

Philip Jodidio

Foreword by Yvonne Farrell and Shelley McNamara
Winners 2020 Pritzker Architecture Prize

matharoo

associates

Architectural Practice in India

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Contents

- 7 Foreword
Yvonne Farrell and Shelley McNamara
Grafton Architects
- 8 Introduction
Philip Jodidio

Early Works 1992–1996

- 18 Path In Between
- 18 Family Center
- 19 Home with a Hundred Columns
- 19 Cubes and Curves

Works Across Two Decades

- 22 The Last Abode
- 30 First Blood
- 40 Prime Minister Fund Schools
- 48 Inside Out
- 54 Random Order
- 58 House with the Warped Court
- 66 Frugal Health
- 72 Queen Marys School
- 76 Track Record
- 82 House With Balls
- 90 House with the Wall of Light
- 96 Set in Stone
- 102 The Urban Cast
- 106 Urban Healer
- 114 Between the Waters
- 120 Moving Landscapes

- 126 Net House
- 132 Marbled House
- 136 Fountainhead School
- 144 Pool
- 152 Powerhouse
- 156 Urban Stitch
- 162 Embers and Ash
- 168 Open and Shut Case
- 170 Log(ical)-eco Housing
- 176 Fissured Living
- 182 Stripped Mobius
- 186 Plain Ties
- 192 House In-situ
- 196 Shifting Domains
- 200 Notion of Motion
- 202 Open Door
- 212 Man-made God
- 218 Cut Bend Fold Play

Upcoming Works

- 228 Forest Lodge
- 229 Multi-use Development
- 230 Sikh Heritage Center

Appendix

- 232 Project Credits
- 237 Matharoo Team
- 239 Index of Projects



Foreword

One of the benefits of being on Architectural Competition Juries is that it provides the privilege of seeing submissions from all around the world, discovering names of architects you did not know, finding projects that are inventive, creative, and beautiful.

As a result of being on the Architectural Review Jury in 2009, we came across the architects Matharoo Associates for the first time. One of the Emerging Awards Winners was the studio's work for Curtain Door, located in Surat, India. This was a tall sinuous door, made up of numerous timber pieces, transforming the familiar, a tactile re-imagining of a threshold.

Over the years, we watched the work of this practice, enjoying various aspects including crafted inventions embedded in and transforming the work: dangling concrete spheres with counter-balanced shutters working on a system of wire pulleys, as part of the weekend house, which also contains tanks for breeding fish; moving marble walls, transforming the boundaries of a house, connecting and separating, orchestrating the changing aspects of contemporary communal and private lives.

When we were the Curators of the 2018 Venice Architecture Biennale, our manifesto was titled *FREESPACE*, where we set out aspects of architecture that we wished to highlight and nourish. All invited participants and every national pavilion was encouraged to bring to the Biennale *their* FREESPACE, so that we would reveal the diversity, specificity, and continuity in architecture based on people, place, time, and history, sustaining the culture and relevance of architecture across the world. We emphasized *space*

because architects are space-makers, whether at the scale of the city, of landscape, or in the smallest enclosure. We were interested in submissions to the Biennale that would go beyond the visual, emphasizing the role of architecture in the choreography of life. One such submission was from Matharoo Associates.

Their work represented in the Biennale was a project which concerned itself with the making of freespace within a tight urban plot, using economic means. The architects talked about liberating structure from its load-bearing role, using it rather as a space-making element, forming a series of interlocking planes, bent and folded into each other. Their aim was to eliminate perceived boundaries and allow small spaces to be perceived as being bigger than they actually are. The project was important because of its focus on structure—one of the basic elements of architecture—and also because it provided a sense of play and delight to what might otherwise be conceived as a mute and silent component.

We see this quality in much of the work of Matharoo Associates, seeming to be both serious and playful, such as the House With Balls or the Moving Landscapes house. They describe their aspiration for architecture and structure to be "liberated from this theoretical burden." Their "Biennale" house has now been translated from idea to reality, its folding concrete "ribbons" enclosing actual lives.

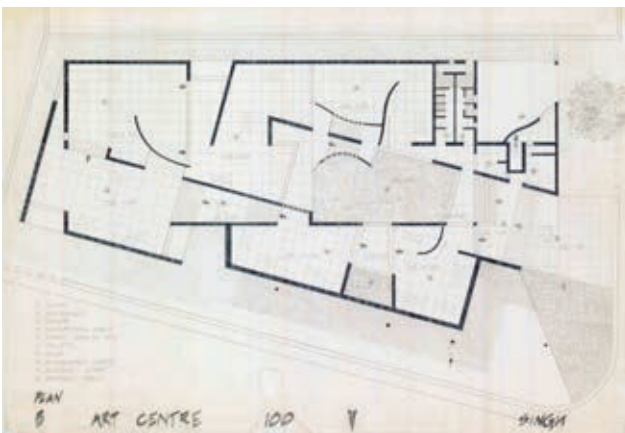
We look forward to the monograph on the work of studio Matharoo, certain we will be encouraged and inspired by the work of such skilled colleagues.

Yvonne Farrell and Shelley McNamara
Grafton Architects, Winners 2020 Pritzker Prize

Introduction



Top: A 1904 pen and ink drawing of a door by Gurjit Matharoo's great-grandfather, Thakur Singh Matharoo (an Arts graduate who worked for the British).



Bottom: The design for an art center, in pencil on parchment; a fifth-semester drawing (1985) by Gurjit Matharoo at the School of Architecture, CEPT, Ahmedabad.

Breaking Down the Barriers

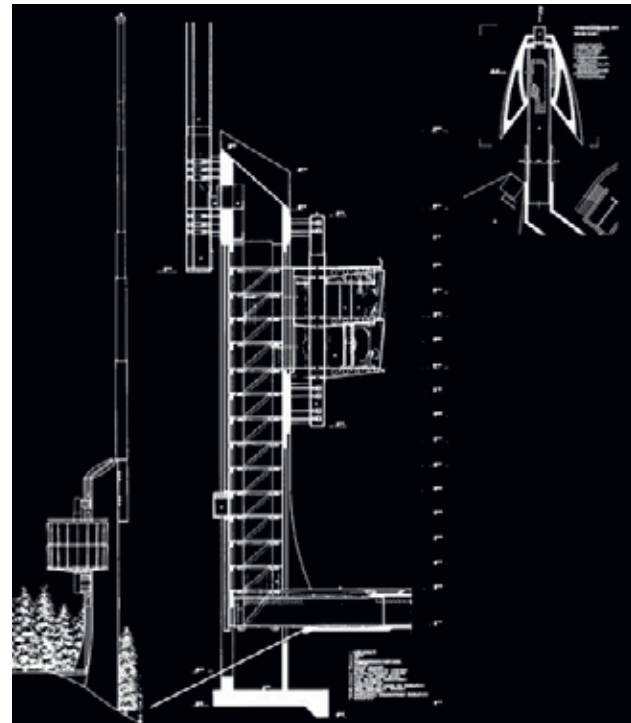
Gurjit Matharoo was born in 1966 in Ajmer, Rajasthan. Originally from Punjab, the Matharoo family relocated to Rajasthan at that time, where his great grandfather worked for the British designing colonial buildings. The male family members of his father's generation were more inclined toward engineering, but Matharoo decided to enroll in a five-year architecture program and received his diploma (equivalent to a B.Arch.) in Architecture at the Center for Environmental Planning and Technology (CEPT, Ahmedabad, 1989). When a Swiss friend drew a sketch of Casa Kalman by Luigi Snozzi, Matharoo was so inspired that he decided to work in his studio under one of the associates, Michele Arnaboldi (Locarno, 1989–90) in the Italian-speaking Ticino region of Switzerland. Snozzi (b. 1932) is one of the best-known and most influential figures in Swiss modern architecture. Shortly thereafter, Matharoo worked with Giorgio Guscetti (Ambri, 1990–91) on a competition entry for a TV tower in Berne, which took third place. From the jury description in French, Matharoo was able to recognize the word *clarté*. Matharoo's diploma thesis, written the previous year was incidentally titled "Clarity." For his thesis, he studied buildings such as Ando's Chapel on Mount Rokko (Kobe, 1986), the Pompidou Centre by Renzo Piano and Richard Rogers (Paris, 1977), Ludwig Mies van der Rohe's Barcelona Pavilion (1929) and Le Corbusier's Millowners' Association Building (Ahmedabad, 1954) and Notre-Dame-du-Haut Ronchamp Chapel (1955).

In 1991, Matharoo began teaching at his alma mater CEPT and established his own firm Matharoo Associates in Ahmedabad, in a space overlooking the city's Sabarmati river. The firm began functioning with two drawing boards in a 100-square-foot (9-square-meter) rented corner of an office, and eventually expanded to take up the entire space of 600 square feet (56 square meters). In 2011, A+U (Japan) covered it as one of fifty selected architectural offices in the world. Subsequently, the studio moved to its own 7,910-square-foot (735-square-meter) building called the Pool (page 144).

With no background in Ahmedabad, the firm participated in and won a number of competitions in India, but for the most part, these projects did not advance. In the early years of the studio between 1991 and 1994, the first built work revolved around small houses in Ajmer. Between 1995 and 1998, Matharoo worked as an Associate on a case-by-case basis with the Ahmedabad firm Hasmukh C Patel Architects and Planners, gaining experience on large-scale industrial projects, and simultaneously working in his own two-person office. He won the competitions for his first large projects, the Ashwinikumar Crematorium (page 22) and Prathama Blood Centre (page 30), built in 2000 and 2001 respectively. Although he has continued to build private houses, Gurjit Matharoo has also worked on large buildings simultaneously, and spanned diverse scales of projects.

Raw Surfaces Washed with Light

Gurjit Matharoo and his team have been the winners of numerous international awards, including several given by the *Architectural Review* (London)—for the Emerging Architecture Awards Cycle. The Ashwinikumar Crematorium, the first gas-fired facility in the country, was the Editors Choice selected by Peter Davey in 2003 and Prathama Blood Centre, the largest blood center in India, was the Recommended Entry in 2005. In 2009, Curtain Door (page 90) was declared the Winner of the Emerging Architecture Award and the following year House With Balls (page 82) won the top prize in the AR 2010 House Awards. Catherine Slessor, the Editor of the magazine commented, “The project exploits its economy and ease of construction, but Matharoo also clearly relishes concrete’s structural and expressive qualities. Here the pours have a powerful artisanal quality that echoes the work of Corb and Kahn in the subcontinent, the universal material becoming intimate and particular, raw surfaces washed with light.”¹ Matharoo’s designs for ESIC Hospital (page 106) and Set in Stone (page 96) were both nominated for the Aga Khan Awards. Net House (page 126) was awarded the 2011 International Architecture Award, given by the Chicago Athenaeum Museum of Architecture and Design. In 2011, the ETH in Zurich selected Matharoo as one of seven promising architectural practices worldwide. In 2012, Matharoo was shortlisted for the BSI Swiss Architectural Awards and invited to present his work at the 2017 Bienal De Chile and twice consecutively at the Venice Architecture Biennale curated by Alejandro Aravena in 2016 and Grafton Architects in 2018. Both curators went on to become winners of the 2016 and 2020 Pritzker Architecture Prize(s), respectively.



Top: Ink on Tracing by Gurjit Matharoo; competition entry for a TV tower at Berne, Switzerland, which secured third place with Flli Guscetti Architects, Ambri, Switzerland, 1990.

Middle: Matharoo Associates’ first studio (1991–2015) overlooking the Sabarmati River; selected as

one of fifty architectural studios from around the world by *A+U* in 2011.

Bottom: The winning entry for the Invited Competition (1991) by the Jain Vishwa Bharati Institute, a university project that was shelved before construction.

¹ <https://www.architectural-review.com/buildings/ar-house-2010-winner-house-with-balls-by-matharoo-associates/8603598.article>, accessed June 29, 2019.

In the Footsteps of Le Corbusier and Doshi

Ahmedabad is the fifth most-populous city of India but more important in this instance, it is known as an architectural capital. This is where Le Corbusier built Villa Sarabhai (1955) and Villa Shodhan (1956). The Swiss-French master worked in Ahmedabad after having been called in 1950 to complete the master planning and much of the governmental architecture of Chandigarh, today the capital of Punjab and Haryana. Frank Lloyd Wright created an unbuilt design for the administrative office for Calico Mills, and Buckminster Fullers Calico Dome was erected in Ahmedabad in 1962. Louis Kahn built the Indian Institute of Management (IIM-A) in the city, which he worked on until his death in 1974. Ahmedabad is also a city where the influence of two major Indian modern architects has been felt. The first of these is Balkrishna Doshi (b. 1927), founder-director of CEPT, School of Architecture (1962–72), who became the first Indian winner of the Pritzker Prize in 2018. Charles Correa (1930–2015), recipient of the Royal Gold Medal for architecture (1984) and the 1998 Aga Khan Award for Architecture, was a long-time contemporary of Doshi and designer of the museum at Gandhi Ashram (1963) in Ahmedabad. Among other achievements, Doshi and Correa are credited with giving an Indian spirit to the modernism of Le Corbusier. As it happens, in 2014, Gurjit Matharoo was the third Indian architect to become an International Fellow of the Royal Institute of British Architects (RIBA) after Doshi and Correa. His connection to the earlier important figures of modern Indian architecture was highlighted by Sir Peter Cook on the occasion of the death of Charles Correa. He wrote “I am saddened by the death of Charles Correa; so highly talented and a nice man as well. His example is a good one—for I have never subscribed to the idea that there is a ‘Utopian’ architecture and then a ‘normal’ architecture. I believe that the mainstream (philistine) world likes to use the idea of the ‘Utopian’ to pigeon-hole the more creative architects as non-builders, so as to keep them out of the action and not show the mainstream for what it often is—lacking in wit and invention. Charles Correa spanned all. So too does Gurjit Singh Matharoo, I think.”²

Matharoo identifies Mies van der Rohe and Le Corbusier as his sources of inspiration. Of the latter, he says, “Architecture at our studio is a fallout of his principles, which I think are best suited to our culture and place—low cost, rough and labor-intensive, filled with both reason and emotion. His forms are not only protected from, but come alive with the harsh tropical sun playing on them.” Matharoo also cites

Giuseppe Terragni (1904–1943) and Carlo Scarpa (1906–1978), and among more recent figures Bernard Khoury and Ensamble Studio (Antón García-Abril and Débora Mesa) among his favorites.³

Holy Cows and Succulent Thighs

At a presentation in February 2012 for the NZIA Conference in Auckland, New Zealand, Matharoo laid out his themes related to the contemporary architecture of India under the typically humoristic title “Succulent Thighs and Other Stories.”⁴ His first theme underlines what can be termed a certain modesty or calmness, in contrast to any agitated effort to be noticed.

A. Succulent Thighs, Juicy Breasts, Great Legs

Before it descends into something scandalous, we’re only talking about the sign board on a chicken shop. Now a typical character of our cities where spaces scream for attention; one louder than the other.

Our take: Instead of participating in this one-upmanship, we consciously create spaces that are subdued in their context, and form cocoons away from the hustle-bustle of the city.

Matharoo also relates his humorous approach to commenting on contemporary architecture to his own work, pleading for the presence of wit and innovation in an environment that he judges devoid of substantive originality.

B. Holy Cows

It is said that India is a country of followers, and as long as one is following the other, no questions are asked and everybody is content. Perhaps the same holds true for its architecture—leaving little scope for innovation or wit. Architecture that tries to question the norm faces acute resistance in our society.

Our take: To inject projects with a potent dose of wit, so buildings are not sterile, but fun to be in. They add a degree of playfulness in an otherwise monotonous environment.

Referring still to his ideas about the situation in India in particular, the architect decries superficial embellishment and forcefully argues for a more natural and reduced approach.

C. Sweet Boxes

Often buildings are dressed in unnecessary ornamentation that is not suited to our times. Covered by flashy coating

² Peter Cook, *Domus India*, vol. 4, issue 10 (September 2015).

³ *Home Review India*, vol. 15 (December 2016).

⁴ *Ibid.*

makes them unnatural—disconnecting them from self as well as surroundings.

Our take: We work with our internal philosophy of “when in doubt, reduce; when not in doubt, surely reduce.” We try to follow an austere approach where the only embellishment is light falling on materials we use in their natural form—much like carvings do to a temple.

Continuing analogies that might be considered a shade too cosmetic if not sexual, Gurjit Matharoo refers to the popular use of botulinum toxin to chide colleagues who privilege façades too much, suggesting instead that there must be a deeper internal truth in contemporary architecture.

D. Botoxed Set

Buildings are literally only skin deep, and where curiosity and interest ends with the special “façade,” while the structural frames and the walls remain anonymous within.

Our take: There are intangible factors in a building, and there are questions of whether you are psychologically comfortable or enjoy being in it. We try to create buildings with a high emotive content, that are meant to be discovered; unfolding around one’s body as one moves through them, revealing their secrets and meanings; over time and over spatial layers.

Evocative Space that you can Dwell In

The integration and optimization of structure and architecture are seen in his works as well. In the five-story-high Rajasthan Hospital (page 66), the walls and slab are just 6 inches (150 millimeters) thick. This resulted in a reduction in building costs to a mere INR300 (US\$4) per square foot, slashing what was considered a low cost in India in 2005 by 50 percent. The use of integration permits the creation of a minimal wall footprint, with an extra usable area of 8 to 10 percent when compared to a conventional framed structure with infill walls. In small homes, such as Inside Out (page 48) and The Urban Cast (page 102), this is the equivalent of an additional room. The architect’s father, Rajendra Singh Matharoo, who trained as a structural engineer, took voluntary retirement from being the Principal at Government Polytechnic College, Udaipur, and joined the firm at its inception. His wife, Komal Matharoo, also an architect joined him from 1996 to 2001, and again from 2013 onwards. Gurjit Matharoo explains, “My father’s contribution as a structural designer made our firm an integrated



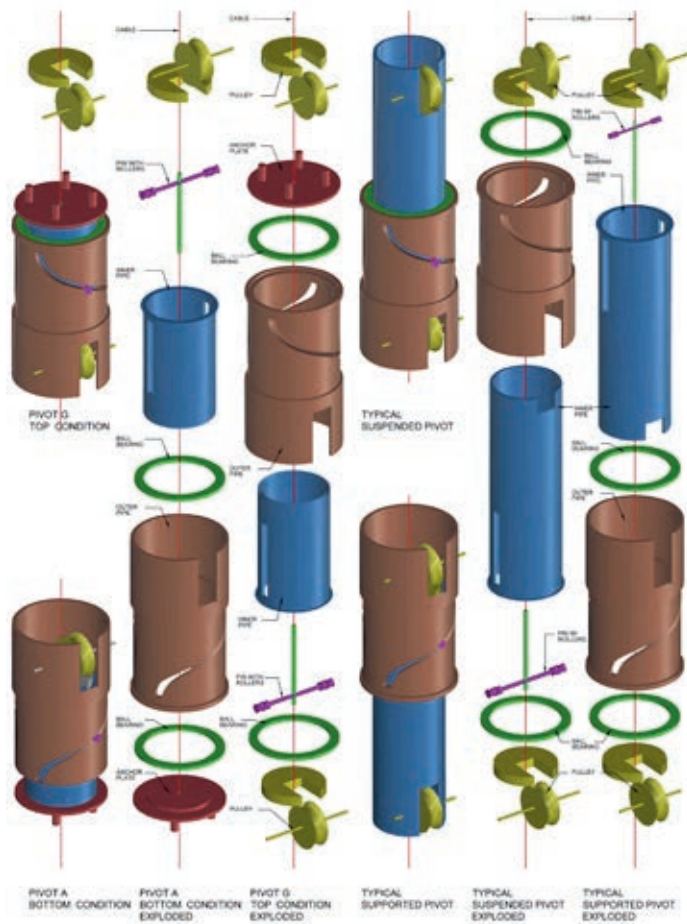
Top: Text source extracted for “Succulent Thighs, Juicy Breasts, Great Legs” presentation at the New Zealand Institute of Architects Conference, Auckland 2012.

Bottom: The Bestiale 2019—based on a 1979 Suzuki GSX 750, a custom-designed motorcycle by Gurjit Matharoo.

unity handling architecture, interiors, product and structural design as a wholesome one.” Matharoo’s interest in designing automobiles as a hobby is another influence he traces to his father, who often dismantled his BSA Twin motorcycle and put it back together. From renowned motorcycle journalist Sir Alan Cathcart:

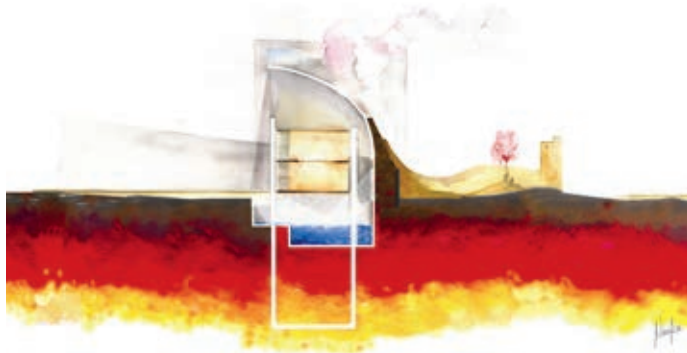
“I compliment Mr. [Gurjit] Matharoo on his imaginative ideas. Though some appear to have been born more from a desire to be different than for practicality of purpose, examples like the Irarei (Integrated Ram Air, Radiator, Exhaust Induction) are a different matter. I believe this design needs to be taken further. It’s a pity Bimota aren’t in business anymore, otherwise I’d suggest he contact them to see if they’d like to put it into metal!”⁵

⁵ Alan Cathcart in “Bricks and Motor,” *Autocar India*, 2001. Bimota, a motorcycle manufacturing company, was founded in 1973.



Top: Mathematical derivation and intricate detailing of hardware is done in-house at the Matharoo studio.

Bottom: Unbuilt project for the Ordos 100 Museum of Houses, where Matharoo Associates was the only Indian architect to be handpicked by architects Herzog & de Meuron in collaboration with artist Ai Weiwei.



Although Matharoo makes clear his fascination with the closely connected mechanics of vehicles, in an interview with the Japanese magazine *Global Architecture*, he stated, "I think the spaces that you make in architecture have no parallel. The creation of evocative space that you can dwell in is the ultimate joy of architecture. This is missing in automobiles."⁶

Fissures and Shells

The work of Gurjit Matharoo often takes on fundamental issues of contemporary architecture, dealing along the way with the powerful changes that have occurred in Indian society since the heyday of Doshi and Correa. The house he calls *Fissured Living* (page 176), for example, proposes a solution for the rising dissolution of multi-generational families that now tend to live more and more apart because of the increased accessibility of individual houses. This 14,000-square-foot (1,300-square-meter) residence provides private areas for the families of two brothers and their parents, calling on "the essence of the vernacular settlement" in India, and uses local stone in a composition "reminiscent of ancient ruins with its blocks shifted over time." Despite these references to Indian architecture, the will of the architect (and of course the client) is to suggest a modern way for families to remain together without jettisoning the older generation as is the case in so many Western countries.

Between the Waters (page 114) addresses another modern question—that of "shedding all baggage, leaving the city behind" to be at one with the sea. Calling on the evanescent imagery of marooned ships, aquatic animals, and old forts, Matharoo uses a long curving wall in basalt to represent a threshold between one world and another, where views of the sea are omnipresent. The idea of "blurring the lines between illusion and reality" is also very present in the *Moving Landscapes* house (page 120). Calling on his fascination for mechanical or moving features, here the architect created an "impregnable shell" with 15-foot-high (4.5-meter-high) walls of local stone, whose imposing blocks pivot "at the touch of a button" to "reveal a transparent, cocooned interior." In a similar case, the *CREDAI Corporate Headquarters* (page 202) took into account the need for exhibition space and banquets that are often required by the developer group. The building literally opens out to the public, with its manually operated three-story-high walls moving away to connect the inside to the road during events.

6 Yoshio Futagawa (ed.), *GA Houses 109: Project 2009*.

The unexpected approach and innovative work of Gurjit Matharoo is perhaps best explained in his own words. He is lucid about his own place in the world of Indian architecture, and clear in his reasoning. When asked why surprises and mechanisms figure prominently in his work, he states that the idea of surprise has been in his work since the beginning. He refers to the crypt of Le Corbusier's Convent of La Tourette (Eveux, France, 1961) or the steps of Adalberto Libera's Casa Malaparte (Capri, Italy, 1937) as being spaces that are mysterious, and which draw people toward them." It is this quality that we seek in our buildings—they must elevate you emotionally and also intellectually; they must create delight. This is what I would call the prime purpose of architecture," he says. He feels on the other hand that mechanisms are added to his buildings for reasons of functionality, for example, walls that open out and claim margins add another room to a house. Opening and closing walls are used as a climate device as movable brise-soleil, to modulate privacy, or for security in other projects. A mundane element like a door that pivots in an unexpected way is functional art—an embodiment of a mathematical equation or a mental construct that actually moves. Playing on words as he often does, Matharoo says, "We sometimes interpret our 'building that moves' as a 'building that moves you,' making it one of the important tools in the creation of delight."

The approach of Gurjit Matharoo implies almost directly that his work does not always appear to have a recognizable "style." There is clearly an effort to avoid thinking about trends and to focus instead on each particular case and how it differs from any other. The context and peculiarities in the brief are exaggerated and become the starting points. The architect has the consistent idea of connecting to nature—the nature that is outside, but also our own nature—that which is within us. In this relation, according to Matharoo, the building is a kind of catalyst that is not consumed by the reaction it engenders.

In India, Matharoo seeks to produce architecture locally in a labor-intensive way. Other countries would clearly require a different approach. He states, "We attempt a balance of industrial and handcrafted manual construction, and varying proportions between the two could work in any environment. In other words, the design process and meticulous detailing remain the same. It is the context, resources, and problems to tackle that render the

design process with local sensibilities." Another recurring aspect in his work is the use of materials in their natural form, be it concrete, steel, brick, or stone. These materials age well, are low maintenance, and come alive in the tropical sun. "I do not know if this can be called a style," says Matharoo, "but, looking back, I find that these different elements combine in a way that has produced a great diversity of designs."

Although the great majority of Gurjit Matharoo's work is in India, he was chosen by Herzog & de Meuron for the Ordos 100 project in Inner Mongolia. At the presentation, the Chinese artist Ai Weiwei commented that his design was very sensitive to Chinese culture, and later wrote of the relevance of Matharoo within the Indian context: "While the works resonate with the scale and material qualities of early Modernism, they retain a distinctly Indian flavor in their rudimentary palette of materials ... With scale, texture, and basic materials, he stamps his character onto the buildings and instills an aroma of India into the design. He is able to direct social needs with his powerful forms."⁷

Gurjit Matharoo was born in Rajasthan, which is about 350 miles (565 kilometers) from Punjab, where his family came from. He set up his practice in Ahmedabad, which is another 300 miles (480 kilometers) away, after training in Bhutan and Switzerland. His projects have a wide geographic spread within India." So, if you ask me where I am from," he says, "I would have to say that I cannot pinpoint one place, so I would assume that our work method is applicable almost anywhere."

Although recognition for Indian architects seems to have come very slowly, Gurjit Matharoo does not believe that there is conscious bias against India, but rather that the architecture media were not focused on this part of the world until recently. He points out that other very good architects have practiced in India. Achyut Kanvinde (1916–2002) and Anant Raje (1929–2009) are significant figures who may not be as well-known as they deserve. When Le Corbusier came to India, he saw a building by Kanvinde and commented "Modernism is already here." Global architecture events and the internet have of course played a big role in putting countries such as India on a more level playing field.

7 10 x 10_3, Phaidon, London, 2009.

Concrete Jungles and Turquoise Buildings

In reference to the work of the environmentalist Steward Brand, Gurjit Matharoo has written and spoken frequently about what he calls “turquoise” architecture as opposed to green design. In reality, he has some objections to generally accepted views about green architecture. Invited to present a paper called “Of Guzzlers, Polysters and Concrete Jungles” at the New York Material Formations Conference in 2010, he argued that some building materials are not as bad in ecological terms as they appear to be. Concrete and steel are stronger and with their lesser quantum used, he concludes, consume less energy than other materials. They are more durable and occupy less dead footprint area than other building materials. Clearly, building materials that may be considered “green” in other countries do not necessarily make sense in India—where cost is also an extremely important criterion. Matharoo says, “Just following the past is not the way forward, we need to look in a critical way at the green phenomena and see what is best for us. We want to question everything. A building may not “look” green, but it might turn out to actually be more sustainable.” Similarly, the rating system for green architecture is not entirely applicable to India. It does not, feels Matharoo, take sufficiently into account the efforts made in passive energy savings. Explaining this concept even more clearly at the Bienal Panamericana de Arquitectura de Quito (BAQ) 2012 titled *Back to Basics*, Gurjit Matharoo wrote, “Sustainably is taking green and adding a little blue for open mindedness, so environmentalism goes hand in hand with science—a turquoise approach to architecture. We hope that with this, a new Indian Architecture will emerge, as aping the West or the past is not a solution.”

The creative process of Matharoo starts with charcoal or pen sketches where instinct plays the lead. Architects in the studio are also urged to come up with overnight reactions to each site and brief. “It is important for me,” says Matharoo, “to foster a collaborative culture, while being involved personally through all stages of the rigorous development process. Architects seem to have taken it upon themselves to solve all the problems of the world. I tell my students to leave that job to Superman and James Bond—just focus on making buildings enjoyable. Like in sports, you are first taught to hit hard, and precision comes in only later. We believe in madness. Mad ideas pursued with conviction result in buildings that are vibrant and non-serious.”

The process of Gurjit Matharoo also involves the names given to buildings. They tend to represent a core idea while also having a literal meaning. For example, the Net House is covered entirely in mosquito net as a direct reaction to the brief, but the dictionary meaning of *net* is “clear of all else, subject to no further deductions,” which may best describe the house. House With Balls gets its name not just from the custom-made concrete spheres used as counterweights that inform the appearance, but also refers to a simple brief and frugality taken to its extreme.

“I was born Sikh Punjabi,” explains Gurjit Matharoo, “a 500-year-old warrior clan that represents less than 2 percent of the Indian population. ‘Warriors’ and ‘few’ is a lethal combination and maybe that is why we have a view of life that is more jovial and light-hearted than many other religions. Most of the songs that you hear in Bollywood are actually Sikh Punjabi songs, and in India a joke becomes funnier just by using Sikh characters!”

The architect’s spontaneous reference to his religion might indicate that this is another significant element in his creativity. He comments, “India is a traditional society where each state is like a different country. Outside of my state, I am usually not the natural choice. At the beginning we got our projects through competitions. Today, clients come to us mainly because they have seen our work. In the final analysis though, I feel we have been fortunate to have clients from all sections of Indian society and been able to deliver buildings that are truly secular in character.” Aside from his Sikh origins, Matharoo clearly feels that inventive and interesting contemporary architecture is more the exception than the rule in India, even more so than in other countries. He states that it is much more frequent for architecture to follow established trends—what he jokingly calls “Holy Cows.” The moment architects try to break away from these norms, even if it makes perfect sense, it is not easily accepted. Matharoo also finds that the present political situation of his country is not most favorable. “There is a certain manner in which intellectuals are now treated,” he states. “They have less value in society than they may have had otherwise. The overall atmosphere results in people not wishing to step outside of their conditioned responses. You clearly need to have an open mind to accept new ideas. The economy is not doing as well as it was—there is more unemployment, and building activity is the last of peoples’ indulgences. Public works are given on the basis of the architect’s financial turnover and ‘works of similar nature and size’ executed within the last few years, making it a Catch 22 situation and impossible for fresh architects to break into

the cartel." Matharoo nonetheless has worked both on a larger scale and on smaller private houses. As he says, the impact of architecture is not directly related to size and building type. "For us," he says, "the stronger the challenges of the economy, climate, and society, the stronger are the reactions to them. Hence, bolder the designs."⁸

A Free Spirit

Matharoo touches lightly on one of the reasons for which his work is important in the context of contemporary architecture. As information about all parts of the world becomes more readily available, it becomes more obvious that a country like India faces many of the same challenges as other areas, which are somewhat rapidly called the developing world. While the Western media, including broad swathes of the internet, continues to focus on a limited number of countries, including the United States, Western Europe, and Japan, significant figures have emerged from other regions. The Pritzker Prize has acknowledged this obvious fact with some recent awards, including those given to Wang Shu (2012), Alejandro Aravena (2016) and of course the Indian Balkrishna Doshi (2018), but there is still much to be done to underline the presence and inventiveness of architects from other parts of the world, including Africa. Matharoo underlines a form of bias that he does not call out as such when he says that standards for the future of architecture like conventional green ratings may not be all that well suited to countries such as his own. Even in this, Matharoo is a proponent of free thinking, of openness, and inventiveness, which actually knows far fewer boundaries than almost any accepted norm. In his mind and his buildings, solid stone walls miraculously fold and open to bring nature into a house. Focusing on projects that help large numbers of people, he has designed a blood center and blood-donation vans in a country that has had a psychological reticence to give blood. Intent on meeting the needs of his clients he has privileged context and individual requirements as opposed to any more-staid concept of style. In this he is like other architects currently practicing all over the world, but few can lay claim like he can to an acceptance of humor and openness to such a high degree. He does not pretend to have founded a school or started a movement, and yet, in his words and in his work inspiration can be found that can serve elsewhere in India and far beyond.

Philip Jodidio
Lausanne, 2019



**The essence of Gurjits personality
is to cross boundaries.
His haunting is
to break conventions,
which touch the heart.
Concrete is not functionally defined.**

**In the Blood Centre,
the spaces transform and engulf.
Lying down, seeing the sky
reflected in the water,
the donor forgets himself.**

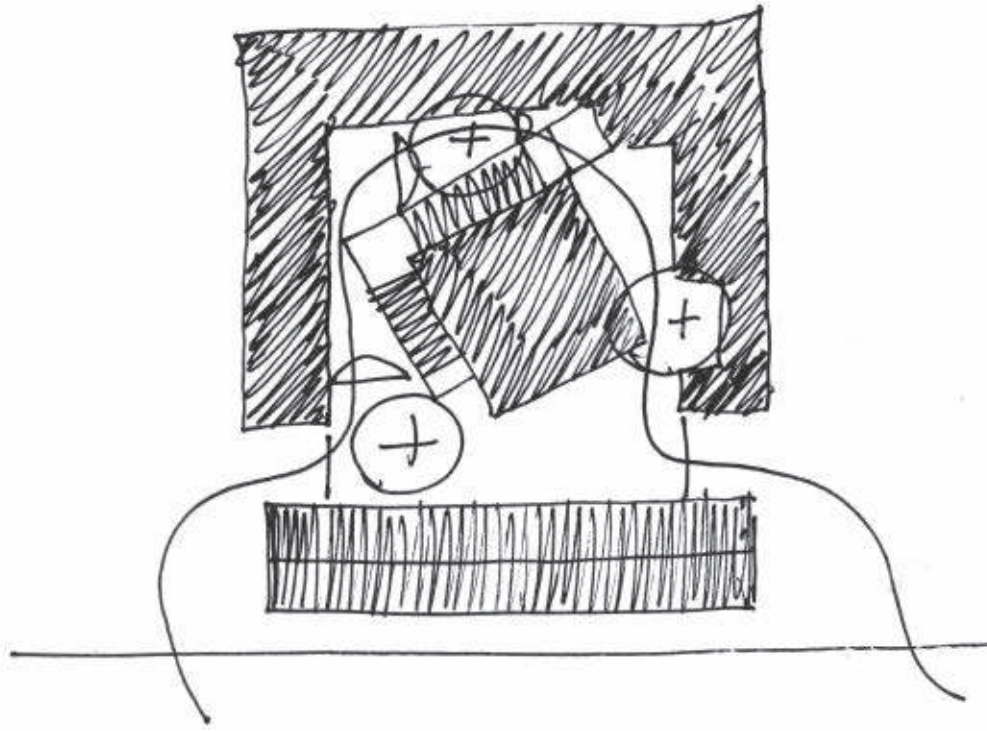
Gurjit delimits confinement.

Doshi
21.2.20

Top: The OVAL Retail Outlet, Mangalore 2005, won through a competition. Matharoo Associates designed and built a working prototype using stainless steel and PTFE fabric in a record fifty-two days.

Bottom: A note on Matharoo Associates by Balkrishna Doshi, 2018 recipient of the Pritzker Architecture Prize.

8 The quotes in this section of text are from a conversation with the author, July 3, 2019.



Prime Minister Fund Schools

On January 26, 2001, the state of Gujarat experienced an earthquake measuring 7.7 on the Richter scale, centered near the western town of Bhuj but felt throughout much of northwestern India and even nearby Pakistan. The scale of devastation was immense, with over 20,000 casualties and more than 150,000 injured. The earthquake rehabilitation and relief programs included education centers and schools, where reconstruction was to be carried out according to stipulated criteria—standard sizes for classrooms and specifications for earthquake-resistant RCC frame structures with plastered brick walls, Kota stone flooring, and mild steel windows. Additionally, Matharoo Associates chose to retrofit and reuse important heritage buildings, otherwise slated for demolition.

Sajuba Girls High School

Jamnagar, Gujarat, 2003

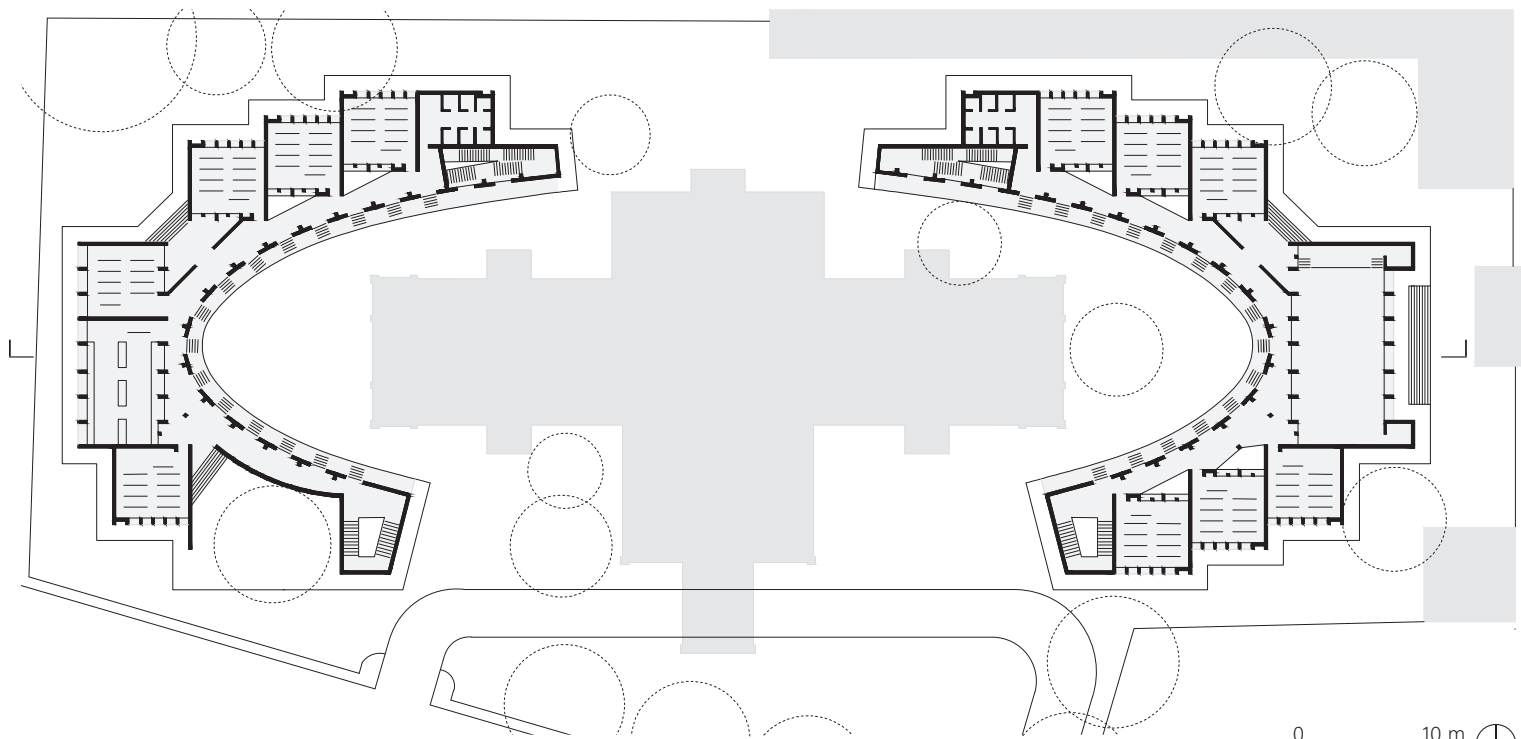
Sajuba Girls High School at Jamnagar, a century-old former palace of Raja Jam Sahib, is the largest Government-run girls' school in Gujarat, with close to 3,000 students. The palace was

located in the center of the city with ample space all around but with growing urban encroachment this once important landmark is now completely hidden among buildings that have sprung up in its vicinity. It was so badly damaged in the earthquake that the rehabilitation program designated it as requiring a completely new building. However, Matharoo Associates proposed to retain the palace and took upon the challenge to fit in an extra thirty classrooms, three laboratories, a congregation hall, and other peripheral areas within the already constricted space, while still offering a dignified response to the beautiful 100-year-old structure. Massive retrofitting was carried out on the palace, with bracing of all openings, as well as wall and corner tightening. Cracks were sealed with epoxy and new finishes were applied on the interior. The new building of 52,200 square feet (4,890 square meters) is treated like an oval "bowl," a container for the palace and where the space between the two becomes a protected environment for the children.



Previous page: The heritage structure was restored and retrofitted post-earthquake to continue functioning as a school, and a new block was built around it. Between the two is a protected and shaded space for learning and play.

Right: Giving it due importance, the original building is the nucleus around which new blocks orbit.



SAJUBA GIRLS HIGH SCHOOL GROUND-FLOOR PLAN



SAJUBA GIRLS HIGH SCHOOL SECTION



Above: The school was one of the largest buildings retrofitted post the devastating earthquake.

Sangram Singh Boys School Gondal, Gujarat, 2003

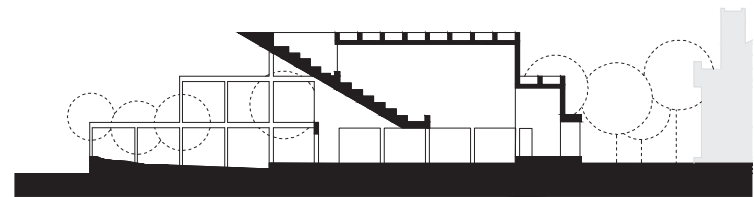
The Sangram Singh School was the former palace of Gondal, a princely state that the King had modelled on the lines of Paris. With an area of 218,940 square feet (20,340 square meters), it was one of the largest heritage buildings to be retrofitted after the 2001 earthquake. While the norm for heritage conservation was to make a structural shell within the existing building to strengthen it, Matharoo Associates' approach here was to provide individual location-specific solutions on a case by case basis, including the repositioning of the dislocated domes and arches, re-fixing wooden rafters and replacing those that were worn out, with grouting and finishing cracked surfaces. Subtle, lasting changes were carried out at an extremely low cost and without altering the heritage look and feel of the space from both the outside and inside.

Mongiba Girls School

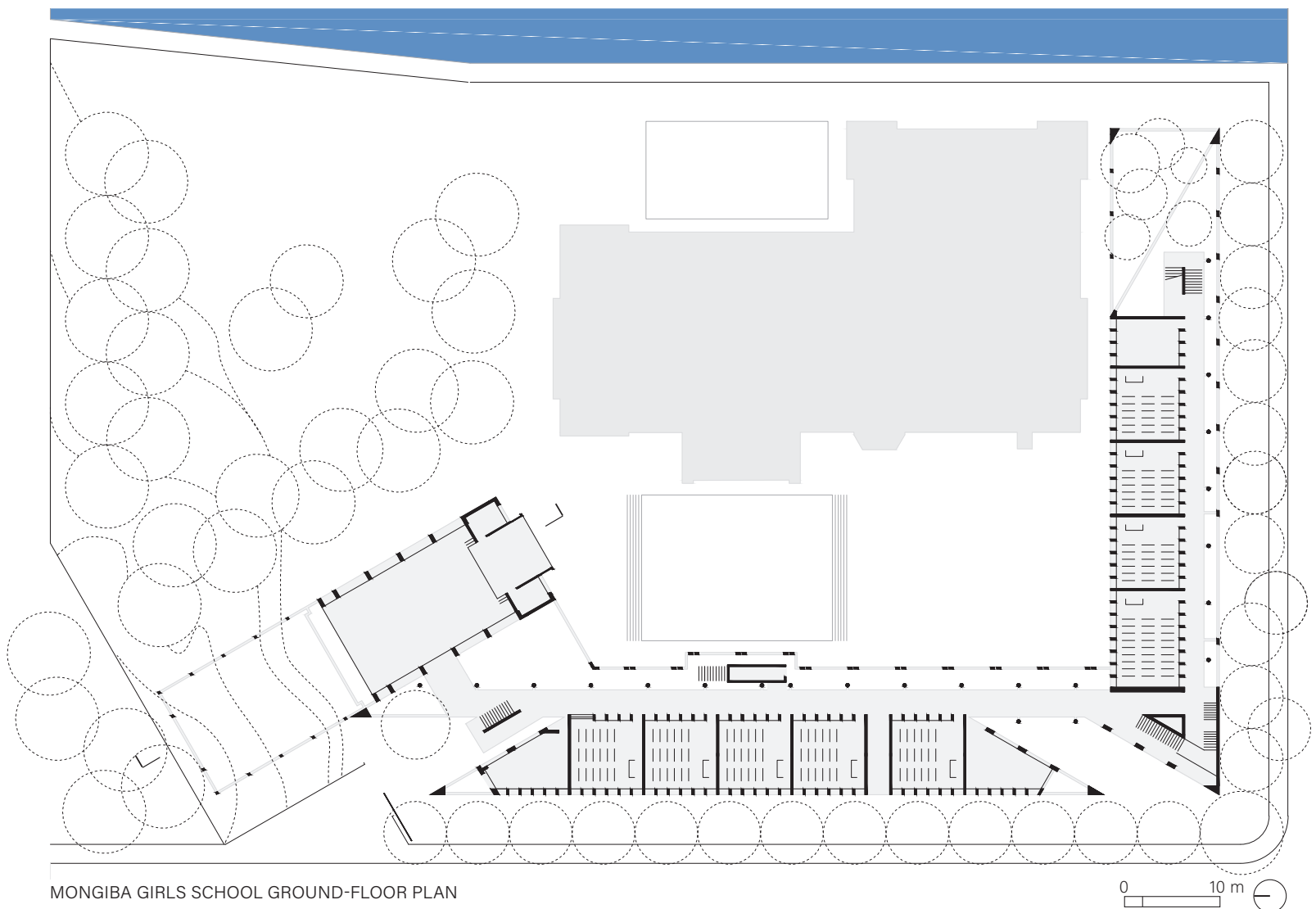
Gondal, Gujarat, 2003

Close to Sangram Singh Boys School, the Queen's palace in Gondal that had been converted into the Mongiba Government Secondary School for girls had also been damaged. It was retrofitted using similar techniques and a new block of 67,060 square feet (6,230 square meters) was built on the site. A single-load arrangement of classrooms that allows natural lighting and cross ventilation at all times was used, and the thin resultant block is aligned to the site boundaries. This left ample open space around the existing palace, keeping its majesty and heritage value intact. The common court defined between the two is extended into the

block as a deep semi-covered circulation space that also works as a climate-control device and frames the old structure through its openings. With fixed classroom sizes, informal learning is facilitated in passages, where there is a play of double-height spaces and varying scales for interaction. All three corners of the new building were deliberately kept open to retain the diagonal urban connections to the palace from the road on one side and the bridge over the river on the other.



MONGIBA GIRLS SCHOOL SECTION



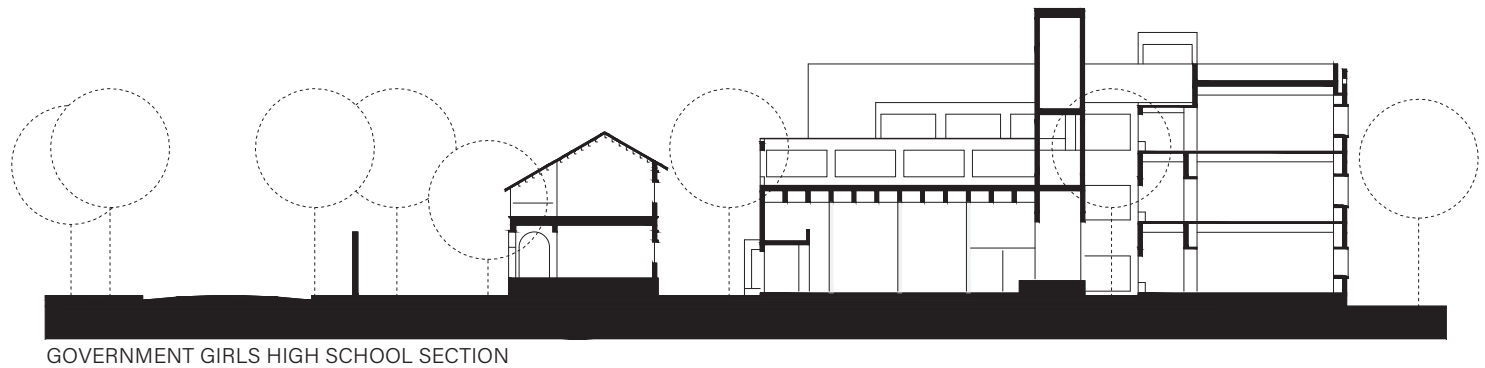
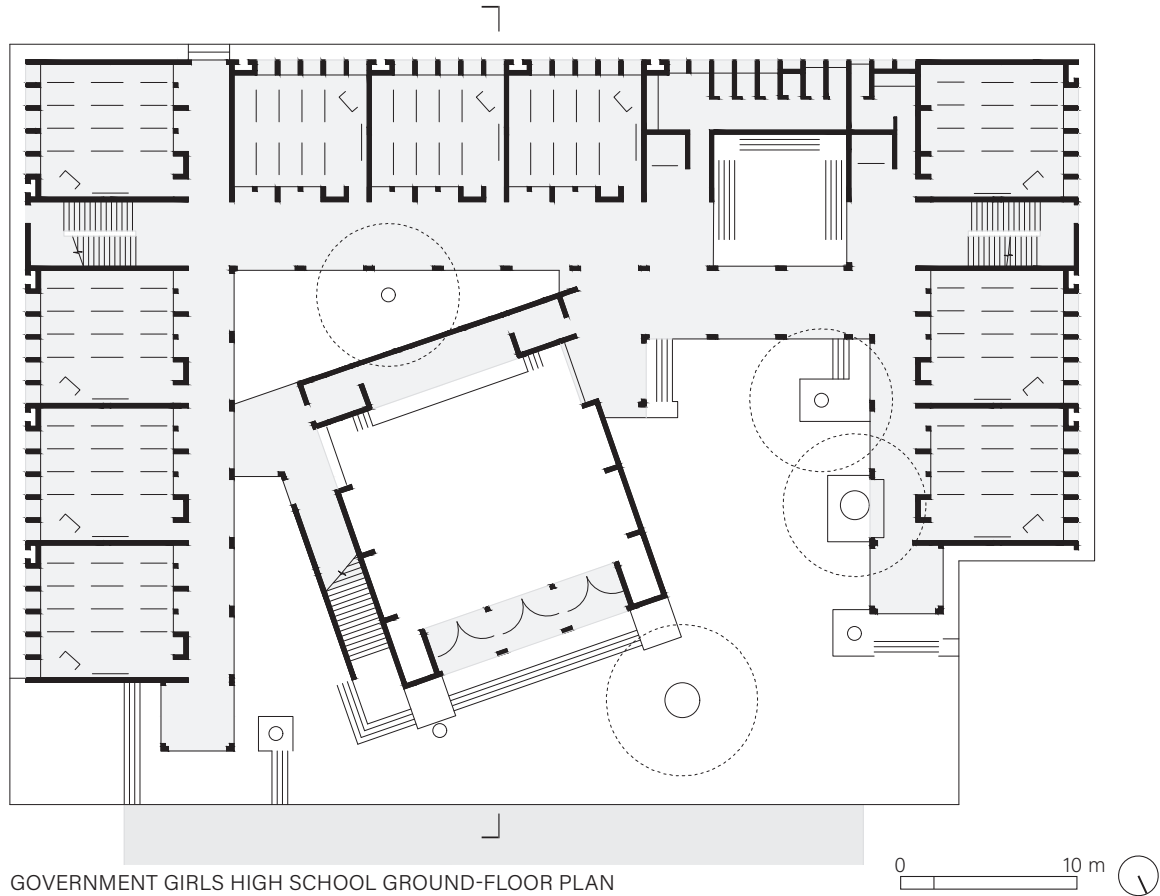
MONGIBA GIRLS SCHOOL GROUND-FLOOR PLAN



Above: Facilitating informal learning and play outside the classroom, generous circulation spaces reciprocate the large verandas of the heritage structure.

Far left: Ends of classroom wings are left open as semi-covered congregational spaces for children.

Left: The new building seen through the retrofitted arched opening of the palace.



Opposite top: Originally slated for demolition, the old structure was saved by the architects through social activism. Forming a quadrangle with the old building, the new school wings enclose the other three sides.

Opposite bottom: All existing trees have been saved by making localized deviations from the standard grid.

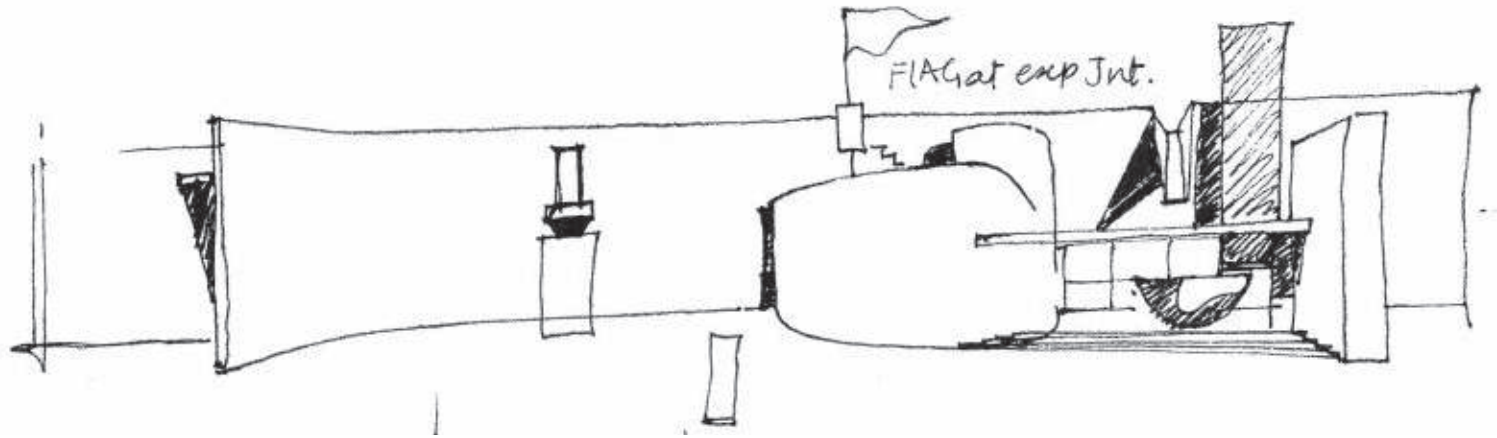


Government Girls High School

Ahmedabad, Gujarat, 2004

Of the 100 heritage buildings in Ahmedabad, the colonial-era Government Girls High School was also part of the earthquake reconstruction program. The intent was to strategically place the new 53,390-square-foot (4,960-square-meter) school building to add value to the old, instead of the demolition of the existing structure as was the norm in the post-earthquake phase. All trees on the site were also retained by making local deviations from the grid and carving out distinct spaces that children of varied age groups can use. The old building along with three new flanks of classroom and laboratory bays forms a large quadrilateral, with a centrally placed congregation hall within. The terrace of the hall forms an open play area connected to the classroom corridors, while a winding stair around the hall ends in a water tank and completes the composition. Wide, single-loaded corridors with open ends and deep windows make for a well-ventilated, shaded interior. Rigor is manifested by precast lintels echoing the old building, in an environment that is otherwise playful in its irregular geometry.





DIVISIONAL RAILWAY MANAGERS' (DRM) OFFICES, AHMEDABAD, GUJARAT ■ 2006

Track Record

Budget Efficiency: Extreme Low Cost

The site of an old abandoned railway station just outside the ancient walled city of Ahmedabad was chosen as the location for the Divisional Railway Managers' offices—a division of the railways covering nine districts of Gujarat and 930 miles (1,500 kilometers) of track length. A part of the city that was once dominated by textile mills that fueled the economy in the past has now crumbled and recast itself as a huge residential neighborhood, bordering on being what might be described as a shanty town. Little commercial activity has been drawn into the area as the breakdown of its industrial legacy has meant intense land disputes for new owners, riots, and municipal apathy. The new DRM office of 1,23,250 square feet (11,450 square meters) was one of the largest buildings in Ahmedabad at the time, and easily the dominant feature of the local urban area, which has seen little investment or development since the 1970s.

Being involved with the Indian Railways Ministry, which maintained all of the trappings and systems of its colonial forebearer, meant that grandeur was expected at the least. It presented the rare opportunity to re-interpret lofty voluminous spaces and to inject them with new meaning.

A configuration of three simple office blocks is connected by a 330-foot-long (100-meter-long) passage, interspersed with courts that allow for landscape views to each of the 1,000-odd employees. The system of inclined fins on the facing sides of the block allows for diffused natural light to enter while preventing offices from looking into each other. While the brief had specified two floors with the provision for a floor that could be added in the next phase, the requirement of a high plinth and a proposed raft



Previous page: Large volumes soar upward, dwarfing the steam locomotive set in front. These engines had just been decommissioned at the time.

Above: On the outside, the 330-foot-long (100-meter-long) atrium wall forms a backdrop to various blocks of common facilities.

Right: The corridor and four-story atrium void are illuminated through a continuous slit of natural light.

Opposite bottom: At the lower level, ancillary and meeting spaces are scooped out of the suspended wall, and make a larger floor plate.

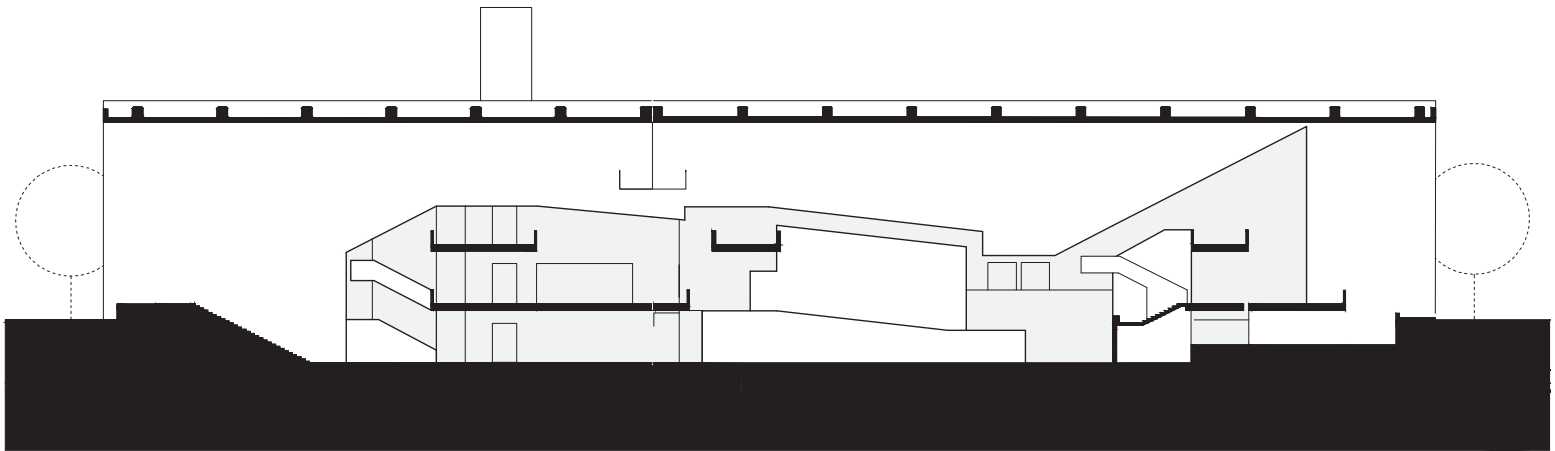




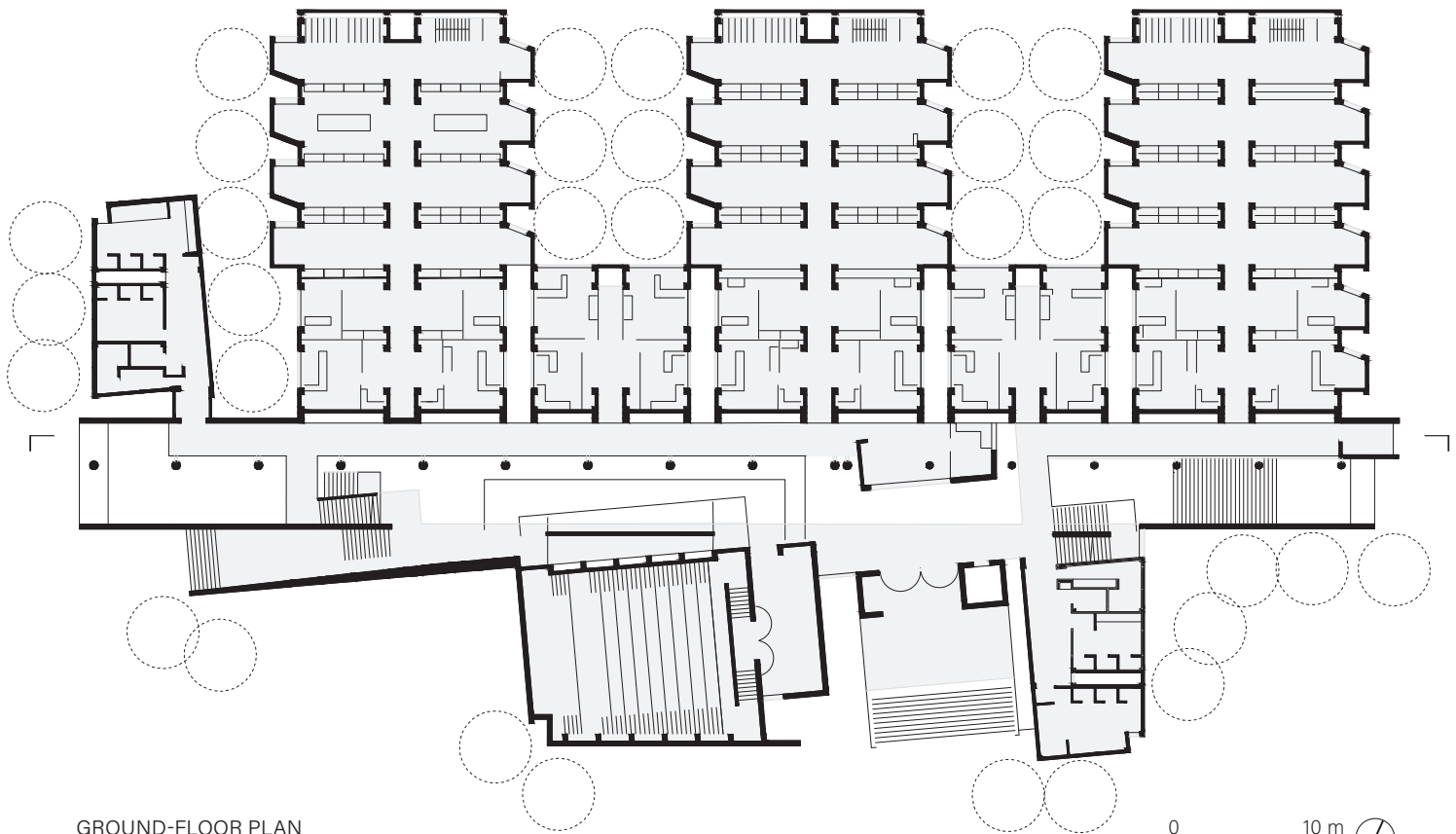
foundation enabled the formation of a semi-basement, providing for one third additional usable floor at a fraction of the cost, well within the budget of the first phase itself.

Ancillary office and meeting functions like the entrance foyers, toilets, auditorium, and vertical circulation are packaged as non-rectilinear solids and placed toward the roadside, where a shear 40-foot-high (12-meter-high), 330-foot-long (100-meter-long) wall forms a large backdrop to their random play. On the inside these masses are presented as deep niches within the same shear wall and are connected to the main passages using bridges, through a three-story gap formed between them. The void that runs along the entire length of the building is lit from above by a thin, continuous skylight, creating a spatial play of solids and light.

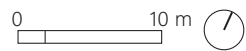
Opposite: The connecting corridor is open ended on the shorter sides. Varying widths and interconnections allow for engaging spaces and social collision.



SECTION



GROUND-FLOOR PLAN







JOINT-FAMILY RESIDENCE (CURTAIN DOOR), SURAT, GUJARAT ■ 2007

House with the Wall of Light

Almost 80 percent of the world's diamonds pass through the hands of Indian diamond merchants. Most of these merchants, surprisingly, share a close-knit ancestry from the districts of Palanpur and Kathiawar, in the state of Gujarat. They run their century-old business based on ethnic ties and traditional family values. Business dealings are informal and deeply interlocked with private community affairs. These community institutions create business advantages and the architectural interpretation for a diamond merchant's home translates into a complex program with a host of spaces for business dealings, guest rooms for long stays by relatives, social and entertainment spaces, and core family spaces—along with the dilemma of housing the family in a busy urban setting of the city. This program inevitably creates the need for a house within a larger house.

On entering the site, one encounters a ramp down to the parking level and blank concrete walls, and the green near the entrance unfolds moments later. The house can be entered from two sides, in both cases through large, custom-designed doors that transform into a wooden curtain and gently open into entrance hallways. They allow the smaller home and the larger house to coexist; one opening into the family spaces and the other leading directly into the formal living, dining, and veranda outside. The double-height entrance hallway also serves as a meeting place for the household and a connecting space between the formal and informal areas. Three identical staircases are aligned to the three site angles converging near the entrance: One is placed on the floor, a second on the wall, and the third on the ceiling—making for a playful composition.





ESIC HOSPITAL, AHMEDABAD, GUJARAT ■ 2010

Urban Healer

Despite rapid development across India in the last twenty years, there is still a large section of society for whom basic medical facilities are not available. Most private facilities are directed to the affluent, while services provided by the government are in a perpetual state of dereliction and neglect. One example of a government-run enterprise is ESIC (Employees State Insurance Corporation) Hospital meant for the poorest of the poor. With a network of 120 hospitals across the country, the system provides medical care at low cost. Unfortunately, lack of maintenance and apathy have resulted in deteriorating conditions in these hospitals.

The challenge was to design and build a 328,300-square-foot (30,500-square-meter) facility, while the existing ESIC hospital in Ahmedabad, badly damaged in the region's devastating 2001 earthquake, continued to operate on the same site. This was carried out in a phased manner, with the simultaneous demolition

and rebuilding of sections. The process was further complicated by the presence of a Muslim tomb and a Hindu shrine within the campus, which had to be retained so as to not offend the two communities concerned (the area has been the site of numerous communal riots in the past).

The brief did not call for plush amenities like those seen in private hospitals, so a soothing environment using economical methods was yearned for. This was achieved by designing well-lit generous spaces interspersed with landscaped areas, in contrast to the cramped waiting areas typical of government hospitals. The new building is also maintenance-free to preserve it from vandalism. To keep wear and tear to a minimum, the entire building was built with robust fair-face concrete with the floor and lower portions clad in highly durable granite, which can be easily sanitized.



Previous page: The low maintenance blocks of the hospital are robust in build and porous in nature.

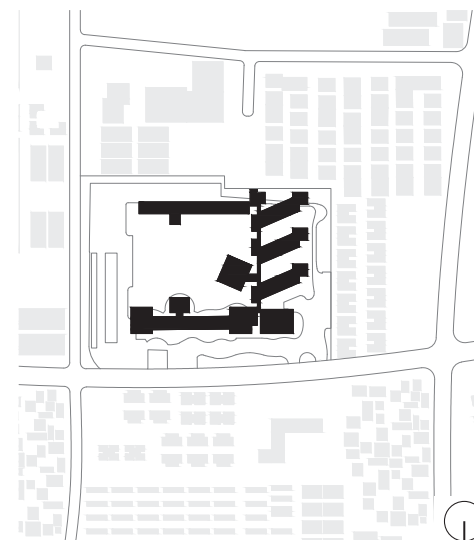
Above: A large landscaped core marks the heart of the site, at the place where the original ten-story hospital stood before the earthquake.

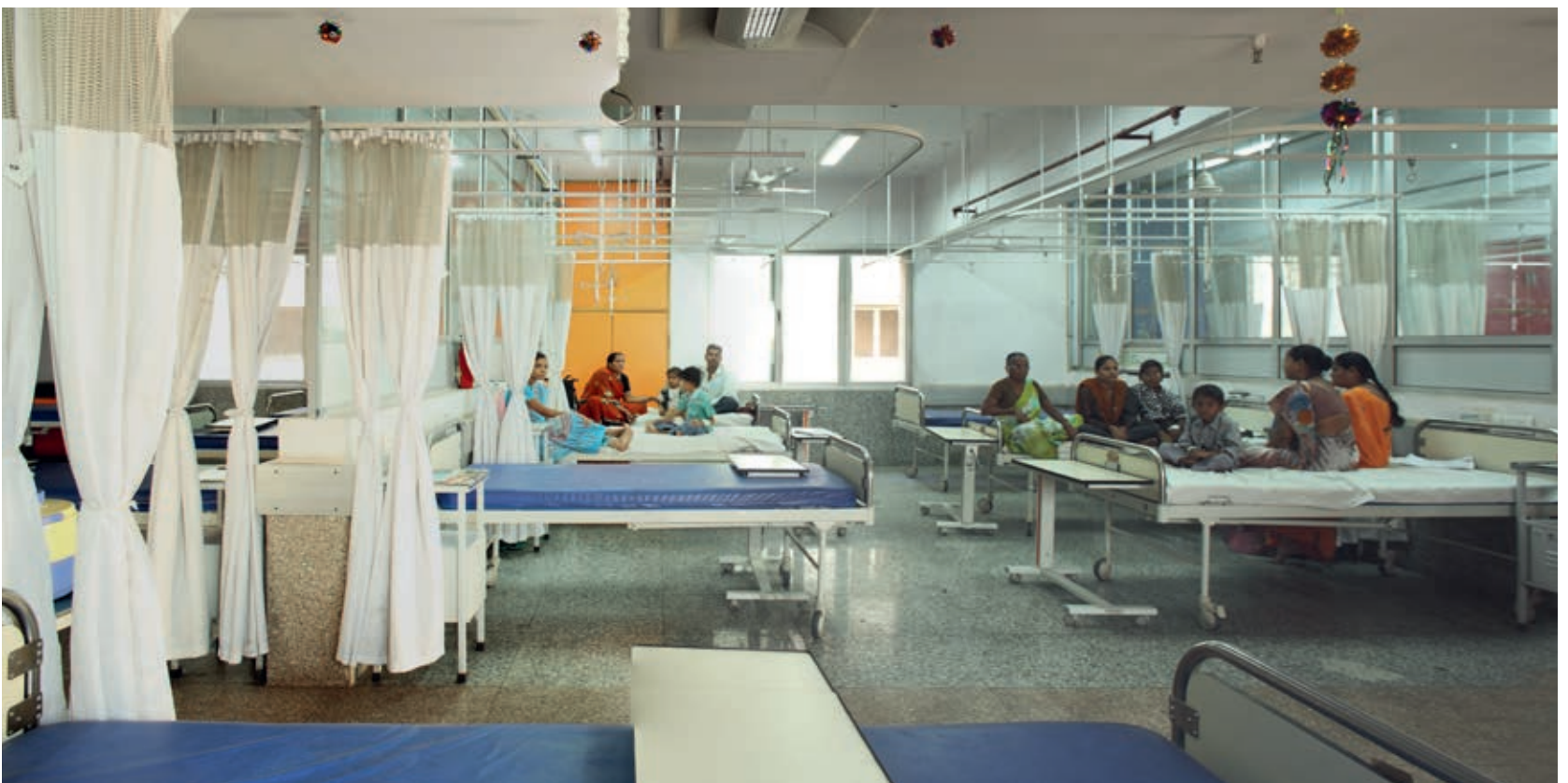
Right: The entrance porch coupled with a circulation shaft forms a cross that has been painted red. It serves as a landmark meant for its poorest of poor users, most of who are unable to read or write.





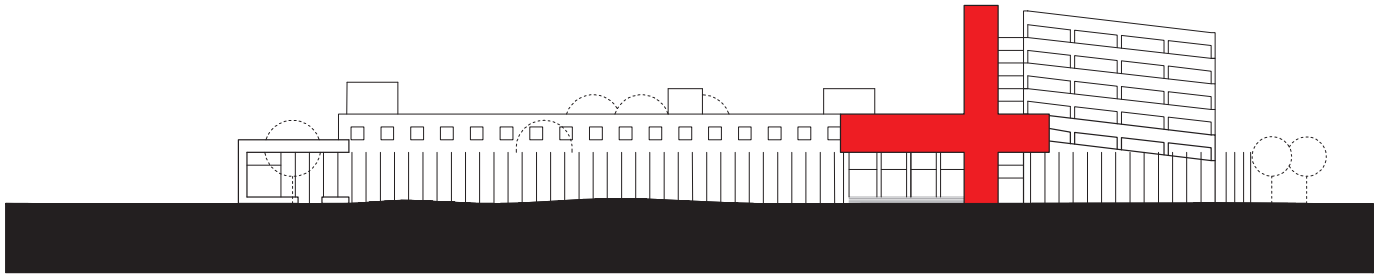
The large volumes created for the Outpatient Department are enclosed by a screen of aluminum louvers, with each individual louver precisely modulated so that views to the surrounding landscape are not impaired, while shading the interiors from the harsh tropical sun and keeping the rain out. It also acts as an unobtrusive grill controlling the flow of people, without being a visual or psychological barrier. While a portion of the budget was reserved for air conditioning, this envelope system provides an atmosphere of comfort without recourse to mechanical systems. The leftover funds have instead facilitated the construction of a large 80,730-square-foot (7,500-square-meter) garden that functions as a public green space—a scarcity in this densely built area of the city.



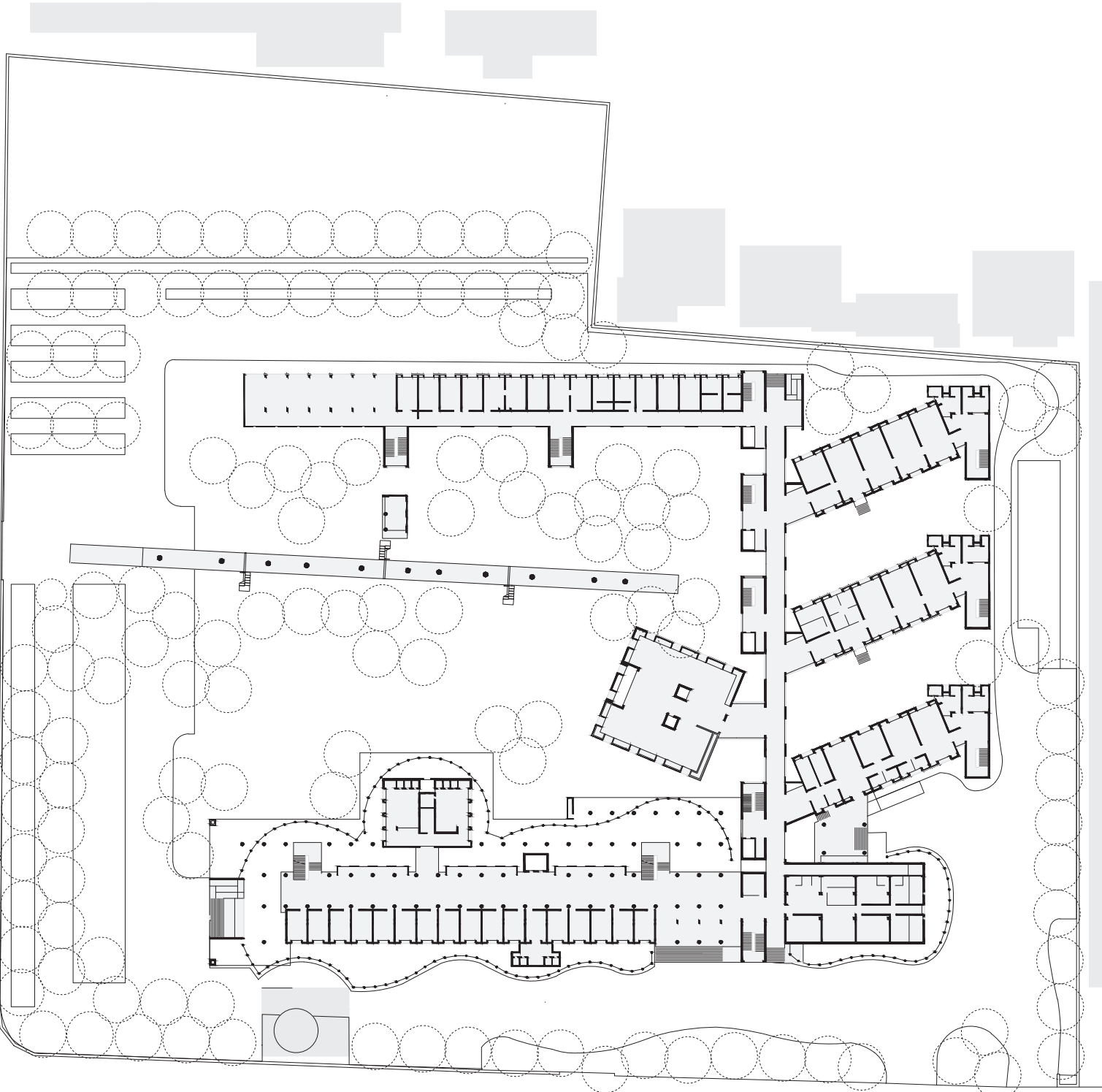


Top: Each aluminum louver is preset to avoid the hot sun while still allowing views. Collectively they form a wave-like pattern as their angles gradually change with the cardinal direction.

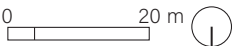
Bottom: Spacious, well-lit and cross-ventilated wards are lined in durable granite flooring and dado.

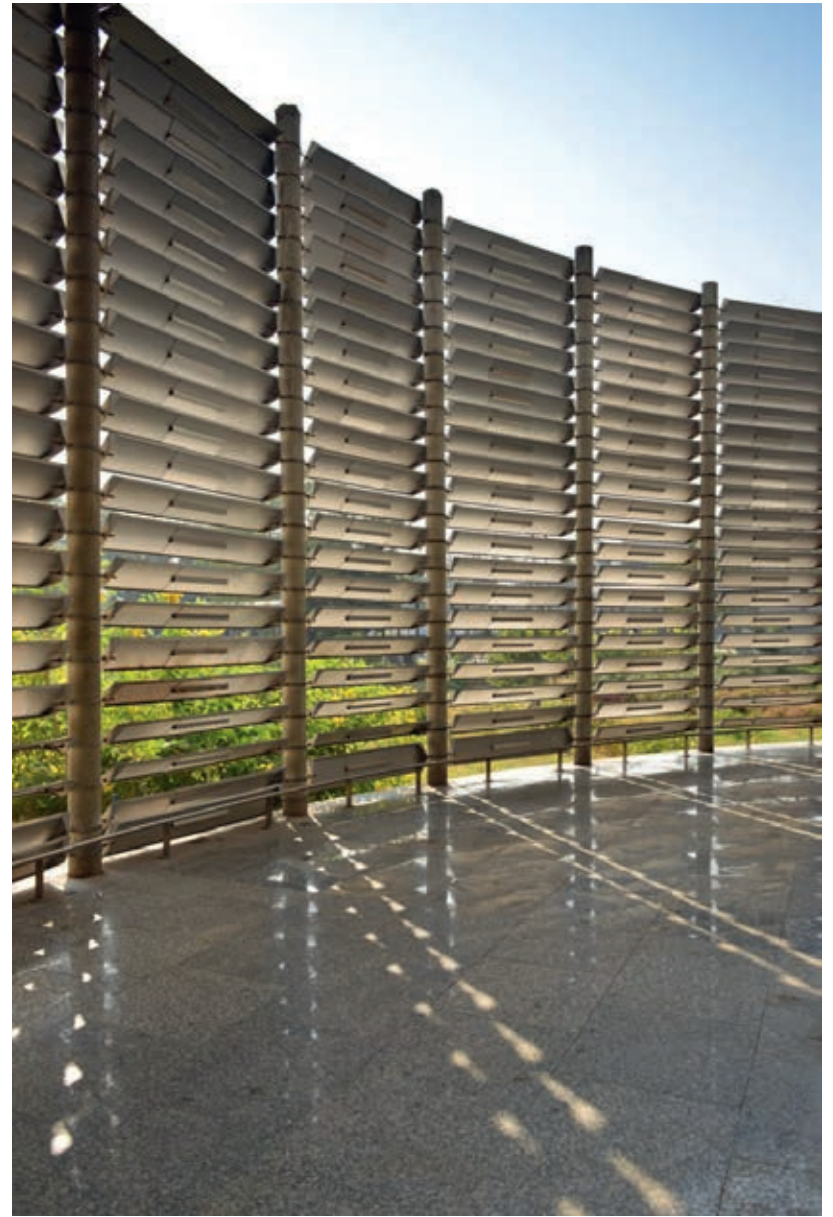


ELEVATION



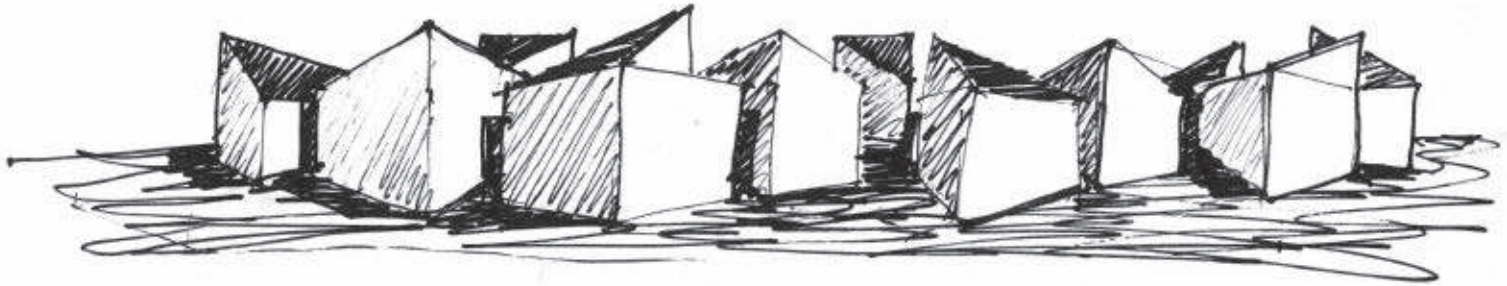
GROUND-FLOOR PLAN





Opposite, and above left and right: Negating the need for air-conditioning, the louvers create a draft and comfortable ambient temperature in the Outpatient Department. Earmarked funds were instead utilized in the development of an 80,730-square-foot (7,500-square-meter) garden that is also open to public.





GROUP HOUSING, AHMEDABAD, GUJARAT ■ 2016

Log(ical)-eco Housing

Located in an area that is rapidly growing as the center of Ahmedabad's business district, Log(ical)-eco Housing consists of twenty-five villas. Its recreation needs are served by a clubhouse containing a swimming pool, gym, and indoor and outdoor areas for hosting large gatherings.

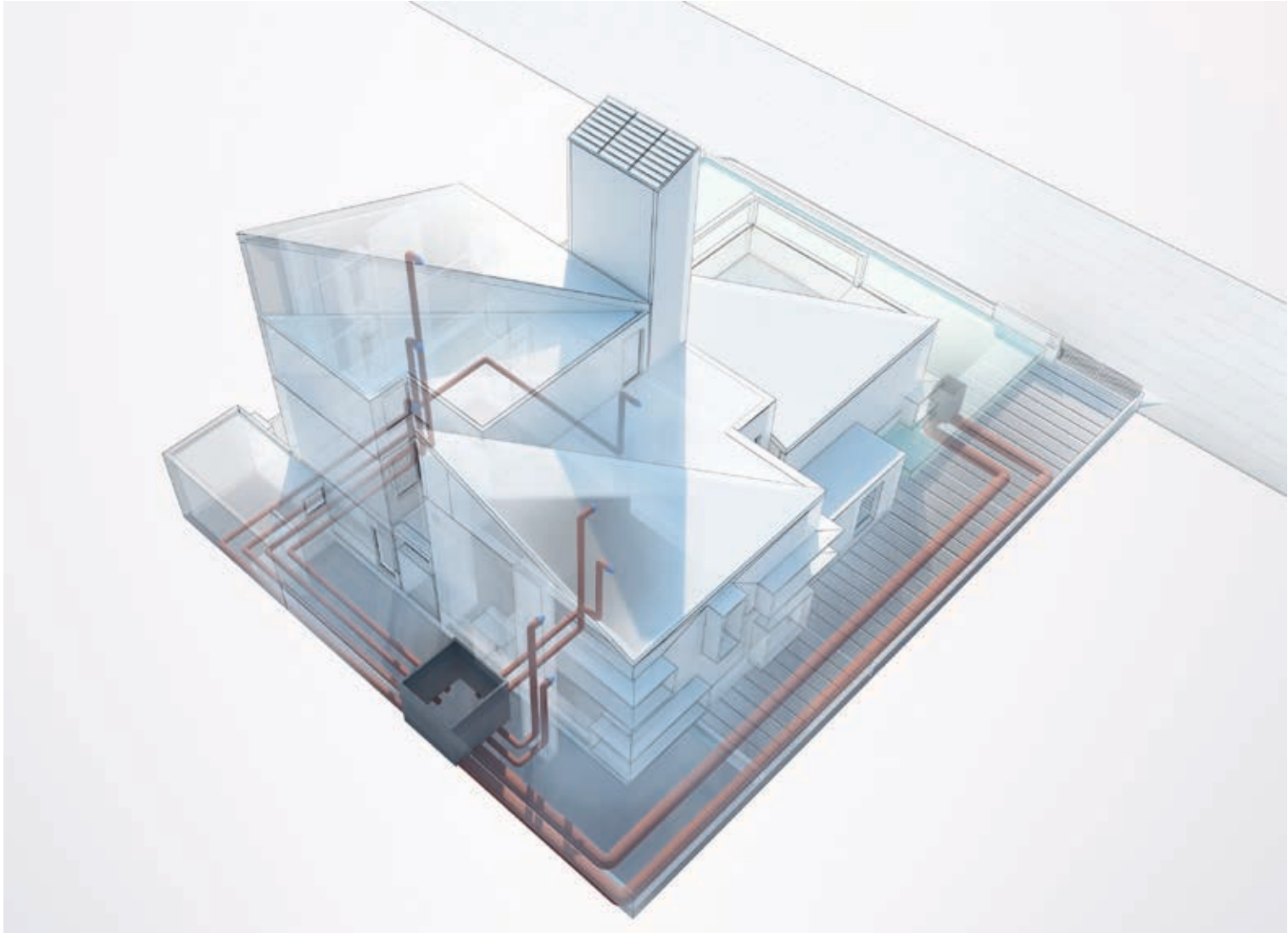
Sets of spaces for the villas are contained within a square module of 28 x 28 feet (8.5 x 8.5 meters), comprising either (a) living room + veranda, (b) kitchen + dining, or (c) bedroom + toilet, while gaps between the squares become places for circulation, service areas, and entrances. Since at least two faces of each resultant cube are external with openings, spaces within are cross-ventilated and filled with natural light. A flooring of Indian sandstone is set against white plastered walls and fair-faced concrete slabs—modest low-cost materials set against the lush greenery of the neighborhood.

Smaller four-bedroom and larger five-bedroom units are composed of two and three cubes respectively, with some cubes diagonally truncated on the top, ready to take photovoltaic panels. These sloping roofs create a continuous space on the inside that connects the lower and upper levels into one. Added cubes make for the larger house for the owners of the scheme as well as for the clubhouse.

In an environment where speculative development is viewed as a bombardment of finishes and styles, the attempt has been to adhere to simple strict geometry, a restrained palette of materials, and breaking of monotony through variation. Shifting the cubes around allows multiple permutations of massing, and changes in the direction of the roofs make each villa seem unique—more of a vernacular settlement cluster than a mass-produced product.



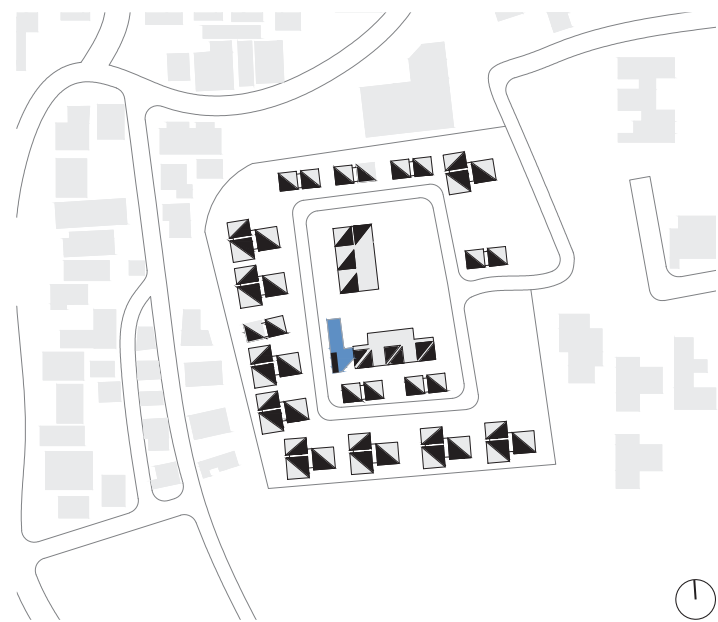
LOG(ICAL)-ECO HOUSING



Previous page: A common clubhouse is composed of three cuboidal volumes connected with a long veranda.

Left: The roofscape is a juxtaposition of truncated cubes, with the inclined surfaces left to take on photovoltaic panels.

Above: The proposed passive earth tube heat exchanger (ETHE) technology for cooling within units.



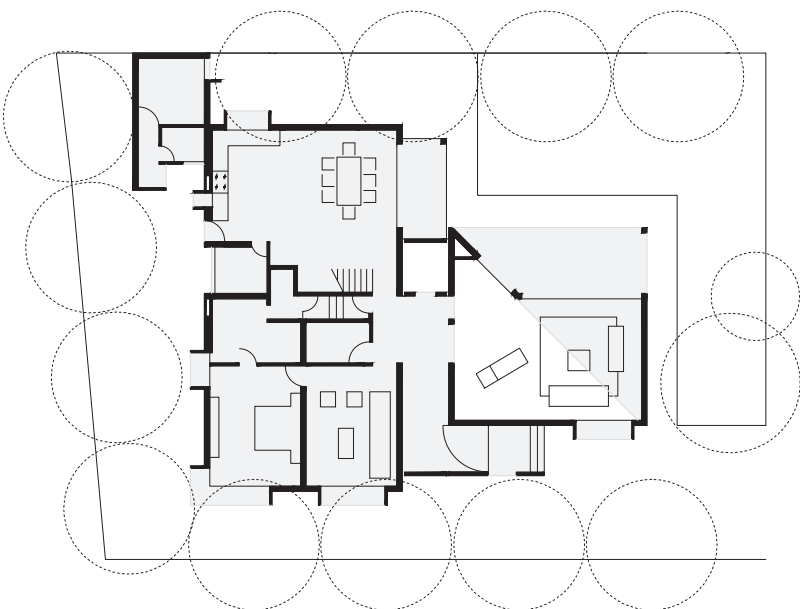


Above: The gymnasium looks over the immediate toddler pool and the main pool beyond. The overhead water tank works as a vertical landmark.

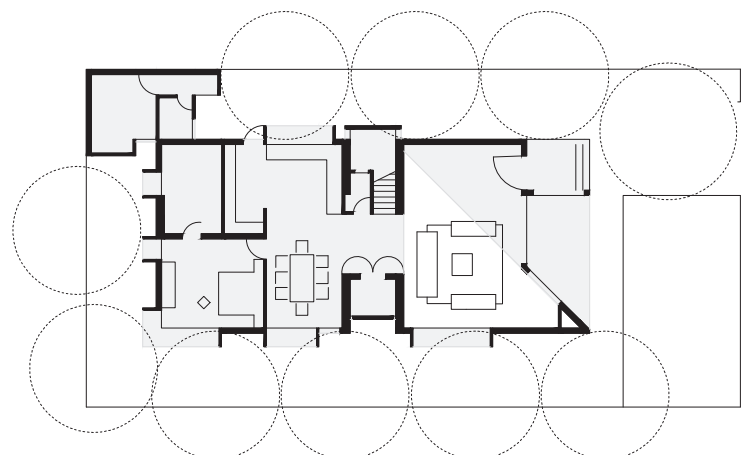
Right: Seventeen units are broken into fifty-seven smaller modules with differing orientations to make each unit unique.

Opposite top: The disposition of modules brings the scale down to achieve an organic vernacular character.





TYPICAL THREE-CUBE GROUND-FLOOR PLAN



TYPICAL TWO-CUBE GROUND-FLOOR PLAN

0 5 m



CREDAI CORPORATE HEADQUARTERS, AHMEDABAD, GUJARAT ■ 2018

Open Door

The corporate headquarters for CREDAI (Confederation of Real Estate Developers Association of India) was won through an invited competition. The brief intended not only to contain workspaces for fifty employees, but also to bridge the gap between the real estate developers and society at large. This implied the use of transparency in the design, to reveal the inner workings of the institute as a place where everybody feels welcome to walk in unhindered, and creation of a free space that allows for public forums and debate, while the institute's business affairs continue unabated.

The 50,050-square-foot (4,650-square-meter) building is constructed on a 20,890-square-foot (1,940-square-meter) site. The ground floor is an open and multi-use space, hosting frequent exhibitions and gatherings, and which extends to the

public garden along its length. The first floor contains a 400-seat auditorium for the public and a seminar hall, while the second floor contains cabins and open workstations for employees. A circular module contains banquet halls and conference rooms that rise up three levels. Openness continues throughout the building with the service blocks as the only two solid cores around which spaces are articulated, and their strategic placement ensure that workspaces are immersed in nature. The structural solutions enable large, free spans achieved by employing a Vierendeel truss, leaving a mid-level floor free and clear of columns. The utility of this type of structure is that a large amount of the exterior envelope remains unobstructed and is used for HVAC ducts, fenestration, and weather projections.





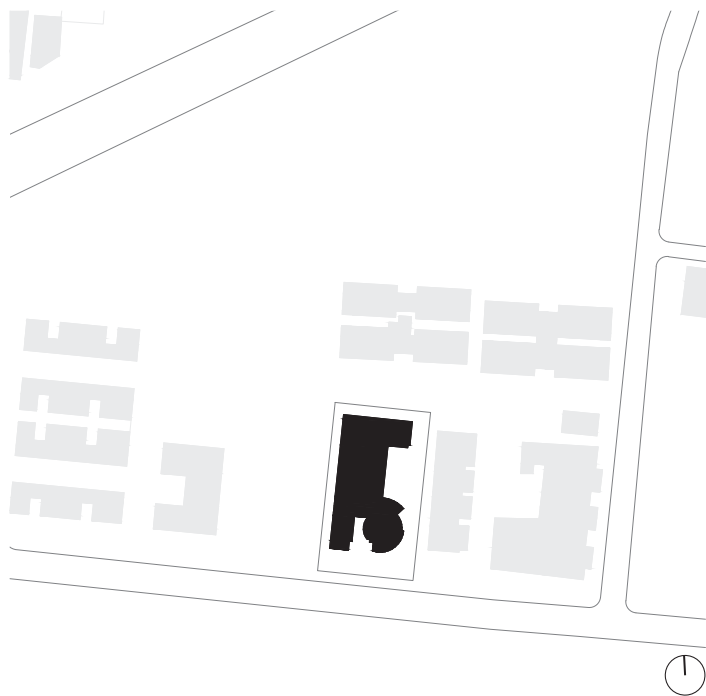
Previous page: A composition of openable corrugated Galvalum (steel) and raw concrete.

Above: The projections on the south façade include concealed HVAC ducts, weather projections, and cantilever beams. The beams will take on pulleys for proposed metal shutters over openings.

Right: The main exhibition areas spill onto the adjoining community garden on the south.

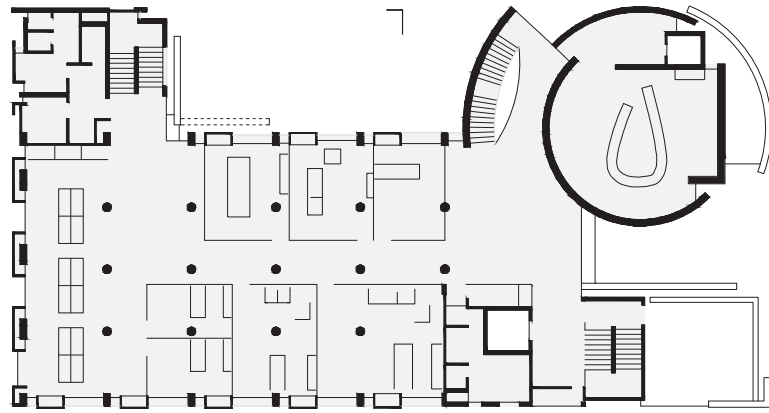
Opposite top: A thin 2.5-inch (65-millimeter) public stair is cantilevered from the curved wall, hiding the thicker structural dimensions into its fine folds.





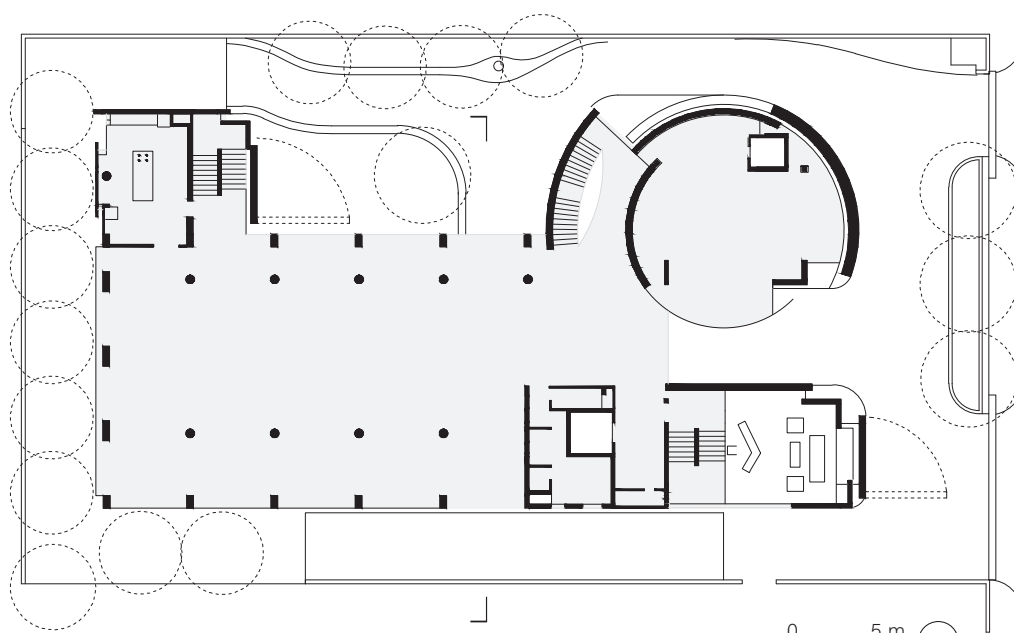
The spaces are enclosed within large corrugated steel walls. In resonance with the dual functionality of the building, three of the largest walls are custom-made to slide and pivot open during public events. Playfulness characterizes the interior with a sense of discovery experienced by the user within the layered spaces, ensuring that the building is never static.

This project adds a little blue signifying open-mindedness to the conventional "green" and takes the idea of sustainable buildings one step further, so that environmental awareness goes hand in hand with science rather than nostalgia or technophobia. The end result is a building that is inviting yet imposing, open yet decisive, low tech and high tech, industrial yet green.

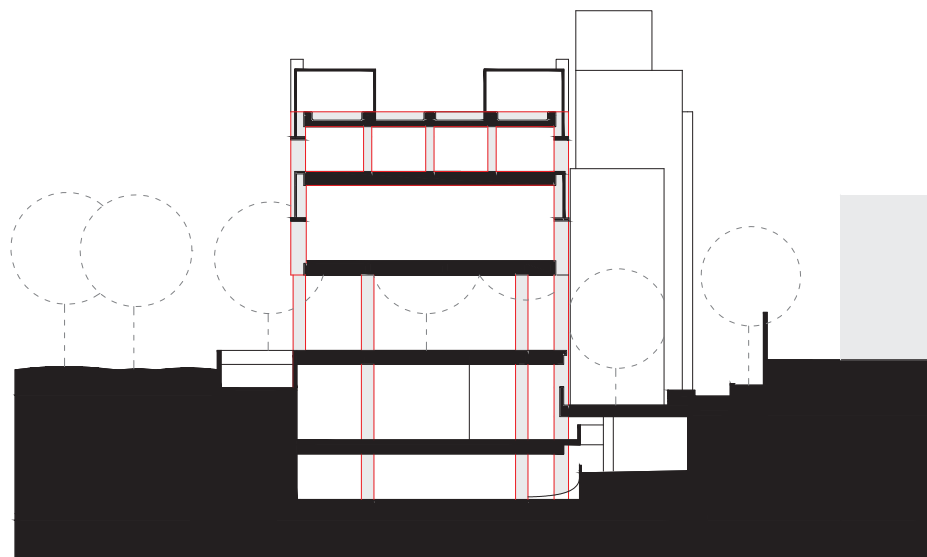
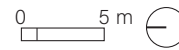


SECOND-FLOOR PLAN

Opposite: The longer north side is also a landscaped area that includes a winding ramp down to the basement.



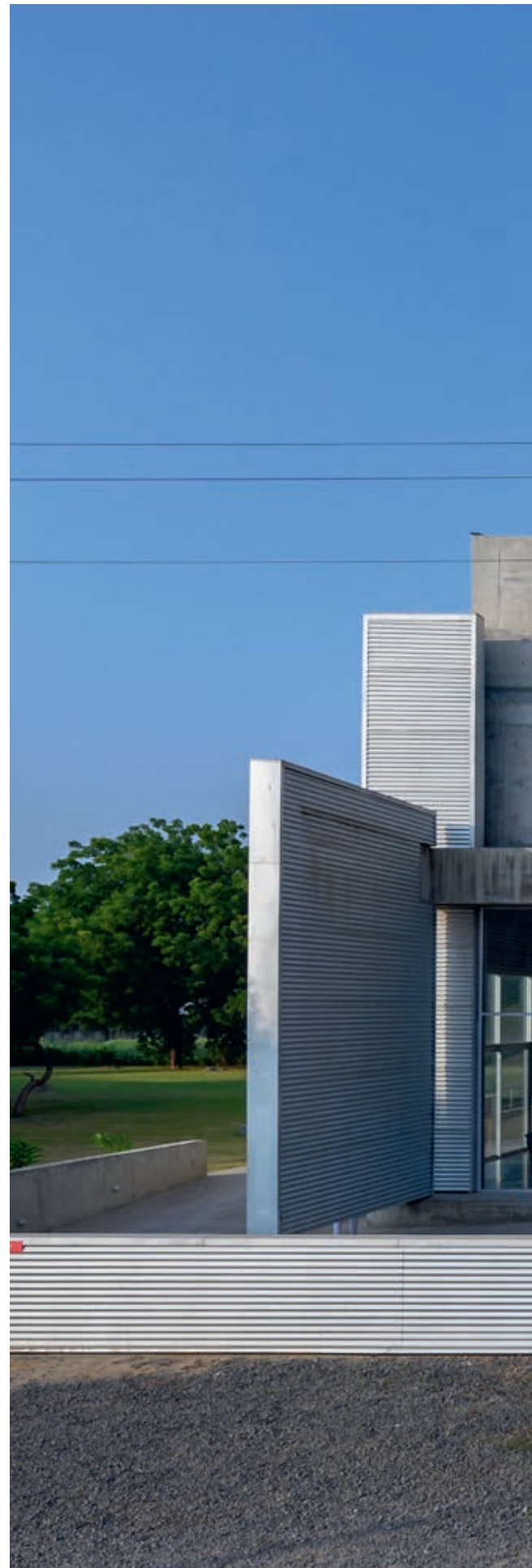
GROUND-FLOOR PLAN



SECTION



This page and right: Giant walls pivot and slide to connect the street to the inside. The building augments the public interface during exhibitions, conferences, and other events.



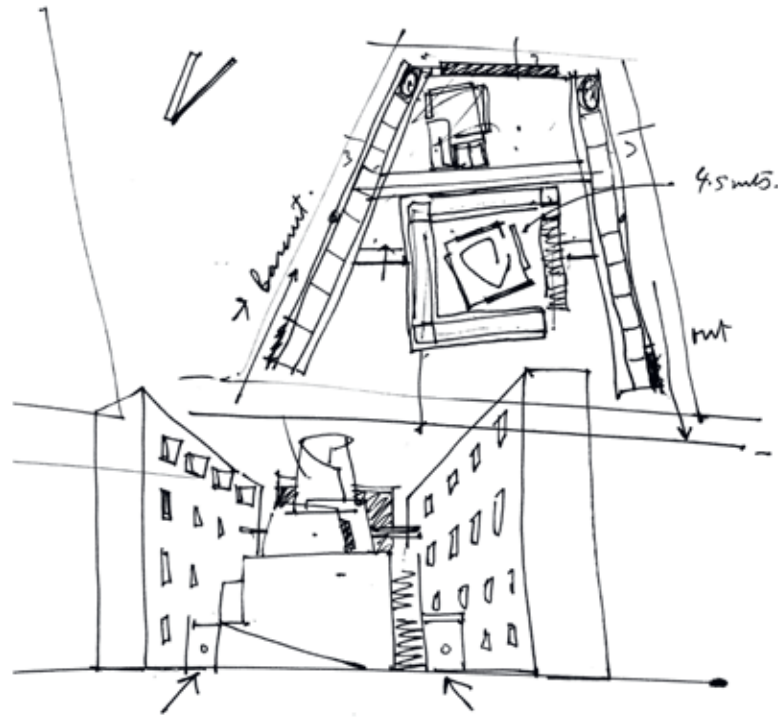




Opposite top: The reception area opens to the public garden. All furniture in the building is designed in-house.

Opposite bottom: Carefully positioned service cores ensure open and free-flowing spaces.

Above: Cork paneling conceals light fixtures and provides for acoustic comfort in the office. The structural members of the Vierendeel truss become part of the space making.



TEMPLE AND PILGRIM GUESTHOUSE, AJMER, RAJASTHAN ■ 2018

Man-made God

India is a place with a multitude of religions and sects, with ever-growing places of worship. The creation of these buildings is usually left in the hands of traditional followers of the religion, such as the Sompuras for Hindu temples and Ramgariyas for Sikh *gurudwaras* (shrines). It is very rare that an architect is involved in the design. The progressive Guru of the Sindhi community sect approached Matharoo Associates to design a temple and associated spaces (ashram) for visitors to stay. Host to gods from seven different religions, the spaces couldn't have a specific orientation, and this was both a challenge and cue for the design.

To maximize the total area of 55,435 square feet (5,150 square meters) on the small 23,680-square-foot (2,200-square-meter) site, the accommodation blocks are aligned to the three skewed site boundaries, with the front-road side and center left open for the temple. Connecting passages for fifty rooms are placed toward the exterior side, capturing views of the Aravalli hills and the city, while windows

overlooking the temple on the inside are covered in *jalis* (local lattice stonework), cutting off direct views into the revered center.

The congregation hall for sermons is at the ground level providing easy access for the 800 people it can accommodate, while the space in the basement below is used for a kitchen and a large dining hall during events and doubles as parking space when not in use. A ramp and staircase circumambulate the hall up to the temple where the cube is extruded into an open-ended volume that is curved in plan and section. Between these walls, a concave roof inverts the established profile of a temple form. With a skylight all around its periphery, it appears suspended in space and allows the sun to bathe the warped surfaces with constantly changing natural light. The main idol within the space was also designed by the architects, and the open-endedness of the temple symbolizes the belief that religion should always be inclusive and personal.



MAN-MADE GOD



Previous page: The temple roof is a rainwater collection bowl extruded into a narrowing gargyle that extends out through the wrapped folds.

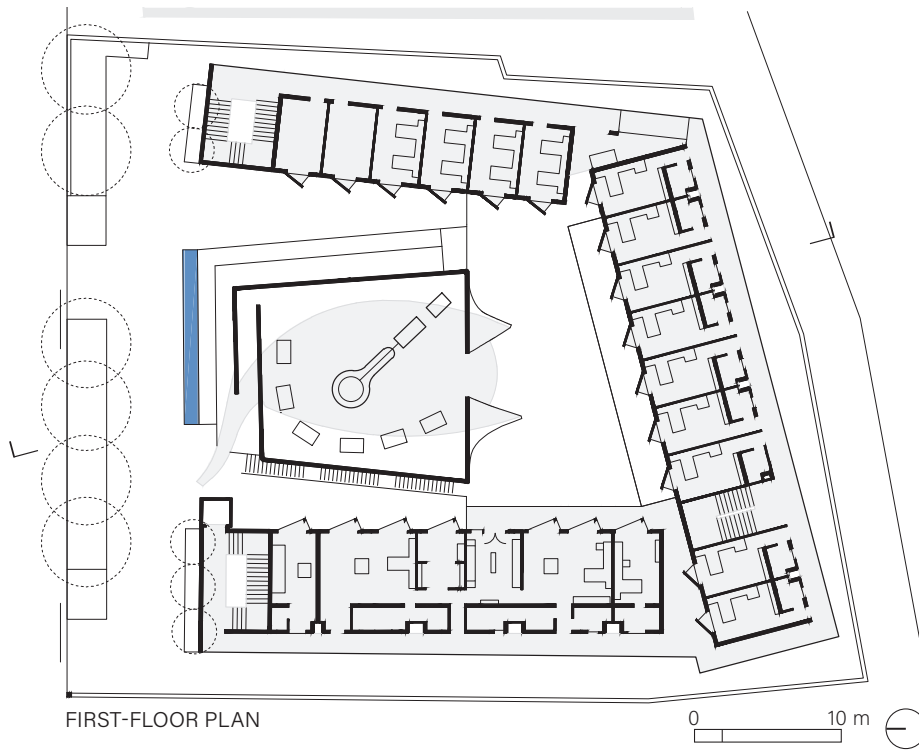
Left: Square in plan, the temple gently morphs into a sinusoidal volume, signifying an open interpretation of religion.

Above: The corridor connecting the rooms on the outer periphery is enclosed in thin sandstone screens, offering glimpses of the surrounding cityscape.

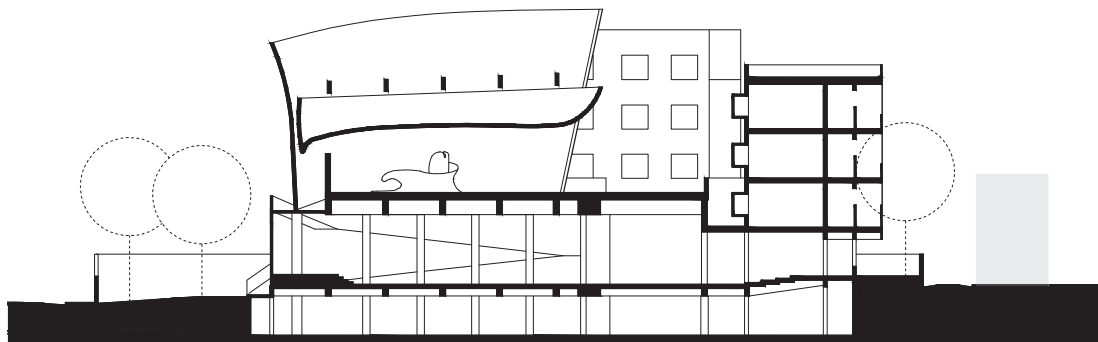




THIRD-FLOOR PLAN



FIRST-FLOOR PLAN



SECTION



Above: Designed by the architects and occupying the center of the temple floor is a 4-ton Shivling idol carved in stone, representing the human organs of birth and energy.

Left: Devoid of any ornament, it is the ever-changing shadows of the curved roof on curved walls that adorn the inside.

Upcoming Works

Stretching boundaries of recurrent themes have become the core philosophy of Matharoo Associates' practice over the last twenty-five years. In its upcoming work, the firm continues to experiment with structural constructs and optimization to reduce building costs. Emphatic reactions to the context and program still remain the most crucial clues in the design process, while working with local material technologies, and reacting to microclimate conditions that go beyond accepted sustainable norms. As the world progresses toward being more technology dependent, the work relies upon the basic tenets of natural light, ventilation, and connection to nature as a given in the creation of humane and healthy environments. The most important dimension, however, is to assign buildings with a purpose beyond given requirements, find ways of amplifying experiences, and create delight through discovery.



RANTHAMBORE, RAJASTHAN

Forest Lodge

Situated within the ruins of an abandoned village on the edge of the Ranthambore National Park and tiger reserve, is a place for a prolific tiger enthusiast, photographer, and activist, his wife, an artist who works with clay, and their young daughter. Besides their own house and workspace, the lodge has been designed to host wildlife documentary crews and like-minded people from around the world. Booked for months at a stretch, ten private suites provide spaces to work and unwind, amid spectacular views of rocky cliffs and the jungle.

Construction is planned using local labor and techniques, with load-bearing walls and masonry arches crafted in stone from nearby quarries. Dictated by stone slabs that can span a maximum of 10 feet (3 meters), the building has been conceived as a kit of

parts with modular construction. The frequent sighting of tigers in the area and working alongside their roars posed a unique set of challenges during the build.

To keep power consumption to a minimum in the sweltering 113°F (45°C) summer heat and with winter temperatures dropping down to 39.2°F (4°C), low-cost earth tube heat exchanger (ETHE) technology has been employed to create an ambient temperature of 82.4°F (28°C) throughout the year. Costs are further lowered by replacing conventional underground steel ducts by those made in stone. An old step-well on the site became the starting point of the design composition, extending into a swimming pool indoors and terminating in the stack-effect tower that also serves as a *machaan* (an elevated viewing platform) for the area.



HYDERABAD, TELANGANA

Multi-use Development

Built under the aegis of a government initiative that facilitates subsidized social housing by benefiting the buyer and developer both is a 35-acre (14-hectare) township on a lakefront in Hyderabad meant for approximately 10,000 residents. In addition to regulations of minimum room sizes set by the building authority, there are severe restrictions set by Vaastu principles that only allow for perfectly rectangular plans and define the disposition of spaces in specific cardinal directions. Within this stipulated area and cost, the challenge was to maximize provisions and enhance the quality of life, factors often lacking in construction for this segment of the housing.

Three-bedroom units are accommodated in the maximum possible 645-square-foot (60-square-meter) area, while those with two bedrooms and one bedroom are limited to 485 square

feet (45 square meters) and 325 square feet (30 square meters), respectively. Even so, all spaces within are naturally lit with ample cross ventilation, and include a generous living-dining space that terminates in a large balcony overlooking either the lake or garden. The provision of built-in storage and a structural system of shear walls and flat slabs ensure clean rectangular spaces free of structural obstructions, that can be individually altered at will by inhabitants in future.

Aside from interaction spaces at various levels, the scheme includes a shopping center, a place for conventions, cinema theaters and recreational facilities. A 4-acre (1.6-hectare) forested area and a 2,300-foot-long (700-meter-long) lakeside promenade is developed as a sustainable ecosystem that is open to public.



LAKHPAT, GUJARAT

Sikh Heritage Center

The foremost Sikh saint, Guru Nanak, stopped at the port town of Lakhpat during his 17,400-mile (28,000-kilometer) voyages to Mecca in 1506 and 1515. Although the port sank during the devastating 1819 earthquake, the house he once stayed in (Lakhpat Gurudwara Sahib) still stands today along with some of his relics. It is a UNESCO-protected monument in an otherwise neglected ghost town at the center of the white desert of Kutch.

The state government, along with the religious trust, decided to fund the monument's preservation and to set up a heritage center around it. The complex consists of the *gurudwara* (Sikh shrine), an interpretation center, and accommodation *sarai* (complex). It also has a large *langar* (community kitchen) where it is customary to serve meals free of charge to all visitors.

Construction has made use of only local materials: stone masonry, lime plaster, and structural steel. The sharply sloped roofs create a somber enclosure around the monument, and handmade tiles on the roof shimmer in the hot sun, set against the vast horizon of salt flats and the sea beyond.

Opposite: On the Arabian Sea coast in Surat, the upcoming joint-family dwelling "150 Steps Up to the Sea" derives its name from flights of stairs that begin two levels belowground, at an old well that was discovered on-site. The steps wind through various functions and rise up to a sea-view deck at the fourth level, and tie both water bodies into a wholesome experience.

UPCOMING WORKS

