extracting identities / **James Corner Field Operations** and **Diller Scofidio + Renfro** the high line, New York / **Bijoy Jain** processing architecture / **Paola Antonelli** visualisation / **Sameep Padora** temple to Shiva / **Beatriz Colomina** towards a global architect / **Massimiliano Gioni** a letter from Venice / **Dan Graham** horoscope

India

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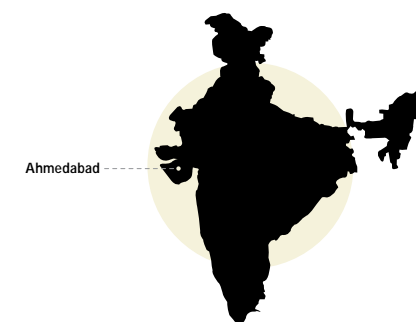


Dinesh Mehta

08.01.2011
Ahmedabad, IN

Nikon D3
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Louver as protagonist



Addressing the negotiation of the interior with the climate of the city, Bimal Patel and his multi-disciplinary team design the hardware for the skins of three buildings

Design

Bimal Patel

Texts

Smita Dalvi
Bimal Patel

Photos

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Ahmedabad has three new buildings; not public nor institutional, nor extravagant in form. They are modest, private and commercial. They are all designed by HCP, an architectural firm well-known for large institutional projects. Addressing the negotiation of the interior with the climate of the city, Bimal Patel and his multi-disciplinary team from HCP have designed the hardware for the skins of three buildings. These are special, for each building displays an almost retro-modern aesthetic on their facade, articulated by an element now rarely seen—the 'louver'.

Louvers as shading devices are an innovation of modernist architecture in India; a new vocabulary un beholden to history or tradition, but a contemporary interpretation of a regional response. 'Thermal control', or simply put, keeping the heat out, is a primary necessity in most arid Indian regions. In humid zones, ventilation becomes an added criterion. Traditional or vernacular buildings exhibit a variety of responses to this situation by incorporating buffers of thick walls and heavy roofs with fewer openings, deep balconies or verandahs, courtyards, shaded outdoor spaces, deep overhanging roofs, and so on. These responses were once shaped by traditional wisdom and an intimate, intuitive understanding of one's immediate environment. Modernism, on the other hand, sought a rational approach that expressed the spirit of the age. The louver, taking various avatars, played an active role in creating an illuminated trajectory all its own.

In India, the period between the two world wars was a fluid one in which ideas and people travelled freely across continents. A landmark building of these times is the 'Golconde'—a dormitory for the Aurobindo Ashram in Pondicherry (1938), designed by Antonin Raymond of Czech origin who came to India via Japan, where he worked with Frank Lloyd Wright on the Imperial Hotel. This RCC frame structure remains a paragon for subcontinental climatic architecture. The long faces on the North and South are articulated with custom-designed lightweight movable horizontal louvers made of asbestos cement. The entire façade acts not just as a shading device but also as a breathing mechanism for the building in the oppressively warm and humid climate of Pondicherry.

Since independence, the city of Ahmedabad has been at the forefront of Modernism in India. This trend was promoted by

