THE CULTURE OF BUILDING TO CRAFT— A REGIONAL CONTEMPORARY AESTHETIC:

MATERIAL RESOURCES, TECHNOLOGICAL INNOVATIONS AND THE FORM MAKING PROCESS

by
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The Abstract

IN THE NON-WESTERN CONTEXT, there always has been a dilemma between "who we are" and "who we should be". One could say "between tradition and modernity". When the alien culture of building was adopted, the ties with the traditional vernacular processes were snapped off without establishing a critical dialogue between the two. The prevalent primitive modes of production were incongruous with the concepts of mechanization. Moreover, the tradition of the craftsman as a master builder was replaced by the differentiation between the architectural practice, the building industry and the exiting crafts.

This issue becomes even more complex in the present context, when the architectural practice and the building industry are subject to the global culture of commodification and homogenization. The architectural practices are churning out 'products' that appropriate the local idioms into universal themes without undergoing the 'process' of transformation and metamorphosis into a contemporary vocabulary. The industry, on the other hand, is assuming global references and has a thrust towards universal building materials and systems that ignore the regional resource base. In the kitsch that is generated, the 'regional identity' is lost. Left behind is historical mimicry, thematic interpretations and ethnic nostalgia.
One cannot deny that the global culture of integration/homogenization is as much a reality as the local culture of differentiation/uniqueness. Critically looking at this intersection, this thesis states the issue again as:"What kind of a 'culture of building' would generate an 'aesthetic' that draws references from its regional context and is also true to contemporary? There are some alternate practices that sit at the intersection of local and universal aspirations. They achieve a design economy by emphasizing on the larger web of the extended natural patterns of the region. They respect the vernacular aesthetic where the building processes are composed essentially of relationships in time and place. Thus, their culture of building represents a 'process' that integrates the architectural practice with the local crafts and the existing building industry towards an aesthetic that is both regional and contemporary.

This thesis represents an effort to formulate an alternative paradigm or a reference language to the current architectural practice in India, that is not subject to the global culture of commodification and homogenization but is rooted in its context. metamorphosis and transformation. This thesis argues that a bias towards the 'process' and not the 'product' has greater potential to render an aesthetic of the place.

Thesis Supervisor: Ann M. Pendleton-Jullian
Title: Associate Professor of Architecture

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Dedicated to Mom and Dad
For believing in me and encouraging me to do my best.

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Introduction

THE CULTURE OF BUILDING TO CRAFT — A REGIONAL CONTEMPORARY AESTHETIC:

ATERIAL RESOURCES, TECHNOLOGICAL INNOVATIONS AND THE FORM MAKING PROCESS

THIS THESIS IS AN EFFORT TO FORMULATE an alternative paradigm for the current architectural practice — that is not subject to the contemporary global culture of commodification and homogenization, but instead is rooted in its context. It looks at the intersection of practice, craft and the industry, such that the architectural practice patronizes an indigenous form of the building industry, 'to craft' a regional contemporary aesthetic. This represents a building process.

This thesis argues that, with a bias towards the 'process' and not the 'product', a 'culture of building' could be developed that can express the 'aesthetic of the place'. The 'process' being this integration of practice, craft and industry that patronizes transformations of existing crafts to a superior resolution of art. The 'aesthetics' being not only the built-form and it's site, but also the way it expresses a deeper meaning including the values of the society and region as well as extending to include the natural environment. The 'culture of building' being the social, economical and technical framework that surrounds the design and building process.

THE PRACTICE:Though the formal boundaries of the modern movement have been crossed, acknowledging the indigenous cultural and spiritual values, the regional expression in the current discourse of mainstream practice is negating the very aesthetic of the past. Indian architectural practices have attempted to seek identity through the regionalization of Modernism in different ways. However very few take a critical stance against historical mimicry, thematic interpretations and ethnic nostalgia. This concept of 'transfer' and not 'transformation' of traditional idioms is not true to the contemporary and adds to the present kitsch. Practices are groping with the intellectual ideas of acceptability in wider communities as they try to be part of the larger global community. Colored by the media-trained sensibility and patronizing the alien model of building industry, the adopted culture of has a bias towards the 'ill-informed end product' rather than the 'process of transformation'. The transformation of the concept to a meaningful product is thus lost.

The issues that arises is: "What kind of a 'culture of building' helps to formulate a contemporary reference language to achieve a 'regional aesthetic' amidst the various local and global forces?

TO CRAFT THE PROCESS: in the Indian regional context. India abounds in skills of craftsmanship. Regional variations render unique identities to craft that has been developed as a result of processes of transformation and metamorphosis.Towards a goal that has resulted in a variety of regional

aesthetic. Born from abstractions, as the mind perceives and reflects, not necessarily as reality exists. This then belongs to the realm of 'art'. It is in this realm, that one can transcend limits to invoke the spiritual quality. And it is this quality of space, that is the goal of the designer, not just the play of space, but the acceptance and incorporation of the rituals of life and patterns that surround it. 'Craft' is thus a product of 'Art' or one can say that transformation of the prevalent crafts according to the contextual realities can elevate the design and building process to the level of 'Art'.

Most of the mainstream architectural practices that set the norm grope into the crafts that are skill based and have no art significance by itself. Unable to understand the process of transformation and evolve a new vocabulary of the 'art-craft integration', they are patronizing a skill-based craft, leads to the projection of roughness born of decadence and negligence. This process has its shortcomings, as it leads to over simplification of the indigenous/ traditional processes of evolution.

Though there are a few forms of practice ideologies that go beyond reconstruction and surface phenomena of the vernacular, seeing the significance of deeper relationships in the process. Projecting an understanding of the process of nature and natural systems in different cultural settings, interpreting and extrapolating from established 'culture of building'. There culture of building represents a 'process' that is based on the concept of a traditional master builder...which in contemporary terms would mean the integration of practice, craft and industry. Setting precedents on how an indigenous form of production process can help 'to craft' the context in a manner that is true to it's contemporary.

How can this 'process' be imbibed into the culture of building, within the Indian regional context?
What is the role of the industry in the cultivation of an indigenous culture of building?

THE INDUSTRY The socio-economic situations, mode of production, the building industry and the state of technology have influenced the 'culture of building' at any given period of time. In the Indian context, the mechanical tools of industrialization came from an alien culture. This alien notion of mechanization and modernity, brought with it sub-divisions in the process of building. The role of the master builder was replaced by various collaborators, which created a vast rift with the vernacular process of building. There was no attempt to critically look at the intersection of the existing building industry that incorporated art-craft integration, with the hierarchical new industrial models that patronized

assembly of parts and the precision of the act. A product of this legacy, today we are moving towards irrational homogenization within our cultural context, a context that still favors regional differentiation.

Could one not look at an alternate paradigm that culturally links practice with the mode of production?
Can the building industries be individually patronized by different groups of practice methodologies towards customization? Is it possible to rationalize customization of building industry, critically analyzing regional contexts and the available resources?
Could one explore the potential of standardization of these regional customizations, in the overall building processes?

The craft heritage is inextricably bound to the daily ritualistic patterns of our lives and the abundant human resource. This could, and should, be exploited to customize the design and building process with a regional bias. Crafting ways of integrating various forms of the arts and craft together in a more personalized manner as opposed to the existing patronization. Reinvigorating the design and build concept through a new version of the master builder in contemporary times. The potential of a decentralized industry, through standardizing regionally customized building elements is one method to address the global reality.

It is the right moment to address the building industry in India, which is now in the process of getting formalized by the global patronage. And I believe this is an intelligent form of collaboration between globalization and regionalization.

LARGE SCALE GLOBAL DIALOGUE *Can the dominant local idioms be transformed into global patronage, using forms of communications, standardizations and specializations?*

With the mainstream building industry assuming global references, it is true that 'homogenizing architectural styles' to a 'universal pluralist average' have obscured the fundamental attributes that make place unique in the world order. But it is also true that today global culture has introduced the notion of cross-fertilization of various disciplines of knowledge, making accessible research and expertise in all fields. The use of skills, technologies and materials from all over the globe, has changed the traditional patterns of design process. The information highway has nullified the factor of 'time', and has strengthened the cross-cultural communication. Thus, opening up new avenues for global collaborations. The potential of these global collaborations could be exploited contextually by different parts of the world.

Chapter I

THE 'CULTURE OF BUILDING' IN INDEPENDENT INDIA

CONTEMPORARY PRACTICE IN INDIA HAS DEVELOPED different approaches to the creation of an aesthetic according to the political and economic ideology of the time. Various aesthetic devices have been used over the past fifty years (like tradition, nationalism, historical, religious/ritual references etc.) to develop an appropriate regional Indian aesthetic. To assess the creative force in this expression of regional identity, one needs to elaborate on the various ideologies used by designers and the simultaneous growth of building industry in India. The end result is not important, but the process of evolution and the methods employed towards crafting an aesthetic definitely are.

The vision for the future of independent India's development lay in the hands and minds of two important leaders Mahatma Gandhi and Jawaharlal Nehru. The major dilemma was that How Indian aspirations should be symbolized in architectural forms, avoiding a tendency towards patriotic glorification of the country?— Fervor of the time 'Swadeshi' (self-reliance). Gandhi was convinced that peace, prosperity and poorna swaraj (complete independence), could only be achieved in India by looking at the rural based society to provide for a rich and lasting culture. Advocating the fact that a democratic, co-operative socialist society could only be attained through an indigenous ingenuity and rural tradition. This idea of self-reliance perhaps personifies the nation's ideals at the dawn of India's political freedom — 'Towards a Traditional Indian Ethos'.

Contrary to this, Nehru's perception of India was democratic, modern and industrialized nation rather than a rural democracy based on agricultural production. Through a series of five-year plans, modernization was attempted through self-conscious centralized design. Nehru patronized not only modernism in India but also the international game of Modern architecture that was a clean break from the cultural norms of the Raj or the traditional architecture — 'Towards a Progressive Ethos'. Questions before Nehru was 'How does India fit into the modern world?' He was searching for idioms and symbols to project a vibrant and dynamic independent India, and for forms international in rhythm, yet Indian in spirit and to avoid overture to traditional idioms.[1]

Fortunately Nehru's policy, though based on the belief that science and technology would uplift India towards 'Modernization', did not sought to eradicate traditional culture. While a clean line was drawn between past and present, crafts were patronized too by state subsidies. Gandhi's India of village culture, although marginalized by Nehru's vision, endured. Post independence era also experienced the partition of the country based on religious bias – Hindu and Muslim. Muslims now given a separate nation occupied the northwestern frontier of India, a situation that aroused Hindu sentiments. The search for a tradi-

1. Metcalf, Thomas R.; *Modern 'the discovery of India: Part II' India: An interpretative Anthropology*, Collier-Macmillan Ltd., London 1971.
The search for the sources of India's strength and for her deterioration and decay is long and intrictae. Yet the recent causes of that decay are obvious enough. she fell behind in the march of technique, and europe, which had long been backward in many matters, took the lead in technical progress. Behind this technical progress was the spirit of science and a bubbling life and spirit which displayed itself in many activities and in adventurous voyages of discovery. New techniqes gave military strength to the countries of western Europe and it was easy for them to spread out and dominate the east. That is the story not of India only but of almost the whole of asia.

tional vocabulary of design became complex, as India not only possesses a vast range of indigenous built environment reflecting regional differences of culture, climate and geography, but also eighteenth and nineteenth century of Muslim dominance of the country. In 1950's the fervor of the time, made Indian designers interpret contemporary idioms, through a vast assemblage of structural and spatial borrowings from traditional Hindu ruins.

This led them to derive references from early Hindu dynastic and rural vernacular developments, along with the spiritual aspirations, defining the approaches to various aesthetic fields. The concerns for an "Indian culture of building" oriented to regionally appropriated design. Caught in this dilemma of tradition and modernity, the search for a true Indian identity continued.
Simultaneously, the Indian culture of building (with its concept of the craftsman as a master builder) was replaced by the western model of differentiation/specialization of various faculties in the building process. Architecture, as a design profession different from the building process, was a foreign concept introduced to India by the British. Engineers and administrators of the Public Works department (PWD) did the majority of construction works. The sub divisions in the process of building brought with it various types of consultants and contractors into the profession, changing the patterns of development.

The building industry, now a separate entity, patronized and was patronized by these architectural practices. As a response to the economic exigencies of our country, the architectural practice and the building industry were not always moving together with similar ideology. The common man along with the building contractors patronized a large part of the industry and devised cheap and formulaic ways of building. Construction works using brick with corrugated iron, tin or asbestos sheets (a PWD legacy) continued along with the technical advancement of the reinforced cement concrete construction.[2]

Technical advancement based on the western models was one facet for the wide gap between the indigenous process and modern form of building. But part of the challenge to the practicing architects in India has been the dependence on a labor-intensive building industry. Mechanization and prefabrication do not yet compete on a cost saving basis with the sheer abundance of manpower in India. Low-wage jobs in the construction industry have been an important dynamic in the employment cycle of the unskilled migrant labor from the countryside. Major operations, such as excavation, the mixing and pouring of concrete, and even the crushing of stone for aggregate and paving gravel are still carried out with simple tools and many hands. Mechanical processes are only used for industrial and internationally sponsored large-scale projects.[3]

2. For more information on the Peter Scriver; 'Rationalization, Standardization, And Control in Design', Publikatieburo Bouwunde, Technische University, Delft, 1994.

3. Vikram Bhatt & Peter Scriver; 'Contemporary Indian Architecture: After The Masters', Mapin Publishing Pvt. Ltd., Ahmedabad, 1990.

Though the building industry has been more a response to rudimentary needs, the economy and sometimes lacked clarity of intent, it generated compelling architecture endeavors...deriving and diverging from more universal tendencies of development in the present global construct.

In this chapter I have categorized this development into themes based on their approach, analyzing the various aesthetic devices used to establish a contemporary vocabulary. Revealing ways in which the architectural form uses the local production systems and the state of industrialization. The form and modes of production are themselves not important, but the process is. This has been exemplified by some of the prominent examples only, though there are many more works that have been important landmarks in this ongoing process.

POST INDEPENDENCE: *Reactionary Approach*

There was a psychological need to eradicate the symbols of the past traditional and colonial era. Rooted in the belief that the application of science and technology would uplift India towards "modernization". Nehru viewed the making of the new capital of Punjab as 'symbolic of the freedom of India', 'unfettered by the traditions of the past' It was an expression of the nation's faith in the future towards modernization.[4]

With his idea of "Architecture or Revolution", Le Corbusier was a part of the group of architects who believed that social goals could be met through physical design. Deterministic in style, Corbusier personified the rationalist approach to architecture with a bias towards Internationalism and allowed little cultural deviation. Though arguably, "he wanted to integrate India's spiritual and traditional values with the contrasting liberal, democratic and industrial system" In 1948, India's development policy was modeled on the scientific and industrial aspects of the western model. [5]

The international style introduced the reinforced cement concrete structures that introduced a fairly repeat methodology to design all over with the assembly mode of production. The only other alternative was the colonial legacy that continued and later came back with a force directed towards symbolic links. The new material concrete possessed qualities of plasticity and pouredness, which in a way was similar to that of the indigenous material earth. Though concrete as a material was never expressed in the same ritualistic manner in which earth/ mud was in traditional societies of India. The new form of reinforced cement concrete (R.C.C) frame structure completely erased the traditional load bearing character of stone and wood constructions. The traditional systems of production were completely taken over by the new system. This was accompanied by a change in meaning of elements, now the wall was only a curtain, it's load bear-

4. Quote Nehru's speech "tryst with destiny", Jon Lang, Madhavi and Miki Desai, 'Architecture and Independence', Delhi University Press, 1997).

5. 'Architecture of Independence: The making of Modern South Asia'; 'In search of a future origin' - Kenneth Frampton, Pg. 11. Published by The Architectural League of New York, 1998.

ing character was taken away by the columns steel reinforced material. Enforcing a form of frame structural system towards standardization as the new machine age aesthetics. Affecting the design vocabulary too, this new form of expression became an archetype for public buildings in modern India.

Thus the first generation of Western trained Indian architects like H. Rahman, A. P. Kanvinde and others, did experiments in this trend of international architecture that represented modern technology and machine age, reflecting the Nehru spirit of the times. The modern movement provided a functionalist language that was free of colonial associations and ethnic tradition. In an effort to disassociate themselves from the past idioms, they moved towards appropriating the "Modern" as understood by the west, a form of Neo-Colonialism. Reference to traditional was limited to stylistic synthesis, where the Indian decorative and compositional motifs were used within Western spatial concepts.

The Capitol Complex Buildings in Chandigarh and other buildings in Ahemdabad: Designed by Architect Le Corbusier. Corbusier wanted to create an identity for an independent India that was progressive. His work in the 1950's projected a political ideology towards a new order that was secular in meaning –an antidote to the medieval Indian towns. Corbusier's standard vocabulary for a tropical architecture of heat and sunshine was the product of a rational analysis of climatological phenomenon and environment. At Chandigarh, these elements were invested with a magnificent expression in the new material that appeared to derive lines and figures from the forms of the Indian village aesthetic, though devoid of the ritualistic character.[6]

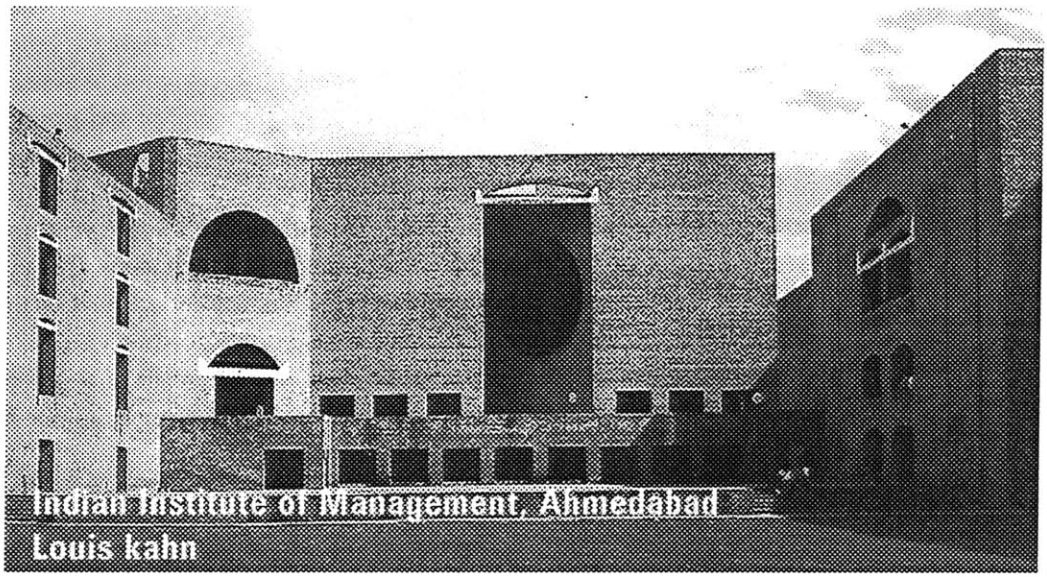
The Indian Institute of Technology, Kanpur: Designed by Architect A.P Kanvinde. For the extensive, multivalent institutional scheme, the streamlined international style was rejected in favor of an expressive assemblage of spatial and structural systems. Expressed concrete structure was the dynamic determinant of form and order in these buildings, with brick as infill panels. This sparse palette of materials encouraged a crisp, clean architectural expression with no pretensions... towards the style of Brutalism that demanded honesty of structure and material. Breaking away from the self contained cubic volumes and smooth surfaces of the International Style. [7]

TRADITION AND MODERN: *Beginning — Revivalist Approach.*
In 1960's as India became more non-aligned and more socialist, making changes towards attitude, there arose a renewed evaluation and questioning of identity in Indian architecture. There was conflict between the Rationalist and the Empiricist approach, between basing architectural designs on an image of 'who

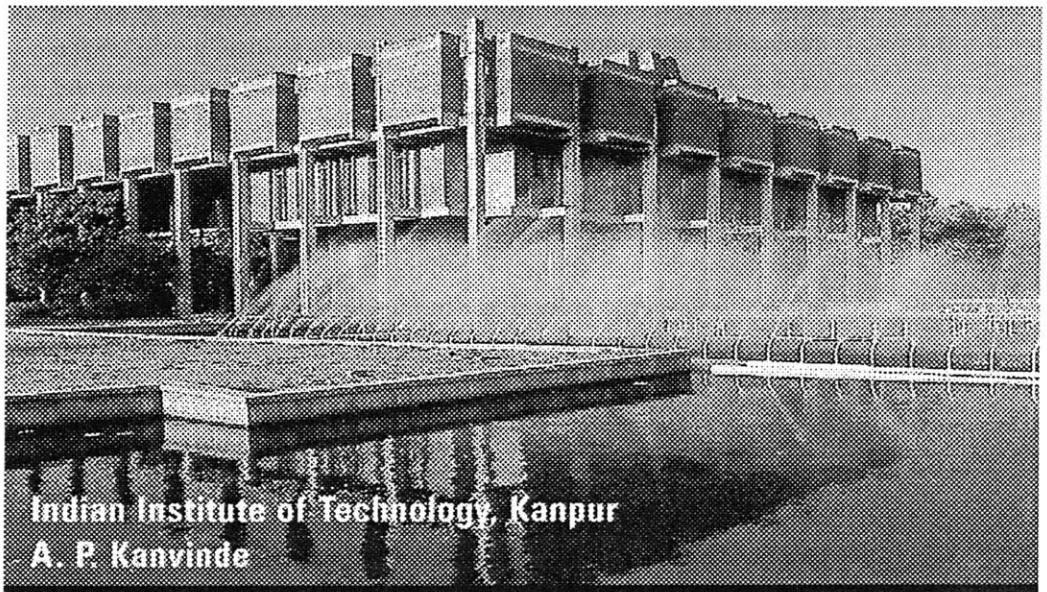
6. Peter, Serenyi, "Timeless but its time : Le Corbusier's architecture in india", Architectural Design, V. 55, no. 7-8, p.55-87, 1985.

7. Peter, Serenyi; "Ethics and Aesthetics: an architect and his values", Architectural +Design Magazine, May-June 1985.

PLATE I



Indian Institute of Management, Ahmedabad
Louis kahn



Indian Institute of Technology, Kanpur
A. P. Kanvinde

Indigenization of the Industrial Process

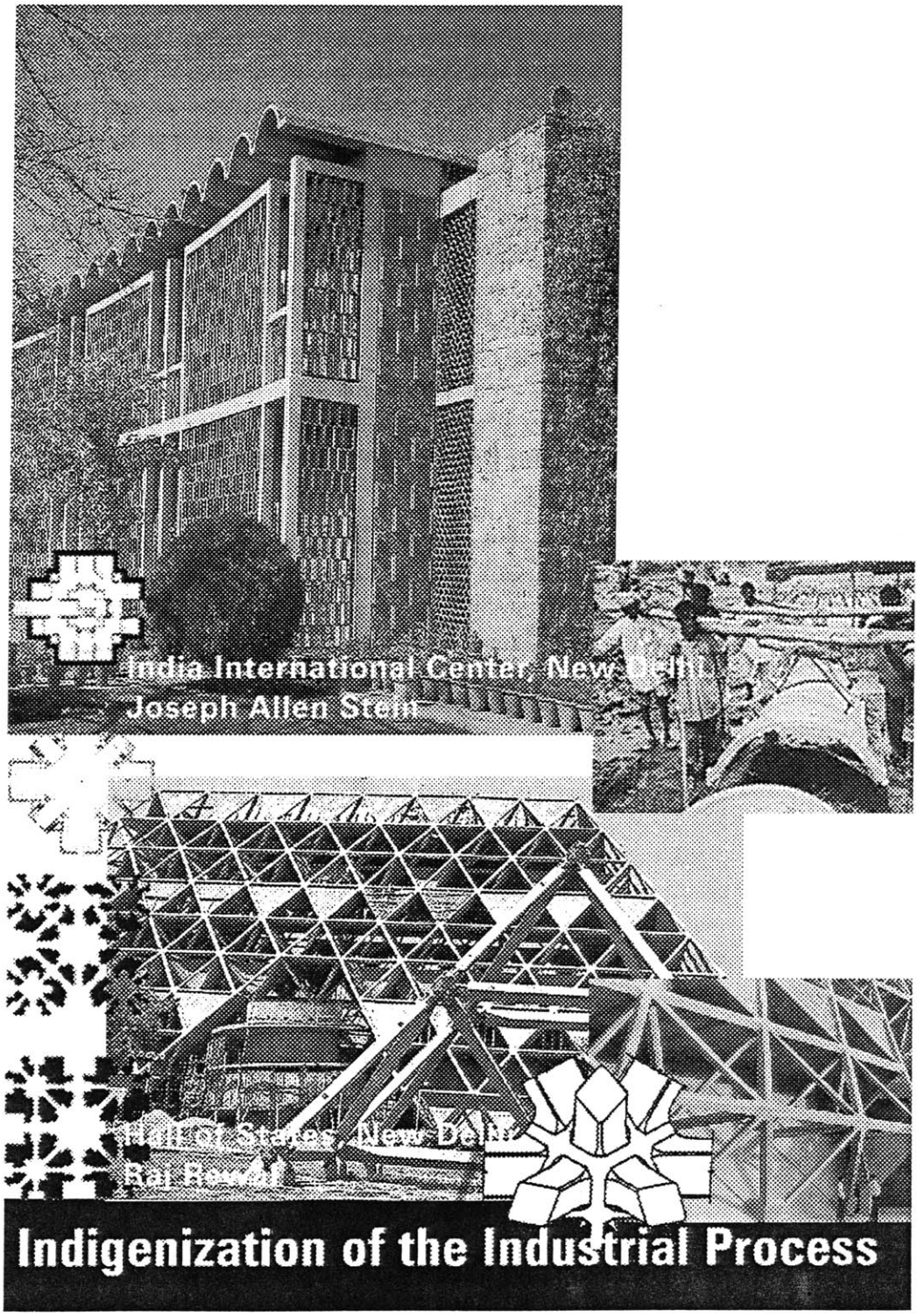
we should be' or 'who we are'. Another international architect who influenced the architectural scene during this time was Louis Kahn whose structuralist reinterpretation of neoclassical typology captured the imagination of young Indian architects. Though Kahn's work reinforced the cosmological and geometrical order, his influence was not as direct or as much as that of Le Corbusier who had become an architectural guru. The economic based solutions for the needy using traditional techniques and materials, the search for a more culturally human experience and the quest for the eternal have been some of the manifestations of this search by this generation of Indian architects.Crossbreeding certain lessons of modernism with traditional principles of dealing with climate, space and habitation, there was a tendency among architects to reduce and simplify the received style in order to transpose it to new applications. [8]

It became critical to create was what might be called a regional expression to make an appropriate fit of this universal doctrine to the conventional technology and imagination of a specific place and culture. By the 1960's modes of industrialization began to filter into an informal building industry. Use of rough masonry walls; vault construction etc. were reinstatements of the archaic aesthetic of raw economical materials friendly to man, giving credence to a new ethic in modern architecture. In 1962, Louis Khan's Indian institute of Management project in India reaffirmed the timeless power of massive brick construction. With the use of indigenous technologies of cottage-manufactured brick and labor-intensive construction, stretched the bounds of conventional masonry technology. Kahn's experiments proved to be a milestone and helped promote brick to an almost exalted status in the vocabulary of the Indian design process. A new type evolved, the minimalist aesthetic, a trend represented by the proliferation of the exposed brick and concrete structures.

Since then there have been many attempts at indigenizing the industrial process, using resources and modes of production based on economy of means, which have a tendency towards crude roughcast concrete aesthetics. For example, in 1970 the design of the permanent Exhibition Hall set the example of this process. The labor-intensive method employed was necessitated by the economics of the Indian building industry. This lent a distinctive hand-built identity to a structural type, conventionally characterized by the delicacy and precision of prefabrication. The projected cost of semi industrialized processes of pre-cast and fabrication proved to be costly as opposed to the hand-hewn construction. Though the steel industry developed in a big way in India, it was still not viable as a building material. The use of in-situ construction system for high-rise developments was propagated and in fact, the situation remains the same even now. *The Institute of Indology in Ahmedabad: Designed by Architect B.V Doshi in*

8. Vikram Bhatt & Peter Scriver; "Contemporary Indian Architecture: After The Masters", Mapin Publishing Pvt. Ltd., Ahmedabad, 1990.
Also read the article "Authenticity, Abstractions and the Ancient Sense: Le Corbusier and Louis Kahn", by William Curtis in Perspecta, no. 20, p.181-194, 1983.

PLATE 11


India International Center, New Delhi
Joseph Allen Stein
Hall of States, New Delhi
Raj Rewal
Indigenization of the Industrial Process

1962. An attempt was made to subtly transform in form and proportion, the distinctive wooden vernacular of Gujrat using modern material concrete. The change in the means of architecture was accompanied by the change in the meaning of elements, now the wall was only a curtain- its load bearing character was taken away by the columns steel and reinforced concrete, encouraging standardization of parts.

The Gandhi Samarak Sangrahlaya in Ahemdabad: Designed by Architect Charles Correa in 1962. An example of fusion of Gandhian philosophy with the Modern forms of architecture. Its direction, simplicity, humble scale, its play of light and shade, solid and void shows a departure from International style. It evokes values indigenous to India despite the alien precedents for its form. It is a skilful synthesis of a foreign inspiration, Louis khan's Trenton Bath houses. The use of humble materials, scale, inter-relationship between closed and open-to-sky spaces, subtle variation of the repeated order reflects the ambiguity in Indian thinking.

India international Center in New Delhi: Designed by Architect J. A. Stein in 1959-62. Represents an all-inclusive quest to evoke identity of architecture itself and to build artfully in a given time and place. Functionalist principles that accommodated their Indian context through standardization of custom-made pre-cast local elements used, exploiting the existing state of industrialization to an advantage by individualizing standardization.[9]

The architecture strikes a subtle balance between contextual and technical appropriateness on the one hand, and on the other, modern standards for space organization, amenities and services. This balance rests on the choice of simple durable materials and their explicit detailing. Concrete is exceptionally well finished and is the basis of the structure. An in situ concrete frame supports the roof and floor elements, carefully devised for each space types. Local gray stone is used extensively in bearing walls. A delicately crafted jali (lattice of brick) protects all the window exposures from direct sunlight. In an innovative reinterpretation of the traditional device, small tiles and tubular aluminum spacers are used to compose this curtain. Variation in design elements has been achieved through the sensitive use of materials, technology and local form of detailing.[9]

Hall of States, Pragati Maidan, New Delhi: Designed by Architect Raj Rewal in 1971-72. Reflects symbolically and technologically India's important place in the modern, Industrializing community of nations. The structural principle of space frame was employed to create the large column-free spaces required by the program is the space frame. This structure is constructed entirely of in-situ

concrete using pre-stressed structural system, losing the lightweight nature of the space frame. Thus one notices an improvisation in the design and building process based on the local appropriation of industrialization.[10]

NEO TRADITIONALISM:*A Reassessment of the Indian Ethos*

References to historical context for modern solution suggest that India was striving under the heavy and often contradictory burdens of assimilating both progress and heritage. As commented by Paul Ricouer "on one hand, it (the nation) has to root itself in the soil of its past, forge a national spirit, and unfurl this spiritual and cultural revendication before the colonialist personality. But in order to take part in modern civilization it is necessary at the same time to take part in the scientific, technical and political rationality, something which very often requires the pure and simple abandon of a whole past. There is the paradox: how to become modern and to return to sources: how to revive an old dormant civilization and take part in universal civilization." [11]

There was a rising discontent against the modern architecture in India. The process of standardization, integral to the modern movement and central to the revitalization of India's construction industry, never was fully accomplished. In fact, it was seen by many as a formulaic way of building cheaply and quickly. "Furthermore, a number of Indians saw the modern movement as a continuation of western dominance- a new form of cultural Imperialism."

By the 1980s there was a new confidence in the use of the archaic aesthetic of raw, economical materials friendly to man, giving credence to a new ethic in modern architecture. The minimalist aesthetic propagated the use of exposed brick and concrete, towards an honest gesture of using the materials for its inherent qualities, rather than the qualities bestowed on them. Different forms of expression developed in different parts of the country, because cottage-manufactured brick as a building element was not purely standardized and was based on the clay of the region. Different regional expressions in response to climate, socio-economic cultural bias etc. projected grace and simplicity seen in the traditional vocabulary of the material form. [12]

As a form of revival of Gandhi's philosophy, there was an attempt to incorporate the traditional elements and skills, patronizing traditional order and craft as valid sources of imagery. Composite materials and finishes were used with decorative swatches of traditional handloom and crafts in building...an attempt to Indianize the modes of standardization. Along with the crafts, there was a desire to preserve traditions to rejuvenate and, sometimes, re-invent past traditions as a way of reducing the stresses caused by change and as a way of maintaining iden-

9. Stephen White, "Building in the Garden, The Architecture of Joseph Allen Stein in India and California"; Delhi, Oxford University Press, 1993.

10. Mimar Publications, "Raj Rewal": Concept Media Ltd, London,1992.

11. Gevork Hartoonian; "Modernity and it's other", p. 106, Texas University Press, 1997.

12. James Belluardo, "An Architecture of Independence",1998.

tity. Hence, this resulted in a major revival of classical music, vernacular languages and in the Vedas and shastras, looking at symbology representing cosmic orders. There was a surge in Hinduism, looking into Hindu philosophy that believes that the manifest world is maya or illusion and it is the purpose of aesthetics to disclose the non-manifest.

Sheikh Sarai Housing Complex, New Delhi: Designed by Architect Raj Rewal in 1970. Illustrates the architect's attempt to adapt the morphology of ancient cities (streets, gateways, elevated passages, and courtyards) into a contemporary equivalent. Normal frame construction with plastered bricks is used as infill panels. The exterior is finished with a coat of cement mortar paragetted with aggregate. The rendering on the plastered surfaces resemble those of stone to give a domestic scale.

Sangath, Architect's Studio built in Ahemdabad: Designed by Architect B.V Doshi (1979-81). Sangath establishes its organic formal values through a process of abstraction; multiple associations and ordering that is based upon an understanding of the past without obvious overt references. It can be seen as an effort to understand the spiritual value of craft to develop a modern vocabulary. It is evocative of the spirit of detailing of composite materials. The form seems to extrude from the substance of the site.

Incremental Housing at Belapur, New Bombay: Designed by Architect Charles Correa (1983-86). An architecturally and socially sensitive housing, based on the principal of dis-aggregating cellular living spaces that allowed for spontaneous upgradation / ad-hocism without changing the basic character. Correa evoked tradition by using the mandala module as a proportioning system. The housing was constructed with basic materials and low-tech building methods; clay tile roofs, smooth finish lime slurry plastered interiors, brick bearing wall construction system, in situ cement flooring and prefabricated shutters. Standardized functional approaches to housing, using maintenance free materials and systems.

POST–MODERNISM:*Ethnicity, Neo-Vernacular, and Global Appropriation*
Ethnicity Nostalgia: This refers to the 'traditional' versus 'traditionalist' attitude that has led to a search for absolute 'authenticity'. A desire among urbanites to experience a vanishing authentic rurality (characterized by knowable idioms) has created a concept/ confusion of refugees living in two different worlds. This was a literal return to traditional order, form and craft as valid sources of imagery. This was expressed in physical form by introducing rustic rural materials like mud, cow dung etc. as surface phenomenon in urban settings. Playing with the

desire to retreat from the city, as truly of the collective or merely the sentimental nostalgia of the urbanized elite.

Tourist Village at Mandawa, Rajasthan: Designed by Architect Revathi Kamath (1992). Revathi has recreated typical mud plastered rural dwellings using the functional, formal and aesthetic advantages of traditional technologies as a 'Graft' instead of a 'Craft'. Mud was seen as a potential material to continue the tradition of architectural skills that exist and various local elements like the dome, air vents and corbelled window were used. It can be seen as decoding the psychological images and memories of rural homes and transplanting them into another context or time. Revathi's work exemplified tailoring of real conditions to suit romantic notions about traditional environments and craftsmanship.

NEO-VERNACULAR: The search for Indian identity has taken various new forms, taking either the literal or the contemplative pursuit. There are times when fragments from the history are used, where the traditional modes of construction along with visual idioms are used out of context and time devoid of their spiritual value.

Nrityagram, Bangalore by Gerard De Cunha in 1992. The design has evolved on the site through 'trial and error' built into the process of building. Creating a vocabulary that stems from structure, local availability of materials and labor. Though his approach to design incorporates the creation of building with the direct use of a vernacular vocabulary, there are overtures to cultural idioms in bizarre ways. Influenced by European Post-Modernism, Gerard has a tendency to use exaggerated forms of traditional elements that are sometimes in ad-hoc relationship and sometimes out of context too.

GLOBAL APPROPRIATION: Today, the architects with media-trained sensibilities have steered architecture towards commodification. There is a tendency towards intellectualizing traditional metaphors/ iconography for their decorative and representational value. It personifies a kind of architecture where simulation and imagery substitutes for both the haptic and the tectonic dimensions of space.

Jawahar Kala Kendra (Museum), Jaipur: Designed by Architect Charles Correa (1986-92). Graphic character of the plan sets up associations, through a visual recognition, with both the nine-square Mandala and old city of Jaipur. One can question if the Kendra is a transformation or transfer of the Navgriha Mandala. Correa plays the cultural counter part to the west and his vocabulary of design is now made from images of symbols, myths and magic diagrams, confirming to

13. Thames and Hudson, Charls Correa, with an essay bt Kenneth Frampton; London ltd, 1996.

the stereotypical western 'orientalist' mind set — seeking a level of appropriation by the global construct. A few of the above mentioned projects have been analyzed in depth within their themes, highlighting their design ideology and their influence on the emerging building industry.[14]

POST INDEPENDENCE: *Reactionary Approach* The Capitol Complex Buildings in Chandigarh and other buildings in Ahemdabad, by Le Corbusier

PRACTICE: Le Corbusier, who had been pursuing for years with the French authorities with his ideas, found Chandigarh as a field for application of the results of thirty years of his research. His ideas reached their summit during the 1950's and his personal style moved from the purist works towards a focus on juxtaposition of pure forms as means of attaining resolution of the opposites. For Corbusier, the juxtaposition of diverse and often seemingly contradictory architectural elements was not merely a formal exercise, but rather a manifestation of a new kind of synthesis that brought together images of diverse cultural, historical, environmental, sociopolitical and psychological forces while permitting each to maintain its own identity. He interpreted these forces in terms of a series of polarities that include: history and modernity, Mediterranean and Northern, mechanistic and folkloristic, utopian and pragmatic, puritanical and hedonistic, male and female.[15]

Corbusier's vocabulary of design incorporated a unique proportioning system developed by him that was based on human dimensions and elegance. His references were both Indigenous and Western, and he classified his observations into culture, folklore and industry. He found indigenous references most compelling, seeking basic themes from over millennia of Buddhist, Hindu, Islamic, Vernacular and Colonial lamentations. He was influenced by Jantar Mantar, the astronomical observatory built in 1719, projected the principle of linking man with the cosmos. The essence derived towards a new architecture as 'pure creation of mind'-ingenuity. He was also influenced by Lutyens planning for the city of Delhi, 1911. From its broad boulevards and axes, Corbusier derived the lessons of western spatial planning. For the residential projects in Ahemdabad, he chose to develop a vocabulary addressing the social and local climate of the place, using archaic principles from Mediterranean formalism and northern flexibility. This could be seen in the mannerisms of form, space, light and materials.

PROCESS: Though the work of Le Corbusier in India needs to be evaluated at two levels, at the level of urbanity and at the level of the individual building, I have analyzed it more from the architectural point of view. Corbusier devel-

14. Vikramaditya Prakash, "Identity Production in Post Colonial Indian Architecture: Recovering What We Never Had", in the book 'post colonial space(s), edited by G. B. Nalbantoglu and C.T Wong, Princeton University Press, 1997.

15. Peter Serenyi, 'Timeless but it's time: Le Corbusier's Architecture in India', Architectural Design Magazine, no.55, 7/8, 1985.

oped his own vocabulary by juxtaposing elements, using climate control devices like the sun-breakers, a proportioning system and use of iconography.

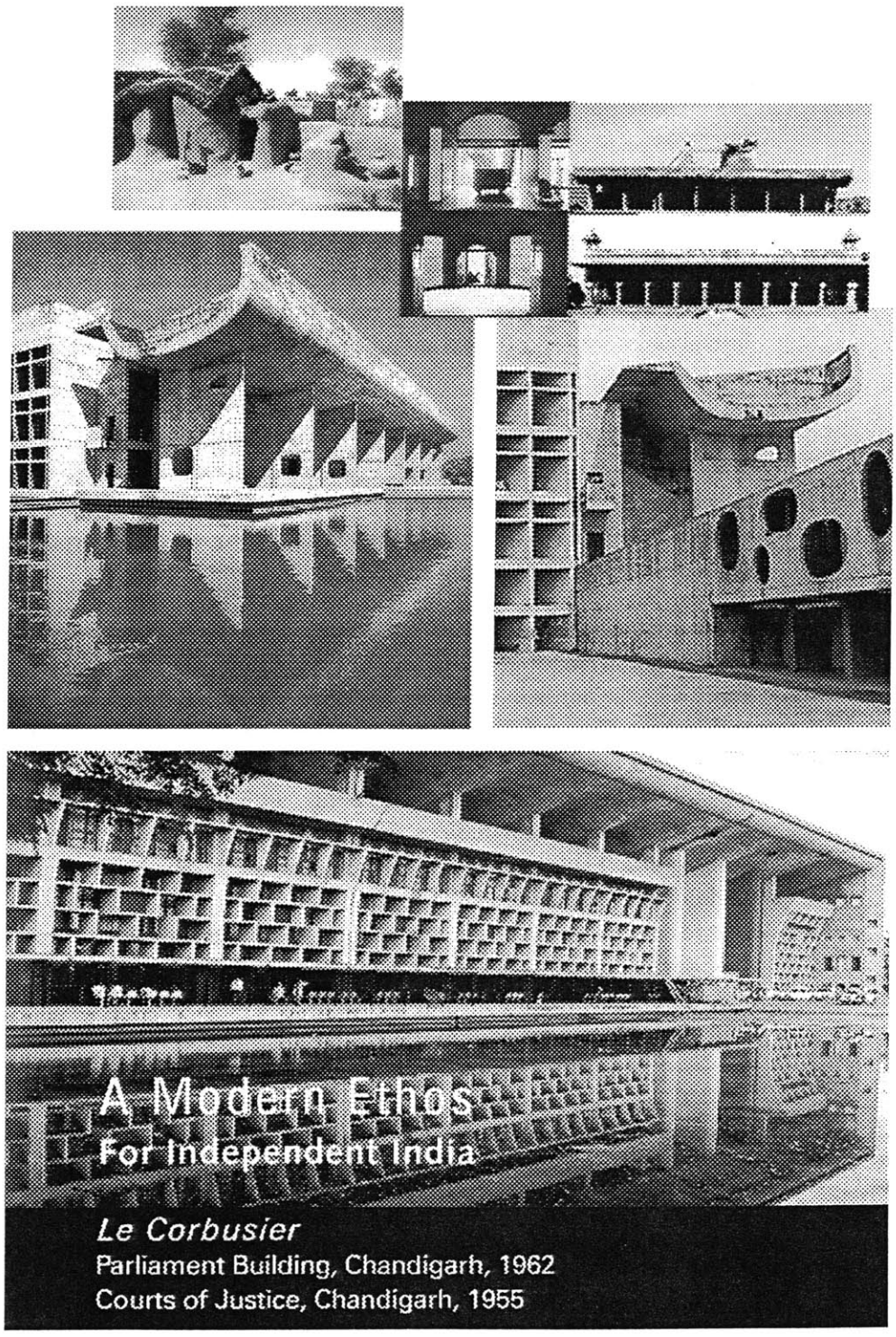
JUXTAPOSITION: In most of his buildings, Corbusier achieved a resolution of opposites by juxtaposing rather than fusing diverse architectural elements so that each part retains its identity and separateness. Shoden's house, in Ahemdabad, is a cubical concrete frame structure whose exterior surface unfolds from a forbidding entrance to a welcoming garden façade, juxtaposing the formality of the Mediterranean and the flexibility of the Northern approach. Even the interior volumes were organized in terms of polarities that include public and private, formal and informal, personal and impersonal: allowing each to preserve its own discrete identity.

The Assembly building, in Chandigarh, is an excellent example of juxtaposition of its constituent parts: the portico, the main block and the superstructure. Even in the interiors, the underlying theme is of juxtaposing quasi-autonomous architectural elements, which is exemplified by the way in which the hyperbolic shell is handled as a building within a building.

In the High Court building in Chandigarh, Corbusier has juxtaposed the Mediterranean clarity and constancy of the building's classical/ monumental frame with the northern variety and flexibility as seen in the façade composed by sunbreakers. The spatial and formal configuration recalls the monumental vaulted structure of the Basilica of Constantine and the processional spaces of the Pinjore Gardens in Chandigarh. Though the high court is placed in a wide-open space linking the mountains with the observer, it is marred by over-scaling and lack of soft landscape that has resulted in its heightened sense of isolation. Corbusier's organizational and spatial concepts come from universal themes that have references/ transfer from the Indian tradition but have little to do with their transformation according to the Indian condition. This form of superficial mating of traditional and the universal is limited to its visual, aesthetic and symbolic value and has resulted in overlaying of a new order on the existing devoid of the spiritual nature of traditional idioms.

RESPONSE TO CLIMATE: Corbusier's principles of openness and flexibility were a response to the climatic conditions of the region, such that the sunbreakers became an important element of his architecture. As a response to Ahemdabad's intense sun, the parasol roof and the continuous openings of the Shoden's house functions naturally as the house's climate control system. The use of sun breakers as architectural elements fulfilled the complex functions ranging from utilitarian, like providing sun protection, scale and proportion, to the symbolic.

PLATE III



A Modern Ethos
For Independent India

Le Corbusier
Parliament Building, Chandigarh, 1962
Courts of Justice, Chandigarh, 1955

They also serve as visual connections between the observer and the house, between the inside and outside and between the various parts of the house in a defined and sequential way.

USE OF MATERIALS: Corbusier introduced the use of concrete and steel as a building material for massive developments, instead of the local materials. Plasticity and flexibility of the material was exploited to give formal and modern expression to tropical vernacular. In Corbusier's buildings, a concrete pattern for casting allowed its plastic nature to come through the process into sculptural expression. Inspired by the mud construction of villages in India, Corbusier sought to make concrete look more like a natural material. The portico of the Assembly building exemplifies this affinity.

Apart from juxtaposition of architectural elements, Corbusier juxtaposed diverse materials as concrete, stone, brick, glass and wood, as seen in the Sarabhai's house. His approach to a culture of building demonstrated that the purpose of construction was to 'make things' hold together, not blend - thus maintaining their individual identity.

SYMBOLOGY: His use of symbols, like the funnel of the assembly building in Chandigarh, was a crossbreed with ancient solar observatory. Spiritual symbology was used in crescent roofs, alluding to bull horns and images of planetary paths, which tended to move towards iconography, or we can say, symbolism without context. The complex cultural symbols projecting mundane functional aesthetics lost the spiritual essence of the traditional form.[16]

INDUSTRY: Corbusier gave a new ethos to the existing form of building industry in India. The new material concrete and the Reinforced cement concrete frame structure completely erased the traditional load bearing character of stone and wood constructions. Concrete possessed qualities of plasticity and pouredness, which in a way was similar to that of the indigenous material Earth. This has to be seen in contrast with the vernacular mud architecture in India. Mud acted as a disinfectant, an antiseptic, freshness, cooling agent; in fact the whole act of mud lipai was a ritual in India. The gap between the traditional industry of India and the new technology was never bridged.

The adopted culture of building changed the nature of the built environment. But the introduction of the forces of mechanization into the building culture of India required one to be critical of the dichotomy between indigenous mode of production and modern technology. Our traditional stone construction possessed a degree of permanence, especially when used in the major institu-

16. Peter Serenyi, 'Timeless but it's time: Le Corbusier's Architecture in India', Architectural Design Magazine, no.55, 7/8, 1985.

tional buildings. But concrete as a material could not stand the test of time in the tropical climate. The concrete fabric due to weathering of the layer with time has corroded the steel reinforcement, causing danger to the strength of the material. The extreme temperature variations have caused hairline cracks on the external surface, patches of stains and green organic growth. This process of disintegration caused the internal or surface disruption of the granular structure of concrete. Thus concrete as a building material requires heavy modes of production and maintenance, which in turn required power, technology and skill, which is still not easily and economically available in India.

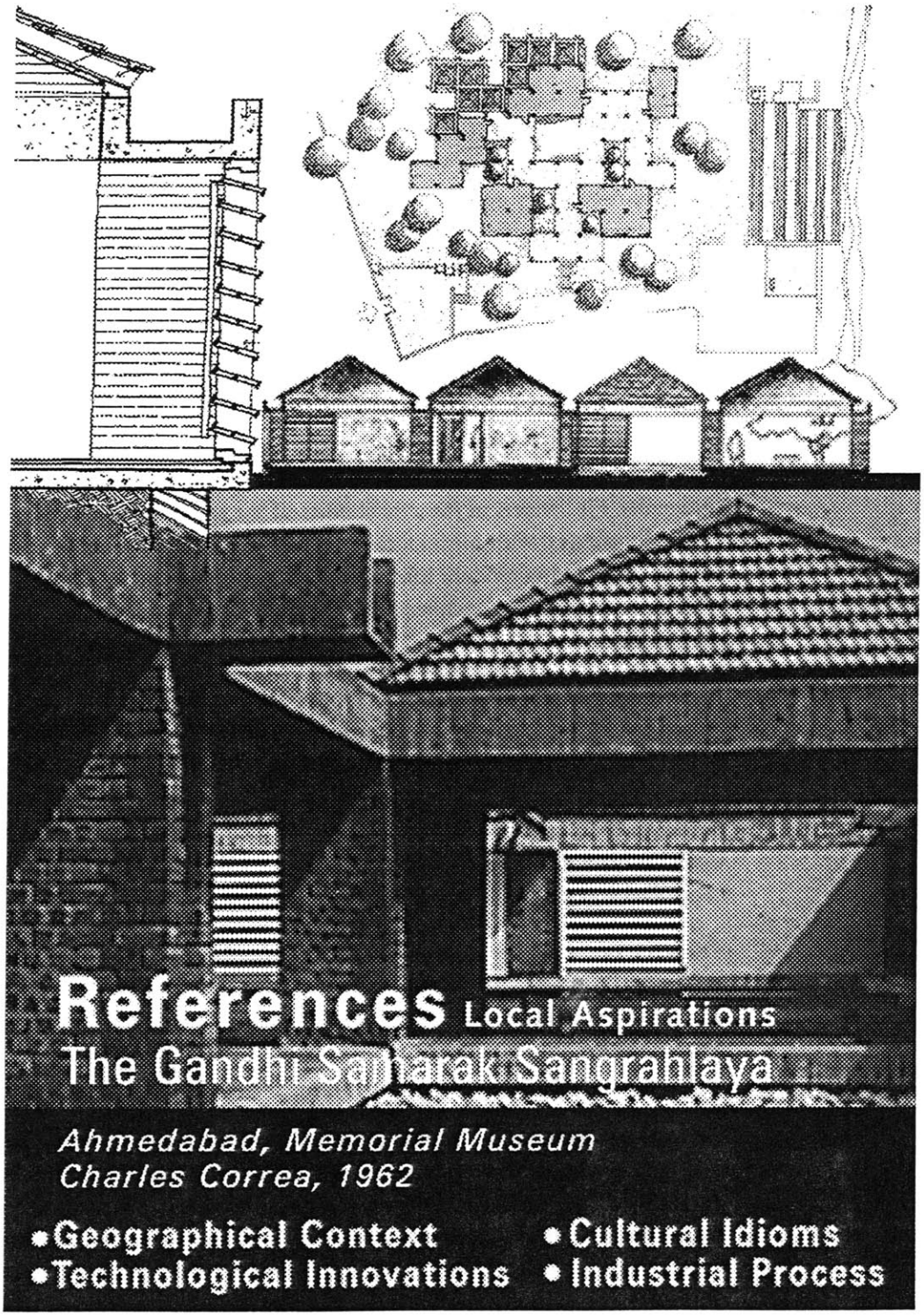
TRADITION AND MODERN: *The Gandhi Samarak Sanghralaya in Ahemdabad: Designed by Architect Charles Correa in 1962.*

PRACTICE: An approach to design that draws upon traditional Indian forms and ordering devices integrated with the principles of Modern Movement. Like others, the works of Le Corbusier and Louis Kahn too inspired the architect. In fact, the Gandhi Samarak Sanghralya refers directly to Kahn's Bath House for the Jewish Community Center at Trenton, New Jersey (1954-59). But at the same time, he believed in the multiple meaning of architectural forms and tried to communicate the country's cultural and spiritual values to both the Western and the eastern audience. His vocabulary of design helped to shift the attention of Indian architects from a predominantly Western bias.

PROCESS: Gandhi Ashram was a pivotal building in the search for a viable Indian Modern architecture. The brick piers, concrete beams and low pavilions were an intelligent blending of Corbusier and Kahn's vocabularies of design. At the same time, the humble scale and the clustering form evoked the Indian Vernacular and encapsulated the moral restraint of Gandhi.

The materials used in the construction were similar to the other buildings in the ashram that included the tiled roof, brick walls, stone floors and wooden doors. Resisting the use of glass in the building, light and ventilation was provided by openable wooden louvers. The new addition was the Reinforced Cement concrete channel that acted as beam rainfall conduits and elements that permit growth in future. These elements combined to form a basic module of 6m X 6m, grouped in clusters, a typology of built-open amalgamation that created a casual meandering pattern for the visitor's progress towards the central court-yard. Based on modular planning, the Sanghralya was envisaged as a living module that could grow and change. This configuration generated a wide spectrum of conditions (from closed box to open-to-sky), the subtle changing from one zone to other. This work represents one of the few buildings where

PLATE IV


References Local Aspirations
The Gandhi Smarak Sangrahlaya
Ahmedabad, Memorial Museum
Charles Correa, 1962
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

Monumentality and Humbleness exist together, analogous to our traditional villages, a theme central to Gandhian philosophy.

INDUSTRY: This building in a way represents the 1960's Indian Architectural trend when the use of exposed brick and concrete was ubiquitous. Correa showed how modern and vernacular technique of construction could be integrated to develop a simplistic and minimilistic vocabulary of fusion. This form of assembly construction with the use of pre-cast elements was in tune with the prevalent state of industrialization in India at the time.

NEO–TRADITIONALISM: A Reassessment of the Indian Ethos
Sangath, Architect's Studio, Ahemdabad: Designed by Architect B.V Doshi (1981).

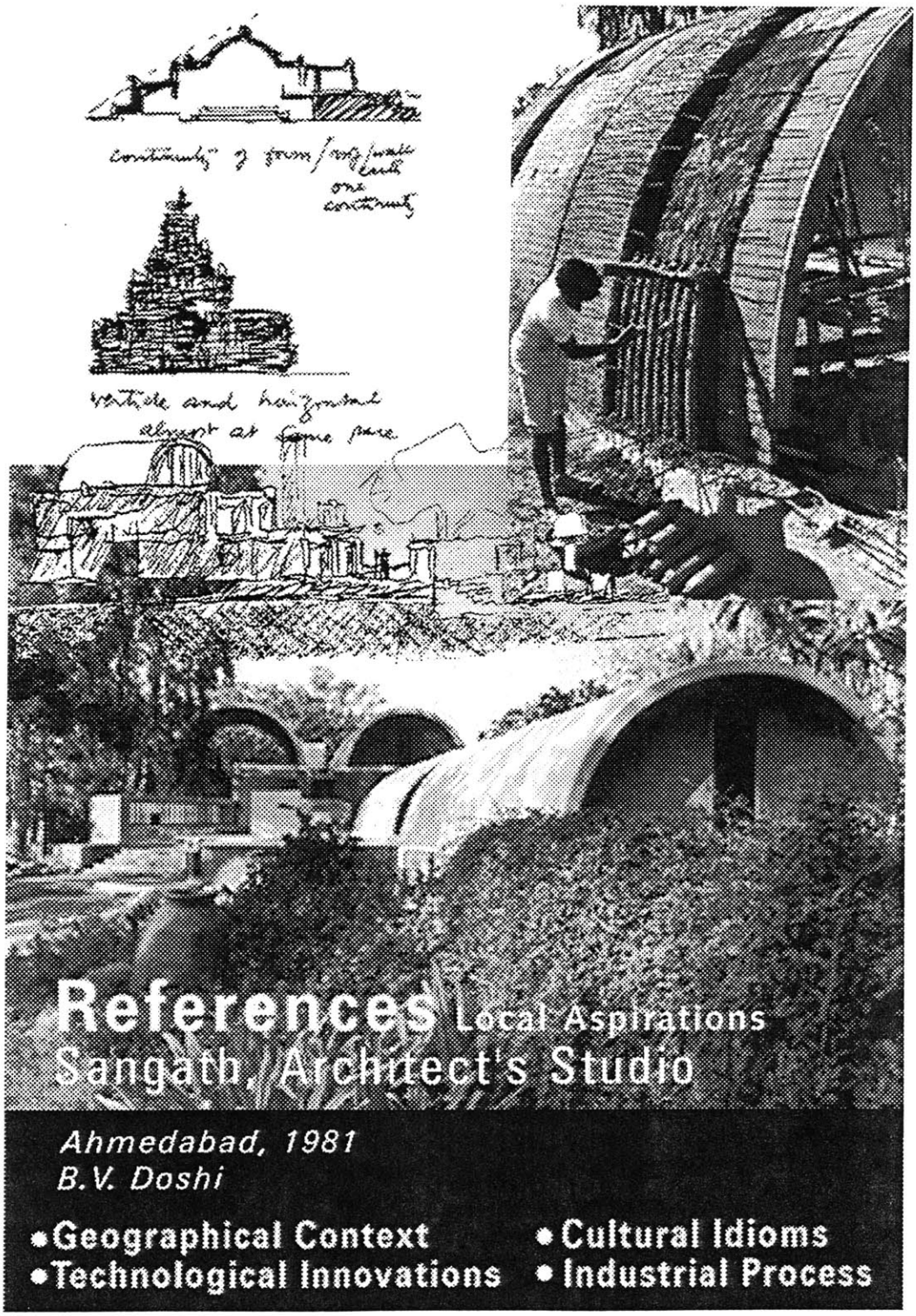
PRACTICE: The vocabulary of design is informed by themes central to the Indian sensibility. A language that is inspired by the principles of spatiality in the vernacular. He believes in the overall unity of the environment, where one integrates the physical with spiritual needs and gives due importance to nature and its basic laws. Using modern forms to renew traditions, the vocabulary of design used attempts architecture of ambiguous space that seeks to activate the psyche.

Inspired by the cosmological implications of the 'center' in the Indian context, its powerful psychic sensibility is expressed in different ways. The concept of spatial layers as a response to the social values, to the behavioral norms and to the climatic necessities is laid emphasis on. The transition spaces from the center to the periphery and the resultant imagery, is used to interpret the multiple elements in an organizational unit. The designs exhibit a sense of space with a controlled scale from the personal to the collective spaces.

The structure is used as an expressive medium to enhance the potential of scale and form. It is not a puritanical notion but takes the structural themes to a level of sensorial experience. He uses vernacular idioms like the additive forms, b reaking the sun into shadow, nuances of light, touch of imperfection, of sympathetic response and accommodation of growth and change.

PROCESS: Sangath means "working towards a common goal through participation" and is envisioned as a center for speculation and sharing of ideas. It is a microcosm of the architect's belief in harmony between the individual, community and nature. It represents an example of Corbusian concern integrated with the abstract qualities of architecture, combining with indigenous technique and vernacular spirit. Its organic value is established through a process of abstraction,

PLATE V


References Local Aspirations
Sangath, Architect's Studio
Ahmedabad, 1981
B.V. Doshi
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

multiple metaphorical associations and orderings. Sangath's planning is based on vernacular references, sensitive use of scale, materials, light and symbols to develop a rich spatial quality that expresses intimacy, differentiates the public and private, the sacred and the profane.

The scheme is formed from low vaulted spaces rising out of a characteristic landscape of grassy platforms, water channels, humps and clay pots. Half buried in the ground, it suggests a primordial earth shelter – a descendent of Le Corbusier's earth hugging Sarabhai House (1953) in Ahemdabad. A shallow cascade of steps defines an outdoor theatre that is inspired by traditional communal spaces. The building exhibits an intelligent use of material and passive climate control technique. The vaults are constructed of cylindrical terra-cotta tiles sandwiched between thin Ferro-cement shells and covered with shards of white ceramic that reflects heat and glare. The barrel vault is broken in parts to let the light in, creating mellowed effect in the interiors. The interior combines single, double and triple height volumes that reflect the labyrinth galleries of temple architecture and the Chaitya halls of India. With this project, Doshi made an attempt to project an understanding of the spiritual values of craft in contemporary settings. Using the concept of traditional layering of spaces, revealing Indian sensibility and poetic ways of dealing with sun, wind, dust, human scale, transition etc.

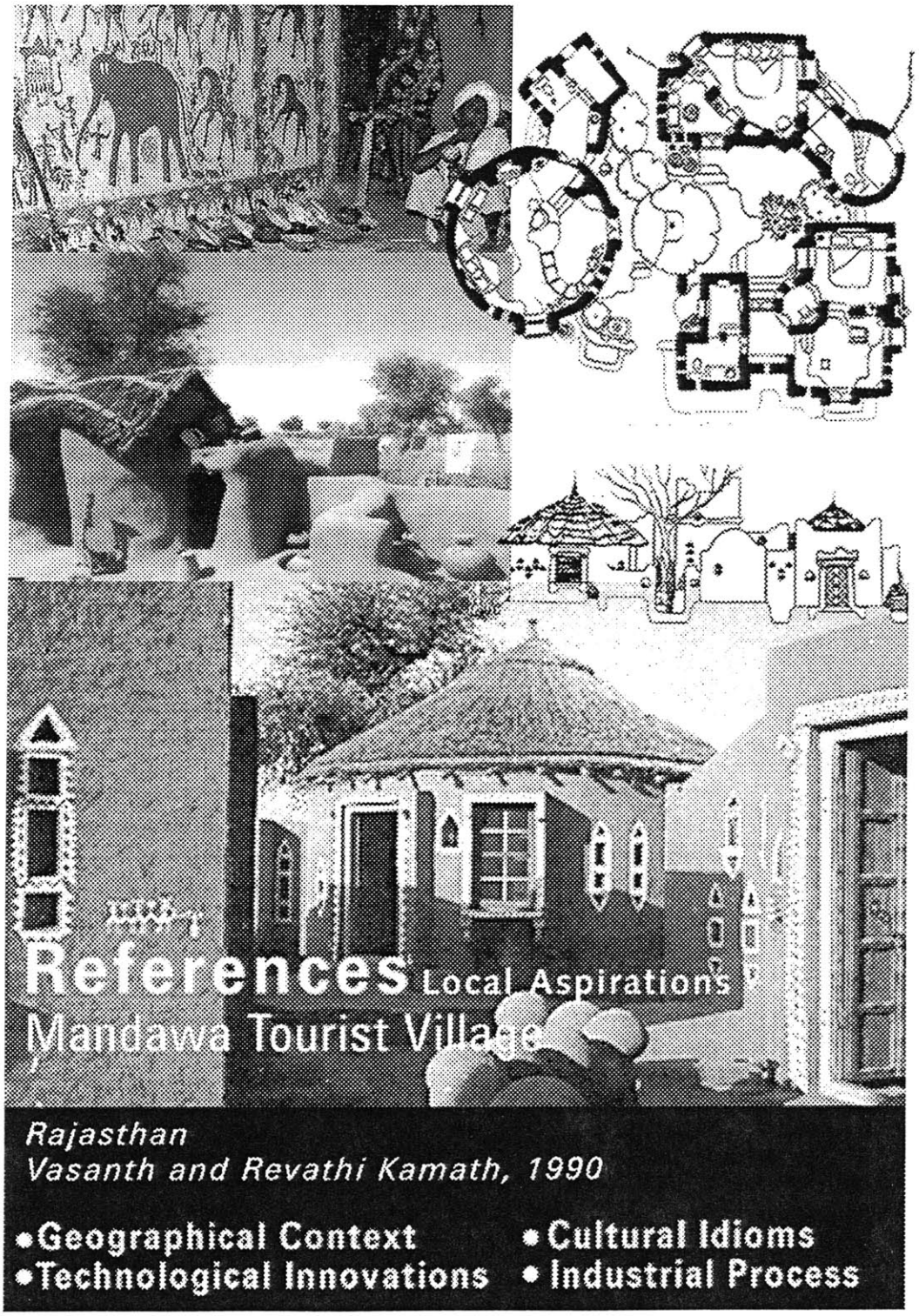
INDUSTRY: An attempt towards using indigenous techniques and principles in the building process. Patronizing craftsmen and training unskilled labor, using organic resources, which are available in plenty. Initiating ways of incorporating a system of indigenous techniques and construction into mainstream industry.

POST-MODERNISM: Ethnicity, Neo-Vernacular, and Global Appropriation
Tourist Village at Mandawa, Rajasthan: Designed by Architect Revathi and vasant Kamath in 1992.

PRACTICE: The aim of the Kamaths has been to achieve inexpensive and sensitive architecture using indigenous construction methods, local materials and skills/craftsmen—an implicit acknowledgement that the craftsman's role is critical in building. They claim to seek the truth of indigenous expression in buildings, by actively employing craft as a participatory activity.

PROCESS: Kamaths have tried to integrate the functional, formal and aesthetic advantages of traditional architecture. Their focus has been on "Mud Architecture" where mud is seen as a potential material to continue the tradition of architectural skills that exist. They have developed a vocabulary of local

PLATE VI


References Local Aspirations
Mandawa Tourist Village
Rajasthan
Vasanth and Revathi Kamath, 1990
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

elements like the dome, air vents, corbelled window shades etc., using indigenous techniques with modern modes of production.

In the tourist village in Mandawa, Revathi has recreated typical mud plastered rural dwellings, recalling the images, forms and spaces of a village in Shekhawat region of Rajasthan, India. The key component of the site plan is the main street that is flanked by a cluster of buildings, each of which is arranged around a common courtyard. The architect has created a vernacular setting for folk artists and artisans in a manner that can be experienced and comprehended by an International tourist. The spaces are intact with the needs and comforts of an urban lifestyle and the so-called 'Indigenous' setting can be compared to a film set. The project claims to have used local materials, local craftsmen and local details to create an "Authentic" setting. [18]

In another project, a school for Mobile Crèches in Delhi (1981-83), the basic form was evolved out of an aggregation of squares arranged around several courts. The interior comprises a series of small teaching spaces, defined by brick arches and domes. Constructed essentially out of brick, and sandstone, the building incorporates many traditional elements like the domes, window detail, sandstone spouts, the parapet etc. But the quality of construction using unskilled local labor suggesting that the design is a product of architectural preference rather than practical expediency. Also the inability to accommodate ad-hoc additions, a pre-requisite of vernacular architecture, has here defeated the architectural pretensions.

In both the projects, Kamaths have decoded the psychological images and memories of rural homes and transplanted them into another context or time. As they try to incorporate lessons from the past into the contemporary, they seem to have lost the rationale behind the form of mud architecture as practiced in our villages. The use of mud plaster had a ritual behind it of cyclic care of the building as a part of the act of living. There were festivals when mud walls received their regular dressing up. With the absence of such culture in our urban context, mud is used only as a surface treatment (a form of imagery) that is devoid of its ritual/spiritual context.

Kamaths work exemplifies tailoring of real conditions to suit a rather romantic notion about traditional environments and craftsmanship. Her search for the "Authentic" has reduced the buildings to a pseudo-ethnic character that are devoid of ritualistic complexities. Traditional dwellings potrayed the life style of the occupants, the income they generated and the climate they were set in. There seemed an economic necessity to build a common language of building

18. Frances Anderton; "Aims of the Kamaths", Architectural Review, no. 1086, August 1987, p. 69/8 - 71/8.

that assured the perpetuation of craft tradition. But the tourist village is a mockery of culture by employing strategies of place making that create the concept of refugees living in different contexts.

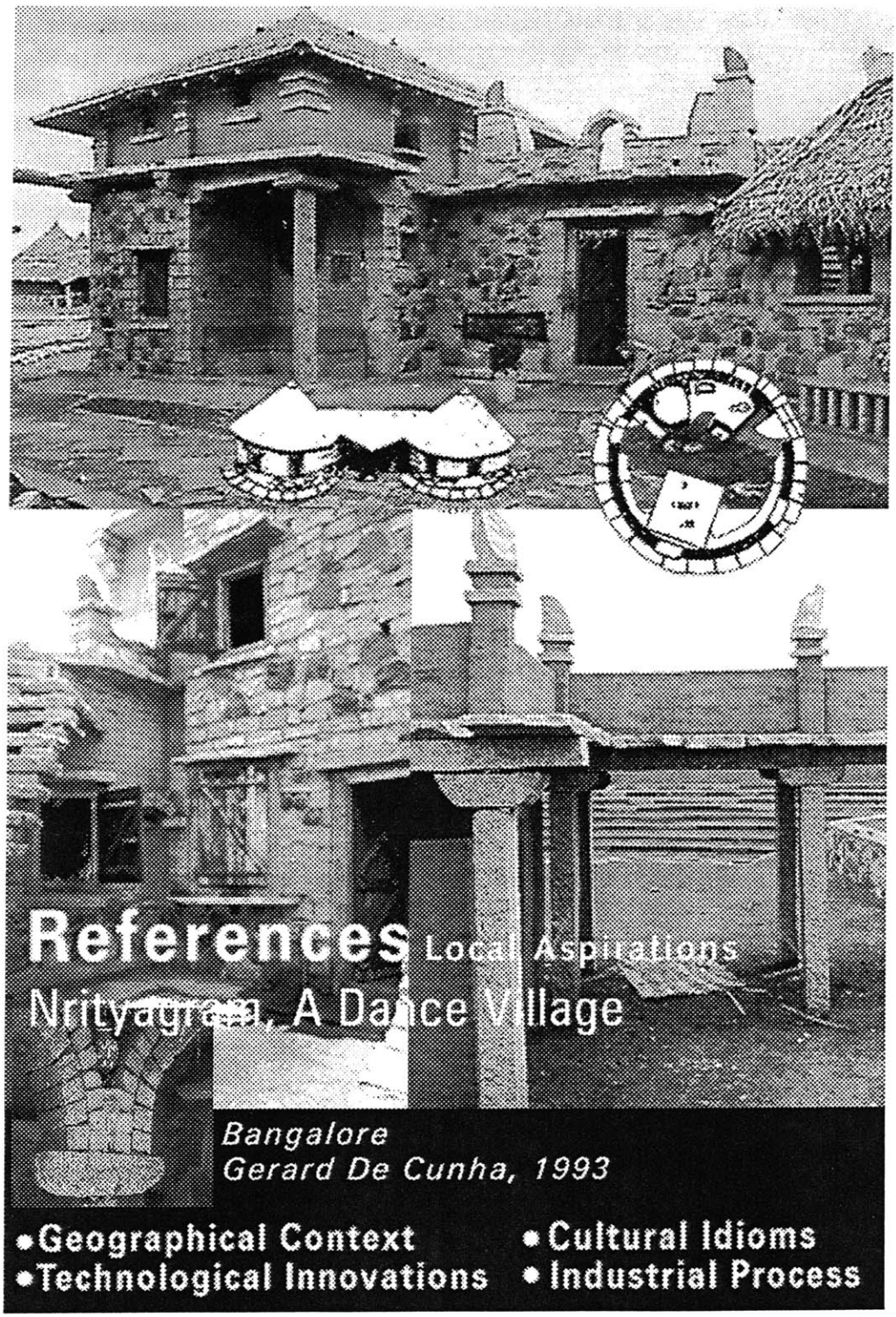
INDUSTRY: This methodology employed in design and execution uses craft in a more normative rather than the intellectual way. This form of the vocabulary addresses issues of rural-urban exchanges in the present context of India. Playing on the sentiments of the people towards nostalgic irrelevant expressions. It is a select group of people and the whole concept works due to its exclusivity. Allowing for an exchange of materials, usage, symbolic expressions etc between the two realms. Patronizing craft by bringing them to the urban public as a form of rurality, instead of developing a new craft based on the existing heritage. Organic materials like mud, cow dung, thatch etc. along with other elements was introduced as a material in the urban context but its innate potential has not been explored. Not exploited for wider application, was limited to its exclusivity and pseudo-ethnicity. Mud mixed with cement and lime has been extensively used as a surface treatment but there is no ingenuity in use that expresses the material to a level of craft. In fact its use seems incongruous, especially when it is used in an urban setting, devoid of its ritual context. The use and training of unskilled labor, employing user participation, organic materials etc. can be incorporated into the main stream industry in creative ways.

Nrityagram: A Dance Village, Bangalore: Designed and built by Gerard De Cunha in 1992.

PRACTICE: The design has evolved on the site through 'trial and error' built into the process of building... Creating a vocabulary that stems from structure, local availability of materials and labor. Though his approach to design incorporates the creation of building with the direct use of a vernacular vocabulary, there are overtures to cultural idioms in bizarre ways. Influenced by European Post-modernism, Gerard has a tendency to use exaggerated forms of traditional elements that are sometimes in ad-hoc relationship and sometimes out of context too.

PROCESS: The design of Nrityagram exhibits sensitivity to the local conditions through the survey plan approach. Existing site features guide the planning organization leading to an organic development. The solid-void relationship has been used to link the built form with its natural surroundings. There is an effort to integrate local construction, techniques and materials improvising on site. Use of simple geometry's to clearly define the structure, layout and volume of the enclosure. The material potential has dictated the form and span of the

PLATE VII


References Local Aspirations
Nrityagrama, A Dance Village
Bangalore
Gerard De Cunha, 1993
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

enclosure. The traditional building systems have been used, which includes the rubble masonry and the use granite slabs as the spanning material. Details such as composite arches and stone/brick compositions, which are otherwise redundant, have been have also been used. One can see a rich sense of treatment of the surfaces, textures and junctions, bringing the whole built environment alive. Though a lot of vernacular principles are used in variation, they sometimes tend towards ad-hocism.

19. The public, the Private and the Sacred, by Charles Correa 1989.

His approach to design incorporates the direct use of a vernacular vocabulary but there are overtures to cultural idioms in bizarre exaggerated tones. One does cover some ground by responding to climate and material in an indigenous way, but the vocabulary needs to incorporate essence in the abstractness of elements to achieve a level of 'Spirituality'. This missing element sometimes leads to a kitsch/ pastiche, devoid of grace and elegance in the overall environment.

INDUSTRY: Re-introduction of the concept of master builder by intuitively building on site directly, has been an important contribution. Gerard has adapted indigenous techniques, detailing and local resources, leaving room for adaptation, interpretations and corrections. Developing a customized indigenous form of industry that looks at the art of building as a participatory process using the available expertise.

Jawahar Kala Kendra (Museum), Jaipur: Designed by Architect Charles Correa in 1992.

PRACTICE: The approach draws upon traditional Indian forms and ordering devices, which is used to create buildings that are unmistakably modern. Correa personifies the metaphysical approach, where he claims to interpret the Indian architecture as constructed of three themes: the mandala (analogous to the cosmos), the manusha (measure of man) and the manthana (involves the absorption of new myths into an existing construct. He puts it as " Architecture is generated by mythic beliefs, expressing the presence of reality more profound than a manifest world in which it exists... We will have to learn how to transform mythic images and values and reinvent them in terms of new aspirations." The references incorporated in the design vocabulary is influenced by Le Corbusier and Buckminster Fuller, and draws references from the Mediterranean and the Oriental perception of form and expressions.[19]

PROCESS: The vocabulary is based on a few basic elements to create a labyrinth of public and private spaces: Open to sky spaces; Built-open in a figure-ground amalgamation; Section types for hot/wet and hot/dry regions; Manipulation

of floor levels and sections; Large oversailing shade roofs; Planar walls and abstract color compositions; Synthesis of popular culture and archaic cosmology, myth; etc.

Jawahar Kala Kendra (JKK) is an arts center in Jaipur that is conceptualized as a contemporary building based on an archaic notion of the cosmos. The architecture is derived from a geometric depiction of the navgriha mandala, one of the cosmic diagrams of Hindu mythology that not only governs the astrological plans of Hindu temples but also the structure of the universe. It is defined by walls along the grid, on which each planet is represented by its traditional symbols inlaid in marble. The plan crucially relies on the open-to-sky central square that has axial openings into the eight quadrants around it, developing a hierarchy.

The plan of JKK not only represents the basic mandala diagram, but is its exact copy too. Hindu temples are truly based on the mandalas, but their actual plan is that of approximation derived from geometric displacements. They are a complex derivative of the simple cosmic diagram, formed through a process of transformation. The correspondence between the temples and mandalas is far more difficult to recognize than that between the JKK's plan and its mandala. Due to the plan's emphasis on the purist geometry and its exactness to the mandala (rather than the meaning or principles), one needs to question if the formal expression is a case of transformation or transfer.

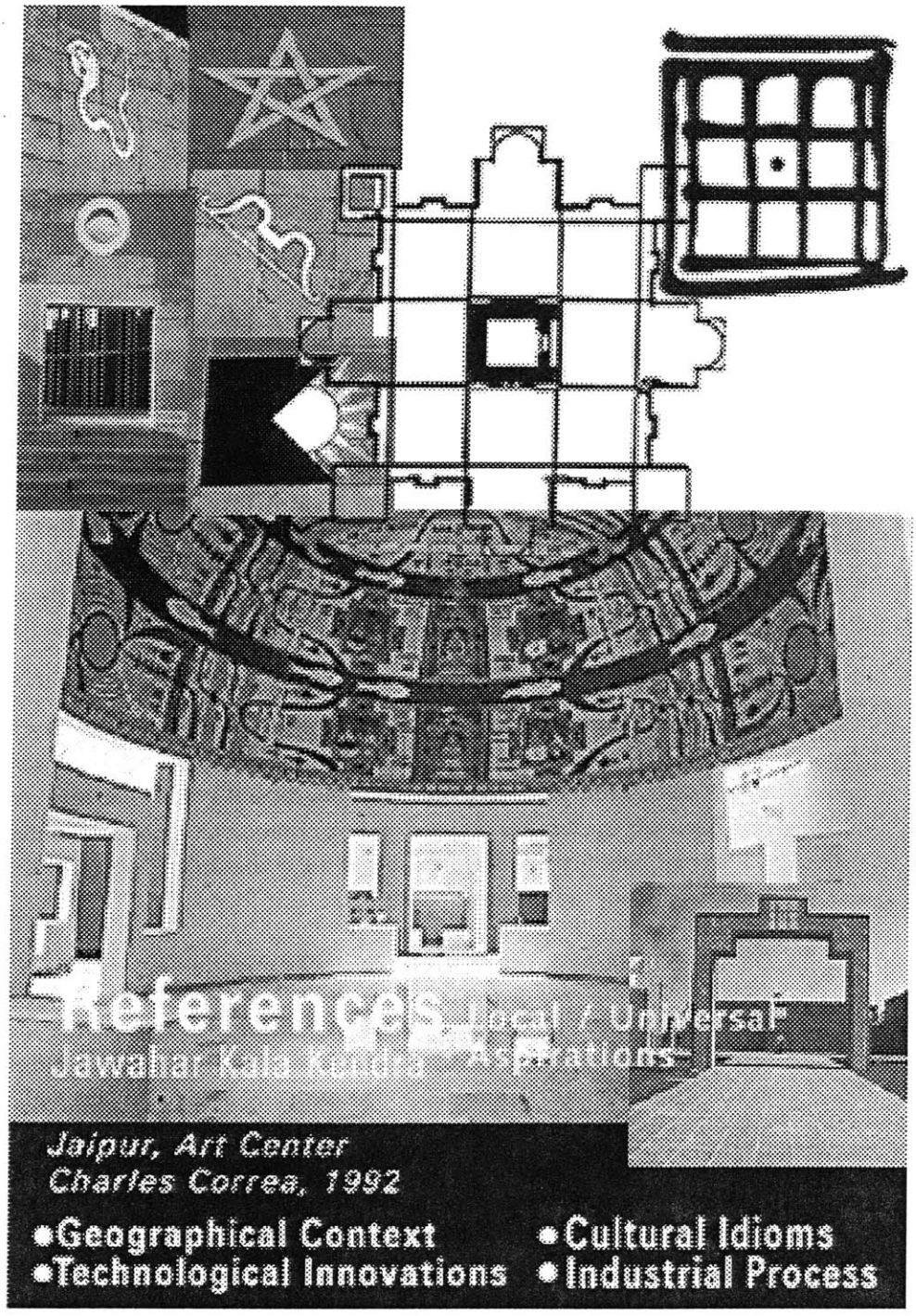
There is a slight modification in this plan, where one of the squares is dislocated to create an entrance, a gesture that recalls the original plan of Jaipur. Though dislocation in the Jaipur's plan embodied a secular adaptation of an underlying principle (a response to the present geographical conditions), Correa's dislocation is purely an aesthetic representation of the original act.

Furthermore, the presence of each of the planets is represented on the walls by its traditional symbols inlaid in marble. This kind of language symbol becomes as important as "Robert Venturi's billboards — they are oversized, up for display, and easily readable, with a simple message". Though the building is rich in iconography, the symbology is too obvious, the images too explicit. As the Indian Architect Romi Khosla puts it as "— in architecture, the images have quite different references that are never as explicit as visual image that one can use in painting, sculpture and film. [20]

Architecture, like dance and music, has to use ability of the mind to associate rather than to see directly".Is architecture a structural form modified by the application of iconography? Or is it the iconography form made out of the

20. Vikramaditya Prakash, "Postcolonial Spaces". 'Including Iconography and Images in Architecture', Article in Architectural Review Magazine, August 1985. Also read 'The Concept of Regionalism", by Alan Colquhoun, p.13-25.

PLATE VIII


References Local / Universal
Jawahar Kala Kendra - Aspirations
Jaipur, