Tracing Architectural Authorship through the Archive of Indian Modernist Achyut Kanvinde

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Achyut Kanvinde**

By

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Introduction

The Garden

The house sits on a corner plot, one boundary wall shared by a neighbour, the other abutting the colony park. Through the foliage you glimpse the exposed brickwork façade standing stately and unmoving. Its straight, orthogonal lines and narrow, off-centre fenestrations give nothing away: from the front of the house, you don't see the inclined roof or the levels above. Only when viewed from the side do the playful forms and inclines emerge, the forms that earned the house the name "*Akār.*" It is also here that you see in profile the horizontal concrete overhangs, or *chajjas*, that ease out over every fenestration. The play of levels slowly ascends toward the far side, culminating in the sloping roof.

When built, the house was one of the first in the neighbourhood, with empty plots stretching out in the vicinity. Now, the house even at three stories high, seems cowed by the surrounding multi-storied white cubes, and behemoths in styles aptly christened "Punjabi Baroque" and "Bania Gothic" by Gautam Bhatia (Kāpaḍīā and Bhatia 1994).

The only thing that breaks down the solidity of the brick walls as you approach the house is the slim, floating wooden arbour that seems to be reaching out, even as it turns a right angle and stretches instead over the driveway. The arbour is now overrun with a jasmine creeper, but when the house was first built, it didn't exist. In fact, the vegetation was introduced over later additions, and the landscape has matured in the sixty years since its construction. A towering neem tree now rises up from the front corner of the shared wall, its canopy extending over the driveway and most of the front garden, while a bottle brush languorously hangs over the lawn

lined by smaller bushes and flowering plants. This is the house my grandfather built, as it appears from the outside.

Figure 1: Akār, view from the side; [from the Kanvinde, Rai & Chowdhury archive]

I marvel at the knack some parents have for choosing names that perfectly suit the future personalities of their children. Or am I getting it wrong—do the names become self-fulfilling prophecies? Much as the house was named Akār, my grandfather was named Achyut Purushottam Kanvinde. "Achyut" means infallibility, stability, and firmness. He was born in 1916 into the uncertainty and tumult of the First World War in a small village in western India.

The son of an artist, he moved to Mumbai to study architecture, having been told that it was a more lucrative profession than art. Prior to his modernist exposure, my grandfather had been instructed by Claude Batley, at the Sir JJ College of Art in Mumbai. Through his student work, it is evident that drawing was a tool essentially for documenting monuments.

At the time, students of architecture were trained to be little more than glorified draftsmen for the Imperial workforce. Though there was a smattering of Neoclassical and Art Deco architecture in India prior to independence, Indo-Saracenic was the chosen design vocabulary of the colonizers: to reinforce ideas of western civilization, and yet purport a style that was identifiable to the Indian populace through its use of both Hindu and Islamic motifs, to prompt ownership and acceptance (Sheeba and Dhas 2018, 1738). The style was used for all administrative buildings of the British government in India, symbolic of colonial ambitions and the Eurocentric model.

Concurrently in Europe, the Industrial Revolution had wrought the need for commercial and civic buildings to serve a rapidly industrializing society. Materials like steel, glass, and reinforced concrete were mass-producible and prompted the development of new construction techniques. The deep dissatisfaction with the overly ornate decorative features and mixed references of the neoclassical, as well as a charge to espouse a "modern" identity, pushed architects in Germany, France, and Holland to start L'Esprit Nouveau—the modern movement.

The Connotations of 'Modern'

The word "modern" has complicated connotations and is often confused with "contemporary" in colloquial usage today. Besides which, as Supriya Chaudhuri points out, "The distinctions between modernity, modernization, and modernism are particularly complicated in the case of India, but remain crucial to a historical understanding of the 'modern' in all its senses" (Chaudhuri 2010). Modernity was a social and intellectual project, and modernisation its means. They are both associated with the influence of European and Enlightenment rationality from the eighteenth century onwards, while modernism as an aesthetic, is far limited in period and scope (Chaudhuri 2010). It is largely the canonized aesthetic of modernism that is studied in

art, cinema and architecture, leaving non-Western narratives almost entirely out of the picture. This area of inquiry is critical, because, as William Curtis points out:

"There is a vast uncharted region of twentieth-century architectural history that will one day need to be written: it concerns the dissemination of modern forms in the countries of the so-called developing world. It is a process which contains many different episodes all the way from the impact of the debased international style to the enriching effects of Poetic Modernism. In the caricature version, Western rationality and myths of 'progress' confront and oppose: the authentic and the indigenous, but it is rarely that simple." (Curtis 1987)

Therefore, when architects refer to modernism, it is the mode of aesthetics centred on minimalism that they are referring to, understood to be the physical manifestation of modernist aspirations of newly industrializing nations in the first half of the 20th century. After all, architecture is known to be "the clothing of the body politic"[1]. In tracing the origins of modernism through narratives of the French example, Rabinow writes of the attempts to fathom new fields of knowledge and technologies of social control, as well as new urban forms and social spaces. Modernism, which began as a predominantly hygienist concern, eventually grew to encompass the notion of state as an agent of social transformation (Rabinow 1995, 332). Architecture has long been viewed as a civilizing mechanism, but none more so in the beginning of this technocratic era of planning: "museums make publics, boulevards make populations, housing makes citizens. Under modernity, architecture enrolled itself in the pantheon of power's

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[1] As observed by Michael Herzfeld in "The blight of beautification: Bangkok and the pursuit of class-based urban purity" (Herzfeld 2017) to be reported in a volume of the Royal Institute of British Architects reporting on a Town Planning Conference in October 1910.

tools, explicitly deployed to create subjects" ("The Body's Politic: Architecture and The Modern Subject" 2017).

Rabinow identifies two main phases in the trajectory of modern urbanism: "techno-cosmopolitanism" and "middling modernism." The purpose of the first, was for the rational regulation of society, while in the second, space was seen as an abstract "sociotechnical environment" regulated by "committed specialists dedicated to the public good" (Rabinow 1995, 320). Herein comes in the modernist architect—he (for they were chiefly men at the time, barring some notable but limited exceptions such as Jane Drew and Minnette de Silva) was one such committed specialist, whom Rabinow identifies as a "technician of general ideas" and an "intellectual" who walks the line between "high culture or science" and "ordinary life" (Rabinow 1995, 9, 16). Holston in *The Modernist City: An Anthropological Critique of Brasília* mentions, the pair of "the prince (state head) and the genius (architect-planner)" (Holston 1989, 9), bringing forth the issue of the *state architect,* all pervasive in modernism, irrespective of country or political regime. As Matthew Hull quotes in *Government of Paper*, "James Holston has observed that modernist architects maintained affiliations across the political spectrum, aligning themselves with 'whichever authority, on the Left or Right, seemed capable of implementing total planning.' Le Corbusier, the leading figure of modernist architecture, dedicated his major publication, The Radiant City, to 'AUTHORITY'" (Hull 2012, 44).

The state architect, a concept that would later pave the way for the "star-architect," brings in the notion of architectural authorship: one that has always been central to architecture, particularly when concerning issues of style, intellectual ownership, and the architect as celebrity or signature designer. Individual architects and movements, dating as far back as Alberti, have

endeavoured to defend their status, and what they see as their own inimitable territory: the origins and intentions of their work, and their signature style (Contributor 2007).

Some of the primary players of the movement, Walter Gropius, Marcel Breuer, and later Mies van der Rohe, fleeing Nazi Germany, brought the tenets of modernism across the Atlantic Ocean. However, similar minimalist impulses were already being felt in the United States, propelled by Louis Sullivan who started the Chicago School.

It seemed moves were being made internationally towards modernism though. At its height, the British empire had been the largest empire in history, holding sway over, in addition to modern day Canada and Australia, what are considered 'developing nations' today: vast tracts of Africa and the Indian sub-continent. Independence from British rule was not just a political or ideological phenomenon, but also spatially articulated. Modernism was the chosen building vocabulary by these former colonies for their newly liberated urban environments. This mode of building was seen as a tool for nation building, and as a symbol of resistance against the colonial legacy as a representation a of more egalitarian society (James-Chakraborty 2013). Although with a delay of a few decades, the Third World kept abreast of the developments in architecture and produced its own interpretations of modernism.

India in the mid-twentieth century, was in the flux of partition. Prime Minister Nehru took up the mantle of development. This adoption of an "International" style that simultaneously seemed to be of "everywhere" and "nowhere," in India at least, was symbolic of a shedding of identity that had to do with a colonial past, or even for that matter an identity that was considered weak enough to have succumbed to colonial powers in the first place. Nehru opined at a seminar on architecture in 1957, "Architecturally considered, for the last few hundred years, India was static and the great buildings which we admire really date back to a considerable time. Even

before the British came, we had become static. In fact, the British came because we are static."

(Prakash 2002, 9) For Nehru specifically, often lauded as the "architect" of modern India for his

development of science and technology and the industrialization of India, in a bid to catch up to

the modern west, modernism was representative of an egalitarian society through the sway of

socialism (Chatterjee 1985; Kalia 2006). "Nehru, himself a product of modernist tradition, was

familiar with the urban Utopias in emergent modern city planning of the late nineteenth and early

twentieth centuries" (Kalia 2006).
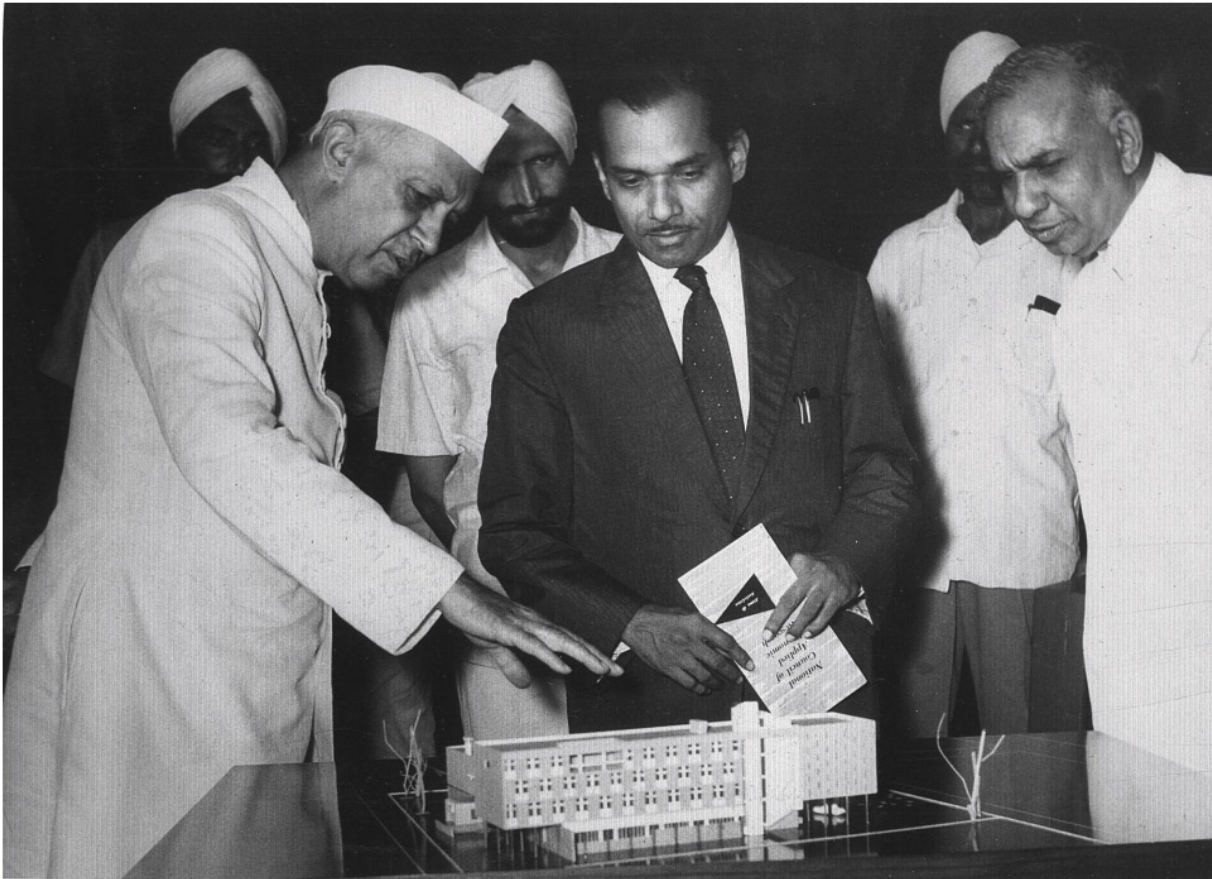
Figure 2: Kanvinde presenting the model of National Council of Applied Economic Research to Nehru; [from the Kanvinde, Rai & Chowdhury archive]

It was under this agenda that prior to famously inviting Le Corbusier to design

Chandigarh, the Indian government sent young architects abroad for further studies to America

and England to then be tasked with rebuilding a new, 'modern' nation on returning. My

grandfather, by this time working for the government, at the Council for Scientific and Industrial Research, was one of the first to be sent abroad to specialize in laboratory design. He studied at Harvard, under the tutelage of Walter Gropius between 1946–47. Early American ateliers were typically integrated into an architectural practice and the atelier pupils were to varying degrees also the architect's assistants. Architecture then, as now, was taught based on repetition and the "techno-logic of the precedent," which carried in its mechanical, gestural, medial structure (overlaying, tracing, redrawing), the geometric heritage of past instances of order, proportion, and symbolic expression, as well as syntactical norms regarding "gestural pressures" (line weights) and "rhythms" (line types) invoking an "automatic facility," in other words, "the student must learn to look before she could read and learn to draw before she could learn to write" (Alexander 2017, 156–57; May 2019, 69). Due to this system, students had a chance to work directly under modernist masters, with the development of a resultant mimetic mode. And they each emerged metonymical "Nehru"'s in their field.

On returning to India, my grandfather fulfilled his contract with the government, and set up his own practice in 1955 with engineer, and fellow Harvard graduate, Shaukat Rai. In Delhi, he was responsible for several government buildings in the heart of the city, in addition to private projects. I would even go further to argue that being positioned in Delhi gave him free reign to develop this authorial voice, without the restrictions of a prevalent vocabulary to adhere to. India inherited from the British its capital city, of which Lutyens' Delhi was already well established. "Delhi had been the seat of the last major indigenous political power, the Mughals, and the British attempted to portray themselves as the successors of the Mughals in the subcontinent's grand history of imperial rule" (Hull 2012, 41). This was the legacy of the national capital inherited by independent India, which Nehru himself called "un-Indian," preferring instead Le

Corbusier's Chandigarh, a city "unfettered by tradition"(Kalia 2006). And yet there was no question of starting from scratch, since the more important work of resettling the refugees of partition remained, for which most work was carried out by the Central Public Works Department.

Delhi, though not aesthetically restrictive, being the governing capital of India and seat of power, came with its associated notions of governmentality. British colonial government came to be known as the "'Kaghazi Raj' or Document Rule" (Hull 2012, 6–7). The continuity of the colonial bureaucratic material infrastructure, in the form of no objection certificates, bureaucracy and red tape, in the post-Independence, Nehru-Gandhi era, was referred to as "Permits and Liscences Raj" by statesman, Chakravarti Rajagopalachari[2].

Until the 1990s, all large architectural projects in the country were government mandated and sanctioned. Even if awarded through competitions to private firms, and not a state architect anymore, the government was the client for all major infrastructure, industrial, or institutional projects. Since the liberalisation of the Indian economy in 1991, as Asher Ghertner points out, private think tanks and consulting firms are the order of the day (Ghertner 2015). This third trend, ascribed to "millennial Delhi," may now be called what I think of as the *Think Tank Raj*. My grandfather saw and practiced in all three of these epochs, and in each of them, the role of the architect changed. Political power plays a huge role when understanding authorship.

Modernism as a colonial imposition is fairly evident in the French strongholds of Casablanca and Algiers, however, if modernism in any Third World country should be considered a colonial import, it is ironic that modernism was the vocabulary adopted in the

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[2] The phrase, "Permits and Liscences Raj" is commonly ascribed to C. Rajagopalachari

construction of newly independent countries, even in self-propelled projects such as Brasilia.

Holston sets up the context of Brasília's development and its lofty ideals of transforming

Brazilian society through planning and design. He reveals the intention of the new plan to

circumvent, both architecturally and socially, the structure of pre-Industrial cities. Further,

Brasilia's break with tradition occurred through the death of the street, resulting in a city that

"lacks human warmth" (Holston 1989, 105). Brasilia and Chandigarh, for that matter, are the

perfect settings to see brutalism in all its 'brutality' at play. Holston calls it, "brasilite": the

experience of Brasilia as a "trauma" (Holston 1989, 24). In Chandigarh specifically, in their

drive to eschew and distance themselves from British colonial symbolism, Indian

parliamentarians essentially traded in one aesthetic visual regime for another in adopting

modernism.

However, Indian statesmen and particularly the young, returned architects, truly believed

they were espousing egalitarian values and identity through modernism. This can be seen

through the discourse of the time on the need for a 'national architectural style'. Architect AG

Krishna Menon, quotes, and aptly critiques a statement made by my grandfather at one such

conference:

"'Our problems concerning architecture have changed entirely from the past age because

of our changing cultural outlook, namely the political institutions, scientific and technological

development, our knowledge about human sciences, and our new ideas of aesthetics which

developed as a result of the visual arts. Almost all past periods of architecture came into being as

a result of desire for glorification, as an expression of the vanity of the ruling class and the

dominant religious sentiments. Thus, the architecture of the past was essentially feudalistic in

approach. Contrary to this, the present political institutions are democratic in their approach where the stress is on the economic and social values related to the common man.'

The response to the call for a more 'democratic approach' was the application of the tenets of modernism. The mood amongst architects like Kanvinde, was that they could 'invent the future', reminding one of a similar mood amongst the early modernists in Europe after the First World War. And as in Europe, this mood evaporated within a few years to be replaced by pragmatic and utilitarian task of Nation-building. The imperatives of building in an environment of severe resource constraints were overwhelming and in time, these imperatives determined the production of architecture." (Menon 2003)

And so, the modernist vocabulary was absorbed and re-appropriated: modernism in India was made Indian. And therein lies the difference between Chandigarh, or even Brasilia—planned as they were by essentially another neo-colonial actor, or in the case of Islamabad, Doxiadis who spoke of "ekistics," ostensibly to "discover the relations among nature, man, society, 'shells' (buildings), and 'networks' (communications)" even taking the pains to study vernacular architecture, only to dismiss it as too haphazard and chaotic (Hull 2012, 43, 48–49)—and cities like Delhi, of randomized urban growth that housed buildings by post-colonial subjects. While buildings in Chandigarh and Brasilia are seen as brutalist interlocutors; post-independence planning done by local architects, after the journey to and return from western ideals, was far more suited to context, climate, and successful in breaking down the monumental brutalist scale. Perhaps the difference was the question of agency.

Jacques Tati, saw modernity in Paris as the death of individuality, and a donning of a kind of herd mentality. Yet, I would argue, that in coming to the Third World, modernism was reinvigorated. Though first the Indo-Saracenic style was imposed by the colonizers in India, and

then subsequently, modernism was the independent government-imposed language; this vocabulary was absorbed and re-appropriated – modernism in India was made Indian. Though schooled in pure modernist thought and vocabulary, within a few years, these architects that returned, learned with that same ingrained pragmatic ideology to solve the problems posed by the climate and contexts of their own milieus.

The Central Atrium

The house unfolds in stages: first, the gradual rise of the driveway, then up the entrance steps, till you reach the landing with its pivoted teak main door. The foyer has a low ceiling height and is shuttered by a monolithic brick wall that conceals what lies beyond. The space is intentionally constricted, only to be flung open into a double height atrium after a gradual descent to the living room on the right. To the left is a cantilevered pinwheel staircase with its white terrazzo clad central pier.

It is only when you step down from the entrance landing to the ground floor that you realize that the monolithic brick wall in fact extends double storied and straight through to the roof, standing as a backdrop to the central atrium, and meeting with the inclined ceiling of the living room in a skylight. The various skylights and windows into the atrium space afford different light at different times of the day. The main skylight lets in the early morning sunshine
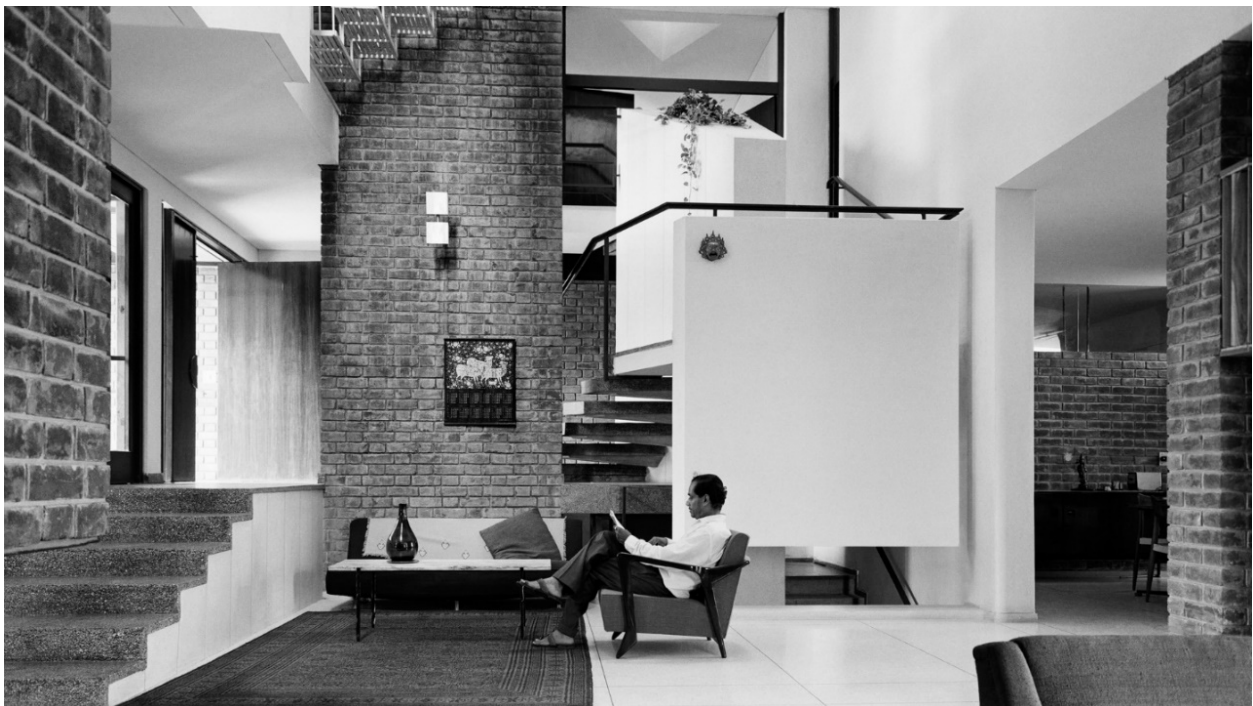
Figure 3: Internal shot of the Central Atrium; photograph by Madan Mahatta; [from the Mahatta archives]

that spotlights the dancing dust motes. Windows are strategically placed for the northlight, and those to the west of the house let in the late afternoon sun. The triangular skylight at the top of the pinwheel staircase brings in diffused light through the day.

Of course, having so much glass in the house has its drawbacks. For one, it means that the house is virtually impossible to insulate for sound. Early in the morning, we hear the birdsong; by afternoon, the peddlers and rag pickers cycle past, calling out their wares; and in the evening, we hear car horns as much as see indicator lights from office traffic flash through the slit windows on the western façade. Late into the night, we hear the faded sounds of the trucks on the highways and the timely hooting of freight trains on the tracks nearby. I suppose it is nice being able to tell the time from the ambient sounds and quality of light alone. What is unpleasant though, is thunder or firecrackers—the glass panes themselves begin to rattle. But I suppose that is a factor of age rather than an inherent shortcoming in the design itself.

The pinwheel staircase leads down the service stairs to the kitchen and basement, and up to the private family spaces on the first floor. I say, "private spaces" but there are almost none in the house besides the bedrooms themselves. The house is designed to display, and you as the subject of the house are on display as well. The large glass windows and doors mean that anyone on the street can look into the house, although the foliage helps obscure some of that now. All the circulation spaces between the bedrooms can be seen from points in the living room, which makes it impossible to pretend like you are not home when there are guests downstairs. Even the cantilevered stairs offer the opportunity to peak down at an angle into the kitchen. In essence, the house is all about views framed and glimpses caught.

It is interesting that Anne Friedberg's metaphors for understanding photographs and moving image screens in media theory are so architectural: a veil and a window, it makes one realise that their main purpose is to frame a view (Friedberg 2009, 21). What then of architectural photographs themselves; or even photographs clicked by architects? The men in our family, all architects, always had a camera at the ready, to document both buildings and occasions: every birthday, festival, or even the daily escapades of us children were meticulously saved for posterity. It is funny then, that we barely have any pictures of ourselves on the walls—they feature mostly artwork, including two paintings by my great-grandfather, P.G. Kanvinde. The photographs are carefully hidden away in albums that rarely, if ever emerge from dusty cupboards. Perhaps they are to sit pristine and untouched, preserved with the authoritarian air of modernism.

Figure 4: In front on Weeks Memorial bridge, circa 1946; [from the Kanvinde, Rai & Chowdhury archive]

One of the few photographs we have of Baba's time at Harvard, is in front of Memorial Bridge. During my own time here last fall, every time I walked by that bridge, my throat would catch. Although truthfully, no space is safe on the campus. The first time I saw Gund Hall, I felt quite overcome. Which is completely illogical—the Graduate School of Design was housed in Robinson Hall in the Harvard Yard then. I would later find Baba serendipitously in the first row of one of the oft shared pictures of the GSD in the 1940s from the Harvard Special Collections.

Harvard University, Harvard University Archives, W693263_1

Figure 5: Architecture studio in Robinson Hall, Kanvinde standing first row [photograph],, 3-22-[1946] [Harvard University News Office photographs, 1940-1956, UAV 605.270.1, I., C., G376-G479., UAV 605.270.1 (G426)]. Harvard University Archives. https://id.lib.harvard.edu/ead/c/hua15012c00

An anecdote from his first week in the United States, has achieved almost legend status in the family: the time he got a $40 haircut. You might expect to have a haircut worth forty dollars today, but this was in the 1940s and he didn't have particularly long hair. After being laid over in London for three months, having saved and survived solely on War rations, he finally arrived in New York, desperately in need of a haircut. He happened to chance upon a barber's shop while walking down the street. New to the country and never having dealt with the currency before, when presented with the bill, he forked over the money.

It is unclear now if he was too embarrassed to say he couldn't afford the haircut, or if he genuinely had no idea just how much money that was. It was only later that he found out that he had been ridiculously overcharged. At the time, that would have likely been the cost of a month's rations. I am not sure what he ate for the rest of the month. He had a reputation for being simple and down to earth his whole life, but I doubt he would ever again be so naïve.

In each of the several attempts he made at writing his memoir in his later years, he wrote of his "humble background," always mentioning his village, Achara, off the Konkan coast. The other words change, but these remain the same. I wonder if underneath it all, he was still a small-town boy of limited means, wanting to prove himself in the world. Being one of the "modernists" in the "modern world," he might have had the same strange mix of delusions of grandeur and crippling self-doubt that I struggle with. I wonder if the two identities constantly warred with each other, like the two faces of a coin in perpetual rotation, so that one might never guess which would land.

To me, he was only my grandfather, Baba. In some far-removed corner of my mind, he was also an architect. I don't think as a child, I quite comprehended the impact he had on architecture and the architects of the Indian subcontinent. The admiration that some of the elder

generation have for my grandfather is not unlike the regard he himself held for his mentor and teacher, Walter Gropius. Although, perhaps Guru might be a more accurate term. A portrait of Gropius still hangs in his study at home, and a small newspaper clipping of Gropius is enshrined under the glass of his desk at the office—untouched even all these years after his death.

There was a book published in early 2000, two years before my grandfather passed, called, "Letters from Grandparents," featuring famous India personalities. There is a letter from Baba there, addressing my cousins, Czaee and Saili, and myself. Saili mentioned the book to me in passing a few years ago, and I eagerly tracked it down. It was after all, a letter from the departed—a last word from beyond the grave. I don't know what wisdom or affection I was hoping to glean from the letter, but it was an utter disappointment. It was entirely impersonal— almost as though written with the awareness that the letter would have a far larger readership than just us, his grandchildren. I remember feeling so jealous on first flipping through the book and reading singer Asha Bhosle's letter to her granddaughter with the platitudes, "I miss you so much while you are away." Instead, my grandfather wrote of modern technology affording luxuries and convenience today that he never had as a child, and how, despite that deprivation, he had been content with a simple, austere life. In the same letter to a four-year-old, a ten-year-old, and a fourteen-year-old, he even went on to mention the industrial market economy, the root of the unchecked urban expansion, the resulting slums with their poor hygiene, and the increase in crime. The letter was full of platitudes of another kind. This was Baba as a public figure, talking to the public.

The Living Room

The central atrium and living room are one continuous, flowing space, differentiated only by their ceiling heights. While the atrium's is soaring and inclined, the living room ceiling is modest and horizontal, forming a more intimate gathering space. The guest bedroom, with its folding door, gives the option for the whole space to be unified. The dining room has somehow always felt more like a corridor to me—a circulation space between the living room and kitchen. The atrium forms the focal point of the house, around which the other spaces fan—a modernist nod to the central courtyard of the pastoral house Baba grew up in.

A fascinating feature of the house is that not a single column or beam is exposed. The beams are mostly upturned, and the columns concealed within the brickwork, so that all you see are uninterrupted white planes, and brick walls. The flooring is partly black terrazzo and partly white, playing up the contrast between the entrance landing and staircases, and the living room floor. The sofas, designed by my grandfather himself, are all low-slung and linear, taking up almost the entire extent of the living room walls. On the wall shared between the living room and the guest room, is a fireplace that has not been used in the last thirty years at least. One of the sofas has now changed its orientation, pushed up with its back against the fireplace.

One of the challenges with having such a cavernous volume in the house, is cooling and heating the space. The central space is always biting cold in winter, and sweltering in the summer, despite multiple air conditioners. Even so, Baba had a favourite spot where he could often be found—by the sliding door to the garden, facing the main entrance and atrium.

One thing that I remember about my grandfather was that he had infinite reserves of patience. I don't know if I actually remember it, or if I've been told so many times that I've internalized it, but he never once raised his voice, certainly never at me. Even the worst

misbehaviour on my part, warranted only a "I was very disappointed in you today. We don't behave like this, no matter how much someone provokes us." And somehow that was more painful.

Every afternoon, in the last two years of his life, my grandfather and I took an afternoon nap. Not one to be subdued easily, I would as always beg for a story. Perhaps viscerally aware of his own mortality, he had begun reading the Bhagavad Gita after his first heart attack. So, every afternoon, I would be narrated a story about Krishna. An unusual tale that is imprinted in my mind is that of Krishna as an old man sleeping under a tree: Krishna was mistaken for a deer and killed by a hunter's arrow.

After the nap, I remember mussing up his hair repeatedly, and him patiently patting it down again every time. I don't know now if he actually ever lost his temper or if he just bore it until I lost interest. He had a bald spot at the back of his head that he would carefully comb over, using his longer front hair. My father resembles him more and more as he gets older: the combover in evidence.

The Study

The entrance to the study is at the top of the cantilevered staircase, under the triangular skylight. It is another folding door, to allow for the perceived extension of space from the living room. Though sandwiched between two bedrooms at either end of the corridor, the study is made to project out from the profile of the house, both to provide respite visually, and to afford it two facing windows for air circulation. The windows function on a counter-balanced system and are one of the details architecture students come to see even today. The study has always been the intellectual centre of the house, with one wall entirely covered in bookshelves. During my grandfather's lifetime, it was a stately room—with a desk by the far wall and a low upholstered sofa by the door. Now, it has three desks crammed within it, and is shared between my parents and myself.

Narendra Dengle says of Baba's defining architectural style, "He remained a very skilled designer concerned with the climatic issues and materiality for performance, which though important from the point of construction and technology were limited in exploring fields of memory and contextuality, that drove the spirit of later periods, connecting people and places closely. Kanvinde's buildings are elegant for their qualities such as slenderness, articulating openings, windows and skyline, negotiating the materiality, use of natural light and ventilation." (Narendra Dengle 2017, 195, 198)

By the time he designed his own house in 1964, Baba's modernism had mellowed somewhat with a consideration for local material, climate and context. It is interesting that in most other residential projects, he either chose concrete, or his favoured grit-finish, but for his own house, he chose to use exposed brick. Perhaps he liked the warmth of brick and wanted a distinctive material for himself. My love for bricks certainly comes from living in a brick house.

After I learned of the endless fascinations of brick bonding in architecture school, I remember coming home and staring in awe at the walls.

The Terrace

The joy of the house are truly the terraces. My grandfather, perhaps selfishly, made two of these accessible from either side of the master bedroom. One, a private sun terrace, and the other a linear shared terrace, with low swings for relaxing. The third and uppermost terrace, is accessible through the steel staircase in the double height space. I only realised later that the staircase was a structural marvel—the steel treads are suspended solely from the two gently ascending I-beams that serve as railings. As a child, the staircase was a test of fortitude: accomplished by resolutely not looking down and hoping your skinny legs wouldn't fall through the rungs.

The terrace itself is a strange, alien landscape with platforms and pyramids rising to form skylights, through which you can look into the house. The railings on the terrace are slim tubular sections, with large gaps between them, which is why it was off bounds for most of my growing years. In fact, even the staircases in the house barley have railings. When Czaee, the first grandchild was born, a tasteful, elegant, barely-there guard rail was installed on the cantilevered stairs; and yet one railing does not a house baby-proofed make.

One of the advantages of having my Atya (father's sister in Marathi) live just across the garden from us, is that I hardly ever felt like an only child. The three of us sisters ran wild all over the property. The house was full of places to explore. There was a rite of passage amongst us sisters: a brick clad slope on part of the roof in the main house. We would run up on the flat part of the terrace until the slope began, picking up momentum, to see who could get farthest up

the slope. We would then turn around, sit, and slide down the slope. Given the difference in our ages, Czaee first initiated Saili, and many years later, Saili initiated me.

As a child, I used to run over to Atya's place for lunch when I didn't like what was made at home, then come back and make the pretence of not being hungry. My mother, ensconced in office, would be blissfully unaware. I see a lot of myself in Atya—she had to live with the privilege and the burden of the name. She also had to deal with something my father never did— being a woman. This for her, meant that she was expected to pursue the softer, "feminine" path of fine art rather than architecture, despite being the older child. Yet Baba might be surprised to find somehow, all three of his granddaughters ended up architects. Each of us took our own paths, but we all eventually ended up here.

The Kitchen

The kitchen was always Aai, my grandmother's domain. I know this anecdotally—I was too young to remember her cooking. Baba ordered the latest appliances for her, and the marble counter heights were specially designed for her diminutive frame. After her passing, the kitchen was mostly run by the help—my mother had no time with her office commitments to come home and cook. But even during Aai's time, the kitchen was essentially a service space. Beatriz Colomina, in her analysis, "The Split Wall: Domestic Voyeurism" studied photographs and drawings of the interiors of houses designed by Le Corbusier and Adolf Loos, laying bare the idealization that pure utopian spaces conceal, and the domestication enabled by them (Colomina 1992). Another explanation may be the oft argued point that the system of an open kitchen does not work in India, with the strong smells linked to the cuisine. Even in the present setup, with the kitchen sequestered in one corner of the house, the astringent smell of *tadka* occasionally travels up into bedrooms.

This past year, over the course of the lockdown, when both our house help happened to get stranded in their village, it was the first time my parents and I truly had to fend for ourselves. The lockdown was also when we realised that with no real "woman of the house" manning the kitchen. My mother, comfortable in her role as career woman, viewing what she has achieved not as a product of the class and caste she was born into, but the hard work she put in. As if women aren't perpetually condescended to on site, or paid less for the same work as men, much less having to deal with more overt offences, such as sexual harassment in the workplace.

Aai died two years before Baba, which is probably just as well, because she would have been lost without him. She arranged every aspect of her life around his. In contrast, in a letter response to a friend after her demise, he mentions, "The passing away of my wife was a great

personal loss for me. We shared an association of more than forty-two years. She gave me all the needed cooperation, help and support, which allowed me to concentrate on my work." He speaks more affectionately even about client, Vikram Sarabhai, in his diary, "Vikram's habbits and behaviours were like that of a child. I never saw him losing any time. His [unclear] staff worked for him not because of duty alone, but love and respect for him. His passing away was a great personal loss for me."[3]

Almost twenty years after his own death, we now sit in his favourite spot in the living room in the evenings. I guess it took us a long time to start feeling at home in the places that Baba left vacant. He was one of the first of the Indian Modernists to die, but this year so many of his fellow luminaries and compatriots have passed away, that it feels like another link to him is breaking. Then again, I suppose it is impossible to feel a total sense of absence from someone that left so much tangible proof of his existence behind.

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[3] Drafts of letters found in a diary, courtesy of the Kanvinde, Rai & Chowdhury archive

This thesis positions itself in the growing body of work that attempts to subvert the west-dominated canonical reading of modernism, and instead tries to bring in counter-narratives from third world contexts such as India. It is an attempt to further a growing global interest in rebalancing the history of architecture, as colonialism begins to be reassessed through a more critical lens. This dissertation comes in light of a cohort of other modernist architects working within their national contexts who have recently been given the prominence they deserve, including Hassan Fathy in Egypt, Jose Plecnik in Slovenia, Pikionis and Constantin Doxiadis in Greece and Luis Barragan in Mexico. Yet, even in giving these non-western, non-canonical figures their due, I would like to acknowledge as Marshall Brown says, "unlike many other fields today, the culture of architecture still worships lone creative geniuses and traffics in myths of sole authorship." (Brown 2018, 116)

This project has gone through many iterations and potential directions and was originally much larger in scope. It almost at one point became a quest solely for tracing architectural style and indigenization. The specific conditions around the pandemic and an extended stay in Delhi, with access to a homegrown archive—in a time when access to institutional archives was limited—resulted in the present state of the project. And further, had I even gone solely in the direction of tracing architectural style, it is imperative to acknowledge, "finding one's voice isn't just an emptying and purifying oneself of the words of others but an adopting and embracing of filiations, communities, and discourses. Inspiration could be called inhaling the memory of an act never experienced. Invention, it must be humbly admitted, does not consist in creating out of void but out of chaos. Any artist knows these truths, no matter how deeply he or she sub merges that knowing. Miscegenation is, of course, an archaic term typically associated with racist laws

that forbade mixed marriages and racial interbreeding. In this context it serves as an adequately subversive name for the sublime world of architectural half-breeds." (Brown 2018, 116)

In the interest of full disclosure, this thesis is about my grandfather—which is why I haven't shied away from first person narratives in this introduction—my way of understanding a facet of my grandfather; one that I was too young to comprehend when he passed away in 2002. Even though this is a study on my grandfather, and it is perhaps natural for me to want to idolize him, I want to consciously step back from the heroic figure of the "genius" modern architect and acknowledge that architectural projects are in no way projects of sole authorship. And while a lot of emphasis is generally placed on architectural lineage in tracking style, there are various other factors that go into its development. Works of architecture come out of a process of collaboration, and are implicitly shaped by the socio-political context, and by constraints such as site, climate and budget. This paper is therefore my attempt at a holistic look at authorship, and though ostensibly about my grandfather, it is also a nod to the often-unsung figures in the practice of architecture. It is an attempt at going beyond the architectural monograph, and instead interacting more critically and incisively with material of the architectural archive.

Further, this paper is also perhaps my attempt at approaching my own identity through a contrast with that of my grandfather—post-colonial, gendered, privileged. It is, therefore, not purely an academic endeavour, but also a personal journey of discovery. For this personal journey, no introduction to my grandfather would be more apt than the house he built for himself and his family.

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Chapter I: Categorization

In trying to introduce Kanvinde to the uninitiated, the most useful exercise may be a survey of his body of work. It is never an easy task to analyse an architect's work, since it is shaped by several variables. But, if one were to try and eke out the essence of Kanvinde's work, one can ascertain that it is not one single defining characteristic, but a combination of factors that emerges under the umbrella of a broad ideology. While his work constantly evolved over time, thereby defying a chronological slotting, certain principles and elements remained fairly consistent through his long career.

His formula, so to speak, was driven by functional aspects and his steadfast belief in the Modernist principles. Building on this formwork, he then took certain liberties—playing up the built space for more experiential qualities. These liberties were taken using the performative aspects and drama of light, scale, or form through elements such as the staircases, windows, and atriums, or entrance porches, "in consonance with his oft referred philosophy of the 'measurable' and the 'immeasurable', with the result that the structure invariably amounted to much more than just the sum of its parts." (Kanvinde and Kanvinde 2017, 367)

Another characteristic feature of his was the systems of linkages he constructed to reconcile movement and activity location. This resulted in Narendra Dengle's words in the fact that, "the spatiality of Kanvinde's projects had an entirely different openness than contemporary modern-brutalist architecture in the US, to which it comes the nearest" in what Dengle calls a "well-crafted blocks strung in a necklace plan." (Narendra Dengle 2017, 193) Additionally, a belief at the core of his designs was climatic suitability—much preceding the overuse of 'sustainability' as a catchall concept—and courtyards and walkways were one way of achieving this in most of India's climatic belts. This had to do with the fact that most of the buildings

constructed after Indian Independence and even well into the '80s, were not centrally air-conditioned, and that frugality was a major consideration for an emerging nation. Kanvinde overcame these constraints with ample cross-ventilation, natural light, and cavity walls.

Kanvinde adhered to a basic palette of natural and local materials, such as brick, stone and concrete, which always gave a contextual reference to his work. While his early work is mostly finished in plaster, with some walls highlighted in natural brick or stone, this soon evolved into the use of exposed material uniformly on the façade, particularly if it was locally available. Hence, brick being available, was used for Indian Institute of Technology, Kanpur and his residence Akār, while basalt was chosen for National Institute of Bank Management, Pune. To support his quest for form, he utilised the rugged texture of the material, which showed its effect in the interplay of light and shade. In keeping with this philosophy, he also explored a great variety, in terms of textured plaster, from plain, sand-face, or wrinkle plaster, as at Institute of Rural Management, Anand to aggregate plaster as at the Nehru Science Centre, Mumbai and National Dairy Development Board, New Delhi. Similarly, floor finishes were limited to rough or polished natural stone and terrazzo.

One also observes a definite use of balance and composition, best seen in the arrangement of longer rectilinear blocks juxtaposed with squatter ones, varying in both plan and the third dimension, particularly in his early work, such as the Ahmedabad Textile and Industrial Research Association and later in National Dairy Development Board, Anand and University of Agricultural Sciences, Bengaluru. This can be attributed both in plan, as well as in section, to the Modernist ideology.

Kanvinde's modernist idols and influences were many, beyond the obvious Gropius stamp his initial work bears. One might even ascribe Kanvinde's concern with experiential

spaces to Joseph Hudnut, Dean of the School of Design during Kanvinde's stint at Harvard. As

Jill Pearlman explains in her book, 'Inventing American Modernism: Joseph Hudnut, Walter

Gropius, and the Bauhaus legacy at Harvard,' "Hudnut sought a more responsive modern

architecture and urbanism, a humanistic approach to design that expressed 'emotional content,'

as he liked to say—spontaneity, symbolic values, individual concerns," (Pearlman 2007, 4) and

he wanted to instil in modern architecture the architectural precedent of "humanistic qualities" of

historic cities and spaces. After his time at Harvard, Kanvinde had a whole pantheon of

precedents to choose from, switching easily between his oft quoted example of St. Mark's

Square in Venice (N. Dengle 2015, 17), and the Indian monuments imbibed through his time at

the J.J. School of Art. The influence of Marcel Breuer is visible in the brut concrete detailing and

staircases of even some of Kanvinde's later work. This is unsurprising because Breuer is

described as the "most inspirational tastemaker" at the school (Pearlman 2007, 5). Admittedly,

Kanvinde's debt to his several mentors and peers, as well as the grooming that Harvard provided

him cannot be overstated, after all, as Joan Draper cites, "the goal of American schools was to

produce, as the AIA's Committee on Education put it, the 'gentleman of general culture with

special architectural ability' (Proceedings (1906), 27 - 33)." (Draper 1977, 217) This schooling

could be what prepared Kanvinde with the confidence to conduct his future dealings with Indian

governmental agencies and bureaucrats.

     While these modernist influences deserve their due and continued to be the basis for his

functionalist thinking through his career, generally too much emphasis is placed on architectural

lineage in tracking style, and I instead posit that there are in fact various other factors that go into

its development. Works of architecture come out of a process of collaboration, and are implicitly

shaped by the socio-political context, and by constraints such as site, climate, and budget, such

that the conditions for each project are unique. Even so, as Kanvinde grew as a designer, trying various iterations, there were certain resultant stylistic phases in his work.

Figure 6: Comparison of the Bauhaus Dessau, with Ahmedabad Textile and Industrial Research Association (ATIRA) [from the Kanvinde, Rai & Chowdhury archive]

Historian Miki Desai identifies three personas in Kanvinde's work:

"Concerned as he was about the directionless Indian architectural scene of the mid-fifties; he had selected moderate and problem-solving architecture as one of his paths. Later on, his modernist ideas grew out of the Gropius mode and became a modernism a la mode Brutalist expression, where again he was a moderate, who kept user and the behaviour central to his design. This is why we see three personas of the same architect. One emerging from industrialisation (pharmaceutical industries, dairies, etc.) and research (his thesis at Harvard) and institution-oriented buildings (education and banking); second one coming through the health facility; and third through the residential architecture, where especially in Ahmedabad he works with aristocratic clients with aspirations for a modern lifestyle after stepping out of the old city

traditional living. All three were important to the intellectuals of the day influenced by the

Nehruvian thought." (Desai 2017, 60)

I, however, would categorize his work slightly differently. Purely stylistically, one

distinct phase is immediately evident in Kanvinde's work, in those projects completed

immediately after his return from Harvard. His first few buildings on returning were true

transplants—their massing, facades and details all modernist replicas. In legal parlance, a

transplant is defined as, "the term used to refer to the method of adopting and enacting some

laws of another country, by some other country on the same line of the provisions existing in the

adoptive country. This borrowing of laws or enactment of new laws, on inspiration by some

foreign examples is called legal transplant. It is also known as legal diffusion." ("Legal

Transplant Law and Legal Definition | USLegal, Inc." n.d.) In much the same way, Kanvinde's

initial buildings were enacting the "laws" of design he had picked up in his time at Harvard, in

the adoptive setting of India, that was undergoing a delayed industrialisation after independence

in 1947. Yet, in this context, transplant doesn't quite mean a cut and paste insertion. These

transplants develop a life of their own when cut out of one body and transferred into another,
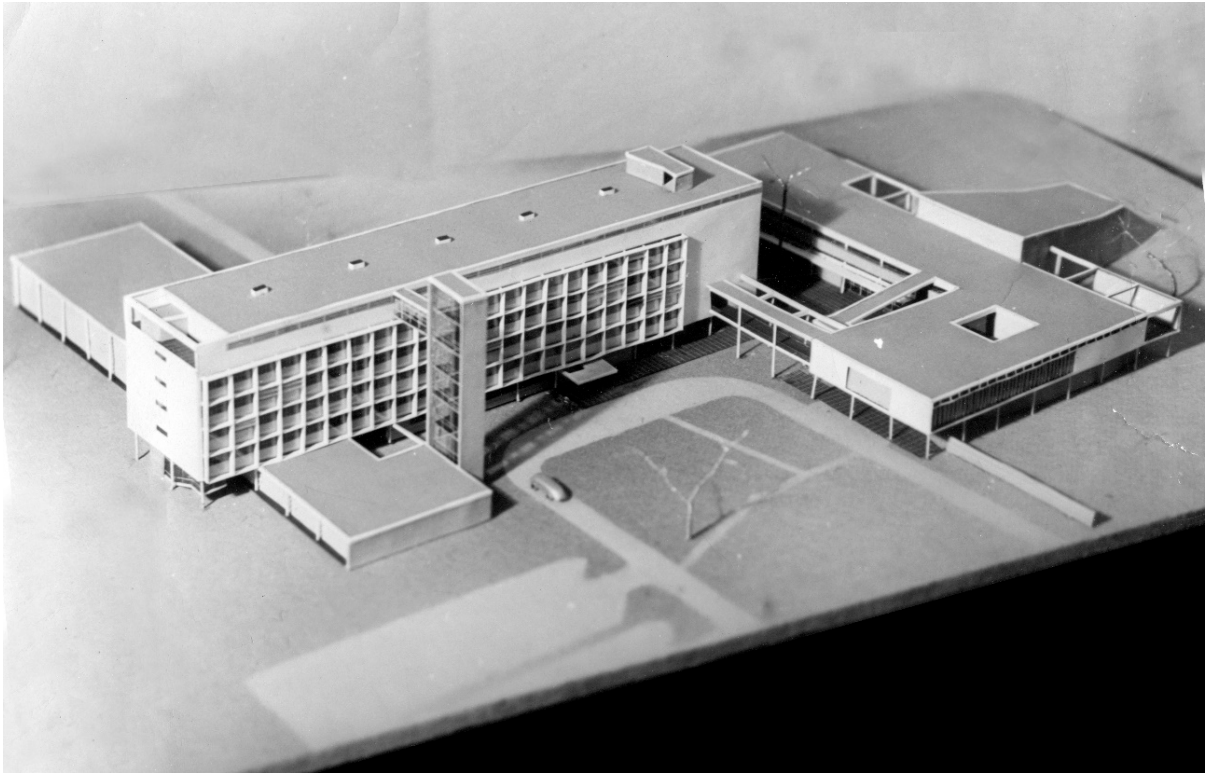
forming unique hybrids.

Figure 7: Image of Kanvinde's thesis at Harvard [from the Kanvinde, Rai & Chowdhury archive]

CHEM RESEARCH BLDG FOR INDIA

Figure 8: Kanvinde's thesis at Harvard from the Harvard Special Collections, uncatalogued

Figure 9: Comparison of Bauhaus, Dessau, which was Gropius' second experimentation with structural glazing, the first being the Fagus Factory; and Kanvinde's use of structural glazing in ATIRA [from the Kanvinde, Rai & Chowdhury archive]

Figure 10: Comparison of Gropius' staircase in Levy House and Kanvinde's staircase in ATIRA [from the Kanvinde, Rai & Chowdhury archive]

Figure 11: Comparison of Gropius' use of structural glazing at Bauhaus and Kanvinde's modular concrete jali at Azad Bhavan [from the Kanvinde, Rai & Chowdhury archive]

It was after ten years or so, that Kanvinde's style developed from solely modernist

transplantation to, over the course of his career, an architecture that was still unmistakably

modernist in its syntax but interwoven with climatic suitability and traditional cultural symbols.

Cultural symbols not replicated in the literal sense, as in the British colonial government's

preferred style, the Indo-Saracenic, using traditional Indian motifs and forms superimposed on

building facades and fenestrations; but rather represented in a more embodied sense, using

material, scale, and space. This transformation took time and occurred over years of practice and

thought. As can be seen in one of his early projects, Azad Bhavan, his discomfort with straying

away from the modernist vocabulary is evident where the client, Maulana Abdul Kalam Azad,

pressured him into "imparting an Indian character" (Kanvinde and Kanvinde 2017, 47). In

response, he adapted the modernist slab-block typology with the introduction of traditional

design elements, such as *jalis* and *bangla* roof forms. His resultant attempt was awkward, neither

managing to retain the elegance of modernism, nor accurately the proportions of traditional
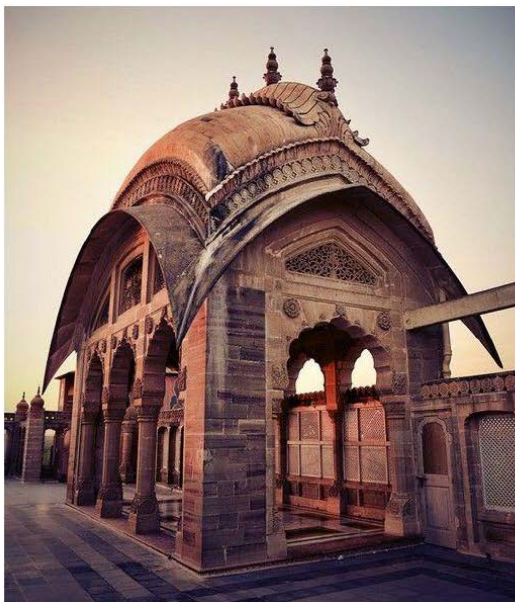
architecture.

Figure 12: Comparison between the tomb of Moosi Rani, with its oblong chhatri, and the Azad Bhavan car porch [from the Kanvinde, Rai & Chowdhury archive]

Kanvinde himself, in an interview with Narendra Dengle in 1997, recognizes, "Well I must say in all frankness, that I studied at Harvard for not more than a year. After that I was promoted to thesis, for another six months. So, I had a year and a half to assimilate the so-called modern, which was not adequate to fully understand it. To realize that you do not know a subject is also a good type of understanding. That is the starting point for recognizing one's responsibility to pursue the subject. In my case, I realized that understanding values related to architecture is a continuous process. So, my work immediately after coming from Harvard is a product of superficial influences, this happens to every student. The student carries on what he is taught for five to ten years. In that period, he gets exposed to wider influences, and that, I think, is important. That's how my first five or six years in architecture were an extension of what was being practiced in the West at that time. Over the course of time, I felt the need to revise my approach. I was becoming freer and the change that came was a product of that freedom and personal realization." (N. Dengle 2015, 22)

This statement shows a fair amount of self-awareness. It is also telling that he refers to modernism, the style he so staunchly followed for most of his career, as "so-called." He clearly seems to be disillusioned with modernism in the form that it was taught to him, calling his initial influences "superficial." Perhaps it was more that his modernist education provided him with the toolkit to then return home and recalibrate and experiment his way to a style that he thought more suitable to the Indian context.

One cannot generalize the span of an entire career based on the conditions surrounding the single project studied in the Chapter 3. I am therefore giving a brief overview of the firm's oeuvre. In tracing authorship, one of my central arguments is that the conditions around the project are unique and that the people involved with the project uniquely shape it as well. There

are also some projects of the total 450 or so, that defy categorization; even so, from a preliminary study, some patterns emerge. I have carried out an analysis of the spatial, typological, elevational features, and a reading of the plan to identify the patterns and phases in authorship. The following are the broad themes:
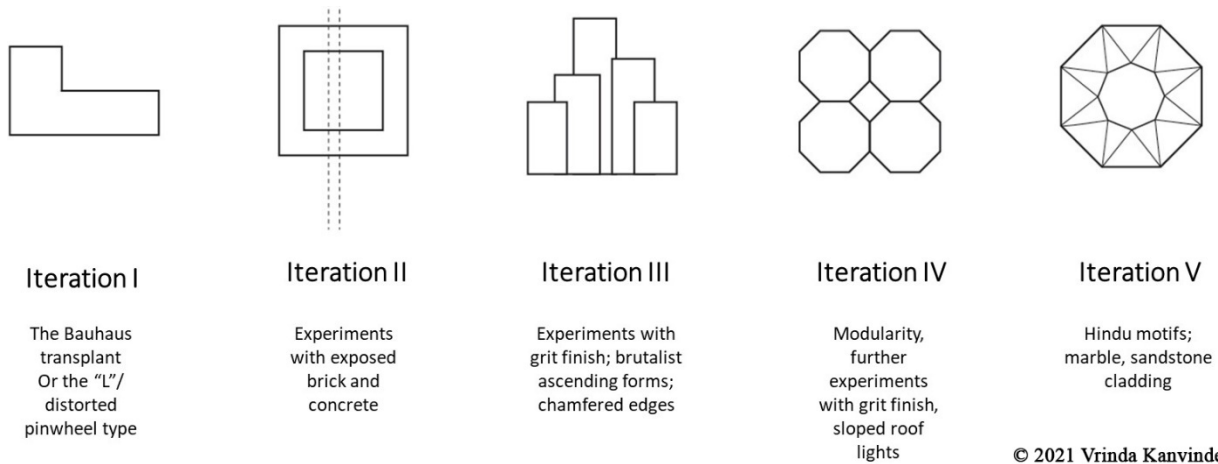
Figure 13: Iterations; illustration by author

Iteration I

The Bauhaus transplant

The "L"/ distorted pinwheel type

Iteration II

Experiments with exposed brick and concrete

Iteration III

Experiments with grit finish; ascending forms; chamfered edges

Iteration IV

Modularity, further experiments with grit finish, sloped roof lights

Iteration V

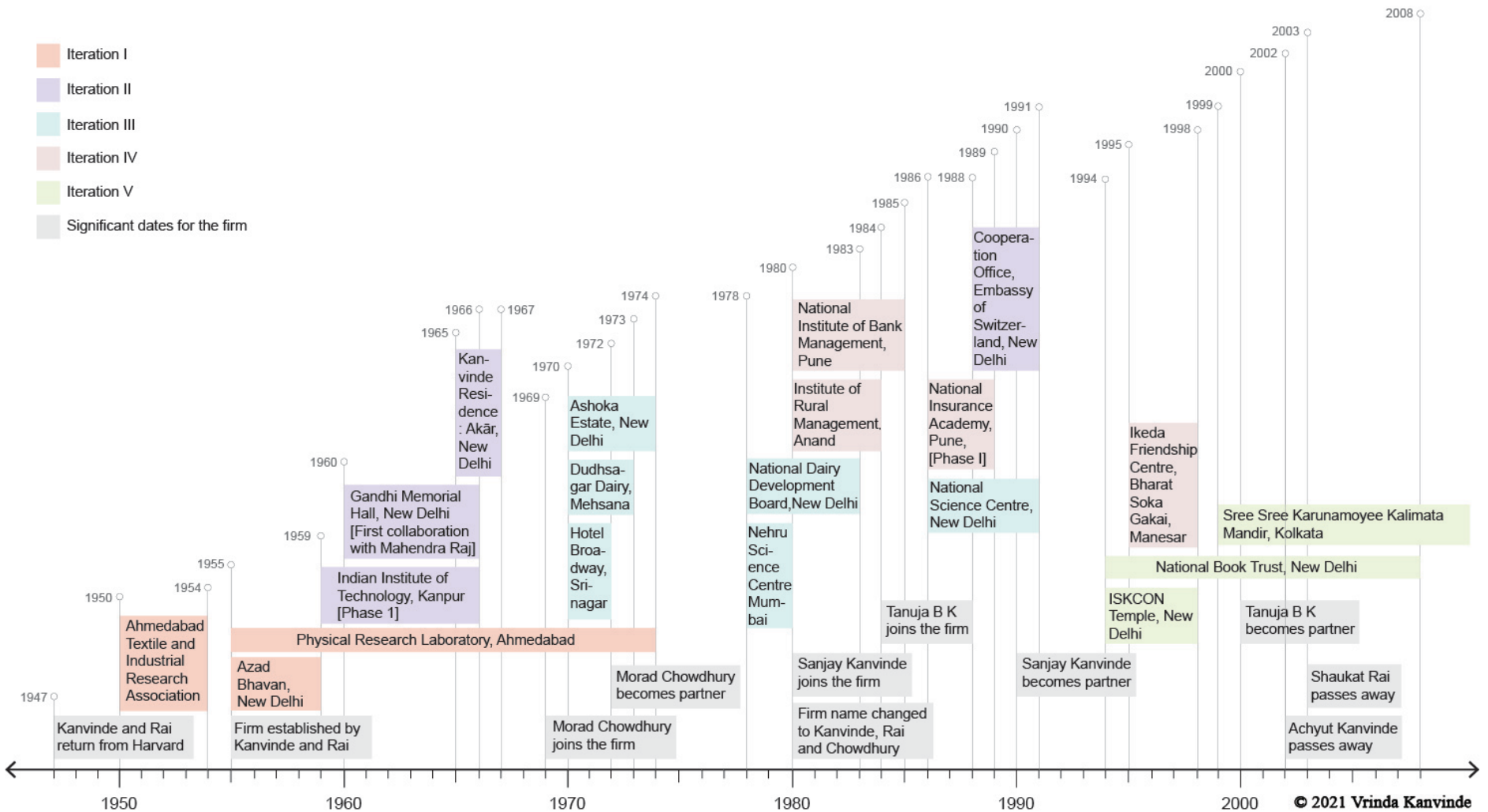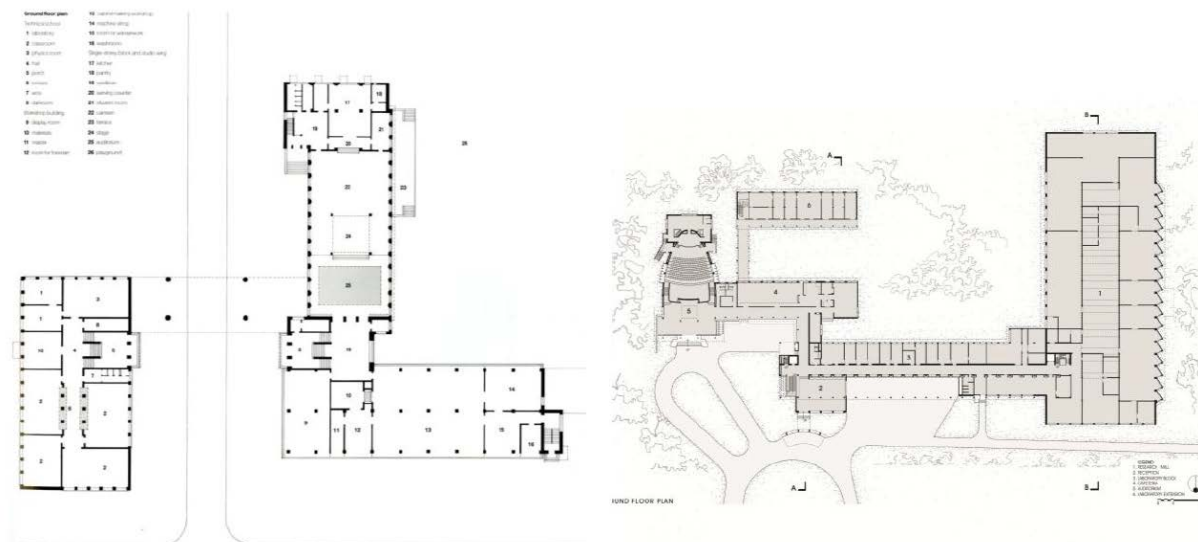Traditional Hindu motifs; marble, sandstone cladding

Figure 14: Timeline of Iterations; Kanvinde's work constantly evolved over time, thereby defying a chronological slotting; illustration by author

Iteration I: The Bauhaus transplant

The first iteration, naturally, involves the deployment of all Kanvinde learnt during his time with Gropius at Harvard. Most of the plan configurations involve either a distorted pinwheel or an opened-up courtyard, with one arm forming an "L" shape. The term "transplant" or "diffusion" from the legal sense is ideal here since there is an almost formulaic response to brief. Though Kanvinde largely did institutional projects related to science and technology, particularly early in his career, I suspect the forms would have been very similar irrespective of brief. The buildings have clean lines, and plane façades with bands of windows. Though the structure is largely concrete frames with brick infill walls, the walls have been plastered and painted white. The influence of the Bauhaus can also be seen in the organisation of the fenestrations on the façade and the presence of fins and ledges. Car porches feature prominently as elevational elements and pilotis are used, creating colonnades on the side of the built mass.

Figure 15: Comparison of the plans of the Bauhaus, Dessau by Gropius and ATIRA, Ahmedabad by Kanvinde [from the Kanvinde, Rai & Chowdhury archive]

Buildings in this phase include the Ahmedabad Textile and Industrial Research Association (ATIRA), the Council for Scientific and Industrial Research (CSIR) headquarters,

and even Azad Bhavan or the Indian Council for Cultural Relations (ICCR), despite its traditional motifs. One particular building within this framework, that begins to mark a departure from this iteration is the Physical Research Institute, Ahmedabad. Here the courtyard, instead of opened-up, for the first time emerges closed and we see the linear connecting corridors that emerge in Kanvinde's later institutional work, perhaps because this project went on for over a decade. As a result,

ATIRA is often quoted as a landmark example of modern architectural expression, having "paved the path for the modernist architecture to Ahmedabad." (Desai 2017, 61) Desai points out two significant outcomes that came out of ATIRA, "Typologically speaking, a practical solution of a doubly loaded corridor building became a crafted object and a germ of thought for future buildings based on this concept. Secondly, the simply kept large front space with a small water body became coveted for hundreds of morning and evening walkers. This is one of the most remarkable examples of a private property allowed for public use." (Desai 2017, 61)
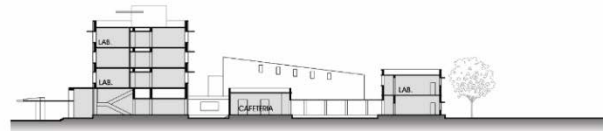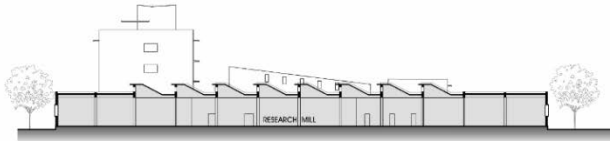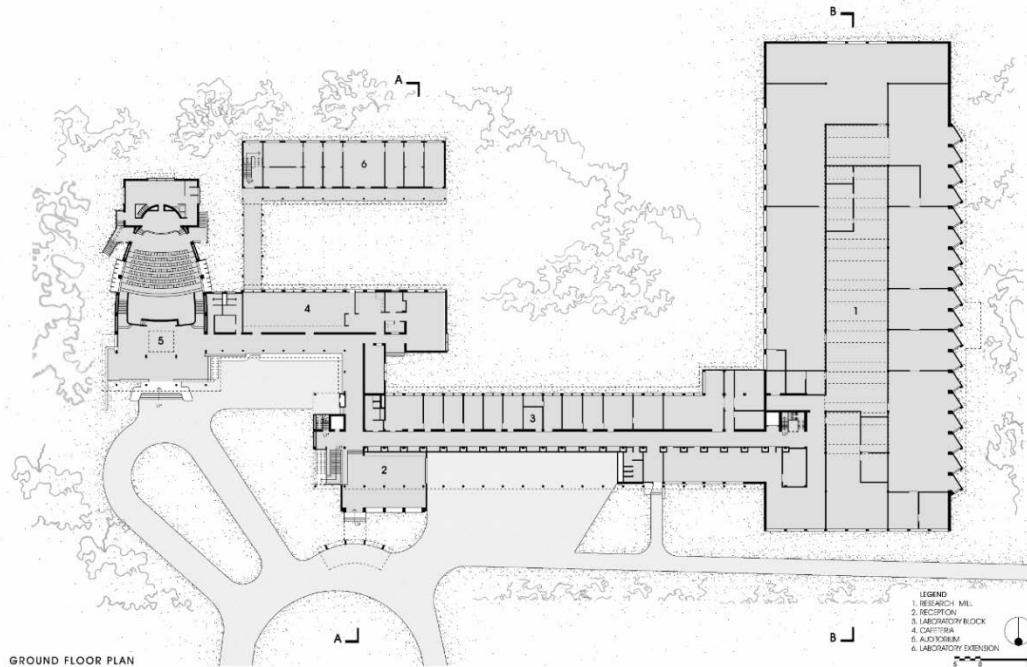
Figure 16: ATIRA, 1950-54; [from the Kanvinde, Rai & Chowdhury archive]

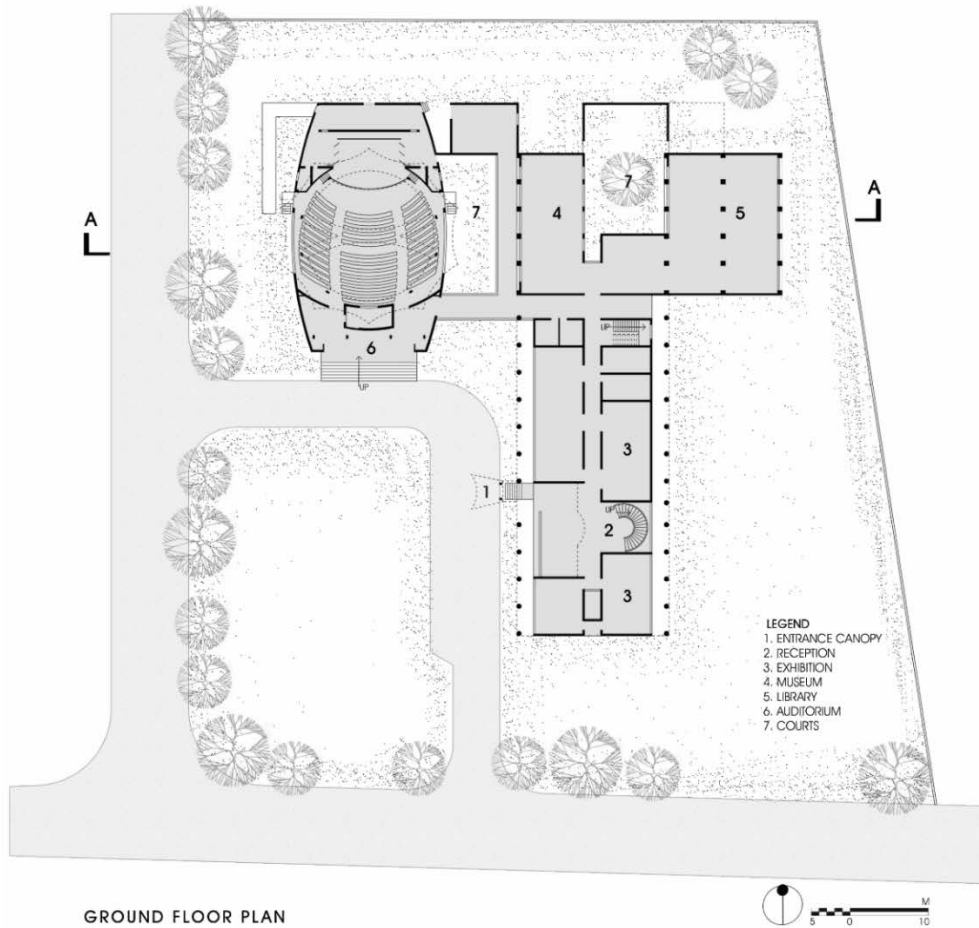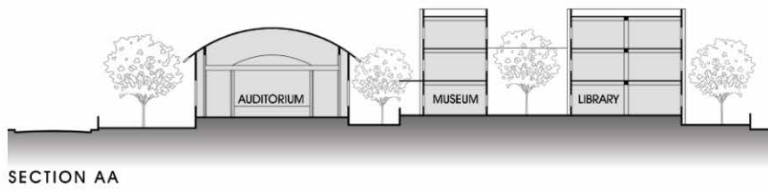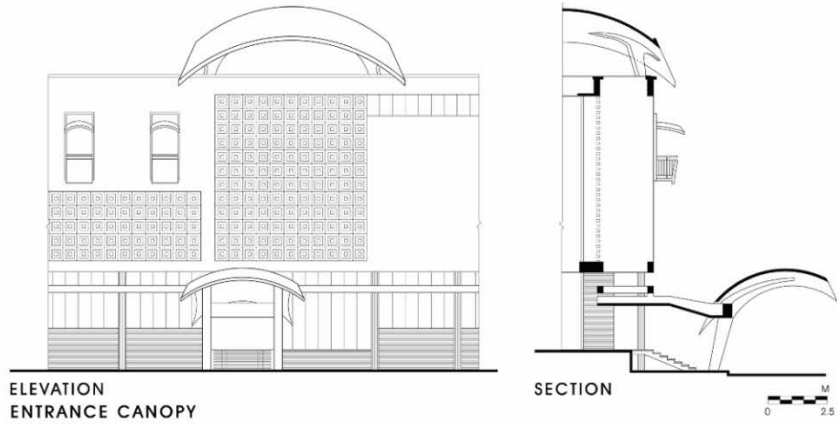*Figure 17: Image of ATIRA facade; [from the Kanvinde, Rai & Chowdhury archive]*

ELEVATION
ENTRANCE CANOPY

SECTION

M
0   2.5

AUDITORIUM   MUSEUM   LIBRARY

SECTION AA

A   A

7   4   5

7

6

1

2

3

3

LEGEND
1. ENTRANCE CANOPY
2. RECEPTION
3. EXHIBITION
4. MUSEUM
5. LIBRARY
6. AUDITORIUM
7. COURTS

GROUND FLOOR PLAN

M
5   0   10

Figure 18: Azad Bhavan, 1955-59

Figure 19: Nehru at Azad Bhavan; [from the Kanvinde, Rai & Chowdhury archive]

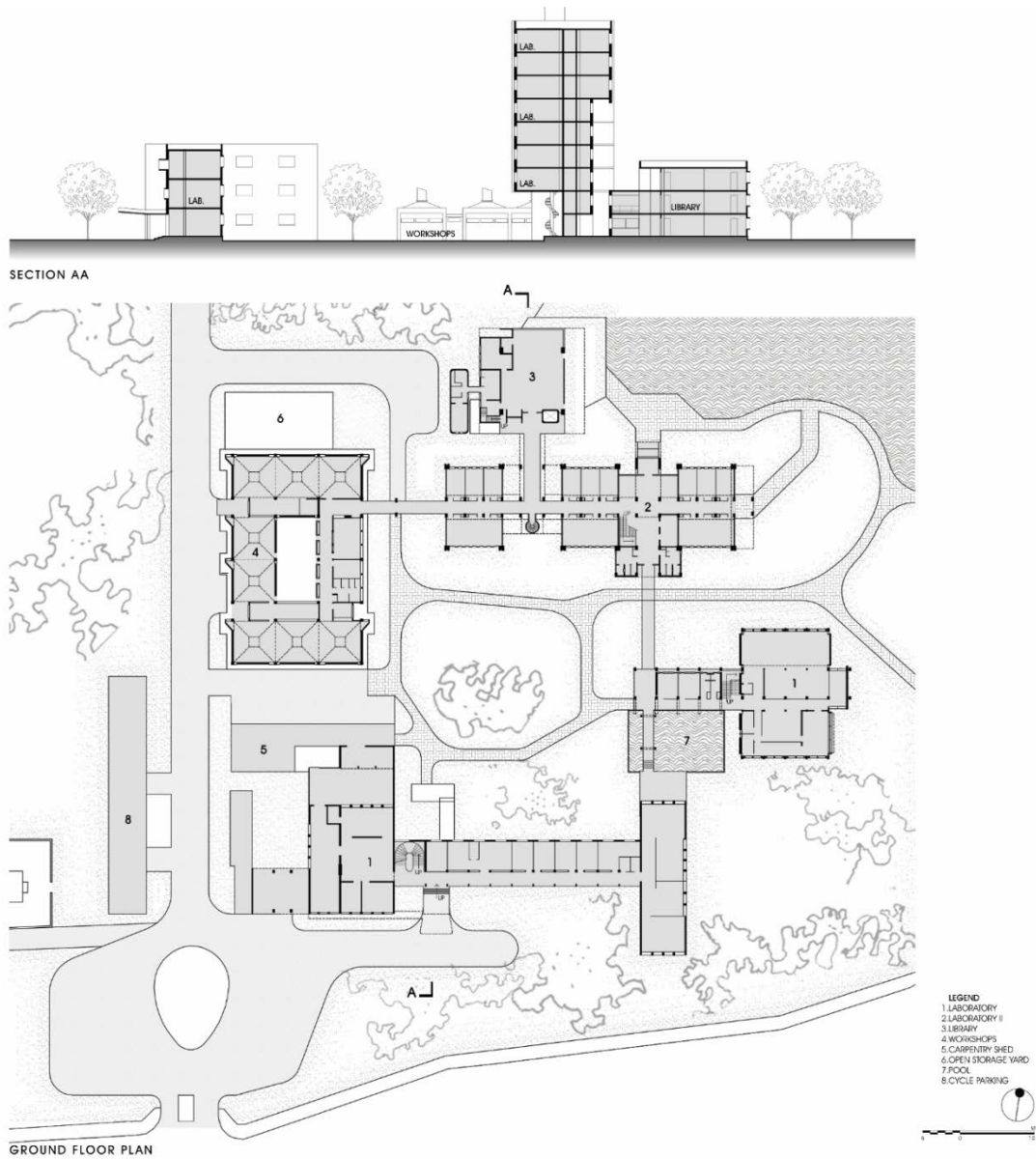*Figure 20: Azad Bhavan from the main road; [from the Kanvinde, Rai & Chowdhury archive]*

SECTION AA

GROUND FLOOR PLAN

LEGEND
1. LABORATORY
2. LABORATORY II
3. LIBRARY
4. WORKSHOPS
5. CARPENTRY SHED
6. OPEN STORAGE YARD
7. POOL
8. CYCLE PARKING

Figure 21: Physical Research Laboratory, Ahmedabad, 1955-72; [from the Kanvinde, Rai & Chowdhury archive]

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Iteration II: Experiments with courtyards; exposed brick and concrete

PRL, with its closed courtyard and linear walkways and one section of exposed brickwork, transitions very well in the next iteration. Ashok Lal says about the development of style with the establishment of the firm:

"The body of work with the establishment of Kanvinde & Rai breaks away from the stylistic reproduction of the modernist formal language, albeit with élan and aesthetic sophistication, of the CSIR days. It formulated a brutalist approach in expressing material and structure and a 'modular systems' approach to find scalable and robust typologies. In the design for institutions, the social programme for interaction and community would form the principles of planning. A rich vocabulary evolved from the exploration of principles in three dimensions, in the external expression of built form and in the manipulation of internal scales as dictated by the programme. This formal vocabulary became a lasting and recognizable Kanvinde & Rai signature." (Lall 2017, 29)

While this signature persisted through most of the rest of Kanvinde's career, the phase of experimentation was exemplified by exposed brick and distinctly articulated concrete members and the use of courtyards enclosed partially by linear walkways. Perhaps the most distinctive of this phase was the Indian Institute of Technology, Kanpur (IIT Kanpur) campus. The systems of corridors devised differently each time connected various blocks, though with the potential shortcoming of making the design monotonous. However, it also showed his pragmatism in facilitating a phased manner for construction of buildings suitable for incremental growth, ideal for campus planning. Narendra Dengle says of the walkways, "He was conscious that the corridors could become boring and insipid if not handled with care and with the purpose of creating space along and around buildings. IIT Kanpur, which became a milestone of sorts in

campus planning in India, seems very conscious of spaces generated by surrounding blocks and their visual texture." (Narendra Dengle 2017, 198) "He recalled years later that the entire conduct in his village life was 'environmental'. I suppose one would now call it 'sustainable' or energy conscious and economic. This 'environmental' aspect would remain in Kanvinde's architecture throughout his career and manifest in the scale of open spaces that he put his buildings around, and the form that his buildings and their skylines assumed. His corridors whether at IIT Kanpur or NIA Pune were a means of breaking down the masses of blocks and to seek connectivity throughout the project." (Narendra Dengle 2017, 198)
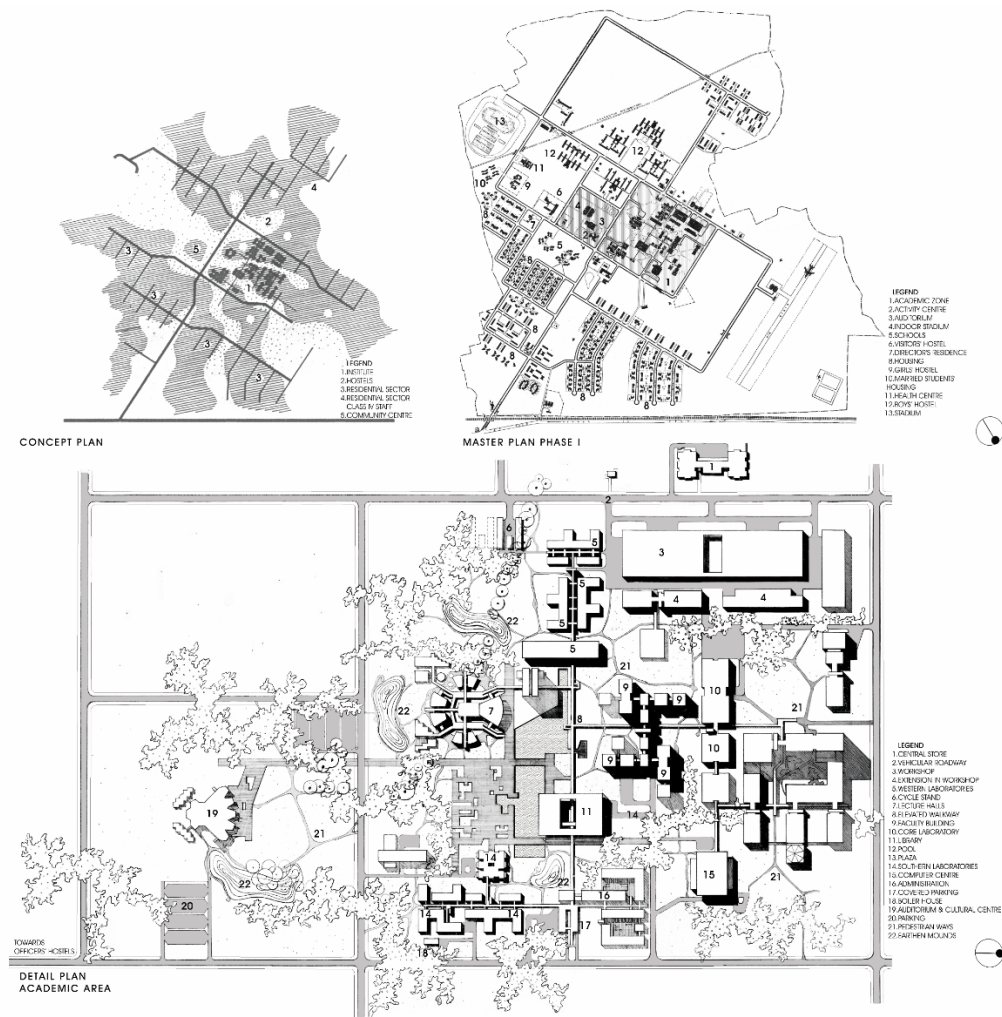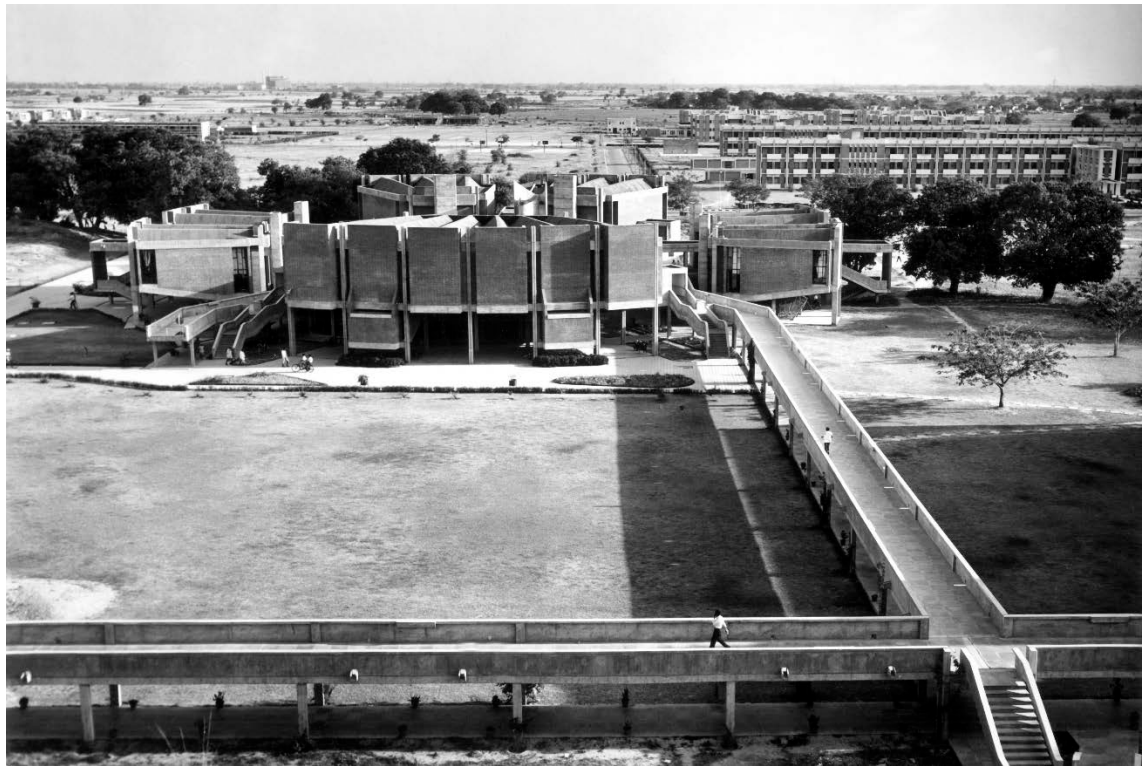

Figure 22: IIT Kanpur, 1959-66; Masterplan; [from the Kanvinde, Rai & Chowdhury archive]
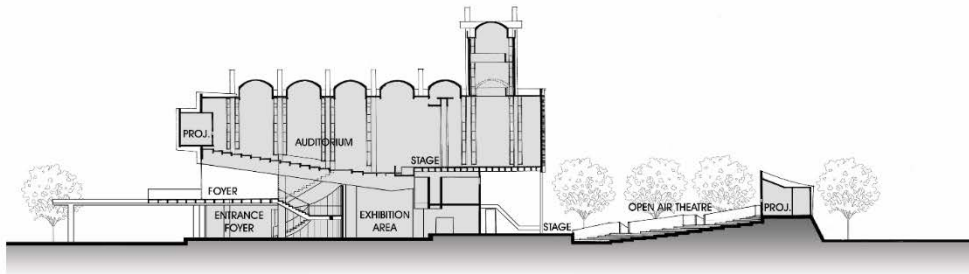
Figure 23: Aerial shots of the IIT, Kanpur Campus; [from the Kanvinde, Rai & Chowdhury archive]
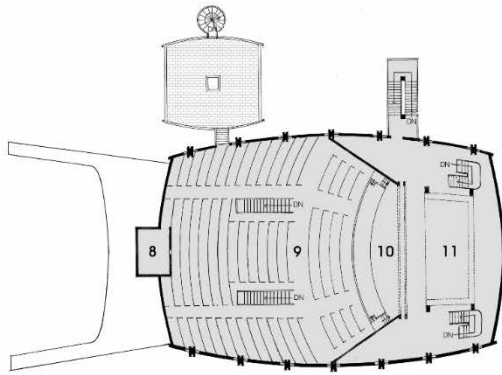
Figure 24: Faculty Building, IIT, Kanpur; [from the Kanvinde, Rai & Chowdhury archive]
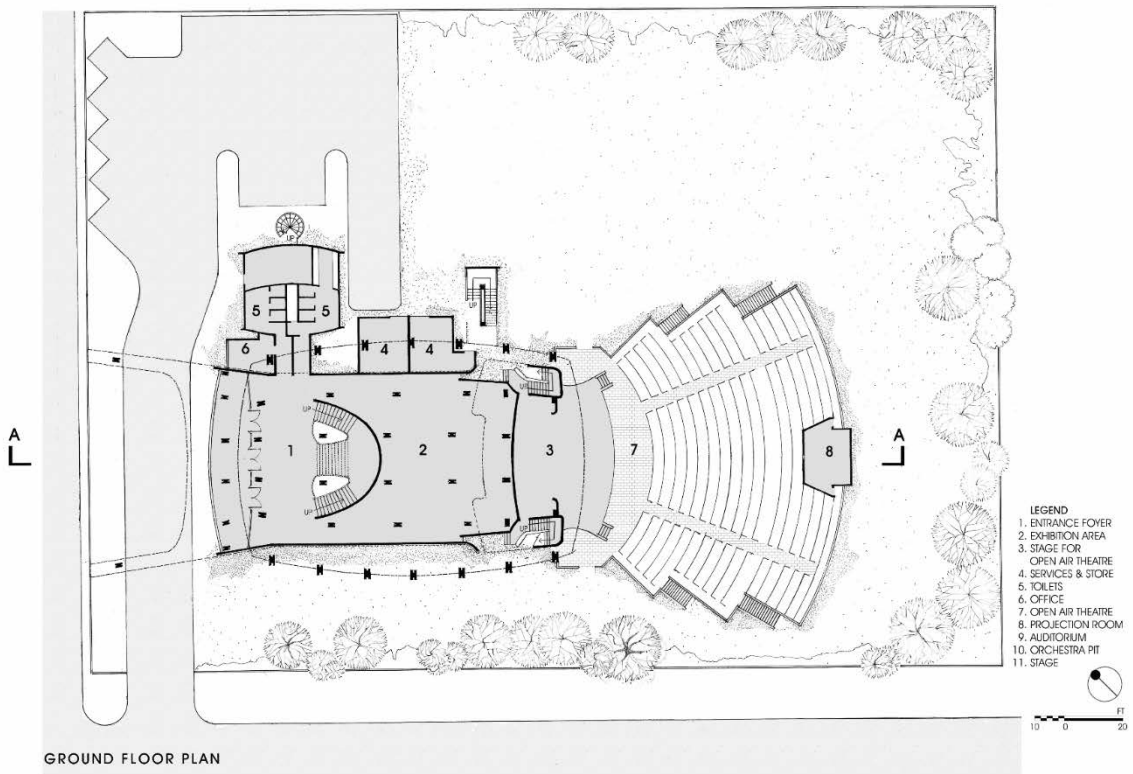
While the structural engineers for most of IIT, Kanpur were Phatak and Damle, the Lecture Halls marked the second collaboration between structural engineer, Mahendra Raj and Kanvinde. The project was also fortuitous for introducing Kanvinde to James Miller, who had come to India as part of USAID, and with whom he would go on to write the book, "Campus Design in India: Experience of a Developing Nation" in 1969. Miller was also responsible for inviting Kanvinde to teach at the Kansas State University, and this marked the phase when Kanvinde started teaching, and having a connect with what was going on in architectural discourse outside the country.

SECTION AA

FIRST FLOOR PLAN

GROUND FLOOR PLAN

LEGEND
1. ENTRANCE FOYER
2. EXHIBITION AREA
3. STAGE FOR
   OPEN AIR THEATRE
4. SERVICES & STORE
5. TOILETS
6. OFFICE
7. OPEN AIR THEATRE
8. PROJECTION ROOM
9. AUDITORIUM
10. ORCHESTRA PIT
11. STAGE

Figure 25: Gandhi Memorial Hall, 1960-66; [from the Kanvinde, Rai & Chowdhury archive]

Figure 26: Gandhi Memorial Hall, 1960-66; [from the Kanvinde, Rai & Chowdhury archive]

Figure 27: Concrete frame of Gandhi Memorial Hall; photograph by Madan Mahatta; [from the Mahatta archives]

It was Gandhi Memorial Hall, in 1960, that was the first collaboration between Kanvinde and Mahendra Raj. Here, while it was a smaller project with the singular function of an auditorium on a compact urban site, and therefore had no opportunity for a courtyard typology, it provided Kanvinde and Mahendra Raj with the opportunity to explore the elegance of concrete by the articulation of the vaults and making the structure as slender as possible.
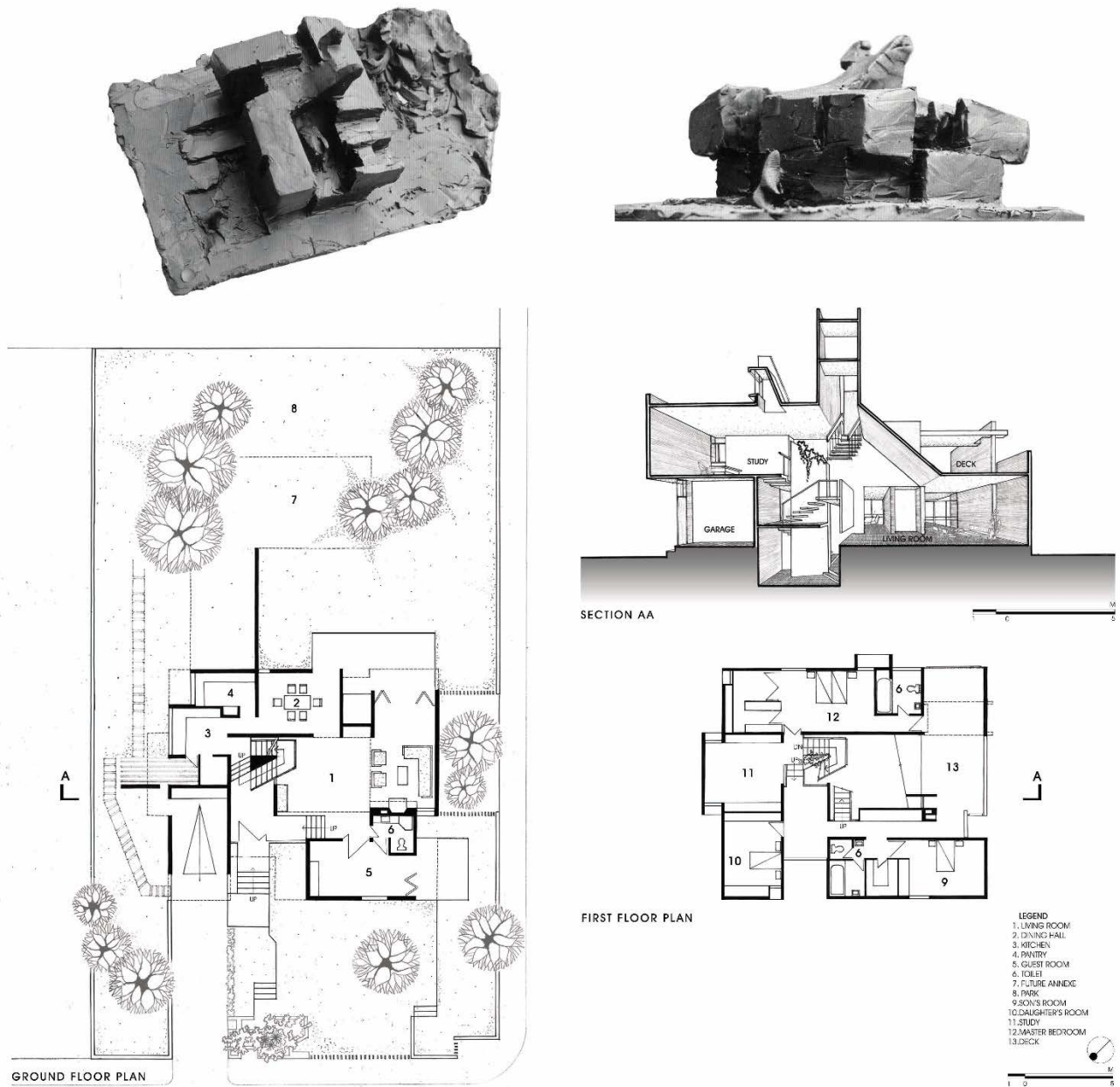

Figure 28: Kanvinde Residence: Akār, 1965-67; [from the Kanvinde, Rai & Chowdhury archive]

Figure 29: Kanvinde residence, Akar; image by author

Another project representative of this phase is Kanvinde's own house. With the

collaboration of the structural consultants, Phatak and Damle, the attempt was to try and conceal

the internal structure as much as possible, while articulating *chajjas* and shading devices over

each of the fenestrations. Much like in IIT, Kanpur, the brick and concrete orthogonality is saved

from being monotonous through the use of sudden unexpected angular forms and volumes.

Iteration III: Experiments with grit finish; ascending forms; chamfered edges

Figure 30: Dudhsagar Dairy, Mehsana, 1970-73; [from the Kanvinde, Rai & Chowdhury archive]

The next iteration is the beginning of what most historians, including Miki Desai[4]

consider Kanvinde's Brutalist phase. This marks the beginning of his use of grit finish, as well as

the ascending forms that will come to dominate the next decade of his work. These buildings are

characterized by their massive, monolithic forms, with a rigid geometry—mostly chamfered

cuboidal forms—and the large-scale use of poured concrete. This also shows Kanvinde's

consideration towards contextual suitability: the stone chips used for the finish would generally

always be of locally available stone.

The arrangement of the built form around courts in a further extension results in more

complex modules and the articulation of volume or massing by the use of terracing. Another

common feature is the use of repetitive modules or clusters to achieve an aggregation of form,

which contributes to the sculptural quality of the work, such as in Nehru Science Centre

Mumbai, National Science Centre and National Dairy Development Board office, New Delhi.

This phase of experimentation was largely begun in his dairy projects: by this time, he

had begun his long association with Verghese Kurien pioneer of the "White Revolution" or milk

revolution in India— particularly in Gujarat and parts of northern India. Prajakta Sane and

Maryam Gusheh also identify this as the beginning of a Kahnian influence on Kanvinde's work

and the segregation of formal zones on the basis of "served and servant spaces" (Gusheh and

Sane 2017, 211). This approach carries over from the dairy projects themselves, to the National

Dairy Development Board Office building in Delhi as well, where it manifests itself as a series

of receding terraces, and the chamfer here appears in plan instead of as an elevational feature.

The structural consultant for the dairies was engineer V. H. Shah, a dairy specialist("Achyut P.

Kanvinde - an Interview with M.N. Ashish Ganju" 1986), and in NDDB Office was Mahendra

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[4] Reference to quote earlier in Chapter 1 (page 41 with the ATIRA comparison)

Raj again, who was able to cleverly conceal the columns within the walls and take on the central load through a sheer wall around the staircase core.
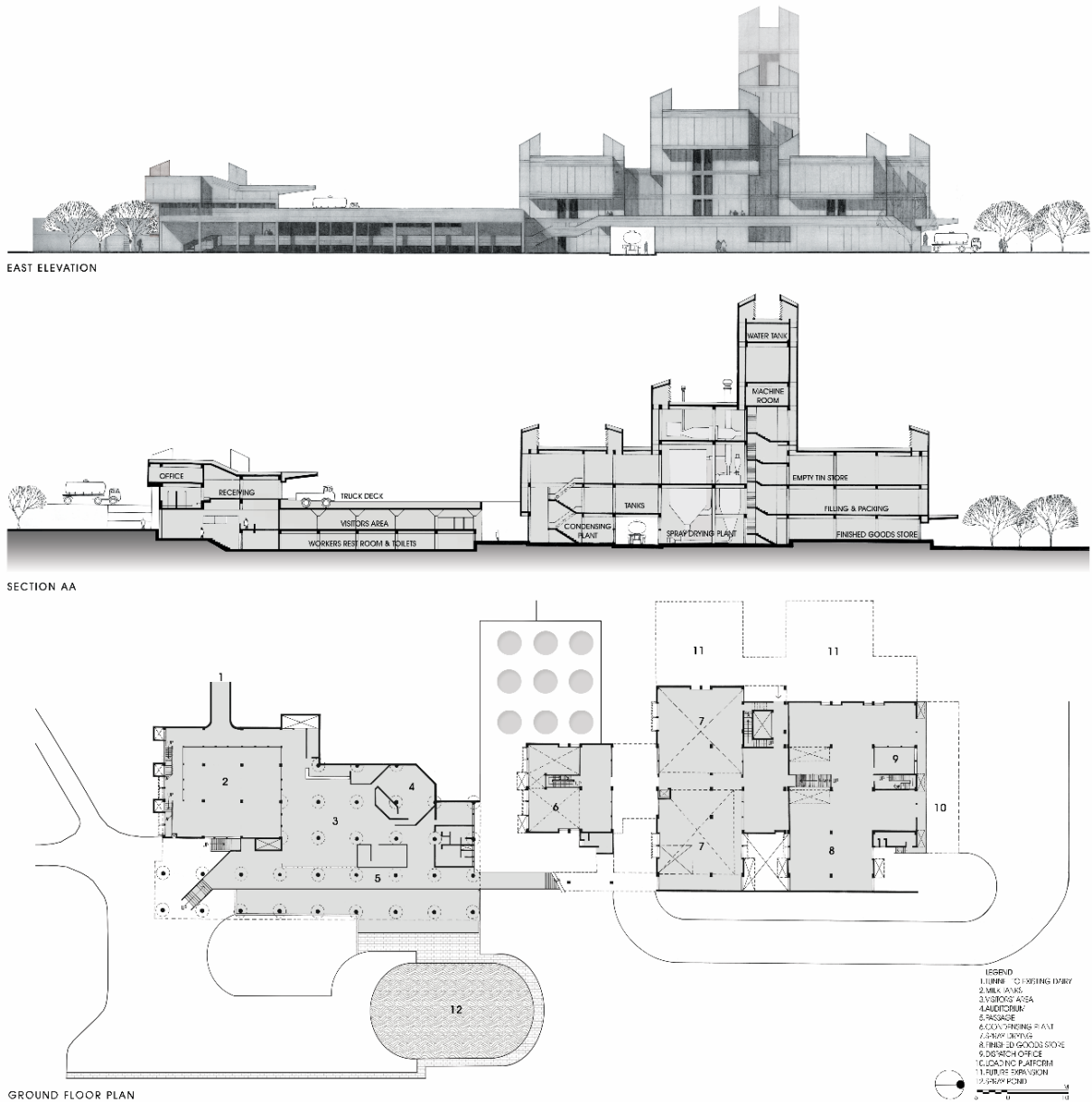

Figure 31: Dudhsagar Dairy, Mehsana, 1970-73; [from the Kanvinde, Rai & Chowdhury archive]

Kanvinde's work relied on a strong structural order. His strong belief in a modular system, starting with a regular grid in his early work to a more complex, alternating grid, following Kahn's 'served' and 'service' bay ideology which helped integrate the structure and services. It was this structurally driven approach that often created the form of the building. Although the modules seemed repetitive, they were never identical, thus making a challenge for the structural engineer.

Prajakta Sane says about the Dudhsagar Dairy in Mehsana, perhaps Kanvinde's most iconic dairy project:

"Kanvinde's emphasis here was rather on an expandable and flexible architectural order with a modular grid-based organisation. Amongst a host of other services inherent to milk-processing, Kanvinde chose only to articulate ventilation shafts as individuated elements. These shaft units were neither inscribed in the "open-plan" factory nor were they grouped with other services, but instead were 'plugged-in' to the structural framework." (Sane 2013, 211) Further, as Kanvinde himself encapsulates in an interview with MN Ashish Ganju, "The milk receiving section of the building became a reinforced concrete deck for the movement of trucks at a higher ground level, from which it could be gravity-fed to the processing areas at lower levels. My aim was to synthesise a fairly complex industrial process into a powerful building form, with the minimum use of mechanical aids." ("Achyut P. Kanvinde - an Interview with M.N. Ashish Ganju" 1986)
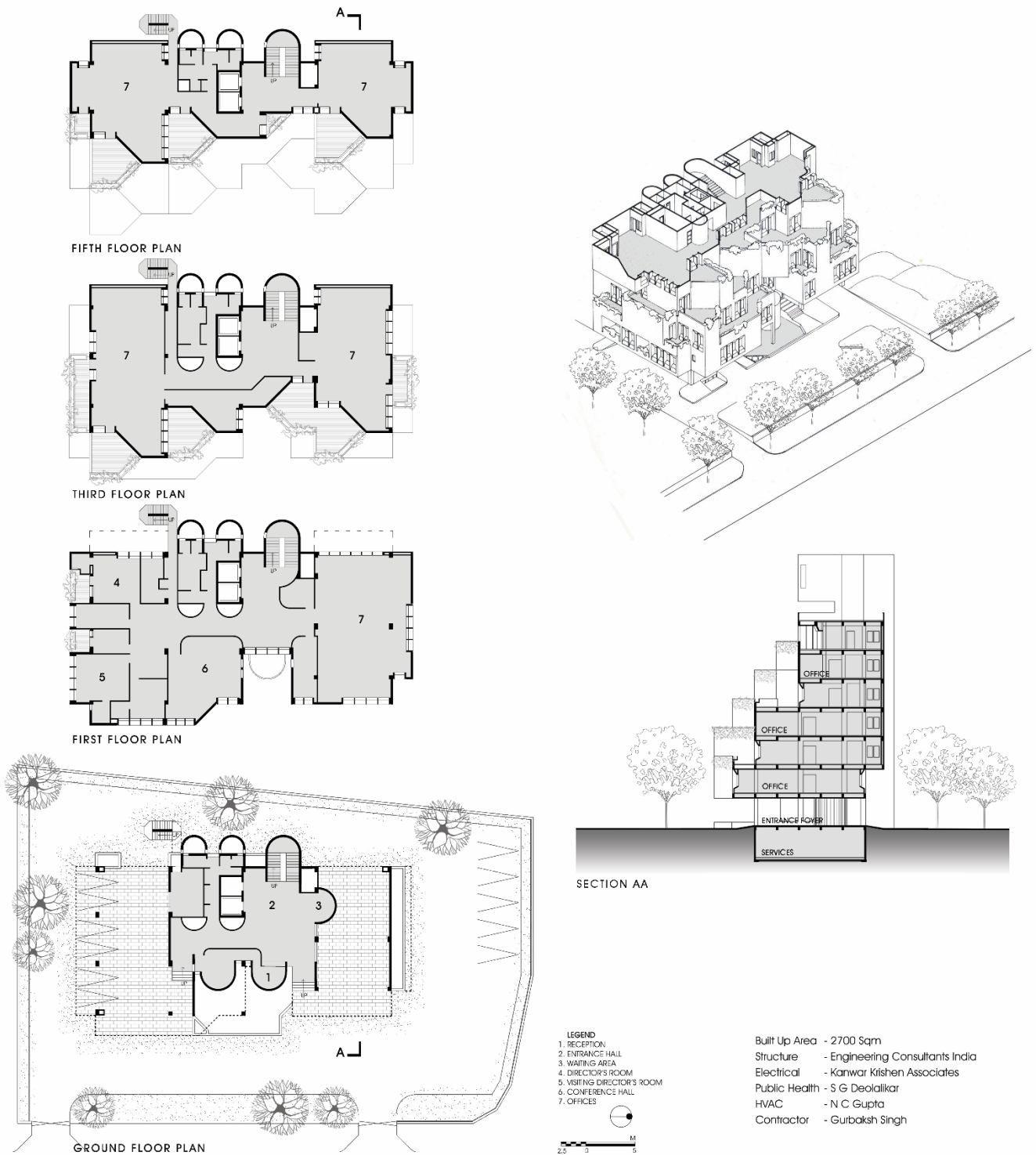
FIFTH FLOOR PLAN

THIRD FLOOR PLAN

FIRST FLOOR PLAN

GROUND FLOOR PLAN

SECTION AA

LEGEND
1. RECEPTION
2. ENTRANCE HALL
3. WAITING AREA
4. DIRECTOR'S ROOM
5. VISITING DIRECTOR'S ROOM
6. CONFERENCE HALL
7. OFFICES

Built Up Area - 2700 Sqm
Structure - Engineering Consultants India
Electrical - Kanwar Krishen Associates
Public Health - S G Deolalikar
HVAC - N C Gupta
Contractor - Gurbaksh Singh

Figure 32: National Dairy Development Board, New Delhi, 1978-83; [from the Kanvinde, Rai & Chowdhury archive]

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SECTION AA

GROUND FLOOR PLAN

LEGEND
1. HALL OF INDUSTRY
2. HISTORY OF SCIENCE
3. ENTRANCE HALL
4. CAFETERIA
5. STUDENT'S SCIENCE ARCADE
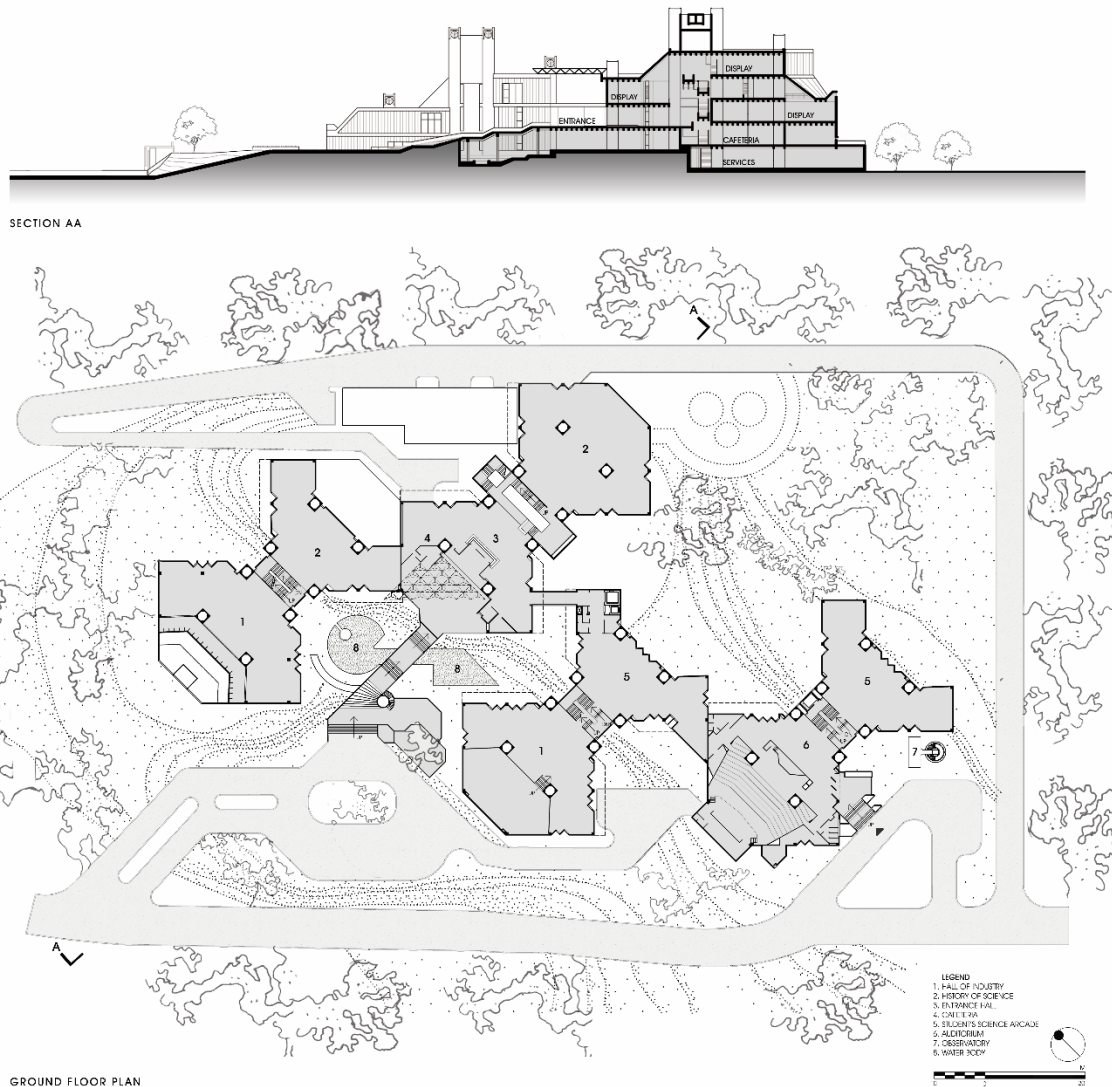6. AUDITORIUM
7. OBSERVATORY
8. WATER BODY

Figure 33: Nehru Science Centre, Mumbai, 1978-80; [from the Kanvinde, Rai & Chowdhury archive]

Kanvinde also attempted this iteration on Science Museum projects. Here, the notion of modularity was clearly brought out in plan, in addition to the ascending forms. He uses the concept of service and served spaces interestingly here, in collaboration with Mahendra Raj, concealing the structural members required to support the large span exhibition spaces and waffle slabs as service shafts. Though through a repeat client, the two projects, Nehru Science

Centre, Mumbai and the National Science Centre, New Delhi, are nearly a decade apart. Kanvinde seems to have used his learnings of his dairy projects in the interim for the National Science Centre. In both cases, he has a grand staircase leading up to the entrance plinth.

Figure 34: Nehru Science Centre, Mumbai, 1978-80; [from the Kanvinde, Rai & Chowdhury archive]

In the case of Ashoka Estate and Broadway Hotel, the chamfer takes place not at the upper edge of the cuboid, but at a lower level, creating an almost flying buttress like effect, and slightly recessed upper levels.
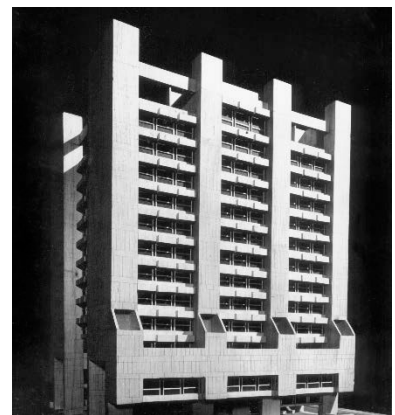
Figure 35: Ashoka Estate, New Delhi, 1970-74 [KRC archive]

Iteration IV: Modularity; further experiments with grit finish; sloped roof lights

While his early works exhibit large rectilinear forms, they gradually evolved into smaller, more comprehensible units over time. The next stage in development occurs in the early '80s, wherein modular diagonal geometries are explored, characterised by the use of chamfered corners, as seen in National Institute of Bank Management, Pune and Institute of Rural Management, Anand campuses. In the late '80s and '90s, there is a desire, almost an urge to experiment with alternate or hybrid geometries by deviating from an otherwise orthogonal order and orientation. This results in freer, more playful dispositions of form, often leading to variation and surprise in their spatial enclosure.

The modularity picked up with the Science Centers, was now adapted into large scale campus plans. The modules were generally square or octagonal and were deployed with a play of scale and axis. Chetan Sahasrabudhe, who analyzed the plan geometry of some of Kanvinde's buildings (using Klaus-Peter Gast's method of analysis of the works of Kahn and Corbusier) in 'Achyut Kanvinde – A Geometrical Analysis of Architectural Plans,' compared the layout of the library of the Institute of Rural Management, Anand, to the modular plan of Mughal monument, Humayun's Tomb. He theorizes, "the plan begins with five irregular octagons arranged in a square of size 10 modules by 10 modules. The formal organization gives five served spaces and four servant areas. The next transformation rotates the four peripheral octagons around the central octagon in an anticlockwise direction by one module each. The result is an increase in the servant areas without losing the spatial organization." (Ar. Sharvey Dhongde and Ar. Chetan Sahasrabuddhe 2009, 82) He does issue a disclaimer, "the analysis is presented as starting from a simple figure like a square perfect angle and ending with an architectural plan. It is essentially a linear process, even though we are aware that any good design is almost always a product of a

nonlinear process. It is important therefore that such an analysis is not confused with a representation of the design process undergone by the Architect. Rather the process would somewhere be between formulation of a design idea and its final translation into a working plan. Klaus Peter has also been criticized for the use of this approach, the main objection being lack of dimensional evidence in the form of working drawings which is true for the present analysis also." However, "Kanvinde's reputation as a disciplined designer makes his work ideal for such an analysis will stop Secondly it highlights the rigorous process of form development that he may have gone through for his projects." (Ar. Sharvey Dhongde and Ar. Chetan Sahasrabuddhe 2009, 77)

The material used in this stylistic iteration is again, hyper-local stone, either to be used as exposed masonry, as in the case of National Institute of Bank Management, Pune (NIBM), or stone chips for grit finish, as in the case of Institute of Rural Management, Anand (IRMA), National Insurance Academy, Pune (NIA) and Ikeda Friendship Centre, Manesar. The structural consultant on NIBM and NIA was Sharad R. Shah, while Damle worked the structure for IRMA and Ikeda Friendship Centre. The other consistent feature in Kanvinde's work is the use of natural light, either as fenestration on the façade or by light penetrating the interior by the introduction of skylights over cut-outs and double-height spaces. This quality is present in almost all types of buildings that he designed, be it institutional, industrial, or residential; only the scale changed, based on the use. The skylights manifest themselves on the external face, as well as animate the skyline of the building as in the Library, IIT Kanpur.
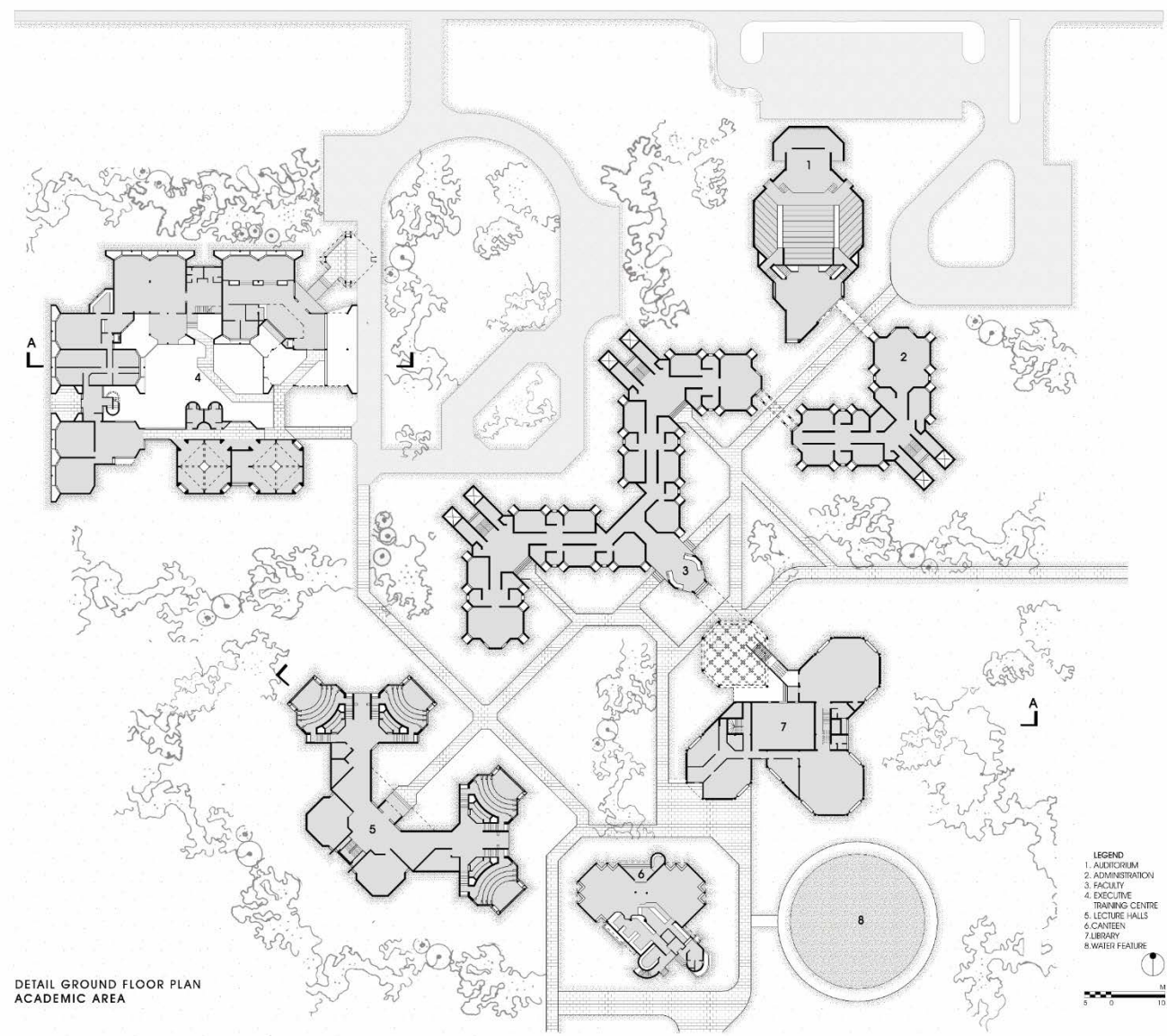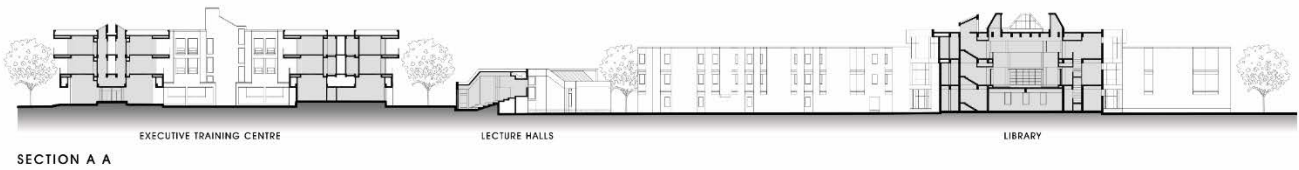
SECTION A A

EXECUTIVE TRAINING CENTRE   LECTURE HALLS   LIBRARY

LEGEND
1. AUDITORIUM
2. ADMINISTRATION
3. FACULTY
4. EXECUTIVE
   TRAINING CENTRE
5. LECTURE HALLS
6. CANTEEN
7. LIBRARY
8. WATER FEATURE

DETAIL GROUND FLOOR PLAN
ACADEMIC AREA

Figure 36: Institute of Rural Management, Anand 1980-84

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SECTION AA

DETAIL GROUND FLOOR PLAN
ACADEMIC BLOCK & HOSTELS
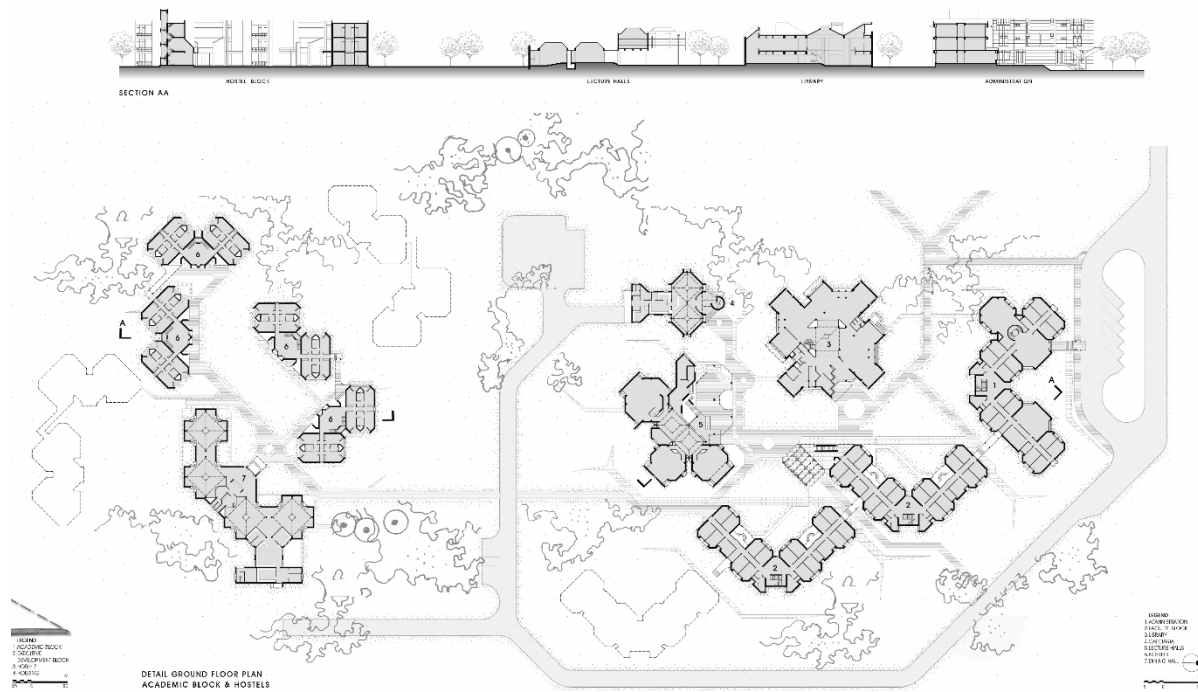
Figure 37: National Institute of Bank Management, 1980-85; [from the Kanvinde, Rai & Chowdhury archive]

Figure 38: National Institute of Bank Management, 1980-85; [from the Kanvinde, Rai & Chowdhury archive]

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Iteration V: Traditional Hindu motifs; octagonal modules; marble, sandstone cladding

Figure 39: ISKCON Temple, 1994-1998; [from the Kanvinde, Rai & Chowdhury archive]

In this final iteration, perhaps most noticeably, Kanvinde did one thing that his truth to material modernist training had so far not allowed him to do: he used stone cladding for his facades. He played up contrasts by using red sandstone and marble. He also began to use obviously Hindu motifs, but in an abstracted and geometricized manner. The plans were now heavily centered around octagonal geometry.

Elaborating on perhaps the most well-known of Kanvinde's temples, Ashok Lall says, "A design studio for the ISKCON temple was set up independent of Kanvinde, Rai & Chowdhury, where Kanvinde would sketch his designs and guide a small team of assistants. His professional office had no role in the project. This was to be a personal journey. It seems that the cultural hybridity of the Hare Krishna cult, its dependence on the traditional symbols of form and ritual on the one hand and an openness to utilizing modern technological means on the other, presented a peculiar experimental opportunity. Kanvinde delved into his skills learnt at the J.J. School. His hand-drawn sketches exploring the nuances of decorative features in the composition of the shikhara amply testify to his natural dexterity and enjoyment in handling a formal language of 'softness'. This is like a return to the comfort of one's origin after long years of disciplined abstinence. Yet, there is a dichotomy to be addressed. The three shikharas, which follow the proportioning rules of the shastras, were to be built out of reinforced concrete not stone. The decorative motifs and the openings formed into the face of the shikhara were to be 'Hinduistic' but need not adhere to the rules of any traditional style. The openings that split the four faces of the shikhara at the corners, and the large chaitya-like openings that dominate the shikhara faces, deliberately declare the hollow behind the shikhara face. The mandapam, too, is a development of a reinforced concrete folded-plate and not a structure of corbelled masonry. And the surface rendering for the shikharas, of carved red sandstone with inset panels of white marble, recalls the frame and infill of brutalism. Kanvinde's personal journey is unique in that he encounters the politics of Hinduistic symbolism from the position of a modernist, seeking, as it were, a happy union between the two." (Lall 2017, 35, 36) Kanvinde did not see his religiosity at odds with his modernist, rational training. It can almost be seen as a return for Kanvinde, since his thesis at J.J. School of Art was a temple.
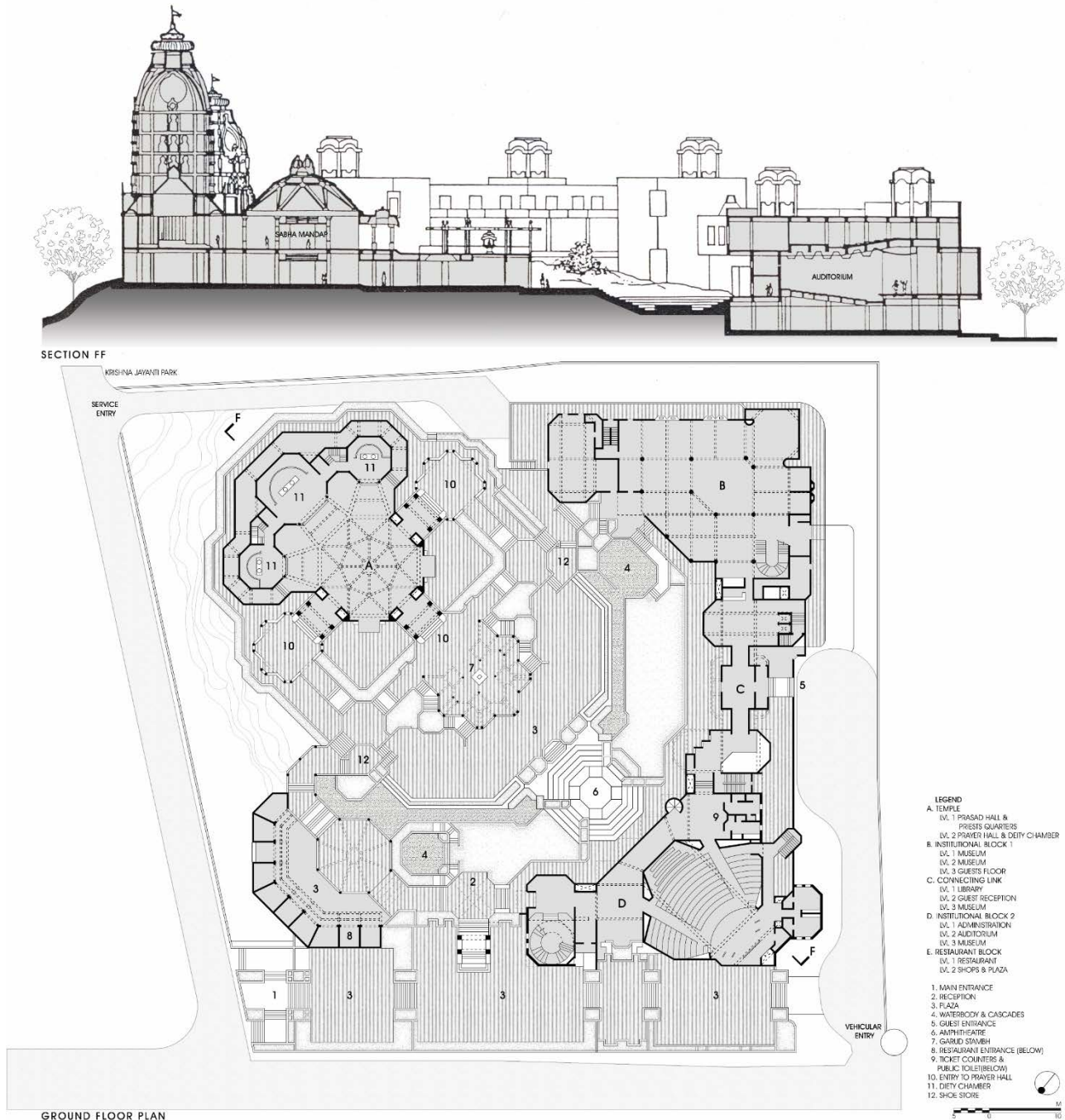
Figure 40: ISKCON Temple, 1994-1998; [from the Kanvinde, Rai & Chowdhury archive]

For the several temple projects that he designed, realized and schematic, this shift to a more elaborate and stylized iteration may be ascribed to the function: that of a temple. But even his institutional buildings begin to reflect this pivot, as can be seen from the National Book Trust

building, New Delhi, articulated partially in red sandstone and partially in grit finish. There is here an octagonal module in one corner, but also a sweeping semi-circular sweep, showing a freeness that Kanvinde hasn't exhibited before, and yet the composition is controlled. The structural consultants for National Book Trust and Kalimata Mandir are Planning and Design Bureau, led by B. B. Choudhry. And the structural consultant for the ISKCON Temple is S. V. Damle.

Figure 41: National Book Trust, 1994-2008; [from the Kanvinde, Rai & Chowdhury archive]

Figure 42: National Book Trust, 1994-2008; [from the Kanvinde, Rai & Chowdhury archive]

Irrespective of phase or iteration, Sahasrabuddhe makes an interesting observation, "In the case of Kanvinde's designs, the analysis does not come through as independent of thinking about structure, function and the climate. He manages to ingeniously weave his concerns for clarity in structure, distribution of functions and response to climate into his plans without compromising the geometrical clarity or rather to highlight the geometrical anchors. Though always recognized as a staunch modernist, Kanvinde comes through as an architect who used a number of form making tools from history. From his early and recurrent use of Alberti's 2:3 rectangle (IIT Kanpur library), to his use of the irregular octagon plan (used widely by Mughals both in isolation and in combination) and the interesting use of the Vastu Purush Mandala (ISKCON Temple at New Delhi) Kanvinde builds in subtle cultural codes into his plans with increasing rigor." (Ar. Sharvey Dhongde and Ar. Chetan Sahasrabuddhe 2009, 77) One may be able to argue specifics of which cultural codes Kanvinde was deploying, but he undoubtedly

mined from his vast wealth of cultural references[5]. Further what started out as a formulaic

deployment, ended up becoming a quest for subverting the formula in a manner unique to each

project. Achyut Kanvinde's role in the rise of modern architecture in India has typically been

positioned in terms of a relatively direct transfer of modernist tenets to the Indian context,[6]

however this thesis, and specifically this chapter is an attempt at pushing back against that

narrative. Sane, in her conference paper, *Dudhsagar Dairy at Mehsana, India* draws on the idea

of architecture as an "agency" heralding social change and the Tafurian notion of 'criticality' of

its function in shaping the conditions forging a modern nation. She then goes on to quote

Michael Hays, "According to the framework set by Michael Hays, 'critical' architecture "cannot

be reduced either to a conciliatory representation of external forces or to a dogmatic,

reproducible formal system." Although Hays recognises reciprocity between the culture and the

empirical conditions of architecture, he insists that critical buildings conceal or displace their

origins and external forces with an object which is culturally informed but abstract and non-

representative." (Sane 2013, 363, 364) Using this same framework on the rest of Kanvinde's

work, one could say Kanvinde's architecture marked a critical approach, of engaging with

emerging industrial culture through abstract formal systems.

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[5] "Past periods produce styles of architecture, both in Europe as well as in India. These were organized objectives towards visual satisfaction and several imperial methods used through the geometrical relationship or form in space in its attainment with the results, they produced systematized practices in the handling of building forms in all times in the past." Kanvinde at the Lalit Kala Akademi Seminar on Architecture.

[6] Prominent essays reviewing Kanvinde's built work are by Peter Serenyi, "Ethics and Aesthetics: An Architect and His Values", Architecture and Design 1, no. 4 (May-June 1985): 15-28; Vikram Bhatt and Peter Scriver, After the Masters: Contemporary Indian Architecture (Ahmedabad: Mapin Publishing Pvt. Ltd., 1990), 14; Sarbjit Bahga, Surinder Bahga, and Yashinder Bahga, Modern Architecture in India: Post-Independence Perspective (New Delhi: Galgotia Publishing Company, 1993) 10-11; Jon T. Lang, Madhavi Desai, and Miki Desai, Architecture and Independence: The Search for Identity - India 1880 to 1980 (Delhi, New York: Oxford University Press, 1997) 208, Kazi Khaleed Ashraf and James Belluardo, eds., An Architecture of Independence, The Making of Modern South Asia: Charles Correa, Balkrishna Doshi, Muzharul Islam, Achyut Kanvinde (New York: The Architectural League of New York, 1998), 69-78. And more recently, Peter Scriver and Amit Srivastava, India, Modern Architectures in History (Chicago: Reaktion, 2015).

Chapter II: Authorship

Figure 43: A call to expand the modernist architectural canon; collage by author.

Much as Kanvinde also grew as a designer, trying various iterations, resulting in certain stylistic phases in his work, there were different creative voices behind the architectural production of Kanvinde, Rai & Chowdhury. While the previous chapter deals with the broad themes of his work, in tracing authorship, one of my central arguments is that the conditions around the project are unique and that the people involved with the project uniquely shape it as

well. Rather than assume the myth of the single author, I instead take up Audre Lorde's premise, "difference must be not merely tolerated, but seen as a fund of necessary polarities between which our creativity can spark like a dialectic." As Lorde goes on to say, "It is learning how to take our differences and make them strengths. For the master's tools will never dismantle the master's house." (Lorde 2007, 113) We cannot use the same criteria to study the work of post-colonial architects that has traditionally been used to document the work of the white, male architect, who fits the trope of a singular, "genius" author. Works of architecture come out of a process of collaboration, and are implicitly shaped by socio-political context, and by constraints such as site, climate, and budget.

Architects since the 15th century have "staked their claims, defended their territories and maintained their status through appeals to the logic of authorship." (Anstey, Grillner, and Hughes 2007) I instead posit that there are several authors that are involved in the process of architectural production, even beyond the multiple hands within the architectural firm. The engineer is a significant collaborator, crucial to structural soundness. The client themselves, often misrepresented as a hindrance to the process of building, is in fact key to the project materializing and the way it progresses. The contractor and further, the mason is indispensable in the realisation of a built work.

Engineer as Author

Several architects during the mid-century laboured under a misapprehension about their own field, that, that E. Maxwell Fry elucidates really well in his article titled 'The architect and the engineer in India,' "An understanding of the processes of architectural creation is the key to the relationship of the architect with the other members of the building industry. The value of the architect lies in his power to build imaginatively. He may be practical or astute or energetic, he

may have qualities most useful in the world: but it is finally upon the capacity as an artist that his work is valued, and as with the painter or the poet, his work is dedicated as much to the future as to the present." (E. Maxwell Fry 1960, A20)

Fry goes on to say, that it is inaccurate to conceive of the architect as being "one who only produces an effect, designs a facade, or ornaments an otherwise utilitarian building," while the engineer is solely concerned with calculation. This assumption he says, is detrimental to both architect and engineer, robbing the architect "of the understanding of material and structure which forms so important a part of architecture itself," and concurrently, in the "calculation of the stresses of compound structures, whether steel and steel or steel and concrete, there is a large element of choice where there is room for the play of imagination" and that engineers should be given their due as artists in their own right. (E. Maxwell Fry 1960, A22) This shows the imbalance and partiality that existed in the perceived role of the architect, and that engineers, particularly those working with the government, were seen to be carrying out a simplistic, menial task, as opposed to the architect that was touted as "artist."

In actuality, the basis between the "engagement of two minds," as Fry calls it, "is a mutual understanding of the capacities, the limitations and the defined functions of each of the participants. The balance between the two is not always equal." (E. Maxwell Fry 1960, A23) And this brings me back to my hypothesis: the balance is not always equal because the conditions and requirements for each project are unique.

Client as Author

The second significant collaborator, even before the project gets off the ground, is the client themselves. As architects, often forget that we are service providers for someone else's

requirement. Kanvinde was lucky to have had state patronage for the first several decades of his career, where though the functional and stylistic requirements were sometimes rigid[7], as a practitioner and specialist, he largely had a free hand. Further, Kanvinde was lucky to have made some good friends in the form of his clients, most notable of whom was scientist, Vikram Sarabhai, through whom he was then introduced to several of the other mill owning families of Gujarat. Vikram Sarabhai and Kanvinde, began their association with the Ahmedabad Textile and Research Institute, and Kanvinde went on to design the Physical Research Laboratory, among several other projects for Sarabhai. There was said to have been such implicit faith between them, that all business agreements were made by word of mouth[8]. It was only when globalisation took India by storm, and state patrimony was taking a downturn, in the late '80s, that Kanvinde experienced the new, diminished status of the architect, with projects such as the National Science Centre, and a transition to private institutions as clients.

Builder as Author

For the physical materialization of the building itself, however, the significant players are the contractor and the mason. A Tropical House, on the Embassy of Switzerland in New Delhi, is a rare book of recent scholarship, which not only ascribes credit to the contractor, but also introduces and provides a short history of the construction company. The contractor for the project was Rai Sahib Tirath Ram, who was responsible for laying the foundation stone on 12 May, 1960. (Maurer 2014, 109) The book then goes on to quote a rather patronising letter, written by Director of Federal Buildings, Ott, "the Indian workers receptive and not inept, but since the individual workers are paid each evening, the labor force often changes from day to

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[7] Tensions between Maulana Azad regarding the deployment of an "Indian" character to the façade of Azad Bhavan
[8] Sanjay Kanvinde (son of Achyut Kanvinde and one of the principals of the practice Kanvinde, Rai & Chowdhury) in conversation with the author, March 2021.

day. Then the site supervisor has the very same task of giving the same instructions again the next day as he did the day before, and it is impossible to train teams and keep them in the same workplace until the building work has been completed. So far as the deadlines are concerned, it is possible to build just as quickly in India after thorough preparation and full planning as it is in Europe, despite the scarcity of machinery and equipment on the building site." (Maurer 2014, 111)

Figure 44: During the construction of Kanvinde residence, Akar, the construction was on a contract basis, as a result, Kanvinde's wife would oversee site work; [from the Kanvinde, Rai & Chowdhury archive]

I would argue that a mason can stake an equal, if not higher claim on authorship than the architect, since they physically deal with the material of the built environment. An oft lamented issue for Indian architects today is poor workmanship. Architects bemoan a dirth of skilled masons and craftspeople. The fact that there is no longer dignity in the labour of construction, means that less skilled craftspeople in the field today. The quality of brickwork for instance, at Kanvinde's own residence, is very rare today. When Akār was being built, the construction was on a contract basis, and with Kanvinde busy at the firm, Kanvinde's wife would oversee site work. This is a hybrid collaboration between client and builder as author.

There are, therefore, multiple authors in a project. And the architect is simply one of them. A first step towards rectifying this perception, besides acknowledging individual contributions to each project, is to acknowledge the structure of the firm, its functioning, and the role played by each of the various collaborators in the arsenal of collaborators Kanvinde amassed over the course of his career.

Collaborators

The key structural component of the firm was the partnership between Achyut Kanvinde and Shaukat Rai. Rai was a civic engineer from the Indian Institute of Technology, Roorkee. Kanvinde's colleague in the 1940s, at the Council for Scientific and Industrial Research (CSIR) under the aegis of the Indian government, Rai was also one of the professionals sent abroad to study research laboratories. Kanvinde and Rai were together at Harvard, where Rai had also received admission to study architecture, but finding it too challenging, he changed majors to engineering. As stipulated by the Indian government, on returning to Delhi, they completed their contract with CSIR. The Director of CSIR, Shantiswaroop Bhatnagar however, who had been

instrumental in sending them abroad for training, allowed them to take on private commissions on the side.
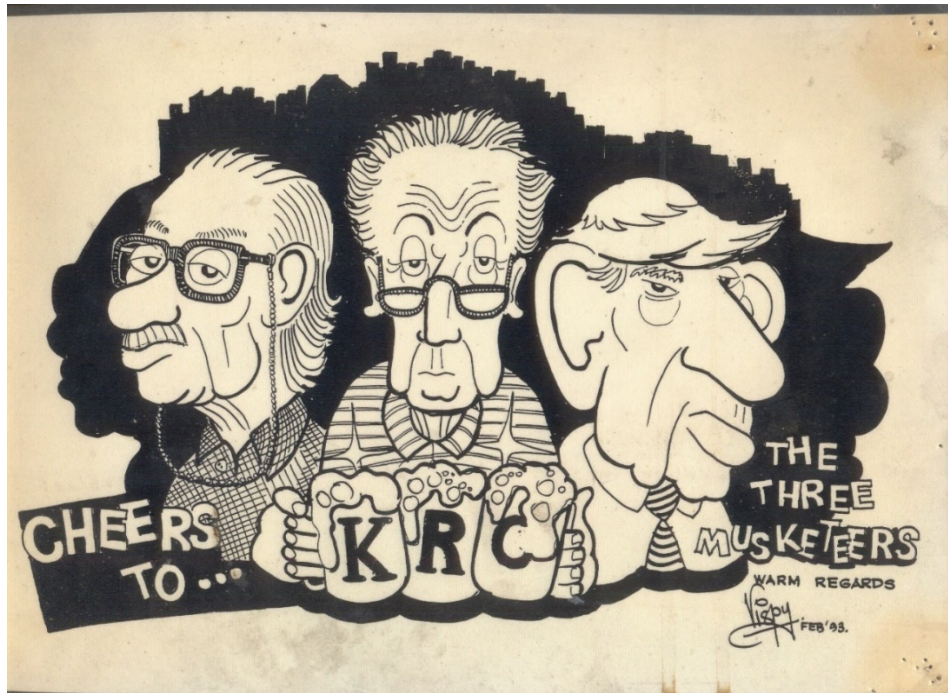

Figure 45: A card given to the firm by a former employee, Vispy

Rai was charismatic and the better connected of the two, being the grandson of civil engineer and philanthropist, Sir Ganga Ram. These connections won them many of their first commissions including the Sir Ganga Ram Hospital, at a time when projects were awarded based on clout. Kanvinde, unassuming and unconnected as he was, perhaps may not have received as many commissions had it not been for Rai and his pull in Delhi's moneyed industrialist sphere[9]. It was these local projects that provided supplementary employment besides the CSIR. It was only in 1955 though, when Shantiswaroop retired from the CSIR, and there were objections to them taking on non-governmental projects, that they resigned from the posting and officially went into partnership as the firm, "Kanvinde and Rai."

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[9] Sanjay Kanvinde (son of Achyut Kanvinde and one of the principals of the practice Kanvinde, Rai & Chowdhury) in conversation with the author, March 2021.
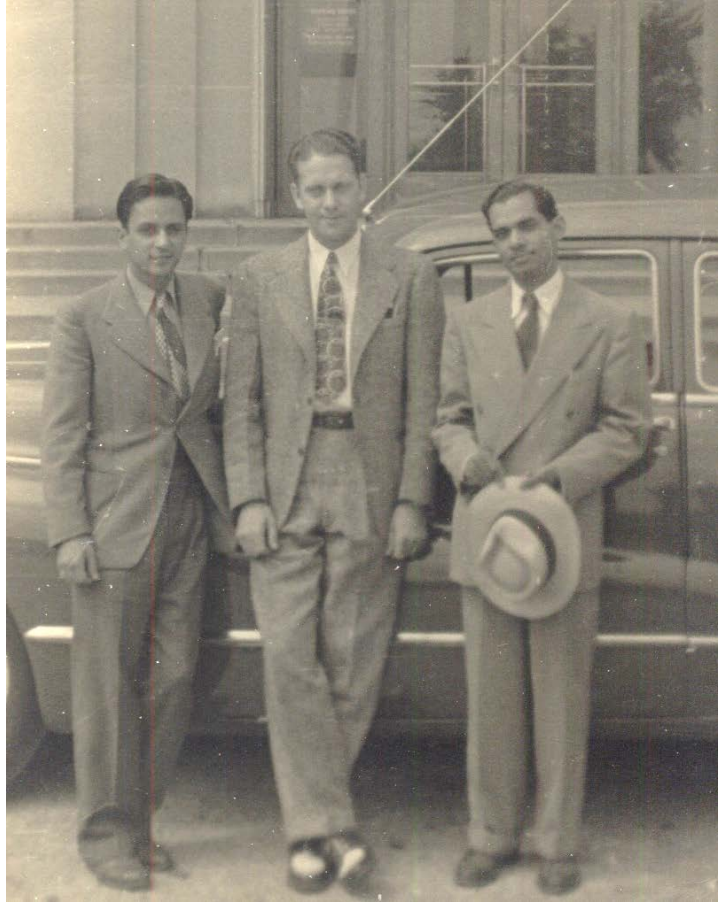
Figure 46: Rai (L) and Kanvinde (R) with unidentified individual while at Harvard; [from the Kanvinde, Rai & Chowdhury archive]

Figure 47: Shaukat Rai (extreme L) and Kanvinde (L) with Nehru (C) at the inauguration of Sir Gangaram Hospital; [from the Kanvinde, Rai & Chowdhury archive]

Initially, the firm also started out undertaking construction management and site supervision, and this was largely carried out by Rai. For these early projects, Kanvinde designed all the furniture himself—fixed as well as movable—the firm did complete turnkey solutions. Rai also conducted contract negotiation and was the point person at the firm for consultants. This left Kanvinde free to pursue the things he was truly passionate about: sketching and resolving the designs for projects, and teaching, both at the School of Planning and Architecture, New Delhi, the firm and also at various American universities[10]. As clear from Maxwell Fry's quote on the Architect and Engineer in India, engineering, and the "mundane" day to day of contract negotiation, though equally important, was considered a "lesser" kind of work, not fit for the artistic temperament of the architect. According to Dengle, Rai himself identified this as, "Shaukat Rai once stated that he insulated Kanvinde from the mundane aspects of work such as contractual hassles, municipal follow up, site issues and managing the engineering and accounts staff employed at the office. But besides that back up, Kanvinde knew that his strength lay in his design sensibilities and ability to educate or persuade the client to look at things his way." (Narendra Dengle 2017, 197) By all accounts, it was a symbiotic relationship, though Kanvinde clearly held a privileged position: the two partners from entirely different backgrounds, each worked in tandem with each other and compensated for the other's limitations.

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[10] starting with Washington University, St. Louis, and UC Berkeley, at the invitation of Claude Stoller (he later taught at Kansas State University and University of Illinois, Urbana Champaign).

Figure 48: Kanvinde and Rai (C) explaining the scheme of IIT Kanpur to James Miller (C-R) and others

In addition to the twelve strong[11] firm at the time, had an in-house structural engineer, P.

R. Phatak[12]. He was later joined by S. V. Damle, in the mid to late 60s, starting their own firm,

"Phatak and Damle." They continued to share the premises with Kanvinde and Rai and were

consultants on several of their projects. Phatak was the structural engineer on all of Kanvinde

and Rai's early work, including Physical Research Laboratory, Ahmedabad, Indian Institute of

Technology, Kanpur Phase I, and most significantly, Kanvinde's own residence. Even when

consulting another external structural engineer, Kanvinde would take with him an initial

structural resolution sketched by Phatak or Damle for reference. It was only when the project

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[11] A.K. Joshi, who worked at the firm between 1964-72, email message to author, April 26, 2021.
[12] Sanjay Kanvinde (son of Achyut Kanvinde and one of the principals of the practice Kanvinde, Rai & Chowdhury) in conversation with the author, March 2021.

required extraordinary structural input that Kanvinde and Rai went to a talented young structural engineer, Mahendra Raj, who had worked with Le Corbusier on Chandigarh and subsequently started out on his own in Bombay. The firm's first collaboration with Mahendra Raj was on the. Gandhi Memorial Hall, starting 1960. Two of their significant collaborations at the time were, Gandhi Memorial Hall and the lecture halls of the IIT Kanpur campus, where large span stepped spaces were required. However, one of the primary considerations of the firm was cost, and Mahendra Raj charged a far higher scale of fees for his innovative structural solutions. So, it was only for extremely challenging structural requirements that he was taken on. Another popular collaborator was structural engineer, V. H. Shah, who did several of Kanvinde's dairy projects. Sharad R. Shah took care of the structure for campuses in the later years, such as National Institute of Bank Management, Pune and Institute of Rural Management, Anand.

Another long-time collaborator on public health, was S. G. Deolalikar. He worked on several of the firm's projects starting 1964, when he started out as an independent consultant as early in the firm's body of work as the Physical Research Library, and well into their later projects, such as National Science Centre, New Delhi. Likewise, the electrical consultant for several of the firm's projects in the first thirty years was Lirio Lopez. It is likely there was a comfort in working with a team of trusted consultants, with whom the building process ran smoothly. Dengle identifies it as, "Very early in his practice Kanvinde realised the importance of teamwork. He picked some of the best engineers as his consultants and maintained excellent relations with them. Their common concern was quality architecture, well supported by responsible professionalism. His practice recognised the talent of Phatak and Damle, Mahendra Raj and Deolalikar, who earned names for themselves for their competency in structural and plumbing engineering." (Narendra Dengle 2017, 192)

Changes in the firm structure related to the type of assignments being handled were also gradually taking place. During the first four decades, supervision was often part of the services offered by the firm, resulting in a substantial increase in the engineering staff of the firm, but by the mid-1980s the firm was undertaking larger planning projects involving less supervision. Consequently, the firm's engineering set-up was drastically reduced to a skeletal one by the early 1990s. Shaukat moved to Pune in the late 1990s but was still involved in the NIA, Pune, Phase II work. (Kanvinde and Kanvinde 2017, 369)

Kanvinde, Rai & Chowdhury: The Firm as Corporate entity
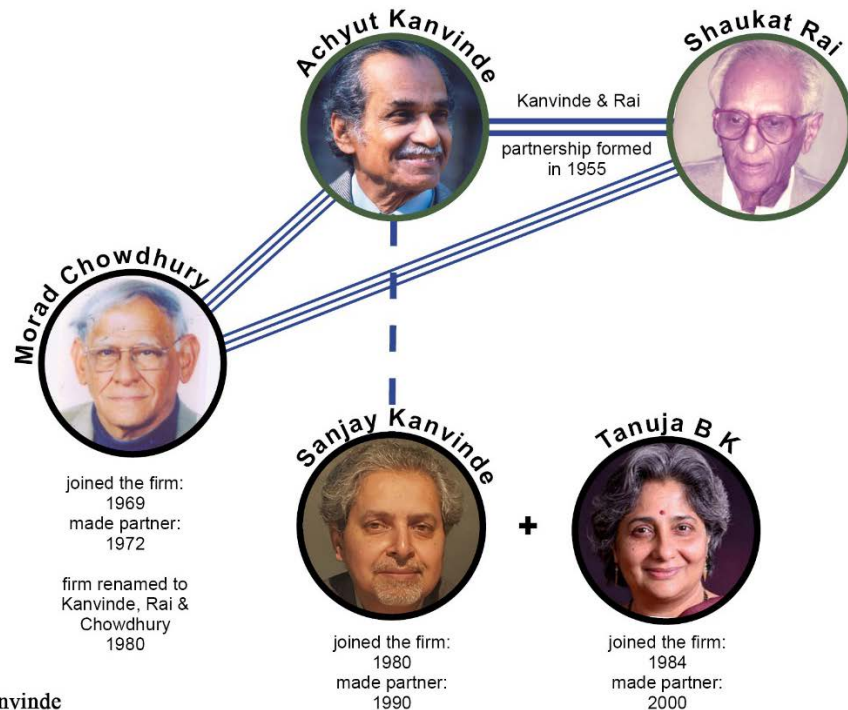
Figure 49: The firm as corporate entity: past and present partners; diagram by author

The third partner of the trio, Kanvinde, Rai & Chowdhury, architect, Morad Chowdhury, joined the firm in 1969. Chowdhury had returned from Kingston, UK after completing his education in 1962, and started working soon after with Design Group. Rai and Chowdhury, both being alumni of the Doon school, an elite institution based on the British private boarding school model (though several years apart), were called to consult on approving work on its dining hall. Rai, being on the School Board, on one such visit, offered Chowdhury the job. Kanvinde had, by this time, (from 1965 onwards) become very busy with teaching at universities abroad. Chowdhury was taken on as a senior associate, to take on some of the load at the firm. He became the youngest partner shortly after, in 1972. The name of the firm however, only changed in 1980 to "Kanvinde, Rai and Chowdhury".

It was also in 1980, that Kanvinde inducted his own son, Sanjay Kanvinde into the firm. Sanjay had completed his Master in Urban Design at Rice University, and had cut his teeth working for a few years at SOM, Chicago. He worked his way up as junior architect at KRC and was made partner after ten years. The next addition occurred when, after joining in 1984, Tanuja B K, was made partner fifteen years hence. Kanvinde had continually been watching firms abroad and was conscious of the issue of continuity. "The pattern of growth and change in the structure of the firm was probably a result of Kanvinde's wonder at the longevity of firms abroad, beyond the lifetime of the principals. In fact, all the partners were open to inducting promising professionals as associates or collaborators. Kanvinde in particular enjoyed working with younger architects." Kanvinde Akar, 369

By the late eighties, Kanvinde and Rai were both taking active steps back from the practice—Rai having moved to Pune for his retirement, and Kanvinde instead focusing on pro-bono religious projects. After their deaths, a few short months between one another in 2002, the

mantle of the firm was taken up by Chowdhury and Tanuja and Sanjay Kanvinde until in 2017, Chowdhury also stepped back from practice. The firm still largely does institutional and dairy projects, a legacy left behind by Kanvinde and Rai. Through the years, there was a constant flow of people through the firm. Through its peak, between the '60s and late '80s, there were always about twenty-five individuals working at the office. Further, Kanvinde was known to be very generous with work, and collaborated with may small firms to get them off the ground.[13] He was also very selective about the work that he did, preferring to give it out instead to young professionals, and either collaborating with them, or giving them free rein.

Attributes

Each of the three partners had their own unique method of functioning. Chowdhury had a reputation for being very fastidious. A popular joke with members of the firm was that Chowdhury would figure out the entirety of the building services and structure himself, and then simply ask the structural engineers, Damle and Naranjan Singh Rooprai to mark the position of the reinforcements within the concrete system[14]. As the scholar and practitioner, Narendra Dengle recalls, "Chowdhury was very much a product of modernistic approach, concerned with the resolution of built form in its finality—an inheritance from Cartesian thinking. No sooner the conceptual drawings were prepared than he would be aware of the 'problems.' In a way he addressed the structural systems, constructional issues, and particularly the issue of

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[13] Narendra Dengle (worked at Kanvinde, Rai & Chowdhury in 1974) in conversation with the author, March 2021, "When one understands that he gave a boost to many other architectural firms and individuals including BV Doshi, Anant Raje, Shirgaonkar, Design Group, and the GRUP, to name just a few, by handing over jobs that came to his office, then one realizes Kanvinde's generosity in mentoring talent in a responsible way. All these architects made an imprint on the scene of architecture in India. This must be one of the rarest of examples anywhere in the world, where one professional architect willingly handed over a project to another without hesitating or getting credit for it."
[14] Radhika Viswanathan (worked at Kanvinde, Rai & Chowdhury in 1987) in conversation with the author, March 2021.

maintenance—which is often ignored by architects—very meticulously. His knowledge of

construction, structure, and technology geared up to making his design approach. Kanvinde was

very much aware of the scale, subtle quality of light, breeze, contextual and even symbolic

issues. This made him an artist. He was completely at ease designing an extremely functional

kind of a complex like the dairies as well as temples—which may be seen poles apart in

sensibilities."[15]

Figure 50: The National Dairy Development Board, New Delhi and the Gandhi Memorial Hall; partnership between Mahendra Raj and Kanvinde

This distinction really comes through when looking at the works authored by each of the

architects in collaboration with Mahendra Raj. In the projects authored by Kanvinde and Raj, the

structure was of course an integral part of the built form but was something that never took the

forefront. The impressive structural systems of buildings such as Gandhi Memorial Hall,

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[15] Narendra Dengle (worked at Kanvinde, Rai & Chowdhury in 1974) email message to author, March 20, 2021.

National Science Centre, and Nehru Science Centre were essentially facilitators to quality of space.

With Chowdhury and Raj, on the other hand, the structural system always shone through as an elevational feature. The Sher-e-Kashmir stadium, for instance, looks uncannily like the Hall of Nations, authored by Mahendra Raj and architect Raj Rewal, by virtue of its tetrahedron concrete structural system. Kanvinde had initially proposed something entirely different, but an initial meeting with Mahendra Raj prompted the resolution using a tetrahedron structural module, and the project was then handed over to Chowdhury to complete. Similarly, in the case of the Hindon River Mills, Mahendra Raj approached the firm with the project he had been awarded by the client, and Chowdhury came on board as the architect. Here too, the reinforced

concrete parabolic arch structures are undoubtedly the focus of the building, affording a large 48m span in the workspace. Such was the unique flavour that each practitioner brought to the firm. In the next chapter, I will enumerate the phases that Kanvinde himself underwent through the course of his career.

Figure 52: Springing point of the tetrahedron structure; elevation of Hall of Nations

Figure 53: Sher-e-Kashmir Indoor Stadium, Srinagar

Chapter III: Constructing the Architectural Archive through the National Science Centre

The Architectural Archive

What constitutes an architectural archive? Is it just the normative idea of the drawings and models that architects labour over? Does it perhaps also include the buildings themselves—physical manifestations of the process of architectural production? What then of all the personal accounts and narratives of the process that leave behind no tangible trace, and yet are first-hand oral histories from the actors involved.

Architects themselves are guilty of privileging a certain kind of knowledge over another. As Alex Anderson explains, "Adrian Forty argues, in Words and Buildings, that modernism developed a deep suspicion, even a 'horror of language,' in all of the visual arts. 'The general expectation of modernism that each art demonstrate its uniqueness through its own medium, and its own medium alone,' he says, 'ruled out resort to language.' In other words, modernists insisted that their work should speak for itself. Modernism therefore developed a very limited vocabulary (Forty lists 'form,' 'space,' 'design,' 'order,' and 'structure' as its key words) and a distinctive 'new way of talking about architecture' that was extremely taciturn. It made the difficult task of writing almost superfluous for architects, and they simply chose not to do it." (Anderson 2020) Both Kanvinde and Morad Chowdhury were also of this school of thought, they chose not to write about or explicate their work excessively, wanting it instead "to speak for itself." (Kanvinde and Kanvinde 2017, 367) However, in so doing, they were also exercising a certain power, as principal architects of a firm. For even those architects that choose to publicize their work, much as those that don't have control of the narrative, and an agency that is often

obscured to other voices that equally work on projects. The normative notion of the archive reinforces the idea of the star, the genius, the auteur.

As architecture critic, Alexandra Lange puts it, "anything, to keep your reader from the truth: that your subject is an abstraction-spouting workaholic with a huge team of people who have drawn, rendered, detailed, supervised, constructed the work in question. The profile lives to serve the simplest possible narrative of architecture: one man, glorious inspiration, a building. As a writer, I have had to serve that narrative too. Too much complexity ruins the view. Too much critique punctures the rationale for the profile." (Lange 2018)

Lange herself suggests the solution to this, "Press, working in another medium, shows a way forward. Profile the project, not its maker. Discuss the client as a collaborator, not a funding source or dramatic impediment. Let employees speak about their role, not just about dear leader. The profile can become more critical." (Lange 2018) It is through oral histories and press coverage specific to the project that multiple authorship can truly be acknowledged. It is therefore imperative to study in detail one project for methodology, and understand how architectural projects come together, and the tensions and conditions that exist in realizing them.

In architectural production, there is always a lag between original intentions and final creations. However, following Anooradha Iyer Siddiqi's provocation to "investigate the architectural beyond the regimes of authorial intent or technical complexity and instead 'as a central concept and as a subject of historiography and methodology,'" (Khorakiwala 2020) one can begin to reconstruct the past. Siddiqi points out that in addition to the well-guarded collections of architects and architecture in South Asia (such as Kanvinde's own), there has been a proliferation of institutional and individual attempts to collect and collate raw materials for the South Asian modern environment, that have opened up the notion of the architectural archive, to

nurture South Asian narratives of the modern. These include the CEPT (Centre for Environmental Planning and Technology, Ahmedabad) archives, various independent online databases, pop-up dialogue series, as well as parallel efforts concerned with material, aesthetic, and historical meaning-making. (Siddiqi 2020, 497)

Though Siddiqi finds no definitive consensus on what constitutes an architectural archive, or what may be the methodology for narrating histories of architecture, the standard interpretation includes the buildings themselves, as well as primary materials for narrating practices of how they were used or made, this however leaves out the "ideational, discursive, and even metaphorical exertions of the architectural". (Siddiqi 2020, 497) We must therefore build on the architectural archive from just its standard interpretation, to instead include personal narratives, memories, and written correspondence to supplement the material archive of written works and architectural drawings. As Albena Yaneva states, "Architects produce, assemble, and collect a massive amount of paper and visual objects over the course of their careers. In the process of creative making, designers generate correspondence, sketches and drawings, working models and simulations, reports and other written drafts intended for circulation among clients and larger audiences." (Yaneva 2020, 7)

But perhaps the clearest conception of the architectural archive, is provided by pioneers in the field, the Canadian Centre for Architecture (CCA), "An architectural archive comprises the written word and graphic records related to the practice of an individual architect or firm: drawings, sketches, presentation drawings, photographs, models former and other objects that contribute to the understanding of professional practices, projects and personalities. Annotated books and personal papers such as correspondence helps to establish specific influences and to follow the evolution of creative thought. The grouping of these elements in an archive constitutes

an entity that provides insight into the life of an architect's office as well as into the history of an architectural project within a community. The grouping of these elements in an archive constitutes an entity that provides insight into the life of an architect's office as well as into the history of an architectural project within a community." (*Centre Canadien d'Architecture: Les Débuts, 1979-1984* 1988, 120) Each of these various kinds of materials of the archive, or 'ways of knowing' provide different insights into a project.

Selection of the Project

A rather important consideration in the selection of the project to study, was the evidentiary documents and drawings that survived, as well as the ability to interview people that worked or collaborated on the project. For most of the projects carried out by Kanvinde & Rai between the 50s and 60s, little to no evidence survives. Rai, in charge of the organisation of the material of the office archive (one of his many duties), cleared out a large portion of the office papers due to a lack of space in the early 80s, when the office was taking on many more and larger projects. Drawings were sent back to the clients that wanted them and thrown away in the cases that they didn't, and the entirety of the correspondence was thrown away, including letters from politicians such as Nehru[16]. As Ateya Khorakhiwala acknowledges in 'An Archive of Development: The Road Film's Tyranny of Proximity,' "Siddiqi notes Derrida's proposition that the authority of the archive exacts violence on its civilization by instituting order and an origin on its historical formations. State archives, in Derrida's reading, perform acts of remembering and forgetting, inscription and reinscription, in ways similar to Freud's psyche." (Khorakiwala 2020) Further, as Michel-Rolph Trouillot says, in Silencing the Past: Power and the Production of History, "Silences enter the process of historical production at four crucial moments: the moment of fact creation (the making of sources); the moment of fact assembly (the making of archives); the moment of fact retrieval (the making of narratives); and the moment of retrospective significance (the making of history in the final instance)." (Michel-Rolph Trouillot 2015, 26) What then does it mean to access the archive when, particularly in India, some government, and certainly private archives consist of documents crammed into a box files and

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[16] Sanjay Kanvinde (son of Achyut Kanvinde and one of the principals of the practice Kanvinde, Rai & Chowdhury) in conversation with the author, March 2021.

stowed in an almirah? The drawings too were rolled, due to a lack of space, and several were fraying at the edges.

The project finally selected for study was the National Science Centre in New Delhi, which lasted from 1986-92. The basis for selecting the project was simply complete documentation: in addition to documentary evidence, in the form of architectural drawings, published articles and correspondence between the architects and the various other collaborators, there also existed the possibility for interviews with people that worked on the project. I rely on interviews and oral histories heavily in recreating the time and the specific conditions for the project. Perhaps also self-servingly, I selected the Science Centre, since I found out through preliminary interviews that there were many roadblocks and tensions in its actualization. Of course, while a single project cannot be taken to stand for the firm's entire body of work, my hypothesis is that similar tensions would have existed in other projects as well, and this may be looked at as a methodology to piece together architectural histories to understand socio-political contexts and acknowledge multiple authorships.

Figure 54: The National Science Centre; [from the Kanvinde, Rai & Chowdhury archive]

The National Science Centre (1986-1991)

Figure 55: The National Science Centre as seen from Bhairon marg; [from the Kanvinde, Rai & Chowdhury archive]

The National Science Centre, constructed on a 7,000-square-metre wedge-shaped plot at Pragati Maidan, faces the historic Purana Qila or Old Fort in New Delhi. The plot was carved out of the Delhi's Trade Fair Grounds which had a number of exhibition pavilions designed to portray national identity. The museum was commissioned by the National Council of Science Museums following the successful completion of the Nehru Science Centre, Mumbai. The prompt was to design a museum to create public awareness about science, especially among children. The establishment of modern science museums came under the aegis of the Council of Scientific and Industrial Research (CSIR) as part of the larger program of setting up laboratories and technical institutions spearheaded by Nehru in the 1950s. (Sane 2016, 338) This project took place at key socio-political and cultural moment, in what Prajakta Sane, in her PhD Thesis, identifies as a "triangulated relationship between Kanvinde's architectural priorities, post-Nehru era's rising cultural nationalism and the science museum as an emerging building type in the 1980s." (Sane 2016, 326)

Figure 56: The prompt was to design a museum to create public awareness about science, especially among children; [from the Kanvinde, Rai & Chowdhury archive]

The programme brief, realised through a built-up area of 17,000 square meters, comprised exhibition spaces for displays of varied nature, seminar halls, a library, a children's activity area, training/ workshop areas, a cafeteria, a 350-seater auditorium, and a reception area. A proposed heritage plaza at the entrance could not materialise due to budgetary constraints. The adopted structural system, though rigid in plan, has been varied in volume to create a sense of scale through ascending forms. This resulted in a cascading built form through a series of articulated spaces with changing heights and volumes. The cascade finds its expression externally as well, forming terraces at various levels, in addition to providing outdoor display areas, integrated with greenery, softening the strong form of the building. The structural cores also serve the dual purpose of shafts for services. The Science Centre was the second instance

that the expression of green terraces with recessed floorplates was used, after the National Dairy Development Board Office (1978-83), in New Delhi, though there the plan was not as regimented.
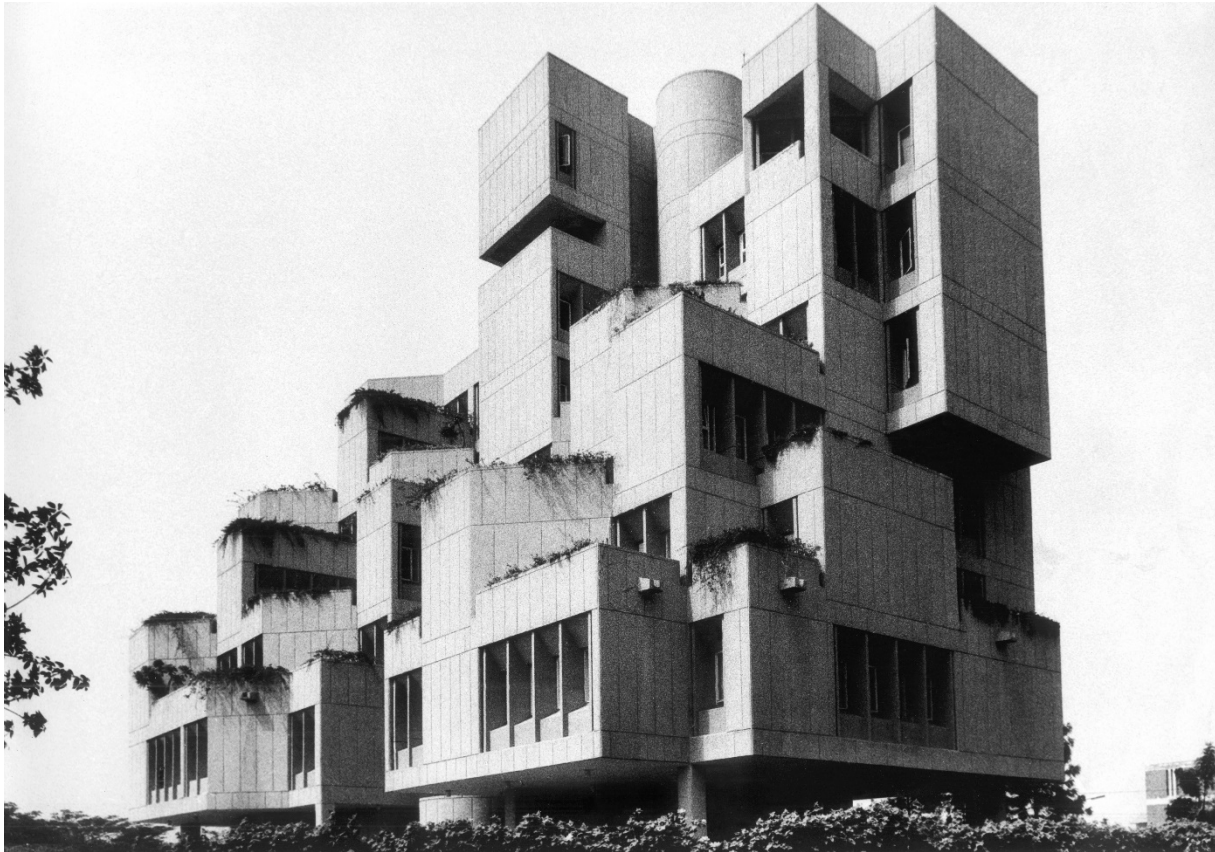
Figure 57: The National Dairy Development Board Office, New Delhi (1978-83); [from the Kanvinde, Rai & Chowdhury archive, photographed by Madan Mahatta]

From a distance, the building appears inconspicuous, however, on approaching, the building invokes a sense of monumentality, not just through its imposing height, but through the use of its spire-like rising forms. This is further played up through a gradual expansion of scale as one traverses the entrance plaza and up a grand flight of stairs leading to the plinth of the first floor, where the ticket counter is located. At the lobby, an escalator moving through a multi-level display space takes the visitor through a three-storey atrium to a smaller atrium on the third floor. From this level, the visitor moves up another floor, through exhibit areas, and then descends

gradually to the ground level through various spaces, replacing an arduous five-floor climb by a relatively easier movement. The auditorium, seminar hall, and conference rooms are located at ground level with independent access. Service traffic is from a separate, rear access to the basement through a service lift. Movement through the building is strictly predetermined and orchestrated. The topmost floor had been designed to house the observatory, the only non-orthogonal feature of the building, which remained unrealised due to budgetary restrictions. The team that worked on the project from Kanvinde, Rai & Chowdhury comprised of Kanwaljit Singh, Radhika Viswanathan, Sathe, Poonam Singh, Kusum Gupta and P.B. Kalkar[17]. Kanwaljit Singh was the lead project architect.

Figure 58: NSC from Bhairon Marg; [image by Sushil Khandelwal, courtesy Kanvinde, Rai & Chowdhury archive]

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[17] Names identified by architectural drawing title bars.

Figure 59: Top, The coffered slab in the display areas; [from the Kanvinde, Rai & Chowdhury archive]
Figure 60: Bottom, Central atrium with escalator and interactive display; [from the Kanvinde, Rai & Chowdhury archive]
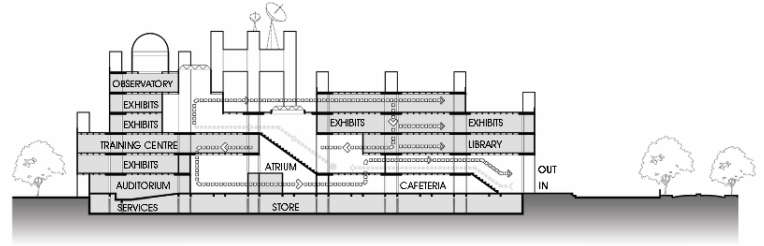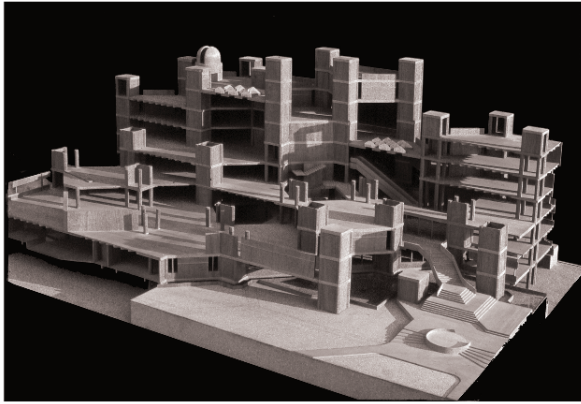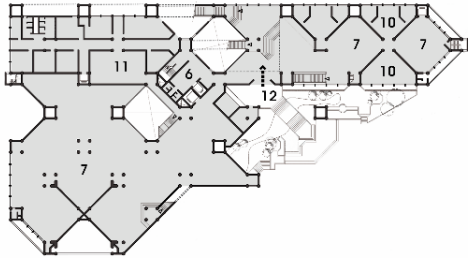
SECTION AA

FIRST FLOOR PLAN
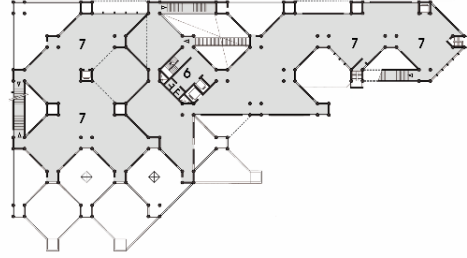
THIRD FLOOR PLAN
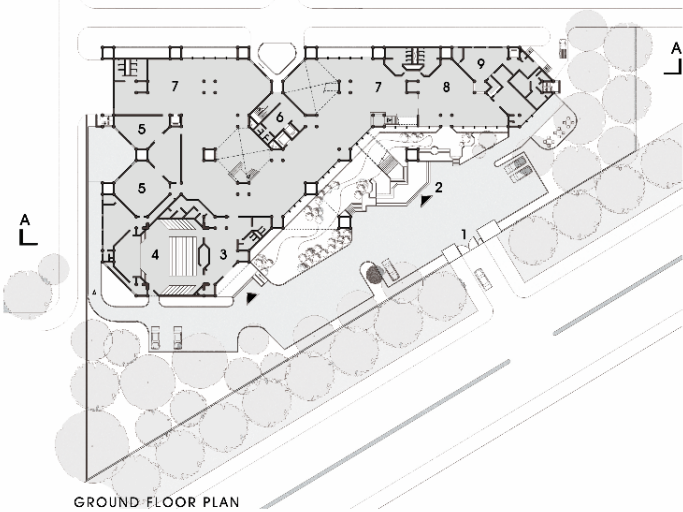
GROUND FLOOR PLAN
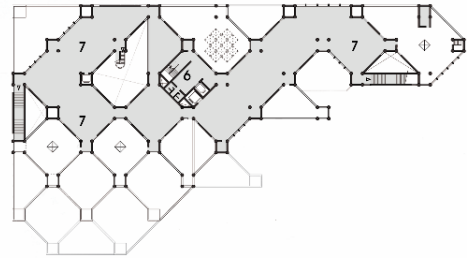
FOURTH FLOOR PLAN

LEGEND
1. ENTRANCE
2. ARRIVAL PLAZA
3. FOYER
4. AUDITORIUM
5. SEMINAR
6. LOBBY
7. EXHIBITS
8. CAFETERIA
9. KITCHEN
10. OFFICE
11. ADMINISTRATION

Figure 61: Model, schematic section, and plans of the National Science Centre; [from the Kanvinde, Rai & Chowdhury archive];

The plans showcase the successively reducing footprint with each ascending floor, as well as the alternating square 12m and 2.75m structural grid;

Image of model photographed by Madan Mahatta

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Public health was taken care of by S G Deolalikar, while the electrical consultants were Kanwar Krishen Associates. The landscape was designed in collaboration with Shaheer & Associates, and the contractor for the project was Bridge and Roof Co. The structural system, designed in collaboration with Engineering Consultants India, by structural engineer Mahendra Raj, and his associate, Sardana is governed by an alternating grid of 12 m and 2.75 m (Kanvinde and Kanvinde 2017, 265), and described as creating relatively large, interconnected, column-free spaces in the monograph on Kanvinde. The six-storey reinforced concrete structure with a basement is supported on an in-situ pile foundation. "This structural system allows for flexibility in a combination of similar modules. A 1m x 1m waffle slab of 45 cm depth is used for the structural floor, with solid plate cores providing stability against earthquake forces. The cores have a provision for cut-outs to accommodate services including ventilation ducts. The auditorium, requiring larger spans, has been created without altering the general structural system by eliminating one central cluster of columns and providing full-height wall elements, connecting two upper floors above the auditorium, as transfer girders." (Kanvinde and Kanvinde 2017, 265)

The building is finished in aggregate plaster using local blue quartzite stone interspersed with bands of Dholpur (beige sandstone). The flooring used is predominately maintenance-free polished Kota with Jaisalmer stone bands. The coffer ceilings and walls have generally been left neutral to accommodate flexibility in interior display. Coloured anodised aluminium windows and wood-panelled doors are used along with wooden panelling in the auditorium.
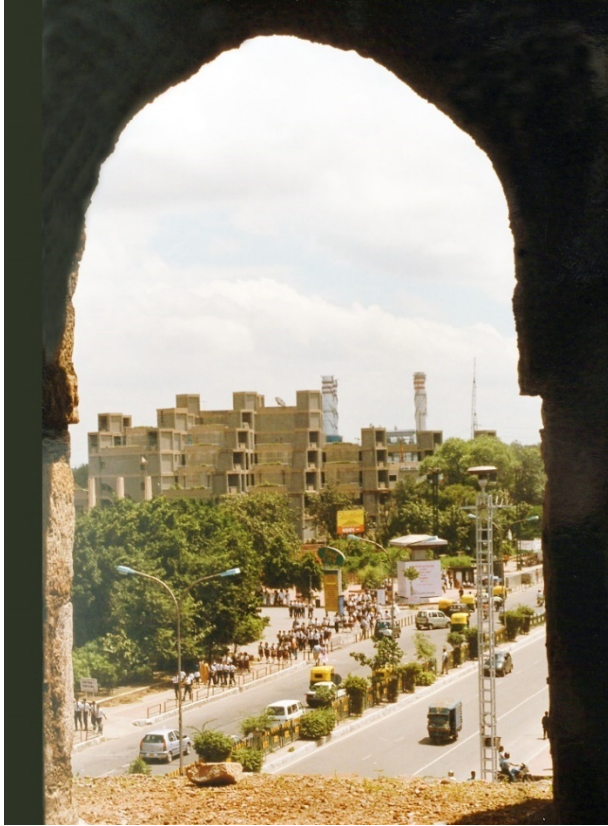
Figure 62: National Science Centre viewed from the Old Fort; [from the Kanvinde, Rai & Chowdhury archive]
Figure 63: View from the main gate of the National Science Centre; [from the Kanvinde, Rai & Chowdhury archive]
Figure 64: Entrance steps of the National Science Centre; [from the Kanvinde, Rai & Chowdhury archive]

Ways of Knowing

Buildings are not just structural assemblages, but also paragons of their time. Much like written authorial works, they serve as symbols of the political, social, economic, religious, technical and aesthetic. The ability to read these symbols critically enables us to understand, not just the built environment, but also the zeitgeist. Though architects themselves ascribe far too much important emphasis onto the visual and graphic mediums, in fact, textual and verbal accounts can be far more illuminating in piecing together the specific details of a project, since information is filtered out in the abstraction from thought to design. And further, the final design often does not give any indication of the process or the tensions that the project was realised with. We must, consequently, expand the lenses through which we study a built work, beyond just drawings and models. Each of these various methods provide unique insights into the project:

Drawings, models   Correspondence   Oral Histories   Publications

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Figure 65: Ways of Knowing: The architectural archive and ephemera, diagram by author

I.   Architectural drawings

II.   Publications (both material by the architect and media coverage)

III.   Interviews/ Oral histories

IV.   Written Correspondence

The CCA describes one of its reasons for formation as, "to increase interchange between the historians' theoretical interest in the architects practical design considerations." (*Centre Canadien d'Architecture: Les Débuts, 1979-1984* 1988, 109) The activities of assembling, preserving and interpreting materials: architecture drawing, prints, photographs, books and other architectural records fall into familiar categories of collecting and archiving, however, the "CCA combines two kinds of collecting which historically have been handled by separate institutions: that of architectural drawings, books, prints and photographs, and that of unpublished papers of architects including but not limited to the relatively new area of contemporary architectural records." (*Centre Canadien d'Architecture: Les Débuts, 1979-1984* 1988, 109) The Science Centre can therefore be studied through the intersection of the various lenses, or 'ways of knowing.'

Reading Architectural Drawings

The first of these 'ways of knowing' is reading architectural drawings and models, to give insight into spatial configurations and design development. Drawings can be a fairly good indicator of the priorities of the author and are tools to discern authorial intent. They can also be the first indicator of authorship since the name of the draftsperson generally appears on the format. Since the act of discerning symbols through architectural drawings, as James Ackerman rightly points out, is more akin to "semiology than to standard architectural research" (Ackerman 2002, 317), the biggest concern would be to avoid erring on the side of writing a very subjective opinion, not least because of my personal ties to the subject matter. Consequently, it would be important to first establish the architectural drawing firmly within the framework of visual object or medium, before analysing the architectural drawings themselves.

Architectural Drawings do function as "screens", much like "veils" and "windows," they frame a view (Friedberg 2009, 339, 38, 338)—in this case orchestrated by the architect. This notion resonates with Manovich's idea of "classical screens," in tracing the genealogy of the screen, defined through the visual culture of the modern period, right from painting to cinema, "as characterized by an intriguing phenomenon—the existence of another virtual space, another three-dimensional world enclosed by a frame and situated within our normal space. The frame separates two absolutely different spaces that somehow coexist. This phenomenon is what defines the screen in the most general sense, or as I will call it, the 'classical screen.'" (Manovich 2001, 95) And finally, Erkki Huhtamo echoes Friedberg, saying, "Screens are also framed, which metaphorically associates them with paintings or windows - a screen is often conceived as a kind of virtual window opening to a mediated realm." (E. Huhtamo and Gakkai 2004, 65) Much like paintings, architectural drawings act as mediated realm. Having thus positioned architectural drawings firmly in the realm of screen, we can now build further on Huhtamo's analogy—in his characterization of screens as "information surfaces." (E. Huhtamo and Gakkai 2004, 65) Although they are two-dimensional surfaces, they often provide the impression of a three-dimensional reality somehow accessible through themselves. By this token, architectural drawings may be considered "screens," as well as "surfaces," which mediate reality.

I am certainly not the first to consider the architectural drawing as a surface. As John May explains in his book, 'Signal. Image. Architecture.,' "We labor over surfaces. We expend our energy pushing things across surfaces, and those surfaces constitute for us a kind of substrate from which we think about architecture and urbanism, their relation to life and to the world around us. For a long time, architectural surface labor was orthographic— which is to say that

just like writing surfaces (texts), architectural services (drawings) consisted of hand-mechanical gestures governed by rule-bound systems of geometric marks." (May 2019, 33)

The way architects conceive of space, and as a result, represent it, is in many ways far removed from the layperson's experience of space. Part of the reason for this is that one of the first lessons given to students of architecture is drawing orthographically—learning to represent ideas in the form of plans, sections, and elevations. As anthropologist Edward Robbins argues "the drawing is at once an idea and an act, an autonomous concept and a mode of social production." (Robbins 1997, 7) And yet, as Robin Evans so astutely observed in his seminal 1986 essay, "Translations from Drawing to Building," architects don't make buildings, they make drawings (Evans 1997, 4)

This preoccupation with orthography and orthographic projection in contemporary architectural pedagogy and representation is likely an uncritical inheritance from modernism. Both Crary and Jay speak of the idea of one of the dominant modes of vision during the modern period being "natural vision" born out of the Quattrocento, through the "rediscovery" (Crary 1988, 29) of three-dimensional perspectival vision, and what Jay calls, "Cartesian perspectivalism" (Martin Jay 1988, 4). Parallelly, Huhtamo and Parrika categorise "new media as 'ways of seeing'" (Erkki Huhtamo and Parikka 2011, 1). Though perhaps plans and elevations came to be an architect's "new ways of seeing," and perspectival views reinforce the "static, unblinking, fixated," and indeed Cartesian gaze of the modern (Martin Jay 1988, 7). And tying in Kittler's idea of producing different cultural "realities," architectural visualization and representation could perhaps be seen as a new cultural reality at the advent of modernism, that has since persisted even into the digital age.

Modernism, and all its absurdities perhaps has been most effectively and humorously critiqued by the films of Jacques Tati, particularly 'Playtime' and 'Mon Oncle.' Yet, simultaneously, these films are an homage to two of the mainstay typologies of modernist architecture—the office building and the modernist residence (or as Corbusier would call it, "machine for living"). The device used to carry out this critique and commentary in both films is inescapably modern technology—all the humor, and action is hinged on the failings of this very mechanized technology (the unintelligence of a seemingly intelligent system). And this is understood as a deeply enmeshed relationship—of modernity with mechanization and cybernetic feedback loops, which pervaded all fields and aspects of living.

So then, it is interesting to note that although modernist buildings were increasingly mechanized, architects were still relying on the decidedly 'low-tech' techniques of manual drawing for architectural representation. Despite the existence of "photogrammetry," (Allais 2020, 22) it wasn't used for architectural representational purposes. What May posits though, is that despite the means of drawing being manual, the hands moved aided by mechanical tools, made "syntactic" marks onto a stable surface—namely, the organic was trained to behave as the mechanistic. May goes on to say, "'Architectural drawing' referred to acts of geometrical gesturing… so that the gesture itself belonged to a geometrical synchronization between the hands and various externalized organs (straightedges, compasses, squares, curvature templates). Even 'freehand' drawing (sketching) always involved becoming mechanical, through practice and repetition, of hand movements in relation to a tool. In both cases, gestures became predictable, regular, controlled, and approximately repeatable; their coordination is mechanistic." (May 2019, 43) Then why not study the remnants and traces of this very mechanistic notion through orthography in modernist building plans themselves?

Due to the atelier system, and its resultant mimetic mode, even architectural representation spoke the modernist language, practically indistinguishable from one another. Yet, as Hull points out, "Official procedures of file production are designed to determine agency (and therefore responsibility) absolutely by comprehensive documentation of authorship" (Hull 2012, 130). Autographic writing (or drawing in the case of architects), may therefore be used to make visible the actions of individuals within an organization. James Ackerman speculates, "the architectural drawing is not just a document containing the required data, but inescapably bears the stamp of the author's personal style and that of the time and place." (Ackerman 2002, 316), and yet, Robin Evans goes on to say of modernism, "Fabricated as they are with tremendous precision and parsimony, there is no more trace of Turrell in these rooms than of Mies in the most sparse of Miesian interiors," (Evans 1997, 4) such that there is a removal or filtering out of the self, implicit in the modernist style. The act of drawing exemplifies this, not only through the very instrument of a Cartesian grid, but standing as it does for control, one might even say a specific kind of *brutalism* which hinges itself on erasure through the act of filtering and abstraction.

Now, coming to the notion of the drawing as artefacts part of an archive. Evans articulates it rather well, the "peculiar disadvantage under which architects labor, never working directly with the object of their thought, always working at it through some intervening medium" (Evans 1997, 4) While the architectural drawing may be a visual medium, it is also an intermediary state—a transition from a thought to a design (at the sketch stage) and a transition from design to built-form (in the construction stage). In this sense, architectural drawing embodies the same liminality, or the in-between state that Bernhard Seigert calls upon. Situated

as yet another architectural metaphor, it is that uninhabitable "threshold," or "revolving door" (Siegert and Winthrop-Young 2014, 194, 201) between thought and action.

On Kanvinde's own reliance on drawing, historian and practitioner, Narendra Dengle, who trained at Kanvinde, Rai & Chowdhury early in his career, says:

"He trusted his skill of draftsmanship and drawing rather than trying to decode modernism engulfing arts and architecture theory. His ability to visualize and draw coupled with his comprehension of construction processes helped Kanvinde grow in confidence. This ability would stay with him forever. He would not only draw finished works but also explore all ideas through sketches in a way that was typically modernist. His design sense easily floated from macro to micro level – from cities and urbanism to buildings and details such as designing hardware or chairs in all kinds of material. Drawing and watercolours was his forte for visualizing spaces and forms, these unfolded the formal configurations he intended to schematize.

"He was a three-dimensional thinker and whatever he drew he immediately showed in its three-dimensional form, as he had visualized it. Watching him work on the drawing board was the real education for many in his office. His penchant for explaining plan with 3D sketches was unique, which he made in black ink and watercolour rendering." (Narendra Dengle 2017, 194, 196)

Kanvinde would begin sketching out perspectives pretty early in the design development stage—almost as a set of early impressions. From there, Narendra Dengle describes their progression as, "I remember quite clearly the sketches he would bring to the studio. These were meticulously drawn small but scaled sketches of plans-sections wherein his concept of space-

function and geometry was clear. It was never a cluttered drawing. Perspectives came a little

later. He was very deft at handling water colour in the perspectives. The further progress from

these sketches would be design development studying the structure by understanding 'framing'.

After this the design would undergo transformations—sometimes even at the cost of the original

concept."[18]
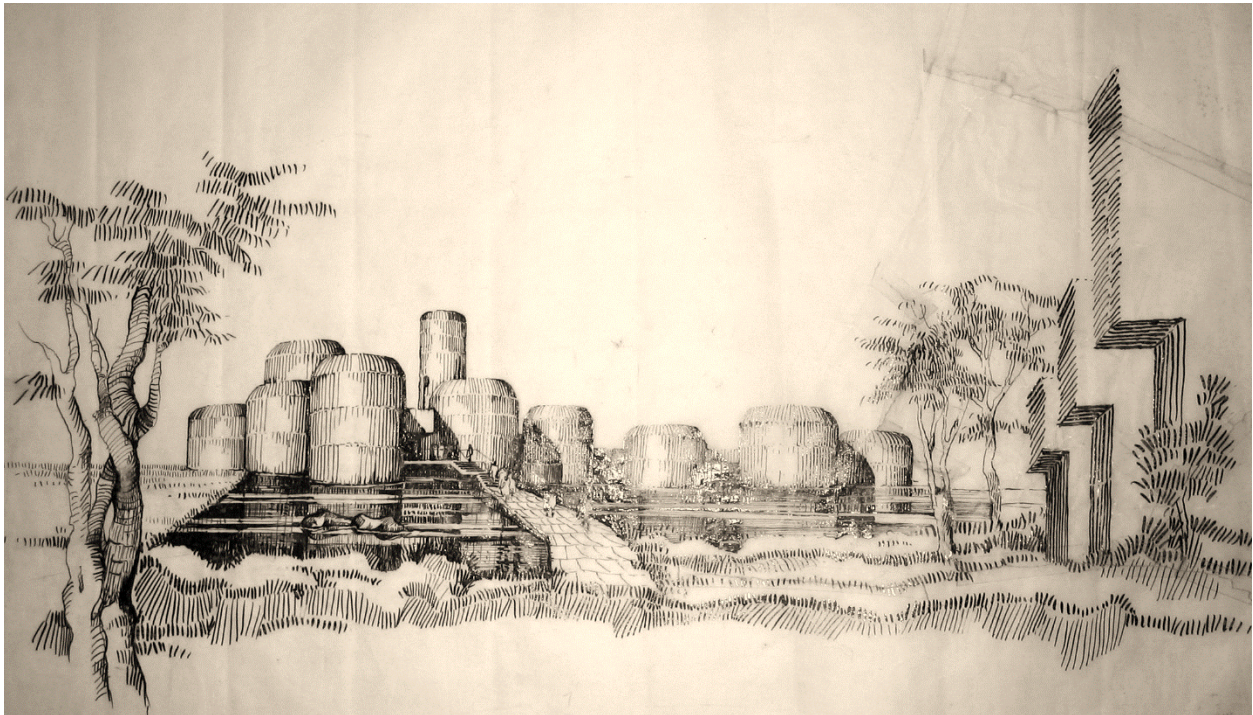
Figure 66: Perspective by Kanvinde for the Tantra Museum design proposal; one can see again the tendency towards ascending forms typified in Kanvinde's third stylistic iteration, here with cylindrical forms; [from the Kanvinde, Rai & Chowdhury archive]

Within this complex framework, we must now consider the drawings (and the model) of

the National Science Centre. All the drawings and sketches for the Science Centre, numbering

over 90 in total, would be impossible to study. Therefore, I have shortlisted some significant

drawings from which to make my observations. The drawings that I will study are the

perspective of the Science Centre (done by Kanvinde himself), the first floor plan (after which,

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[18] Narendra Dengle, in discussion with the author, March 2021.

though the recessed floorplate comes across, plans are largely repetitive), the section, the

staircase details, auditorium plan, landscape plan and observatory.
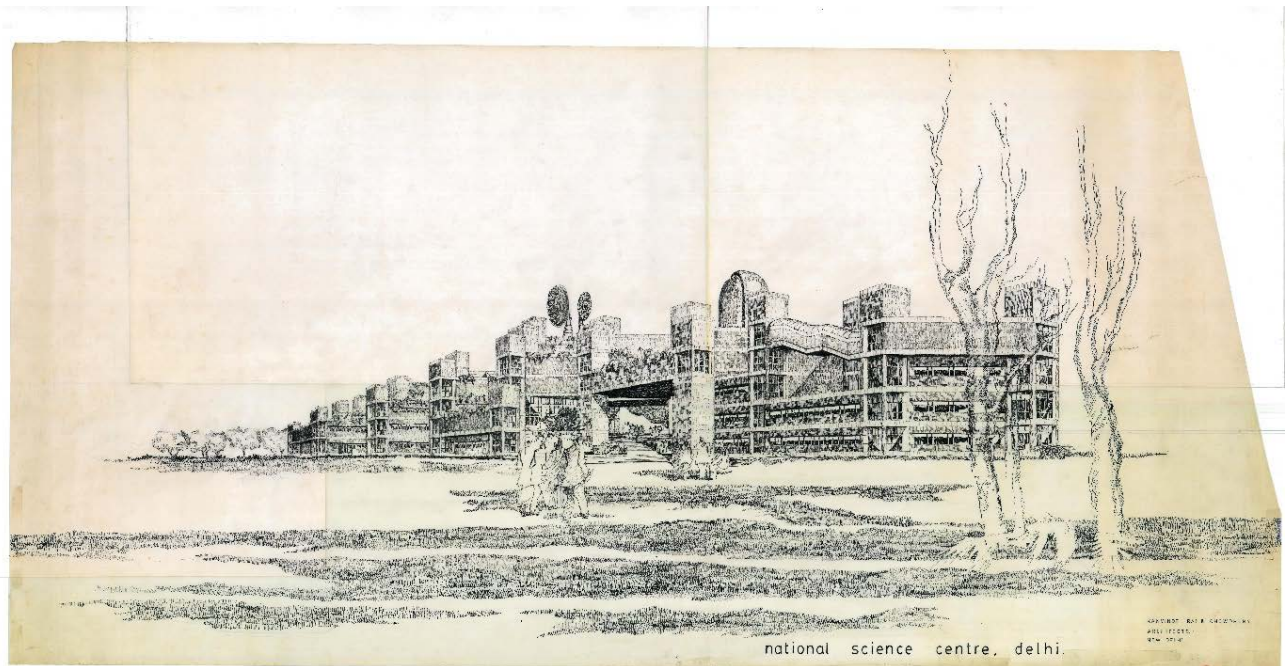
Figure 67: Perspective of the National Science Centre drawn by Kanvinde; [from the Kanvinde, Rai & Chowdhury archive]

Kanvinde has selected the framing of his perspective sketch of the NSC very carefully.

Though the proposed building was actually over six stories high, his selection of a distant frame,

and the use of two-point perspective, allows the building in the sketch to appear unassuming,

depicting the "human quality" and "scale" (Kanvinde and Kanvinde 2017, 70) he often sought

impart to the language of Brutalism. The cubic volumes and surfaces of the International Style

attempt to scale the sizeable mass of the project into smaller, comprehensible clusters. Speaking

of "human quality," Kanvinde has been conscious of putting user at the centre of this

composition. The cluster of human figures provide not just scale to the sketch, but also a focal

point in the foreground, in addition to the two off-centre, bare trees on the right side of the

composition. The eucalyptus trees hold the iron fisted minimalist notion of control in the

landscape. The pen stippling of the landscape extends out beyond the bounds of the sheet of paper, making the building itself seem much smaller in comparison. Not to mention, that this view is an entirely fabricated one—when viewed from the main road, there isn't such a large offset between road and building, and when viewed from the rear, it is not an exaggeration to say that the site has been carved out of the Trade Fair Authority land[19], and such a large offset could not possibly exist. Though the building is actually located in an urban area, with a heavy vehicular road, the rendering for the NSC, seems to situate it on a greenfield site—modernist mark; and the primary differences being an urban setting as against a pastoral.

On the facades, care has been taken to mark out the shadows on the elevations. The shadows on both drawings, as well as the unique medium chosen for rendering (stippling with pen and ink), calls forth Lucia Allais' research on architectural rendering. It is clear here, the persistence of shadows in architectural visualization dominated by the line, that Allais traces back all the way to Alberti. (Allais 2020, 5)

Allais explains, when designing a project at the École des Beaux-Arts, "to render meant to make complete" (Allais 2020, 14) and therefore each was made complete with its own intentionality. As Sonit Bafna posits on presentation drawings, or "drawings that are used by designers, clients or critics to discuss qualities" of architectural projects, (Bafna 2008, 535) "The presentation format of the drawings—the sketchy plan and perspective view—is not simply a mode of presentation; it is also a working medium. What this alerts us to, is the idea that there is a fundamentally visual quality to architectural thought." (Bafna 2008, 555)

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[19] Details known through correspondence between client and architect on being selected for the project.
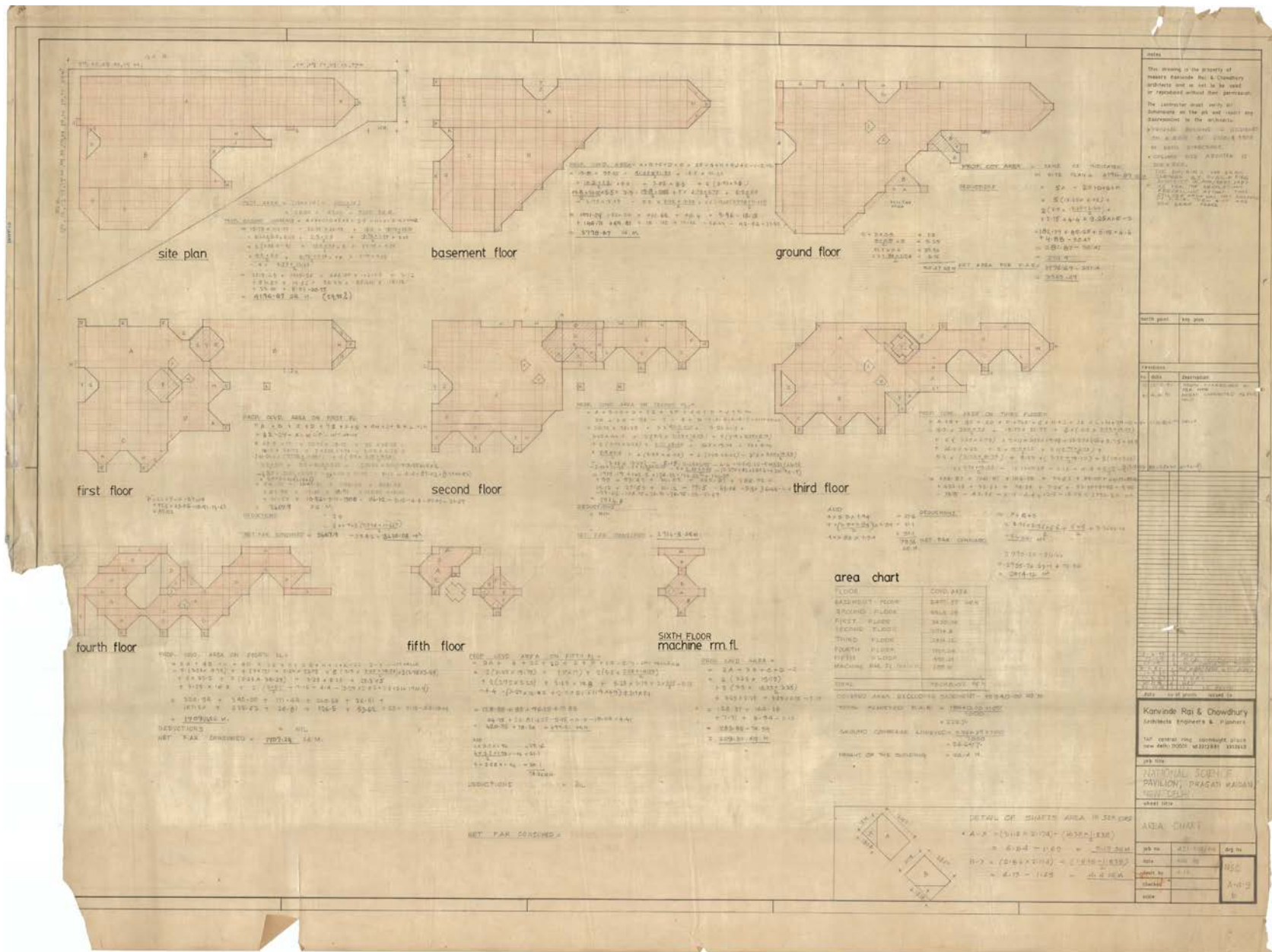
Figure 68: Area Chart for National Science Centre; [from the Kanvinde, Rai & Chowdhury archive]
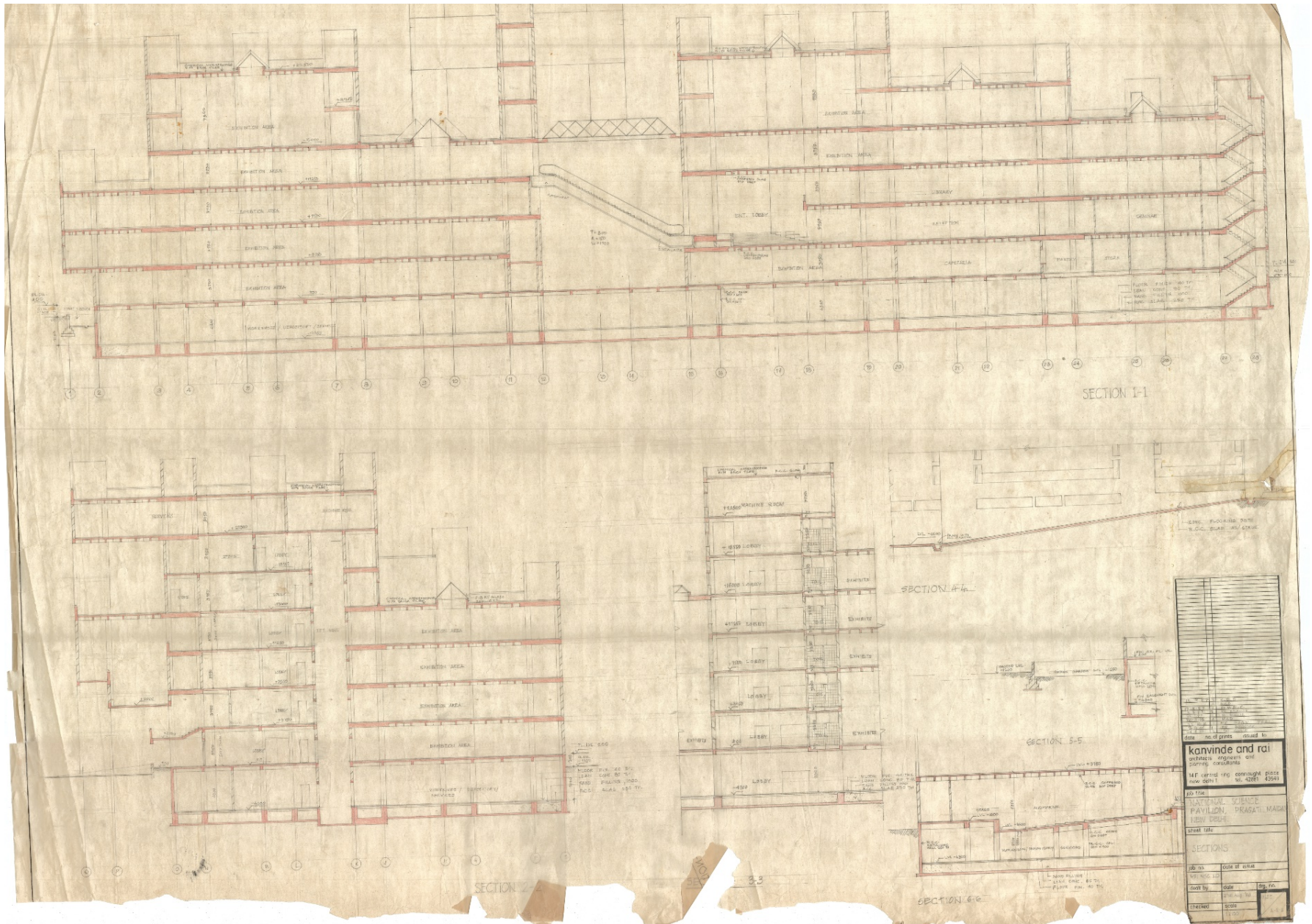
Figure 69: Section of the NSC; [from the Kanvinde, Rai & Chowdhury archive]

Figure 70: First Floor Plan, NSC; [from the Kanvinde, Rai & Chowdhury archive]

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The drawing number of the First Floor Plan is A1.3, drawn at scale 1:100. The scale is potentially to accommodate the largest possible size on the drawing sheet. The odd shape of the building footprint means that the lower third of the right side of the sheet lies empty and pervaded with negative space. The date is absent on this sheet, but the date on the Ground Floor plan sheet is 04.07.86, which means as early as July 1986, the plans were finalised. Similarly, unlike the Ground Floor and Basement plans, which have Sathe and Kalkar's names respectively in the "dealt by" bar in the format, this sheet has no name under dealt by. The lines and workmanship, however, are really neat and the pencil seems to have been sharpened to a fine tip.

The grids number 1 through 28 on the longer side and A through Q on the shorter side of the landscape-oriented sheet. At the intersection of the 2.75 m grids, service shafts are created that that run through the building. This alternating system of large and small grids, providing "served" and "service" spaces respectively, with some identified as 'cut-outs' and others serving as staircase cores.

Contrary to Allais' description of the solidity of the canyon-like walls, of the École des Beaux-Arts plans, the walls in the NSC drawings are depicted as slender double lines, and not hatched at all. However, the orientation of the plans is in keeping with the École plans—one of horizontal alignment—such that the hand of the architect while rendering is synchronous with the experience of the user proceeding through it (Allais 2020, 14) . Though the plan is the favoured drawing here as well, it is not very darkly hatched, instead, leaving the floor plate empty to indicate the coffers above in dotted lines.

These drawings also very much follow the principle of "linear graphism," in that all engravings on the sheet form "geometry" and "orthography" whether written or drawn, structured by rule bound lines. (May 2019, 61) Further, the grid and geometry here is rotated at a

45° angle. Even its "alphanumeric characters" come together through the coalescing of "ideal geometries" (May 2019, 64–66) through the same setup of practice and repetition. Areas have been marked with their specific functions at the centre of their modules. Three seminar spaces to the right, various terraces along the front edge and, as well as markings where there are cut-outs overhead. What makes the elements more interesting, is the use of textual versus graphical information to inscribe the spaces carved out through an orthographic arrangement of lines – the use of connotative labels. Rather than rigid assignment of functions through furniture layouts, it is fluid, already accepting the vagaries of actual occupation.

The plan has steps leading up towards the front, but almost a straight, chamfered edge on the rear edge. The entrance at -600, first landing at +750 after an ascent of 10 steps, second landing at +2440 and the third, lobby level at +3600. The entrance is at 45° to the escalator leading up, so within its field of vision, but not head on. The square module leaves only awkward triangulated areas for the realization of some staircases, as between grids Q10 and O12; some staircases fit perfectly in the smaller modules. Similarly, the ticket area and the locker room have also been carved out of a triangular area near the entrance.

A feature of all the drawings is that red and blue coloured pencils begin to be used for rendering here, which are not seen in the firms' early projects. This may likely have been an influence of Morad Chowdhury, who was known for his use of the red and blue double-sided checking pencils in resolving services and design simultaneously[20].

In the section drawing specifically, fibreglass skylights are identified on little conical roofs. The section shows the thickness of the slab in places, and where the structural coffers are

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[20] Radhika Viswanathan, in discussion with the author, March 2021.

coming through. The use of the red pencil draws attention to the thickness of the cut slab. The handwriting does not resemble ideal geometries as much here, as it does in the plan. Further, the handwriting on this sheet matches that on the area chart, on whose format, KJS, (short for Kanwaljit Singh) is written under "dealt by".

Robin Evans put forth the compelling argument that our engagement with the built environment is less through buildings—definitely not through actual making—but rather through the making of architectural representations, and precariously balanced on the "suspension of critical disbelief [that] is necessary to enable architects to do their task at all." (Evans 1997, 3) As tools of translation, they provided the necessary medium to represent a narrative as built form. As architects, we are so used to "reading" drawings as built space, we sometimes forget we are after all just looking at lines and markings on a flat surface. This, interestingly, mirrors the architect as well, whose own messy reality, gendered body, and personal (Third world) identity is filtered out to project "ideas" in the form of lines, upon this space ready for reception.

There are tensions latent here when we start looking at the drawings through their inherent framing, or lack thereof. Building Line-graphics are a little timid, and sit off centre on the sheet, yet: calmly commanding through its repeating modules. The framing somehow draws the eye towards the series of negative or empty spaces, themselves not differentiated from what may serve a traditional understanding of the interior/ exterior.
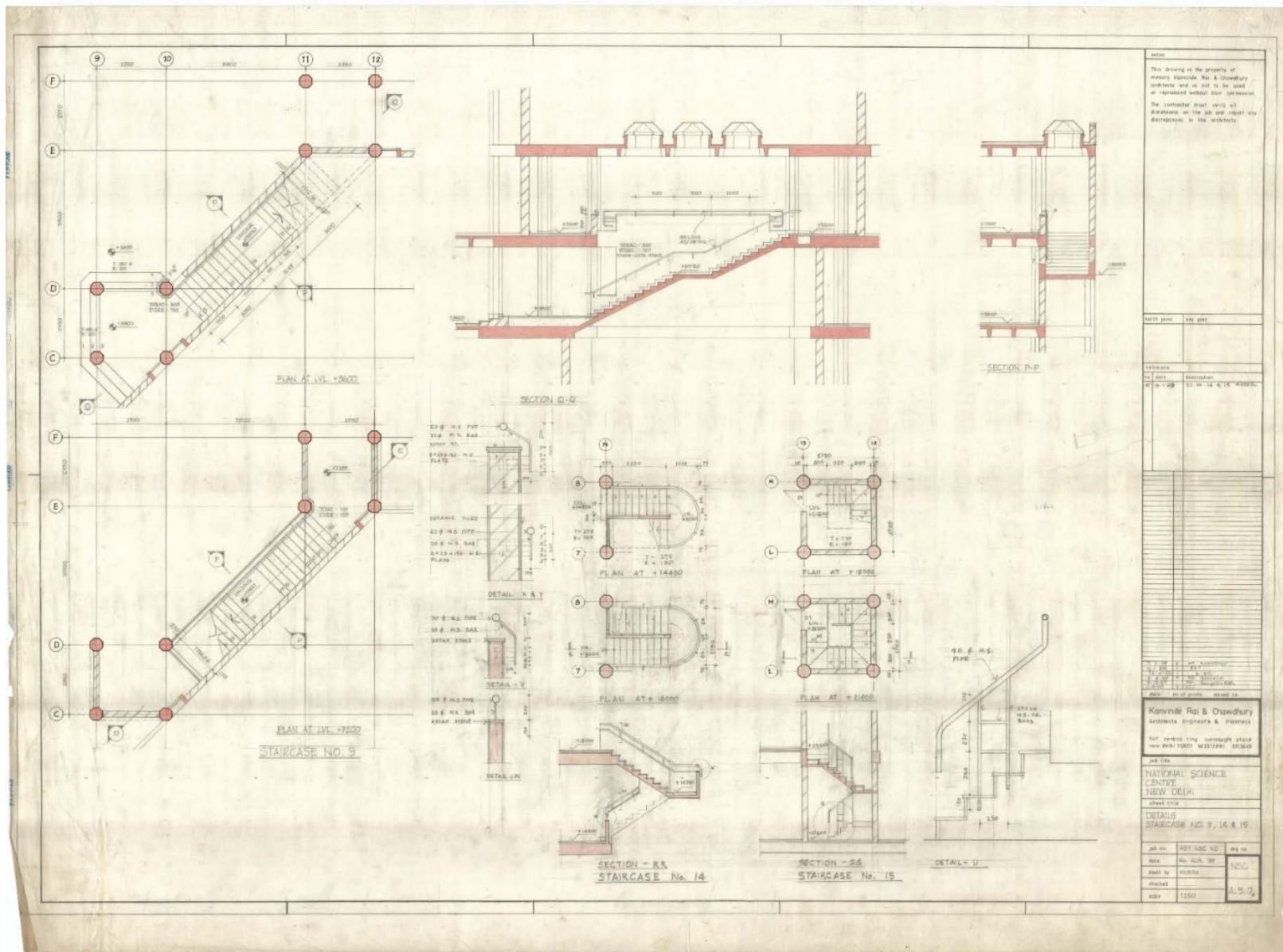
Figure 71: Staircase details for the NSC; [from the Kanvinde, Rai & Chowdhury archive]

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Figure 72: Main Staircase detail of the NSC; [from the Kanvinde, Rai & Chowdhury archive]

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Figure 73: Auditorium detailed plan and section, NSC; [from the Kanvinde, Rai & Chowdhury archive]
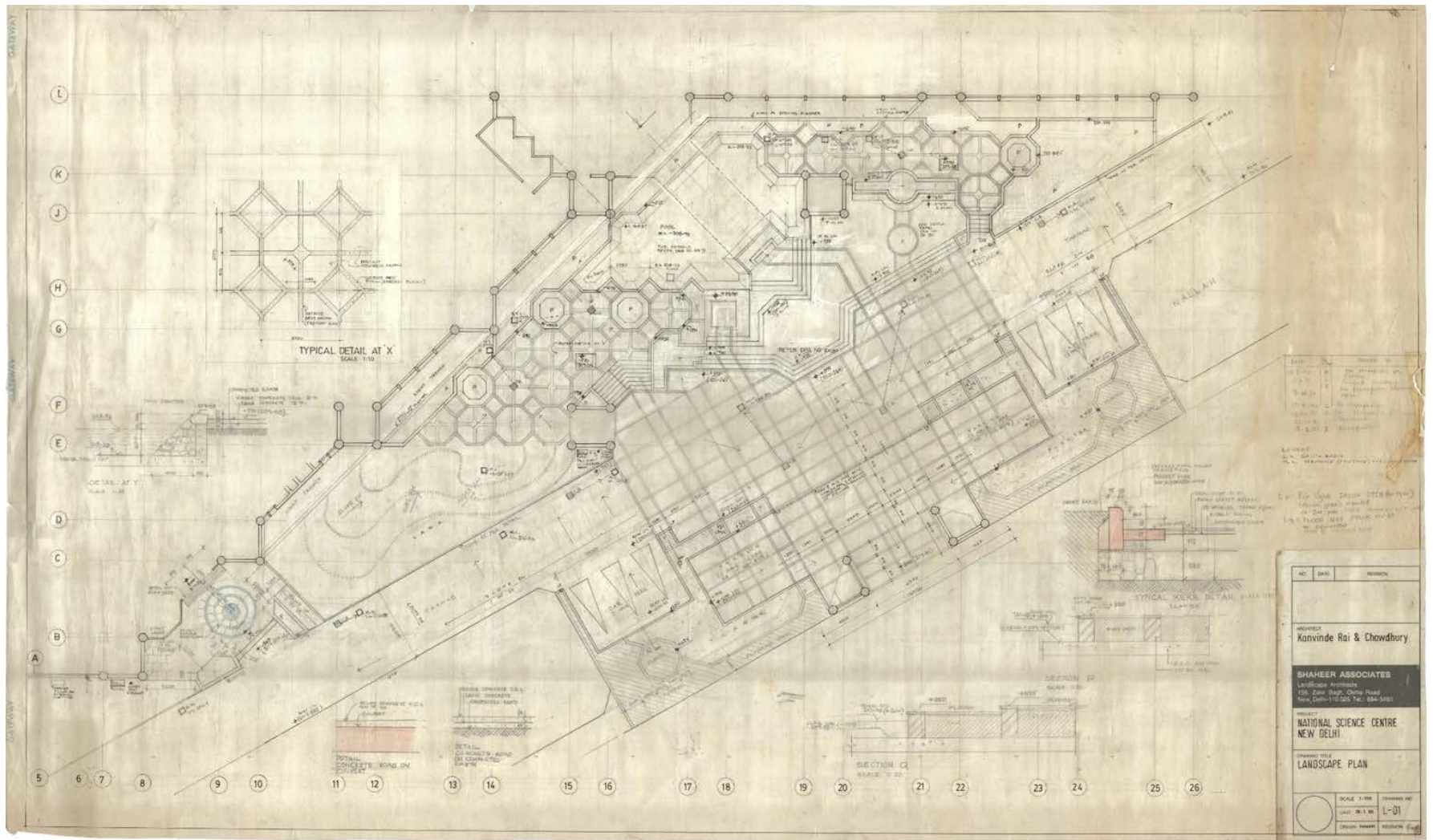
Figure 74: Landscape plan for the NSC, by Shaheer Associates; [from the Kanvinde, Rai & Chowdhury archive]
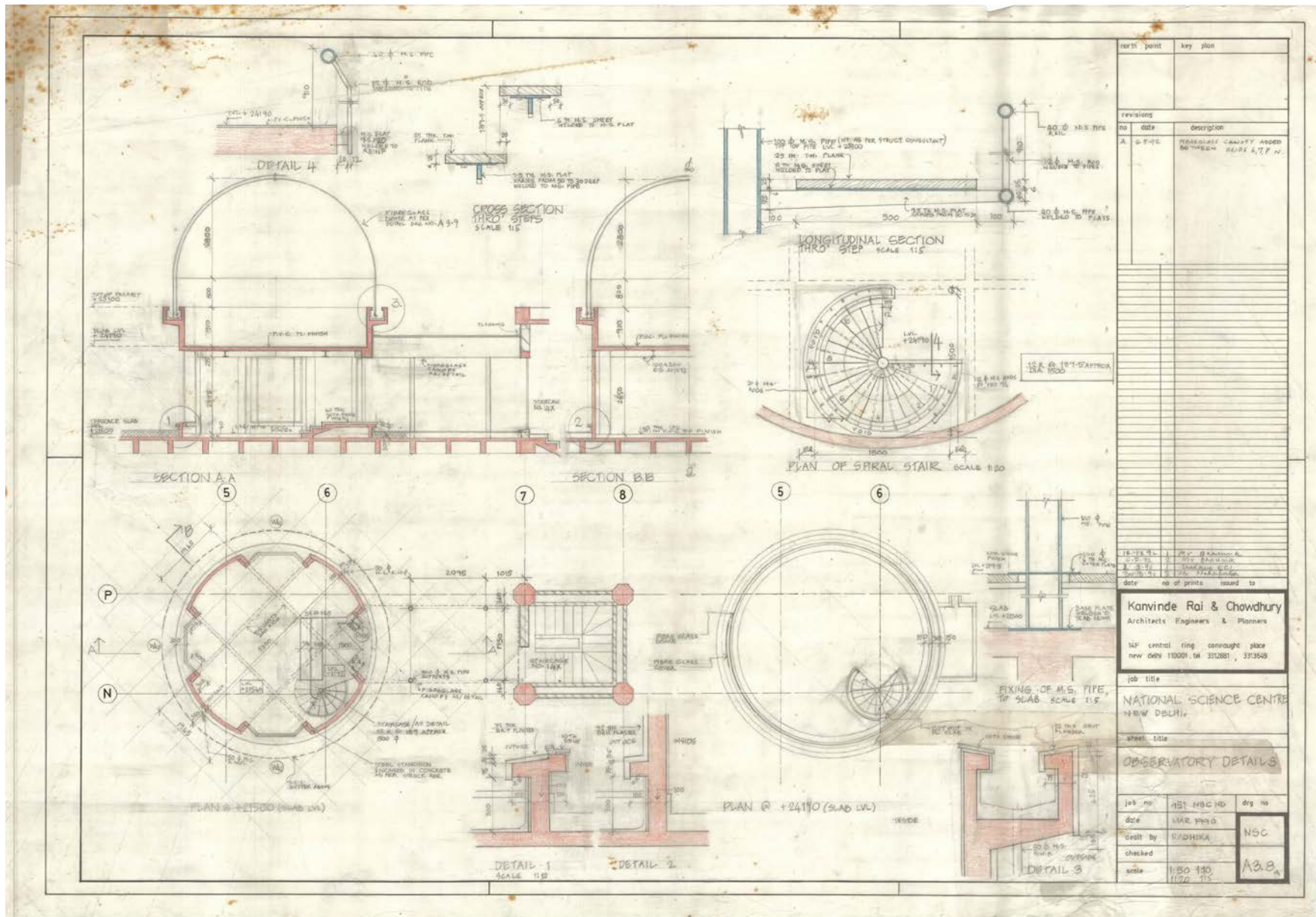
Figure 75: Observatory Details, NSC; [from the Kanvinde, Rai & Chowdhury archive]
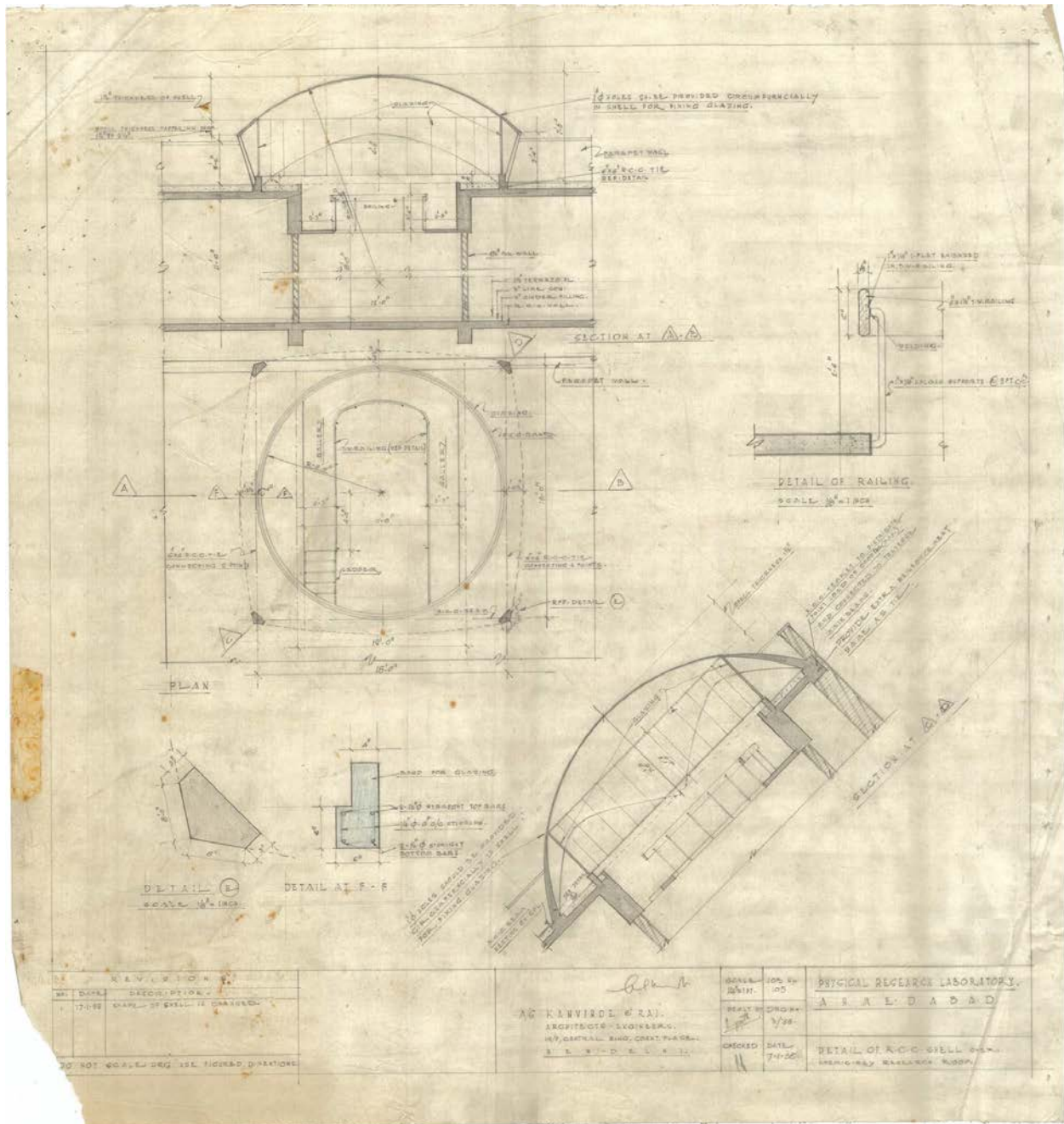
Figure 76: The drawing of the observatory of Physical Research Laboratory, Ahmedabad, 1955-74 by Kanvinde himself; [from the Kanvinde, Rai & Chowdhury archive]

Each of these drawings is a fascinating study in and of itself. The auditorium drawing is an interesting study, that demonstrates the introduction of the large space through the removal of one structural module. The staircase details throw light on the resolution of awkward triangular corners created by chamfered modules. The landscape plan shows the integration of the rigid

square geometry of the plan with the water body and the foliage towards the front of the plot. The observatory, however, I perhaps find most interesting. Though the observatory itself never materialised in the building, the design harks back to Kanvinde's observatory at the Physical Research Laboratory, Ahmedabad, here depicted with his own drawing. Each drawing contributes its own piece of the puzzle in the life of the project, and its translation from drawing to building.

However, architectural drawings, in addition to being objects of mediation and translation, are also visual objects in their own right; and should not be solely created to transition an idea to reality and then be relegated to crumbling in the architects' drawers. As Ackerman articulates, "An architectural drawing may be not just a means to an end but an end in itself. Drawings can be the only way of presenting projects that are visionary or at least temporarily unrealizable. They can become promotional instruments (presentation drawings, competition drawings) or an object of fashion quite disconnected from the making of buildings, to the extent of being quite unbuildable (the fashion of drawing resembles that of clothes)." (Ackerman 2002, 316) Further, unlike any other artists, architects do all their work in media which are different from the one in which the final work is realized. (Bafna 2008, 535)

So perhaps we can deduce that architectural drawings ought to be preserved. Not just preserved, but exhibited, much like other mediums of art. That however brings to the fore the tensions of the materiality of the surface itself. In positioning the materiality of the architectural drawing, a thought by Mary Ann Doane can be relied upon, "The potential of a medium would thus lie in the notion of material resistances or even of matter/materiality itself as, somewhat paradoxically, an enabling impediment. The juxtaposition of negativity and productivity is crucial here. A medium is a medium by virtue of both its positive qualities (the visibility, colour,

texture of paint, for instance) and its limitations, gaps, incompletions (the flatness of the canvas, the finite enclosure insured by the frame)." (Doane 2007, 38)

The experience of a drawing made on transparency as with the National Science Centre, and one made on 65 gsm Cartridge paper are entirely different. Not only because the surface predetermines the medium that can be used on it, but also by means of the experience of the surface itself – its features of luminosity or opacity, as the case may be. Further, each of the materials age differently as well, Cartridge holds its structural integrity for far longer, while trace or transparency first begins to discolour and then warp.

As is likely easily discernible, of the images presented as part of this study—they are fading; the paper is fraying at the edges, and torn where it was caught by tape, and that brings in the question of indexicality and temporality of an archive's materials. Since 2017 then, several of the drawings have been digitized. Yet somehow, these digital facsimiles lack the immediacy and hapticity of the originals. Digitization produces a unit of sameness and uniformity that would not appear in drawings made my hand. Even if the same draftsperson were to make copies of the set of drawings, each copy would have a unique marker, not intentionally or stylistically, but through the indexicality of a handmade object.

Publications

By using the generic term, "Publications," I intend for it to be used in a catch all manner, including written material and graphics by the architect, and writeups to be circulated to clients in addition to newspaper articles and media coverage. Text published by the architect, either for dissemination within the architectural community, or to clients, can once again be categorized as being indicators of authorial intent. These provide a platform for the architect to be able to justify the design. Newspaper and media coverage can give a fairly good idea of the socio-political context, and public opinion on the project, depending on what the biases of the writer are, and what the angle of the piece is. In the instance of the Science Centre, there were two distinct narratives that formed through publicity and press coverage, even though the main aim was promotional, and to increase footfall.

Figure 77: Article titled, "Dream Castle at Pragati Maidan" in the Hindustan Times, Sept. 20th, 1993;
[clipping from the Kanvinde, Rai & Chowdhury archive]

The article in the Hindustan Times, Sept. 20th, 1993, titled, "Dream Castle at Pragati

Maidan" writes in hyperbole about the upcoming Science Centre in New Delhi—"the largest in

Asia." There also seems to be an implied renaissance of 'science and technology,' and

specifically science museums from the staid experience of normative museums to more

interactive ones. Further, it is interesting to see how differently the client and architect phrase

their priorities for the building. The article quotes Kanvinde as saying, "the five-story building

will visually be like a landscape cascade, in which every floor has a terrace garden which would

provide outdoor exhibits, the main character would be that of a rising garden, dominated by the

scientific structures on top like solar reflectors, observatory dome, antennas." While the hoarding

positioned outside the building by the client says, "Here comes the Dream Castle for one and

all!" This is also likely what prompted the title for this article.
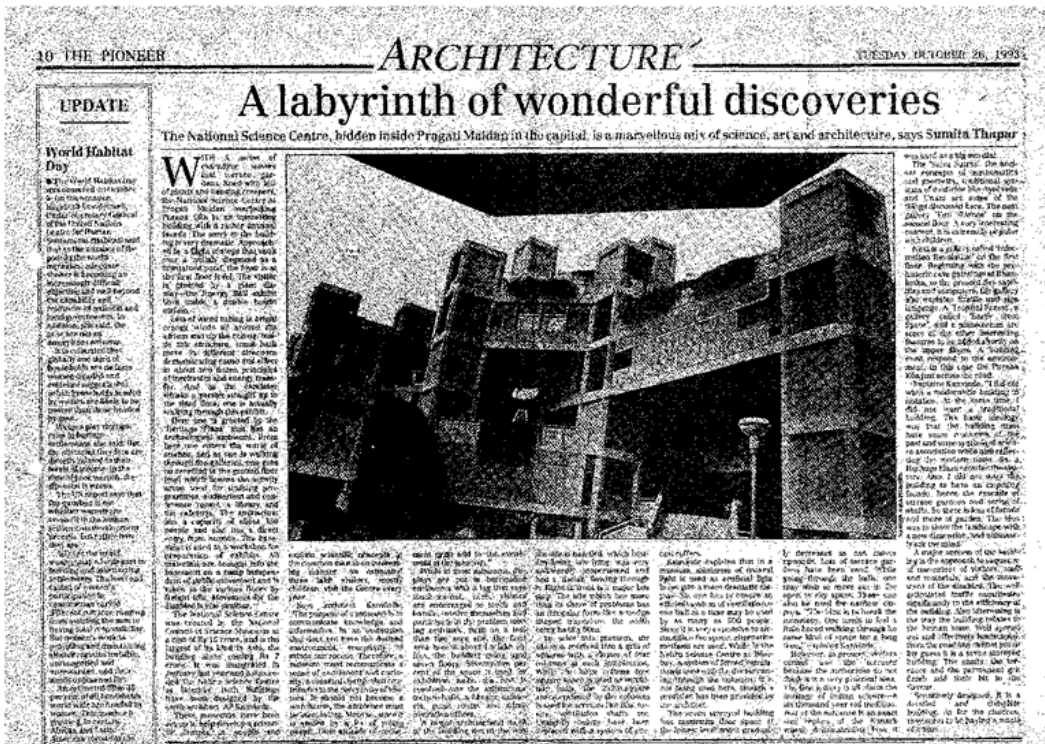
Figure 78: Article titled, "A labirynth of wonderful discoveries" in the Pioneer, Tuesday, October 26, 1993;
[clipping from the Kanvinde, Rai & Chowdhury archive]

The article in the Architecture section of The Pioneer, dated October 26th, 1993, a largely spatial analysis and architectural reading of the museum. Kanvinde is quoted as saying, "the purpose of a museum is to communicate knowledge and information. In an institution that does not have the desired environment, receptivity of minds can recede. Therefore, museum must communicate a sense of excitement and curiosity, a constant change that contributes to the receptivity of visitors. It should not become a warehouse; the ambiance must be stimulating."

The author of the article, Sumita Thappar, prompts that a building must respond to the environment, in this case, the Purana Quila just across the road. She quotes Kanvinde as saying, "I did not want a modernistic building in isolation. At the same time, I did not want a traditional building. The basic ideology was that the building must have some remnants of the past and some symbols of science Association while also reflecting the modern times. So, a heritage Plaza receives the visitors. Also, I did not want the building to have an imposing facade, hence the cascade of terrace gardens and series of shafts. So, there is less of façade and more of garden. The idea was to show the landscape with a new dimension."

The article titled, "A museum of interactions" by Radhika Singh, in the Design section of the Economic Times, New Delhi, March 24, 1994, is perhaps the most astute and critical of all the coverage of the Science Centre. Singh observes, "a special feature that is fundamental to the design of a museum is the interplay between the design of the building and the design of the exhibits. The absence of any dialogue between the architect of the NSC, and the designer of the exhibit was pointed out by Michael Preston, Head of Design, London Science Museum, who is recently in India to conduct a workshop." She goes on to say, "a major problem in museum architecture is how to add onto another building in a way which is compatible with the existing structure; functionally integrated with its original building and architecturally significant. Museum building design—it's form—follows the museum's program goals—it's function. At our non-formal scientific meccas, this problem has not been tackled."

Figure 80: Article titled, "Museum of marvels" by Renuka S. Khandekar (newspaper unknown); [clipping from the Kanvinde, Rai & Chowdhury archive]

Renuka Khandekar writes in the article Museum of Marvels, "The National Science Museum is built on less than two acres of a once neglected corner of the trade fair complex, on what was their lowest, most flood prone area, traversed by a nalla (drain). Kanvinde has an exciting brief. Kanvinde answer was a series of cascading towers, topped by terrace gardens. 82 of them, in conformity with the height and crenellations of the neighboring Old Fort. 'I wanted the landscape to take over,' says the veteran architect. 'If the rooftop gardens are properly tended what you will ultimately have is a configuration of green towers that invite and don't repel.'"

She goes on to say, "it is this gut level understanding of human needs and responses to various stimuli that links the form and content of the National Science Museum—from Kanvinde's concern for generating excitement about science through a carefully sequenced flow of movement, to the 'museum men' like Bhaumik, who at every point reaffirm the inspired application of the scientific spirit by past generations. As a triumph of Indian architecture and

museum skill, these green towers and their gizmos are unique. If only the building contractors had done a better job of the roofs and the walls were leak-proof."

On the other hand, an architectural opinion, was published in Architecture + Design, Nov-Dec 1995, 34, in an article by Architect Sumit Ghosh:

"Interpretations of such vertical elements creating an architectural language have also appeared in many of Kanvinde's buildings, such as in the dairy project at Mehsana, the Science Centre, Bombay and very recently in the National Science Centre New Delhi. But, in Delhi the vertical elements have become a part of an architectural vocabulary playing a second fiddle. The inspiration of a crystal seems to have taken over in creating this prismatic structure. From the Science Center, Bombay, to the Science Center, Delhi, spanning period of over half a decade, the ideas have further crystallized, marked typically by a keen sense of proportion and scale. An

embodiment of humility and humanity touching the essence of beauty is reflected consistently in the architects work."

Ghosh was clearly sympathetic as a fellow architect, to Kanvinde's struggle, "It is truly sad that one needs a good client or going a step further, to say that one needs a good client who is responsive, if not inspiring, and an equally good builder, cooperative if not a craftsman; to have a good building. Under such limitations it was only a master like Kanvinde who could complete a project like this, but one would have certainly cherished it even more had it been on a larger site and setting, such as an institute of national importance deserves." This biased opinion (Sumit Ghosh was a friend and colleague of Kanvinde's), still nonetheless represents the architectural communities' perception in this situation.

Publications, through their various angles and lenses showed that the Science Museum movement in India, had gained momentum in the late 80s. Scientific museums were in a transition phase—graduating from being purely educational centers to experiential and interactive places. The client and the architect both wanted to break away from the traditional idea of a museum and encourage alternative ways of learning, though their priorities were slightly different in this regard.

Interviews/ Oral histories

Oral histories, while sometimes liable to inconsistencies or gaps in memory (depending on how long ago the instances took place), are a good way to glean backstories into the process of architectural production. Further, while most developments in architectural practice are rigorously recorded and documented through meeting minutes today; architectural practice in India during the '70s and '80s particularly, a lot of agreements were reached verbally, and there were no written records. Executive decisions, changes in design and the reasons behind them— much of the time, no written documentation of this remains, either in conjunction with drawings or through correspondence. Further, oral histories provide insights into the working environment of an office, as well as how things functioned. Oral histories could help to piece together what each person's exact roles were and ascribe authorship to all those individuals involved in a project. For this project, the interviews were to enact a two-fold purpose. The first was to understand the specific conditions underlying the National Science Centre project, New Delhi. The second was to get a sense of the general working culture of the firm. An attempt was also made to speak people that worked at the firm in disparate time periods, so as to get a variety of experiences. The following people were interviewed:

- Mahendra Raj, structural consultant on the National Science Centre
- S. G. Deolalikar, public health consultant on the National Science Centre
- Kanwaljit Singh, lead project architect on the National Science Centre
- Radhika Viswanathan, architectural detailing for the National Science Centre
- Narendra Dengle, worked at the office in 1974
- A.K. Joshi, worked at the office between 1964-72

The interview with Kanwaljit Singh[21] was most informative, and he remembered several

instances from during the design and construction stages of the project. He remembers it being a

very challenging project right from the beginning. He said, though the building may look like it

now belongs on the site, it was an awkward wedge-shaped plot. Further, the requirement from

the client, was of flexible spaces, and yet managing the circulation as a joy. The specific

challenges included, how to maintain ascending forms in square modules while also providing

the large spans and column free spaces (this was finally resolved using the diagonal spans of the

square module, and as a result, the grid was rotated to a 45˚ angle). This was even more so the

case with the auditorium, where far larger span was required (this was finally achieved by

removing one bay of columns at the centre of the space demarcated for the auditorium and using

transfer girders). Further, the technology of the time was restrictive: the escalator placed a

limitation. The escalator, from Otis, was of the maximum height in the market at the time but

was only able to traverse from the ground floor to the third floor. Singh recalls another challenge

as being that the basement would flood 4 ft. all through construction, and a pump had to be

installed, due to high ground water level on the site.

In terms of changes in design, Singh remembers the removal of observatory from design,

due to height restrictions and lack of funding on the part of the organisation. He recalls working

with Kanvinde and Mahendra Raj, the fact that attention to detail was such that consideration

was made to keep the column size same as brick wall width. As lead project architect, he recalls

being given a relatively free hand on the project, and flexibility to experiment and develop his

own authorship. He remembers going onto site once, with a block model to meet structural

[21] Kanwaljit Singh (lead project architect for NSC, Kanvinde, Rai & Chowdhury) in conversation with the author, March 2021.

engineer, Mahendra Raj. Kanvinde, though having briefed Singh, could not attend this site meeting due to a prior commitment. Singh recalls being very dismayed that they would have to compromise on the cascading effect in favour of the long spans and large loads. But when he told Mahendra Raj as much, Raj dismissed the notion, and assured him he would manage it somehow, asking in jest, "Wouldn't you rather pose a challenge to Mahendra Raj?"

There were some features of the project that did not materialize, such as the Heritage Plaza in the front of the building. Second, the air circulation of the ventilation shafts could not be realized till the very end. And at the particular time, when Rajiv Gandhi was Prime Minister there were certain restrictions that were put into place by the municipality on multistory buildings. The observatory proposed for the top of the building was not allowed, and they had to settle with the water tanks on the roof being the last step of the cascading effect.

Singh recalls the project being a pivotal one for him, describing it as "a 'U'-turn in my life" he had been at the firm for two years prior to the start of the project. He stayed for another four years, for the duration of the project, from the first sketch of the Science Centre to its completion stage. He recalls that Radhika Viswanathan, the other architect on the project, came on board after the structure was complete.

Radhika Viswanathan[22] remembers having a lot of flexibility with designing details for the Science Centre. She notes that Kanvinde maintained an open door policy, and was happiest when discussing or resolving a design problem. She recalls that one of the considerations for external facade finish was the need to echo in some way the Old Fort across the road. The finish that was finally decided on was grit it finish, though for a while, they considered using stone

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[22] Radhika Viswanathan (worked at Kanvinde, Rai & Chowdhury in 1987) in conversation with the author, March 2021.

bands. They had some samples done on site using gray quartzite with some percentage of white chips. Radhika interestingly, had experience working with both Kanvinde and Morad Chowdhury. And she talks about the office culture during her time there. Normally new entrants to the firm would either be assigned to work under Kanvinde or Chowdhury, and once assigned, people remained staunchly loyal and continue to work with them. Unbeknownst to the principals of the firm, Kanvinde was referred to by all his students as "Guruji" or teacher while Chowdhury was referred to "Ustad," or maestro. The suitability of these monikers perhaps begins to give an idea of each of their priorities. Starting out working with Kanvinde, she eventually moved onto Chowdhury's team. She remembers Chowdhury being very fastidious regarding the resolution of services and structure even at early stages of development, while Kanvinde was more concerned with the more abstract: experience of space, light and ventilation. Interviews with Mahendra Raj, Deolalikar, A.K. Joshi and Narendra Dengle, were more useful in understanding the working dynamic, and what Kanvinde was like as a professional.

Written Correspondence

The written correspondence was perhaps the most revelatory. The correspondence documents the dates on which letters were exchanged, exact phrasing of exchanges: it is so forthright as a medium of the archive. This leaves no room for ambiguity. In addition, it also can be used to trace authorship, since in this case, signature forms a trace of authorship. The primary actors on the part of the National Council of Science Museums, were P. K. Bhaumik, Project Coordinator for the Science Centre, New Delhi, Dr. Saroj Ghose, Director General, National Council of Science Museums, on the part of Kanvinde, Rai & Chowdhury, were either Kanvinde or Rai, evidenced by their initials on the bottom left of letters, and signatures on receipt. Mahendra Raj and Sardana handled correspondence on the end of the structural engineering firm, Engineering Consultants, India (ECI).

The total correspondence for the Science Centre featured 16 box files, each about 2.5 inches thick. They were categorised into Civil, Electrical, Plumbing, MCD (Municipal Council, Delhi) and divided according to year. Filed with letters between client, architects, contractor, consultants and governmental agencies regarding permissions, were also transmittal sheets (here again was a signature as a trace of authorship, in that the names on the sheets indicate who was working the day to day of the project), copies of the contract during negotiation stage, the area brief provided by the National Council of Science Museums and the project brief reworked by the architectural firm.

The number of letters and documents and the various themes they covered, were expansive, spanning over 7 years of correspondence, beginning prior to the awarding of the

project, and extending even after project completion, due to non-payment of fees, and aesthetic and graphic design considerations once the building was functional. I have therefore compiled a list of salient points year wise, that came up through the letters and interactions.

The Issues that came up in the correspondence (salient themes) are as follows:

Planning phase/ early issues:

- Issues regarding appointment of contractor, Bridge and Roof Co. When Kanvinde, Rai & Chowdhury expressed reservation to the client regarding the appointment of the contractor without a tender process, and due to the bad market reputation of the contractor, they received the following response in letter from the Director General, dated, 29th November, 1986. "You will definitely understand that the decision for appointment of contractor is to be taken solely by this Council as per the rules and in the interest of the work, the Council can always short circuit any or all the steps foreseen earlier. The role of the architect is advisory and not executive. If this Council takes a decision to award work to a particular organisation without inviting tenders, the whole question of shortlisting or scrutiny of tenders etc, does not arise at all. We do not think our decision to appoint a contractor violates in any way condition of our agreement signed with you."[23]
- Delays by the contractor on the construction of the pile foundation
- Process for modification of height restriction with Trade Fair Association India and Municipal Corporation Delhi. Kanvinde even wrote directly to the Prime Minister to get the height restriction removed when several letters exchanged with the MCD didn't work.

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[23] Letter from the office of the Director General, National Council of Science Museums, dated, 29th November, 1986; [from the Kanvinde, Rai & Chowdhury archive]
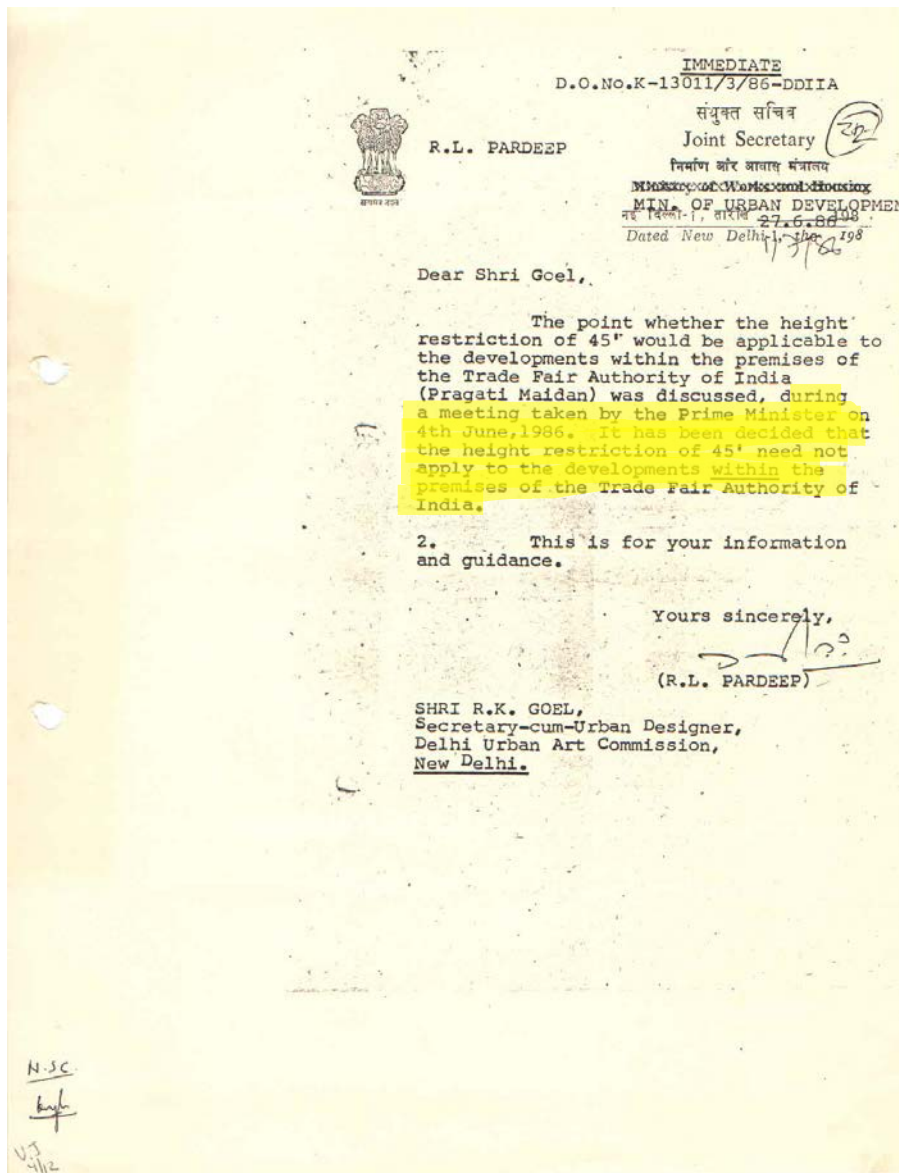
Figure 81: Process for modification of height restriction: letter from Ministry of Urban Affairs Joint Secretary, The Government of India; [from the Kanvinde, Rai & Chowdhury archive]

Working issues:

- Choice of grit plaster to be used as well as specification for the proportions and the production of samples on site

- A nallah (drain) at the entrance of the site, that the MCD did not give permission to cover. Kanvinde integrated it as a water feature in the landscaping at the entrance instead, cleverly inserting a fountain.

- Poor quality of coffer and rectification: on a site visit, Kanvinde identified the poor quality of the coffer slabs that the contractor had executed. He wrote to the Director General, Dr. Saroj Ghose, in a letter dated May 9, 1989, "Somehow, the way the construction is being organised by the contractor, they generally entrust both the labour as well as the material contract to sub-contractors. The results indicate that they have overlooked some of the essentials, for example, although the ground and first floor roofs have come out satisfactorily, the second and third floor roofs have entirely come out defective, mainly because they have been producing deformed and sub-standard coffers. A close scrutiny of these roofs will explain that they are in varying thickness from 10mm to 30mm instead of 20mm thickness." Kanvinde further cautions that the nature of construction so far was of the structural type, and that special effort would have to be make for finishing items.[24]

- Restriction on the use of Jaisalmer stone to be replaced by Kota stone due to budgetary restrictions from the client

- The client's directive to reduce Kota thickness for cost adjustment.

- Architect expressing general concern at the contractor's lackadaisical attitude to the architects' complaint regarding poor quality work.

- Clients request to introduce large glazing on the street side elevation to attract passers-by with displays visible from the main road. This request came after the structural system

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[24] Letter from Kanvinde to the Director General, National Council of Science Museums, dated May 9, 1989; [from the Kanvinde, Rai & Chowdhury archive]

had mostly been constructed, and therefore, it was largely turned down by the architect, except in one instance where possible.

- The client's directive to use the basement as workspace, which had initially been demarcated only for storage; which resulted in a demand for more windows after completion of construction.

- Letter to the client clarifying misunderstanding and clarifying the position of the architect on the job and to his client, in a letter dated, April 4th, 1989.

   Handover issues:

- Letter to the client regarding payment being withheld for not getting completion certificate, which did not come under the purvey of the architect's responsibilities as per the contract.

- Issues of poor-quality construction and objecting to client taking up for contractor when "it is the architect who is working in the interest of the project."

- Kanvinde questioning the signage and paint subsequent to completion and handover with concerns of, "impression that foreigners may carry" and the architectural fraternity telling him about the garish colours and how a "public building such as this should be dignified."

The following are extracts, of perhaps the most heated exchange between Kanvinde and the client. The Director General, Saroj Ghose, attaches a letter from Project Coordinator, P. K. Bhaumik, reporting a telephonic conversation between Kanvinde and himself. And Kanvinde responds on both counts. [from the Kanvinde, Rai & Chowdhury archive]

Dr. Saroj Ghose
Director General

राष्ट्रीय **NATIONAL**
विज्ञान **COUNCIL OF**
संग्रहालय **SCIENCE**
परिषद **MUSEUMS**
१९ए गुरुसदय रोड 19A GURUSADAY ROAD
कलकत्ता ७०० ०१९ CALCUTTA-700 019
GRAM : MUSOSCIENCE
TELEX : 21-7723.
PHONE : 43-1756, 44-3619

D. O. No. I-15014/10 |823°   Date 23rd March, 19 89.

Dear Shri Kanvinde,

Sometime back in a meeting held in your office I communicated
to you the resentment expressed by my colleagues over derogatory
remarks frequently passed by one of your colleagues about senior
officers of this Council. Since the relationship between an architect
and its employer shall be of mutual understanding and not of confron-
tation, I sought for your help in restoring the desired working
relationship. Your letter dated 8.3.89 and Shri Bhaumik's letter dated
20.3.89 (a copy enclosed) have therefore deeply hurt me as I have
always held you in high esteem much above such petty bickerrings.

In order to avoid recurrence of similar unhappy incidents in
future I would like to reiterate that National Science Centre is the
employer for the present construction and Shri P.K.Bhaumik, as its
head, enjoys full authority of taking decisions and communicating
the same both to the contractor and the architect for compliance.
Whether Shri Bhaumik consults his superior or not is entirely an
internal matter of this Council and it will not be proper for the
architect/contractor to raise questions on his authority. You are
therefore requested to interact with Shri Bhaumik on all matters
relating to the construction and accept his decision in good spirit.

Regarding the last line of your letter I am confident that
Shri Bhaumik will assume full responsibility for his own decisions
but surely not for design defects or complications arising from
incomplete specifications prepared by the architect.

Regarding various charges levelled by you on acceptance of
sub standard materials and supporting the contractor in concealing
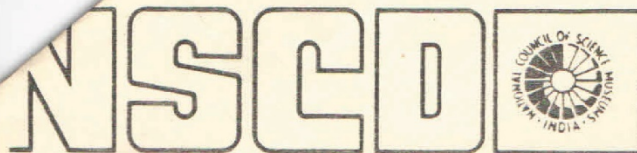their defects, my colleagues will shortly send you a reply.

With regards,

Enclo: As above.

Shri A.P.Kanvinde
Architect
M/s. Kanvinde, Rai & Chowdhury
14-F, Middle Circle
Cannought Place,
New Delhi-110 001.

Yours sincerely,

(Saroj Ghose)

A.P.K.......................
S.R..........................
M.A.C.......................
....

2 7 MAR 1989

sq/skd

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P.K. Bhaumik
Project Coordinator

REGD.A.D.

D.O. DEL:15014/6

Date: 20-3-1989

Dear Dr. Ghose,

With reference to Shri A.P.Kanvinde's letter (Regd.) No.451-NSC/ND-366 dated 8th March, 1989 and your telex query dated 14-3-1989 on Shri Kanvinde's above letter on the construction of NSCD, I would like to place below the substance of my telephonic discussion with Shri Kanvinde on 3rd March, 1989:

On 3.3.1989 afternoon immediately after my return to office from court at Tis Hazari I received a phone call from Shri A P Kanvinde. He was in an aggressive mood expressing his total dissatisfaction in the manner the coffer repair was resumed. He was not offering me adequate chance to speak and was alleging,"BRIDGE & ROOF'S INTEREST IS BEING PROTECTED BY YOU AND YOUR ORGANISATION AND THUS ALLOWING THEM TO COVER UP THE DEFECTS. THIS WILL NOT HELP YOU". However, I tried to narrate the circumstance starting from my receiving verbal information from Shri Shaukat Rai on 24-2-1989 noon, his suggested solution by pressure grouting; my consulting senior officials in my organisation; our action to hold up the work by Bridge & Roof; our waiting for Shri Mahinder Raj's observation and not receiving the same till 3.3.1989 afternoon; as well as our decision to allow Bridge & Roof to resume coffer repair by pressure grouting. I also strongly resented on his allegation regarding our protecting Bridge & Roof's interest. Shri Kanvinde asked me point blank what authority did I have to take a decision in this matter when I had no alternative but to say that being head of this project I took actions whatever circumstances demanded. In the interest of quick implementation of work I decided to resume the work. I also told him that Shri Mahinder Raj's observations were not received by us even after a week of their inspection though I requested Shri Shaukat Rai on 24.2.1989 to make it available at the earliest. Shri Kanvinde threatened me over phone with utterances, "BHAUMIK, YOU HAVE BECOME A BIG BOSS TODAY AND DO NOT CARE FOR ME. I WOULD BRING IT TO THE KNOWLEDGE OF DR VARADARAJAN AND IF REQUIRED TO HIGHER AUTHORITIES BECAUSE WE ARE DEEPLY CONCERNED ABOUT THIS PROJECT". I replied with utmost firmness,"SHRI KANVINDE, I HAVE TREMENDOUS RESPECT FOR YOU BUT THE CONTEXT ON WHICH YOU ARE NOW SPEAKING AND SHOUTING CAN NOT BE REPLIED WITH RETURN SHOUT FROM MY END. IF YOU DECIDE TO BRING IT TO THE KNOWLEDGE OF HIGHER AUTHORITIES I LEAVE IT ENTIRELY ON YOU". Shri Kanvinde replied "YOU ALSO COMPLAINED AGAINST ME TO YOUR HIGHER AUTHORITY" to which I replied I AM NOT INTERESTED TO LODGE ANY COMPLAINT. I AM ONLY INTERESTED TO SEE THAT MY PROJECT WORK PROGRESSES". I thanked him before I put the phone down.

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451-NSC-ND-519   April 4, 1989

Dr. Saroj Ghose
Director General
National Council of Science Museums
19-A Gurusaday Road
Calcutta 700 019

                    Sub: National Science Centre at Pragati
                         Maidan, New Delhi

Dear Dr. Ghose,

        I am in receipt of your letter dated 23rd March, 1989
and noted the contents. I would like to mention at the outset
that I personally have respect for all those connected with this
project and would not like you to feel that there was any
intention to hurt anybody's feelings. I am extremely sorry
if my letter has hurt you and would not like to extend this
correspondence unnecessarily, if this is going to create
further misunderstanding.

        I have gone through the letter of Mr. Bhaumik dated
20.3.1989. However, it did not explain the total situation
fairly. According to Mr. Mahendra Raj, the structure which
he inspected needed special care and action. Also his report
demand further investigation for safty reasons, which somehow
was overruled for unknown reasons.

        Unfortunately, Architect is often sandwiched between two
extreme situations- one, that he can be blamed if he is to
cooperate momentarly ignoring his professional responsibilities
towards the project, or alternatively take initiative and
intervene to safeguard the interest of the project. I would
like to mention with sincerity that we have acted with fairness
and clear conscience. The manner in which Mr. Mahendra Raj
felt about this project and the things were going about, we were
extremely concerned. As such a thing could effect all those
who are associated with the project, including architect, promoter
and contractor. This was the time you were out of the Country
and I thought proper to keep Dr. Varadarajan in the picture in
order to help save the situation. Mr. Mahendra Raj and I would
prefer to meet you sometimes and explain so that you can have
a clear idea of what he felt after his visit. Your understanding
in this matter is very important.

                                                        ..2

In the letter dated April 4th, 1989, Kanvinde says:

"Unfortunately, the architect is often sandwiched between two extreme situations- one that he can be blamed if he is to cooperate momentarily ignoring his professional responsibilities towards the project, or alternatively take initiative and intervene to safeguard the interest of the project. I would like to mention with sincerity that we have acted with fairness and a clear conscience. The manner in which Mr Mahendra Raj felt about this project and how things were going, we were extremely concerned as such a thing could affect all those who associated with the project, including architect, promoter, and contractor. Mr Mahendra Raj and I would prefer to meet you sometime and explain so that you can have a clear idea of what he felt after his visit. Your understanding in this matter is very important.

I agree with you that promoter is an employer, however, architect cannot safeguard his interest effectively, merely in the capacity as his employee. Architect is a professional first and his professional responsibilities demand him to serve clients interests and maintain professional standards as well. Our professional background can be checked from our past records as we have associated with your organization now more than 10 years. I observed from the past project which we have completed more than two decades whether people initially associated retired and gone however, under new situations, problems are still referred to us for guidance and advice. Architect's responsibility does not end only with the completion of the building alone it is sad that he is often misunderstood."

Kanvinde's disillusionment with the building industry is clear here, having to deal with a corrupt contractor and an institution that was so desperate to have the building completed soon, that they acted against self-interest and appointed a contractor that quoted the lowest and promised the fastest result. Perhaps they were in cahoots with the contractor, as Kanvinde

alleges, but there is no way to know for sure. Kanvinde however was only concerned with discharging his duty to the utmost standard. Kanvinde then clarifies, he would like to meet in person to clarify things. The letters after this exchange go back to being cordial, but it is fascinating to see senior government officials and professionals get drawn into ego battles.

Had it not been for the correspondence, these intimate details of the project would not have come to light, since strife with the client and on site, is not something architects tend to advertise. The publications generally showed the positives of the project, positioning it as a "dream castle" and "labyrinth." And thus, each of the four ways of knowing provide unique insights into the project. These 'ways of knowing' open up several tensions behind the process of building. Circling back once again to Siddiqi, perhaps an architectural archive is simply "evidence of a construction—actual or metaphorical," but "how that archive is actually constituted… varies so greatly that the diversity of the medium becomes the diversity of the history itself." (Siddiqi 2020, 497)

The CCA suggests "consulting various forms of documentation side by side" (*Centre Canadien d'Architecture: Les Débuts, 1979-1984* 1988, 114) as being essential to the study and understanding of a building. This intersectionality is imperative in understanding the architectural process. Various 'ways of knowing' come together to give a complete picture of the built project. Together, these materials of the archive, through juxtaposition, begin to give a clearer perception. As Yaneva quotes, in Crafting History, "Collections, according to Michel Foucault, are places where we juxtapose, and all these juxtapositions, classifications and catalogues present a way of connecting things both to the eye and to the discourse—that is, a 'new way of making history.' Juxtapositions and adjacency in a common space create epistemological anxieties, condition new knowledge." (Yaneva 2020, 11)

Conclusion

This research inquiry on the authorship of Achyut Kanvinde has grown and evolved over the last year, repeatedly becoming a juggernaut, despite multiple attempts at paring down the scope. This project started initially as an attempt to trace stylistic influences on Kanvinde. However, as satisfying as it is to categorize into neat boxes someone's body of work, one cannot generalize: each project is unique, conditions are project specific, and even within the same cultural zeitgeist, each project forms its own category. Even so, this one project studied over the course of this thesis is only the beginning. In order to really study the tensions that exist in the process of building-making, multiple projects need to be studied in the same depth, and not simply as stylistic tokens. That is to say, one of my primary realizations over this last semester has been that this research is by no means done, and certainly warrants a second pass.

However, some of the key takeaways from this study follow. Much as the first chapter advocates for specificity, the call to action of the second chapter can be taken to be "expand the canon" and that of the third, can be "expand the archive." Organisations like the Canadian Centre for Architecture (CCA) is certainly already doing admirable work when it comes to this second call—to recognise non-traditional archives and records of history as 'ways of knowing' particularly when it comes to architectural production, since so much is filtered out in the final rendition, through a process of tracing and overlaying, that sometimes, the original reference is no longer discernible. Further, from just one of these ways of knowing, we would not have been able to piece together such a detailed narrative of the process of architectural production, without following Albena Yaneva's prompt of juxtaposition, or "consulting various forms of documentation side by side." (*Centre Canadien d'Architecture: Les Débuts, 1979-1984* 1988,

120; Yaneva 2020) Databases, cataloguing, digitizing, all these documentary and experimental techniques are necessary to make ephemeral objects archival.

Large and established archival organizations, however, unfortunately fall short when it comes to the first call to action. They are very west leaning in their ideas and references—they reinforce, rather than try to expand the canon. Other, non-traditional archives, in South Asia particularly, and the third world in general, need to be given as much attention, funding, and support. These counter-institutional ways of knowing are difficult to carry out even in the normative historical canon, but they are imperative for complex contexts like South Asia, with its various tangled threads and layers of history—to include non-normative ways of knowing and meaning making.

This completer and more holistic archive can assimilate to formulate the body of work as 'corpora.' In the definition of corpus by Merriam-Webster, there are two significant parts, "all the writings or works of a particular kind or on a particular subject; especially: the complete works of an author," and "a collection or body of knowledge or evidence; especially: a collection of recorded utterances used as a basis for the descriptive analysis of a language". And in fact, corpora may be the best term to define the collective of the architectural archive, not only because it serves as a metaphor that is used to group disparate things together, but also because it is the only way to have a fair idea of the complete works of the author.

In addition to the ephemera produced in architectural firms, however, in the form of drawings, publications, oral histories and written correspondence, touched upon in the third chapter of this thesis, I would also like to propose the technique used in my introductory chapter as a way of meaning making. The significance of the introduction is in the use of first-person narrative history—as in documentary film making— that has not been attempted before in

architectural writing. It is a new mode of writing history: not quite an autobiography, but where the author plays a critical role in making explicit the history of the subject. This thesis has been the gift that keeps giving, leading me down completely unexpected paths and a new insight into my grandfather. In my quest for connection, time truly feels cyclical—even the process of this thesis makes me wonder about his time at Harvard and the realization of his own thesis. My most recent discovery through some letters exchanged while he was here, has been the fact that he used to live just up the road from where I live in Cambridge now.

In introducing my grandfather through the lens of the house that he built, I also identify my own positionality by narrating what Antoinette Burton calls, "archive stories of architecture". Burton, through her book, Dwelling in the Archive, Women Writing House, Home, and History in Late Colonial India, delves into, "women's vexed relationship to the kind of history that archives typically house." (Burton 2003, 4) I am appropriating this concept despite my obviously privileged, post-colonial, third generation graduate status, because Burton challenges the conventional notion of 'archive' by identifying a family history written by one of the book's three protagonists as "an enduring site of historical evidence and historiographical opportunity in and for the present" (Burton 2003, 5) such that the subject's self-constructed archive can lay the foundation for a counternarrative. This narrative also serves as my own *bildungsroman*, the house having been responsible for my formative years, as well as my spiritual education.

And so, I come back again to the house I grew up in, to the problems of legacy and memory that are bound up with the architectural. As the setting for my "archive story," the house itself is an archive. It is also a monument: not in terms of scale, but in terms of significance and function: the house is a living archive and a repository of memories.

Appendix: Letters

Letters sourced from Kanvinde's student file at Harvard Graduate School of Design.

Achyut Kanvinde

JUN 10 1947

94 Prescott St.,
Cambridge. Mass.
June 9, 1947.

Dear Prof. Gropius,

I wish to express my gratitude to you for your inspiring lectures and instructive criticism on the school-works during the last one and half years of my stay in the school. My association with the School of Design was a pleasurable event during my stay in this country and I think myself fortunate for having had the opportunity to have been in an institution run under your guidance. Though I shall have to face varied public likes and dislikes in my country, I shall endeavour to follow your philosophy.

I am planning to go back home some time in the month of July and I do not think I shall be back to this country again. I shall very much appreciate if I have a testimonial from you as a memory of my association with you and the school and hope your goodwill and best wishes will stay with me.

I shall be pleased to know if I can do anything for you even after I leave this country.

With kindest regards,

Very truly yours

Mr. Achyut Kanvinde
94 Prescott Street
Cambridge, Massachusetts

Dear Mr. Kanvinde:

It has been a pleasure to have you in the School
and I was pleased with your Thesis work, which
showed me that you have attended the School with
good success. It has shown me that you have ab-
sorbed the well founded modern approach in our
profession--which no doubt will be accepted as
self-evident by all who will come after us.

As you leave this country, I wish you good luck
in your profession and I hope that you may be
able to widen out the ideas of modern architec-
ture in your own country.

With best regards,

Sincerely yours,

Walter Gropius,
Professor of Architecture

WG/SR

Achyut P. Kanvinde
Council of Scientific and
Industrial Research,Imp.Secretariat
Delhi India.
13th Feb 48.

Dear Prop Gropius,

This unexpected letter of mine might surprise you.Last year
this time I was amongst the Harvard environment, a long way from
here.I always enjoyed my work often inspired by your lucid discu-
ssions and guidance. After I left the U.S.A.I visited England
and Europe including scandanevian countries and arrived here
last december. I have been working with the above mentioned
Council and designing mostly Research Laboratories of various
kinds. I am having quite a hard time converting people to my way
of thinking.

You might remember, I had once expressed my desire to be an
associate of the Royal Institute of The British Architects.As per
your advice I wrote to the Secretary explaining my purpose but to
my surprise I received his reply the copy of which I am enclosing
for your reference. I am given to understand that R.I.B.A.recognises
the B.Arch degree standard of Toranto, Montreal,and Winnipeg
Universities as well as the English Universities for associateship.
During my visit to schools in Canada and England I noticed that
Harverd standard will excell others in certain respects. I thought
they are still working on the conventional line.

Though English rule does not exist in India English degrees
are still regarded and I feel it will be so for some time to come.
As you are a corresponding member of the R.I.B.A. and being a well
known figure among the R.I.B.A.circle it will carry a great weight
on the selection board if you will kindly write to the R.I.B.A.
secretary,as a special case.

I hope I am not troubling you when you are so busy in your
activities . I may mention here for your reference that I have
about nine years experience in the office and I am running thirty-
two.The other details about my academic qualifications are with
the R.I.B.A. also in Harvard. I am also writing to Prop Eric Arther
professor of architecture Toranto University, who had agreed to
sponsor my case.

I hope you are keeping well. Please convey my regards to
Mrs Gropius.

Thanking you,

Your sincerely,

R.P.Kanvinde.

(A.P.Kanvinde.)

February 24, 1948

Mr. Achyut P. Kanvinde
Council of Scientific and Industrial Research
Imperial Secretariat
Delhi, India

Dear Mr. Kanvinde:

Thank you for your letter of February 13. In accordance with your wishes I have written to the Royal Institute of British Architects in support of your application and simultaneously asking them to let me know why our School has not been recognized for exemption from the R.I.B.A. final examination.

I am glad to hear that you have interesting work in hand I can imagine how difficult it is to fight for a certain conviction regarding our contemporary approach in architecture--but don't lose your consistency. I know it is hard work, but in the end it is really worth while.

Very sincerely yours,

Walter Gropius

WG/SR

Copy of letter No.nil, dated the 7th March 1946 from Messrs.
A.P.Kanvinde and Shaukat Rai, the School of Designs, Robinson Hall,
Harvar University, Cambridge Massachusetts to the Director, Council
of Scientific & Industrial Research, Delhi.

We have written two letters to you but regret to say that
so for we have received no reply. We believe that Mr. Sundaram had
written to you a month back about our position with regards
to our work and course of study in this country as your already
know we are studying in the Harvard University under excellent
professors. We have been advised to work till summer of 1947 before
taking a tour of the country because the professors feel that
not till then will we in a position to understand and absorb the
American methods of design and construction. So our immediate
programme is to work with the classes during spring term and study
laboratory design during the summer vacation.

2. However we are still uncertain as to what exactly you
want us to do according to your programme. We know that we have been
sent out to study laboratories in general and collect all available
information about them - but a specific detailed letter from explaini
ing the purpose of our visit will be very much appreciated.

3. We would also like to know the tour programme that
had been chalked out for us in India so that we may prepare
our iatinerary and get your approval.

4. A programme mentioning the exact requirements and the
extent of projects immediately in hand with the Council will give
us a better insight as to what particular subjects we should turn our
attention.

5. We were given an understanding before we left India
that we shall be paid the s me sum as initial allowance ($ 150
for equipment and $ 50 for books) as Government scholars but so far
we have not received it. We shall be grateful if you will write to
Mr. Sundaram to let us have this amount of $ 200 at an early date.

6. A reply by air will be very welcome.

T hanking you.

December 4, 1946

Dear Vi:

In answer to your request I am giving herein statements
regarding the two Indian students.

Mr. Shaukat Rai entered Professor Frost's class at mid-
years of the past college year. He had training solely
in engineering and for that reason was unable to do work
in Architecture 2b. At the end of a term's work with
Mr. Frost it appeared that Mr. Rai, by apptitude and pre-
paration, was better fitted for work in the Engineering
School than in the School of Design. He, therefore, trans-
ferred to the Engineering School and began his work there
this year. Professor Haertlein is in a position to fur-
nish the Indian authorities with a statement on Mr. Rai's
work. Professor Frost comments that Rai worked earnestly
and conscientiously and achieved fair results in the ele-
mentary design course.

Mr. A. P. Kanvinde is now a student in Mr. Stubbins' stu-
dio. He has received passes on all his problems and
sketches. On the last problem in design he did unusually
well. He has decided design apptitude, is greatly inter-
ested in the work and shows considerable ability.

Sincerely yours,

WFB:mcg   Walter F. Bogner

Dean Joseph Hudnut
Robinson Hall

158

AIR MAIL
SPECIAL

January 7
1947

K. R. Purna, Esq.
Deputy Educational Liaison Officer
  of the Indian Government
635 "F" Street, N.W.
Washington 4, D. C.

My dear Mr. Purna:

kanvinde

The Indian student ~~Shaukat Rai~~, who enrolled
in the Graduate School of Design last year,
has completed satisfactorily the course lead-
ing to the degree Bachelor of Architecture
with the exception of his Thesis. Mr. ~~Rai~~ K
has been promoted to Thesis and would require
about four months' additional residence in
order to complete this work. I recommend, if
possible, that Mr. ~~Rai~~ be permitted to stay
in the School and complete his Thesis because
by so doing he will receive the professional
degree in architecture. Mr. Rai's work as a
whole has been of a high standard; although
he has not received any special honours, we
consider him a promising student--industrious
and intelligent.

Shaukar Rai

The student ~~Achyut P. Kanvinde~~, who registered
in this School last year has transferred to
the Engineering School at Harvard this term.

Sincerely yours,

Joseph Hudnut,
Dean of the Faculty of Design

JH/SR

May 13, 1947

Mr. Sundaram
Education Department
Indian Embassy
Washington, D. C.

Dear Mr. Sundaram:

In answer to your inquiry about Mr. Achyut P.
Kanvinde, allow me to say the following. Mr
Kanvinde is now on his thesis, the final ex-
ercise leading to the degree, Bachelor of Ar-
chitecture. He has been at the School of De-
sign since February 1946. He has taken with
us four long design problems on which he has
made a very good showing. On his last one he
received the highest award given and on the
others he has also made a good showing though
his grade was just the average.

Professor Bogner who is now working with him
on his thesis tells me he is capable of studying
independently and arriving at a sound and very
good solution to the problems confronting him.
I believe him to be a very very promising young
man who in his country should meet with success.

Sincerely yours,

WFB:mcg   Joseph Hudnut

GRADUATE SCHOOL
OF DESIGN

DEPARTMENT OF
ARCHITECTURE

May 29, 1947

RESOLVED, that the Council of the Department of Archi-
tecture recommends to the Faculty of Design that the
degree of BACEHLOR OF ARCHITECTURE be granted in June
1947 to

Achyut Purushottam Kanvinde

--   School of Arts, Bombay   --

VOTES OF COUNCIL

YES   NO

Walter Gropius

E K

George I. LeBoutillier

Leonard J. Currie

Perley Burchard

John C. Harkness

Jean Paul

Hugh Stubbins, jr.

Bibliography

"Achyut P. Kanvinde - an Interview with M.N. Ashish Ganju." 1986. In *Vistāra - The Architecture of India, Catalogue of the Exhibition*, 228–31. The Festival of India.

Ackerman, James. 2002. "The Conventions and Rhetoric of Architectural Drawing." In *Origins, Imitation, Conventions: Representation in the Visual Arts*, 293–317. Cambridge, Mass.: The MIT Press. http://mitpress.mit.edu/books/origins-imitation-conventions.

Alexander, Zeynep Çelik. 2017. *Kinaesthetic Knowing: AESTHETICS, EPISTEMOLOGY, MODERN DESIGN*. Chicago: University of Chicago Press.

Allais, Lucia. 2020. "RENDERING: On Experience and Experiments." In *Design Technics: Archaeologies of Architectural Practice*, edited by Zeynep Çelik Alexander and John May. University of Minnesota Press. https://doi.org/10.5749/j.ctvtv938x.

Anderson, Alex. 2020. "How Not to Write About Design: A Guide for Anyone Looking to Move beyond Form, Space, Order, and Structure." Harvard Graduate School of Design. December 11, 2020. https://www.gsd.harvard.edu/2020/12/how-to-write-about-design-a-guide-for-anyone-looking-to-move-beyond-form-space-order-and-structure/.

Anstey, Tim, Katja Grillner, and Rolf Hughes, eds. 2007. *Architecture and Authorship*. London: Black Dog Publ.

Ar. Sharvey Dhongde and Ar. Chetan Sahasrabuddhe, eds. 2009. *Achyut Kanvinde*. Pune: BNCA Publication Cell.

Bafna, Sonit. 2008. "How Architectural Drawings Work — and What That Implies for the Role of Representation in Architecture." *The Journal of Architecture* 13 (5): 535–64. https://doi.org/10.1080/13602360802453327.

Brown, Marshall. 2018. "Creative Miscegenation in Architecture, a Theorem." In *Authorship: Discourse, a Series on Architecture*, edited by Monica Ponce de Leon. Discourse, a Series on Architecture. Princeton, NJ: Princeton University Press.

Burton, Antoinette M. 2003. *Dwelling in the Archive : Women Writing House, Home, and History in Late Colonial India*. New York: Oxford University Press.

Centre Canadien d'Architecture: Les Débuts, 1979-1984. 1988. Montréal: Meriden-Stinehour Press.

Chatterjee, Malay. 1985. *Architecture In India*. Paris and Milan: Electa Moniteur.

Chaudhuri, Supriya. 2010. "Modernisms in India." The Oxford Handbook of Modernisms. December 16, 2010. https://doi.org/10.1093/oxfordhb/9780199545445.013.0053.

Colomina, B. 1992. *Split Wall: Domestic Voyeurism*. Papers Complementaris. ETSAB-UPC. https://books.google.co.in/books?id=jUGMMwEACAAJ.

Contributor, A. J. 2007. "Review - Book - Architecture and Authorship." *The Architects' Journal* (blog). October 12, 2007. http://www.architectsjournal.co.uk/practice/culture/review-book-architecture-and-authorship.

Crary, Jonathan. 1988. "Modernizing Vision." In *Vision and Visuality*, edited by Hal Foster, Nachdr., 29–50. Discussions in Contemporary Culture 2. Seattle: Bay Press.

Curtis, William JR. 1987. "Modernism and the Search for Indian Identity." *Architectural Review* (blog). August 6, 1987. https://www.architectural-review.com/places/india/modernism-and-the-search-for-indian-identity.

Dengle, N. 2015. *Dialogues with Indian Master Architects*. Mumbai: Marg Foundation. https://books.google.com/books?id=mpPlrQEACAAJ.

Dengle, Narendra. 2017. "Achyut Kanvinde and Modernism in India." In *Kanvinde: Ākār*, edited by Sanjay Kanvinde and Tanuja Kanvinde, 192–99. New Delhi: Niyogi Books.

Desai, Miki. 2017. "Achyut Kanvinde, a Silent Modernist." In *Kanvinde: Ākār*, edited by Sanjay Kanvinde and Tanuja Kanvinde, 60–62. New Delhi: Niyogi Books.

Doane, M. A. 2007. "The Indexical and the Concept of Medium Specificity." *Differences* 18 (1): 128–52. https://doi.org/10.1215/10407391-2006-025.

Draper, Joan. 1977. "The Ecole Des Beaux - Arts and the Architectural Profession in the United States : The Case of John Galen Howard." In *The Architect: Chapters in the History of the Profession*, edited by Spiro Kostof, 209–37. New York: Oxford University Press, USA. http://hdl.handle.net/2027/mdp.39015010977307.

E. Maxwell Fry. 1960. "The Architect and the Engineer in India." *Annual of Architecture, Structure & Town-Planning* 1960: A20–24.

Evans, Robin. 1997. *Translations from Drawing to Building*. AA Documents 2. Cambridge, Mass: MIT Press. https://www.jstor.org/stable/29543512.

Friedberg, Anne. 2009. *The Virtual Window: From Alberti to Microsoft*. 1. paperback ed. Cambridge, Mass.: MIT Press.

Ghertner, Asher. 2015. *Rule By Aesthetics: World-Class City Making in Delhi*. *Rule By Aesthetics*. Oxford University Press. http://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199385560.001.0001/acprof-9780199385560.

Gusheh, Maryam, and Prajakta Sane. 2017. "'Form and Design' for India," 10.

Herzfeld, Michael. 2017. "The Blight of Beautification: Bangkok and the Pursuit of Class-Based Urban Purity." *JOURNAL OF URBAN DESIGN* 22 (May): 291–307.

Holston, James. 1989. *The Modernist City: An Anthropological Critique of Brasília*. Chicago: University of Chicago Press.

Huhtamo, E., and Nihon Eizō Gakkai. 2004. *Elements of Screenology: Toward an Archaeology of the Screen*. Japan Society of Image Arts and Sciences. https://books.google.com/books?id=3VwecgAACAAJ.

Huhtamo, Erkki, and Jussi Parikka, eds. 2011. *Media Archaeology: Approaches, Applications, and Implications*. Berkeley, Calif: University of California Press.

Hull, Matthew. 2012. "Project MUSE - Government of Paper." 2012. http://muse.jhu.edu/book/44554.

James-Chakraborty, Kathleen. 2013. "Beyond Postcolonialism: New Directions for the History of Nonwestern Architecture." *Frontiers of Architectural Research* 3 (January). https://doi.org/10.1016/j.foar.2013.10.001.

Kalia, Ravi. 2006. "Modernism, Modernization and Post-colonial India: A Reflective Essay." *Planning Perspectives* 21 (2): 133–56. https://doi.org/10.1080/02665430600555289.

Kanvinde, Sanjay, and Tanuja Kanvinde, eds. 2017. *Kanvinde: Ākār*. New Delhi: Niyogi Books.

Kāpaḍīā, K., and G. Bhatia. 1994. *Punjabi Baroque and Other Memories of Architecture*. Penguin Books.

Khorakiwala, Ateya. 2020. "An Archive of Development: The Road Film's Tyranny of Proximity." *Comparative Studies of South Asia, Africa and the Middle East* 40 (3): 541–64. http://muse.jhu.edu/article/780374.

Lall, Ashok B. 2017. "Achyut Kanvinde and His Times." In *Kanvinde: Ākār*, edited by Sanjay Kanvinde and Tanuja Kanvinde, 28–37. New Delhi: Niyogi Books.

Lange, Alexandra. 2018. "The End of the Architect Profile." Curbed. April 19, 2018. https://archive.curbed.com/2018/4/19/17243086/architect-profile-end-alexandra-lange.

"Legal Transplant Law and Legal Definition | USLegal, Inc." n.d. Accessed May 7, 2021. https://definitions.uslegal.com/l/legal-transplant/.

Lorde, Audre. 2007. "The Master's Tools Will Never Dismantle the Master's House." In *Sister Outsider : Essays and Speeches*. Berkeley, California: Crossing Press.

Manovich, Lev. 2001. "The Screen and the User." In *The Language of New Media*, 94th–115th ed. Leonardo. Cambridge, Mass.: MIT Press.

Martin Jay. 1988. "Scopic Regimes of Modernity." In *Vision and Visuality*, edited by Hal Foster, Nachdr., 3–28. Discussions in Contemporary Culture 2. Seattle: Bay Press.

Maurer, Bruno, ed. 2014. *A Tropical House : The Embassy of Switzerland in New Delhi*. Zurich: GTA Verlag.

May, John. 2019. *Signal. Image. Architecture: Everything Is Already an Image*. New York: Columbia Books on Architecture and the City.

Menon, AG Krishna. 2003. "The Contemporary Architecture of Delhi: A Critical History." New Delhi, India: TVB School of Habitat Studies. 2003.

Michel-Rolph Trouillot. 2015. *Silencing the Past: Power and the Production of History*. E-Book. Boston: Beacon Press. https://hdl-handle-net.ezp-prod1.hul.harvard.edu/2027/heb.04595.

Pearlman, Jill E. 2007. *Inventing American Modernism : Joseph Hudnut, Walter Gropius, and the Bauhaus Legacy at Harvard*. Charlottesville: University of Virginia Press. http://hdl.handle.net/2027/mdp.39015068820789.

Prakash, V. 2002. *Chandigarh's Le Corbusier: The Struggle for Modernity in Postcolonial India*. Seattle: University of Washington Press. https://books.google.co.in/books?id=4wBKAAAACAAJ.

Rabinow, Paul. 1995. *French Modern: Norms and Forms of the Social Environment*. University of Chicago Press ed. Chicago: University of Chicago Press.

Robbins, Edward. 1997. *Why Architects Draw: Interviews with Edward Cullinan, Spencer de Grey, Jorge Silvetti, Renzo Piano, Alvaro Siza, John Young, Itsuko Hasegawa, William Pedersen, Rafael Moneo, Rod Hackney, Peter Rice*. Paperback ed. Cambridge, Mass.: MIT Press.

Sane, Prajakta. 2013. "Dudhsagar Dairy at Mehsana, India (1970-73) Achyut Kanvinde and the Architecture of White Revolution." In *Proceedings of the Society of Architectural Historians, Australia and New Zealand: OPEN 30*, edited by Australia and New Zealand Society of Architectural Historians, Conference, Alexandra Brown, Andrew Leach, and Australia and New Zealand Society of Architectural Historians.

———. 2016. "Modern Temples for Post-Independence India: Institutional Architecture of Achyut Kanvinde." Awarded by:University of New South WalesBuilt Environment.

Sheeba, J, and John T Mesiah Dhas. 2018. "A STUDY ON INDO-SARACENIC ARCHITECTURAL HERITAGE." *International Journal of Pure and Applied Mathematics* 118 (22): 6. https://acadpubl.eu/hub/2018-118-22/articles/22c/32.pdf.

Siddiqi, Anooradha Iyer. 2020. "Introduction: Architecture as a Form of Knowledge." *Comparative Studies of South Asia, Africa and the Middle East* 40 (3): 495–506. http://muse.jhu.edu/article/780371.

Siegert, Bernhard, and Geoffrey Winthrop-Young. 2014. *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*. New York: Fordham University Press. http://muse.jhu.edu/book/39843.

"The Body's Politic: Architecture and The Modern Subject." 2017. HumTech - UCLA. 2017. https://humtech.ucla.edu/event/bodys-politic-architecture-modern-subject/.

Yaneva, Albena. 2020. *Crafting History: Archiving and the Quest for Architectural Legacy*. Ithaca: Cornell University Press. http://muse.jhu.edu/book/78644.