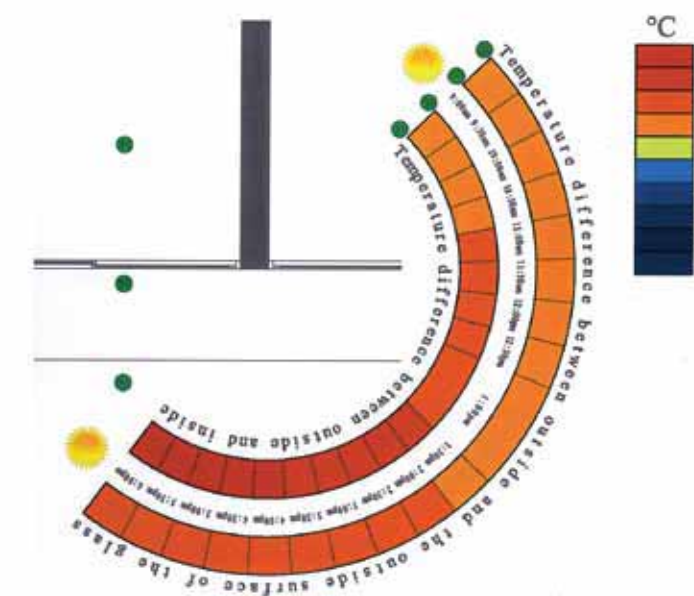
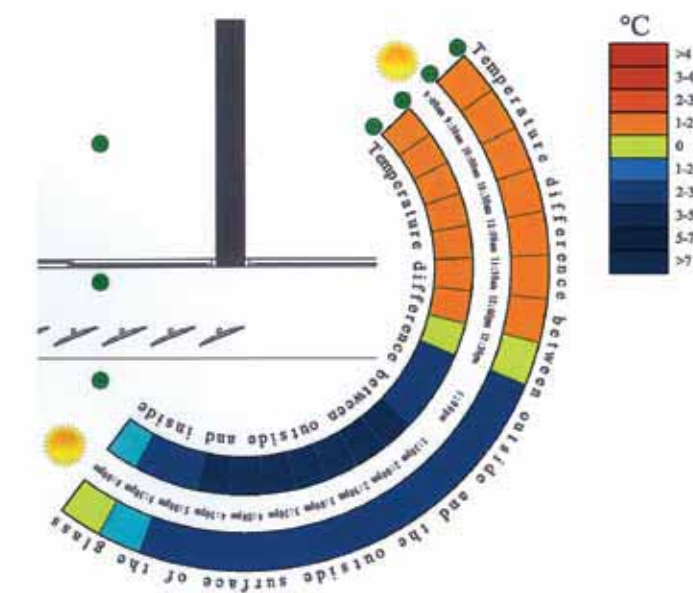
a handful of mercantile families who commissioned private and public work to international architects like Le Corbusier and Louis Kahn, both figureheads of the 20th century Modern movement in architecture. Le Corbusier's iconic project on the banks of the Sabarmati River is the Ahmedabad Millowners' Association headquarters building (1954-56). This building gives material form to many of his theories like the free plan and open façade, the roof garden and a form-finished concrete frame. But unlike any of his previous buildings in Europe, Le Corbusier negotiated the hot climate of Ahmedabad through the innovative 'brise soleil'. On both the east and west faces of the building he created a substantive buffer between floor plates and the exterior, using horizontal ledges and extra wide vertical louvers of concrete. Although the brise soleil element was simultaneously employed at Chandigarh where he was shaping great buildings in the new capital for the state of Punjab (1951-60) on the invitation of Prime Minister Jawaharlal Nehru, it is the modest Millowners' building in all its simplicity that remains etched in the memory for its bold aesthetics of the louver. Architects in Ahmedabad, some of whom apprenticed under the master continued the legacy of modernism tempered by the local and contextualised by the vernacular. Charles Correa's Gandhi Smarak Sangrahalaya at the Sabarmati Ashram, a project of modest size and proportion, is perhaps the best work of his career. Here, the modular spaces formed by a grid of piers have no walls; and enclosure, where desired, is provided by fixed horizontal louvers.

Contemporary to the Chandigarh project was a commercial building in Bombay, the Petroleum House, Churchgate (1954), by Chauncey W. Riley that stands out for its unique aesthetic. The cuboidal mass rounded at the street junction is completely wrapped with vertical louvers in pre-cast concrete which are differently positioned for specific orientation. In addition to the vertical, there are some horizontal fins made in asbestos cement to further augment the efficiency of shading in the south direction. This was expressly done to reduce the cooling load on the AC system. A few blocks away, the 'Yogakshema', LIC headquarters designed by D. K. Choudhary also employed the language of concrete louvers as vertical fins. In the late-sixties and the early seventies the 'egg-crate' articulation of the façade was *de rigueur* in many public buildings all over the country.





HCP have employed technology as a powerful aesthetic device to define the architectural language of Safal Corporate House



Schematic diagrams depicting the temperature differential when louvers are employed and when the building skin is reduced to a thin surface

By the eighties though, the use of louvers withered practically to nonexistence. Why did the louver fall out of favour? One possible reason was the difficulty in casting thin, light louvers with precise line and plane in concrete and the lack of transparency and flexibility. The cement crisis in the early eighties may also have led to the louver being regarded as vestigial to the building itself. Later, in newer, developer-generated buildings, even deep overhangs and balconies were considered a waste of space—anything more specialised or complex was almost eliminated. The typical façades of today are thin skins of masonry or glass without adequate shading or insulation, near-naked buildings that are visual and environmental disasters.

In contemporary times, the ways of life, functions and types of buildings and the demands we put on them have undergone a drastic and irretractable change. Moreover, in a rapidly urbanising country these very demands also put

an unprecedented strain on the physical environment and energy resources. While we can learn a few lessons from the traditional methods, it would be naïve to replicate them as they were. The challenge for the Indian architect today is to offer contemporary aesthetic and technological possibilities that are neither alien nor retrospective. One very potent design method is climatic design, maintaining the thermal balance of interior spaces by using passive design, minimising heat gain and maximising heat loss, promoting natural and induced ventilation, maximising daylight and reducing cooling loads on mechanical systems. An understanding and working knowledge of building physics, climate, and solar geometry is imperative to achieve effective solutions. Effective shading, ventilation, insulation and transparency are simple, useful goals. The three buildings in Ahmedabad capture this essence. They are special for displaying a unique sensibility in their exterior which is worthy of attention.



The space between the vertical rigid louver system and the inner skin controls the heat accepted by the building; the flexibility built into the plywood system allows for configurations to suit the visual and climatic dimensions of the building



↑ Manually adjustable louvers allow for a great degree of flexibility in controlling the interior environment, both in terms of light and air circulation

The facade of Safal Profitaire consists of a vertical rigid louver system (VRLS) made from cement bonded fiber-board panels with insulation

The Safal Corporate House is a three-storied, fair face concrete structure located on a west-oriented plot. It has expansive windows on the main façade that are protected from the harsh afternoon sun by vertically pivoted wooden louvers which also add architectural interest to a monolithic and grey concrete exterior. Safal Corporate House has to deal with a challenging orientation since the long facade faces west, which is the most difficult face to shade as the sun makes a low angle in the sky directly in front, coinciding with the overheated period of the day. The vertical louvers would be the only effective solution to prevent direct glare and considerable heat gain, but permitting reflected daylight inside. That they are movable would help in making the necessary adjustment from summer to winter. Retractable louvers are much more efficient than fixed *brise soleil*. For one, they afford better and more intuitive solar control as well as catch prevailing breezes more effectively. Secondly, they can be constructed with lightweight materials with better thermal properties rather than in concrete which is heavy and has a higher 'U-value' - rendering it thermally poor. Safal Profitaire is a multi-tenanted office complex with more than 50% of its façade glazed for lighting efficiency. This is protected by a Vertical Rigid Louver System (VRLS) made from

cement bonded fiber board panels with insulation. The system is mounted on a 60cm wide ledge on every floor the louvers extend from slab to slab are linked together to form arrays and can be operated manually with one control. Each louver is made up of two segregated panels that overlap, as such, in the fully closed position light filters through to create a glow of natural light in the interior. The challenging part is any moving component in a building would require much greater efficiency in detailing, handling and maintenance. They will need to be simple and sturdy to be easily operable without breaking down. The VRLS designed for Safal Profitaire achieves effective screening of the sliding aluminum glazed windows. The gap between the two skins also helps to maintain air-flow and in cooling the façade. The Astral Corporate House's main glazed façade faces north and is mediated with a partial roller membrane system mounted on a 60cm wide ledge on the exterior. Although the north façade would receive less solar radiation, it requires shading nonetheless, especially during the summer. Louvers that are made of fabric create diffused lighting in the interior creating an environment which is glare-free and comfortable. Louver systems thus employed protect building interiors from



Astral Corporate House has a unique louver system made of fabric, developed by the industrial design team at HCP as an almost diaphanous filter for light, creating a glare-free environment by diffusing strong daylight

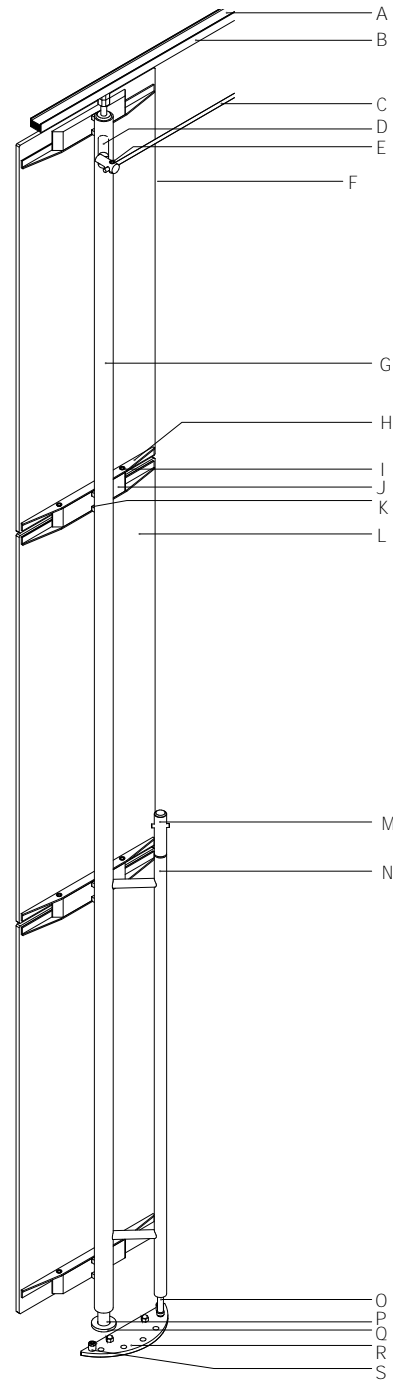
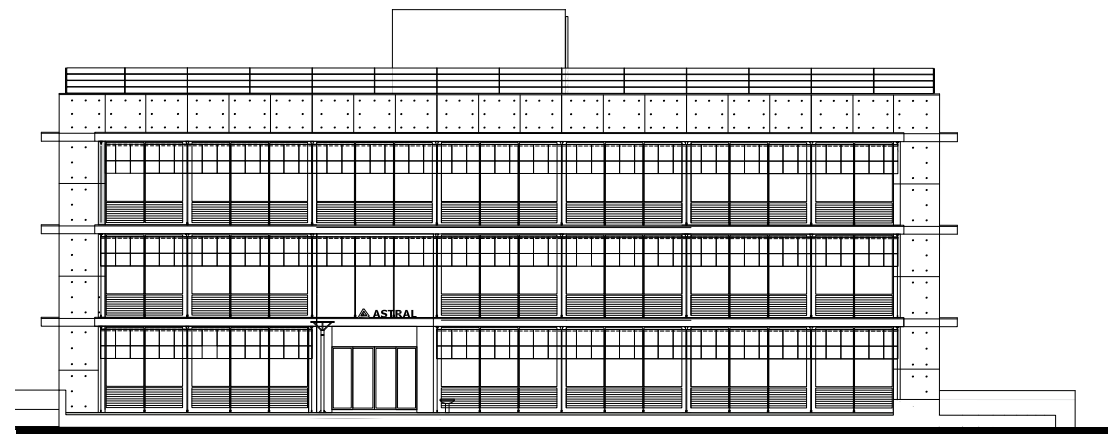
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The operable rather than fixed louvers make the building facade dynamic and help in mitigating the effects of Ahmedabad's harsh climate
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solar heat gain, keep cool the exterior faces of buildings limit glare, allow reflected daylight to filter through which can be varied by users depending upon the changing solar angles as per the time of the day and the season, and provide mediated views of the outdoors from the inside. Most commercial, corporate and even institutional buildings in India's emerging urban centres today display a disturbing disregard for negotiating their local climate. Typical façades now are thin skins of masonry or glass without adequate or almost no shading or insulation, near-naked buildings that are eyesores and environmental disasters. More attention and money is being paid to make these unviable skins shiny and glossy rather than how they will protect inhabitants from heat and damp. What is seen is the creation of artificial, fantastical, insular interior environments powered by mechanical systems that completely shut out the outside of a chaotic city by wrapping themselves with fancy cloaks. These cloaks start withering very fast under a punishing sun and driving rain. The resultant ugliness has fouled the urbanism of our cities and robbed them of any aesthetic or human quality. HCP's oeuvre of many years has carried forward the vigour of Ahmedabad's modernism. Here they have drawn upon the movement's most relevant building element for the subcontinent, the louver, and have revived it to fulfill the challenges of contemporary times. The firm and its associate product design team have invested in R&D to reduce the bulkiness of louvers as they were conceived by the high-

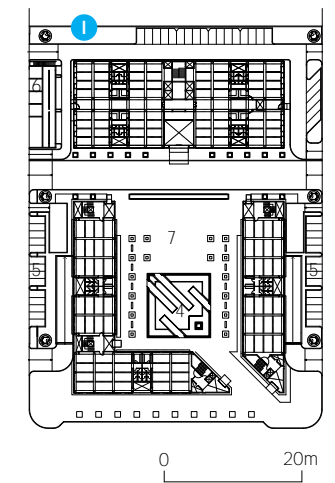
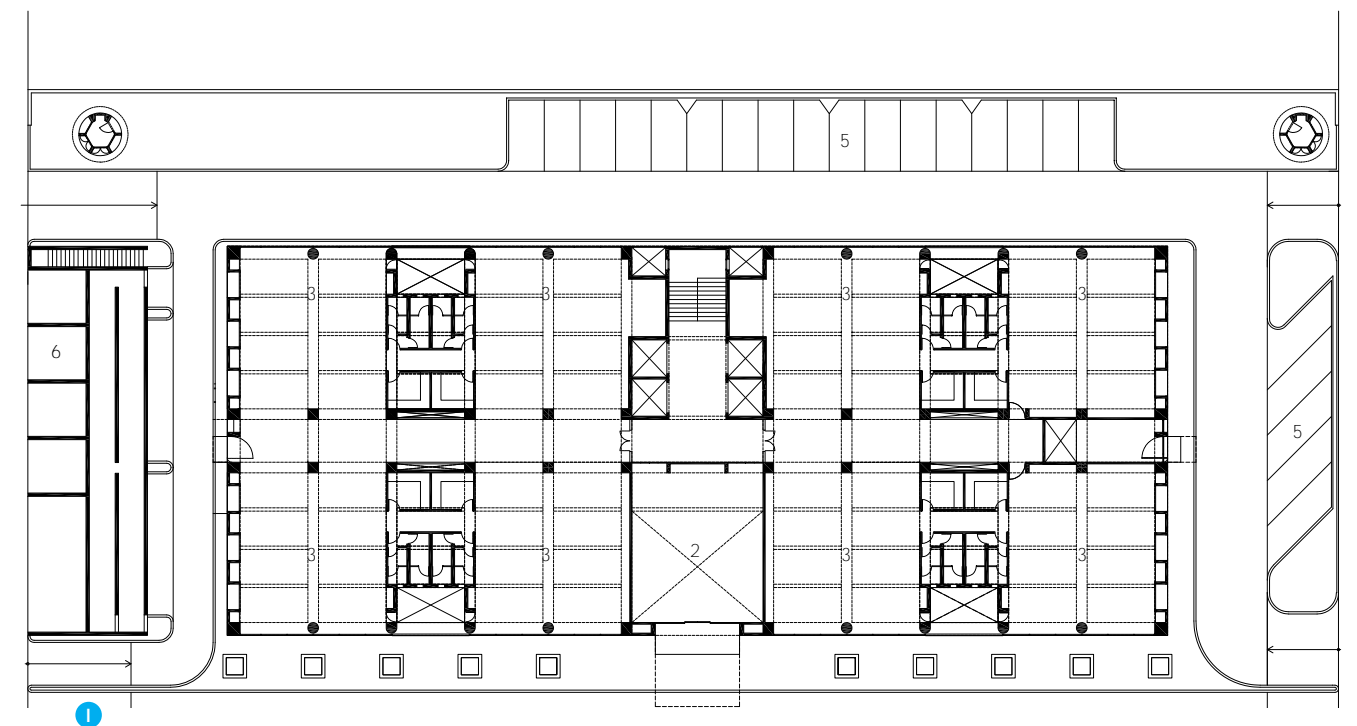
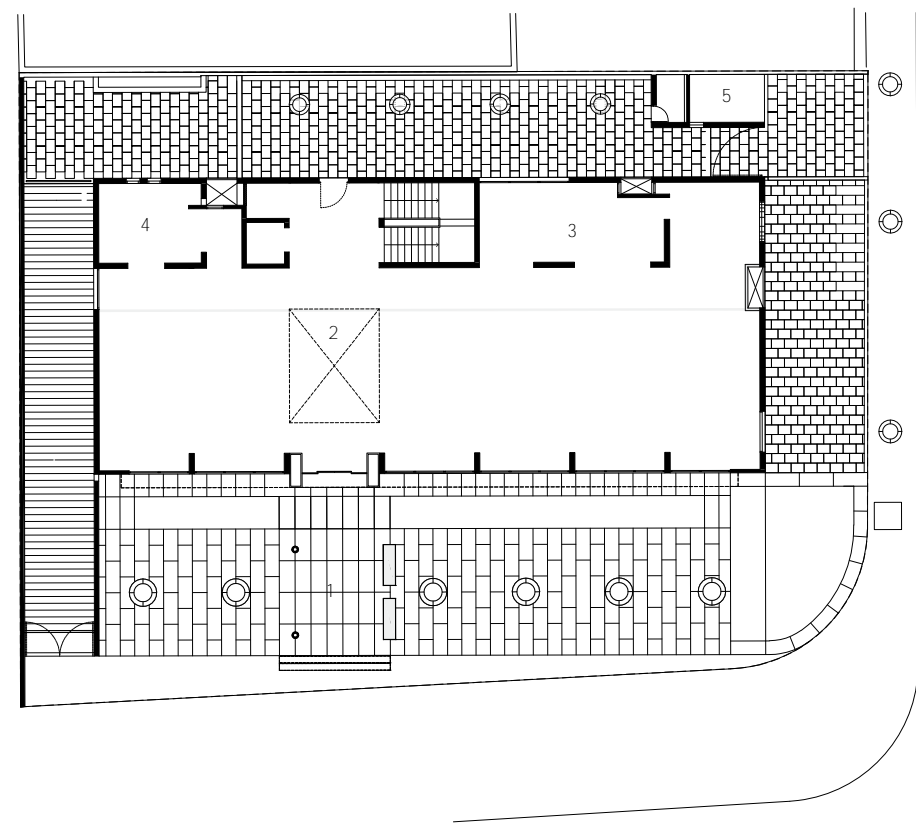
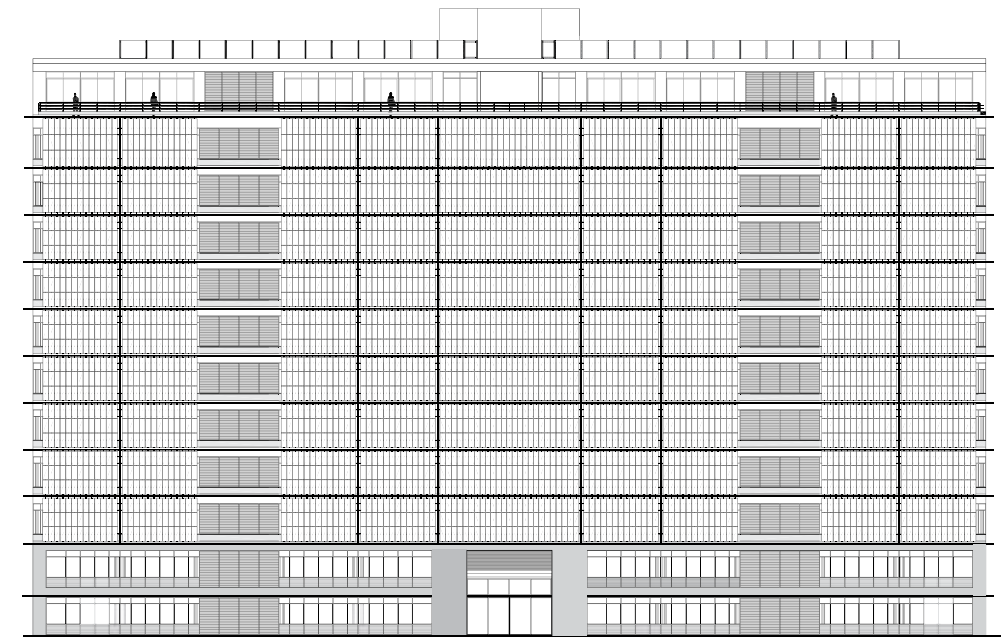
modernists and have re-imagined them in different materials chosen for their thermal properties, shaping new, streamlined and elegant forms, operable rather than fixed making the building façade dynamic and help in mitigating the effects of Ahmedabad's harsh climate. The range of materials is as deep as wide, from rigid asbestos cement to earthy wooden to almost ephemeral fabric, each made workable with painstaking details of hardware. In today's world, where building edges cannot be deep and elaborate due to the need to extract every inch of floor space, these solutions offer a new approach to the development of effective façades providing comfortable conditions to its inhabitants and a sense of wellbeing and delight through passive design solutions rather than through active measures like air-conditioning. The operable louver so becomes a dynamic protagonist determining the overall aesthetic of the buildings and also a pointer towards saner and more humane cityscapes.

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SMITA DALVI
 Architect and critic

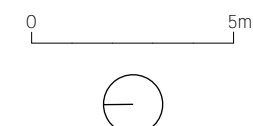
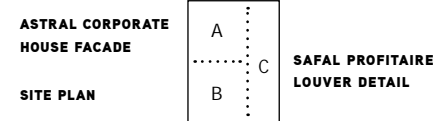
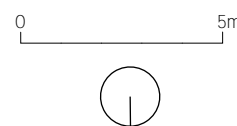


Louver Component Index

- | | |
|----------------------------|---------------------------------|
| A Top Strip | J Panel Bracket Holder (S Type) |
| B Top Strip Cover | K Bracket Holder Spacer Pin |
| C Link Rod | M Stopper Handle |
| D Link And Link Bush | N Handle |
| E Allen Cap | O Stopper Pin |
| F Link Connector And Pivot | P Column Holder |
| G Column Pipe | Q Column Holder Cover |
| H Panel Bracket (L Type) | R Lock Plate |
| I Allen Csk | S Handle Stopper And O Ring |



- 1 Entrance plaza
 - 2 Office space
 - 3 Meeting area
 - 4 Toilets
 - 5 Security cabin
- Site area 1012 m²
Total built area 1720 m²



- 1 Entrance
- 2 Lobby
- 3 Offices
- 4 Water Body
- 5 Parking
- 6 Sub Station
- 7 Plaza

Site area 11534 m²
Total built area 28000 m²

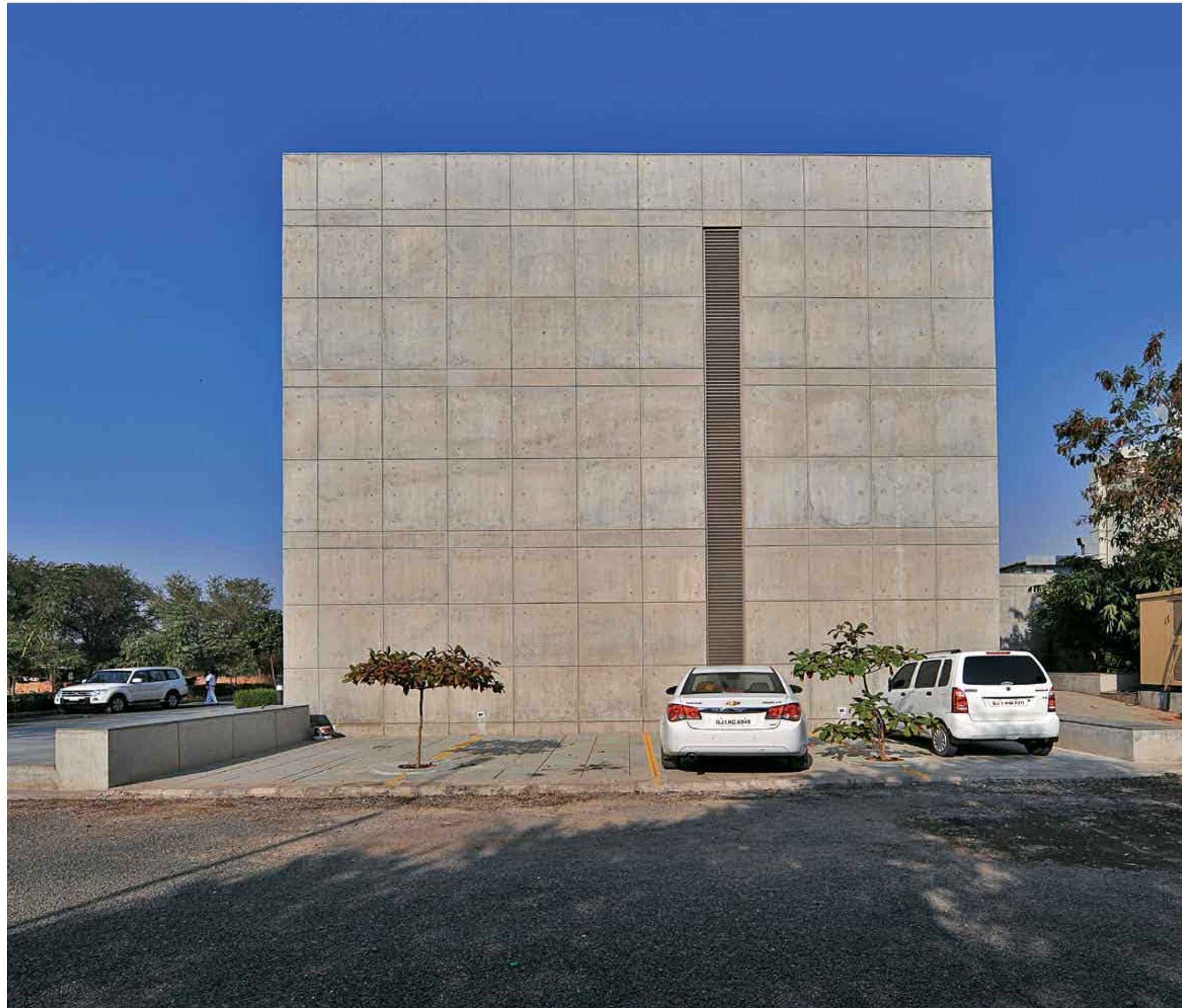


In a tropical country like India where the weather is mostly hot, and the glare of the sun can be often unbearable, architects have always taken the task of shading facades very seriously. Within modern Indian architecture, one can find different shading strategies and devices. Think of the thin, flat and wide weather shades which are a key feature of art-deco architecture; or, Corbusier's 'brise-soleil' on the West facade of the Millowners' Association Building; or the incredible concrete louvers of Antonin Raymond's Golconde; or, the austere balconies in Kahn's IIM hostel blocks providing a protective layer for the rooms—the list is endless. In fact, shading strategies are at the heart of Indian architecture and Indian architects have prodigiously developed a variety of approaches to shading. Today, there seems to be a renewed vigour in developing new ways of shading. A number of architects all over the country

are trying out new strategies and this new exploration, I think, is spurred primarily by the prohibitive cost of using a thick band of space all along the perimeter of buildings for shading. Floor space is just too precious and it is simply impossible to 'waste' all the space that Corbusian 'brise-soleil', or Kahnian layer of balconies use up. Raymond's concrete louvers seem attractive however, developers would much rather have light facades that do not add weight to the structure. A group of us at HCPDPM, along with Dinesh Sharma (an industrial designer) and the production team at TDW Furniture Pvt. Ltd. led by Ismet Khambatta, have been experimenting with a variety of shading systems for building facades made of cement bonded fiber board, marine plywood and fabric.

—
BIMAL PATEL
Architect

The lightweight and movable louver system helps in negotiating the relationship between the interior and the outside, protecting the inside from extreme solar heat gain and the harsh glare of the tropical sun



↑
The south facade of the Safal Corporate House



↑
Interior view of the stairwell in the Safal Profitaire building

Architect
HCP DESIGN AND PROJECT
MANAGEMENT PVT. LTD
BIMAL PATEL

Project team
BIMAL PATEL
ANAND PATEL
MAHESH IYER
RAKESH RAJPUT
MAHENDRA PATEL
AMIT SHAH
GUNWANT VADGAMA
SHYAMU SHAH

Facade system
FACE FAÇADE APPLICATIONS
FOR CONSERVATION OF ENERGY
(A DIVISION OF TDW FURNITURE
PVT. LTD.)

Design
DINESH SHARMA
DEVELOPMENT,
MANUFACTURING AND
INSTALLATION: ISMET
KHAMBATTA, ANNU
ANAND, RAJIV SHAH, KETAN
PANCHAL, NEERAJ PARMAR,
MAULIK SAVALIA

Interior design
HCP INTERIOR ARCHITECTURE
PVT. LTD

Design team
CANNA PATEL (Principal
Designer)
MILI AMIN
SONAL PATEL

Landscape design
DESIGN CELL (Safal profitaire)

Structural engineer
DUCON CONSULTANTS PVT. LTD.
(SAFAL PROFITAIRE AND SAFAL
CORPORATE OFFICE)
N.K. SHAH & ASSOCIATES
(ASTRAL CORPORATE HOUSE)

Client
SAFAL PROFITAIRE
SAFAL CORPORATE OFFICE
ASTRAL CORPORATE HOUSE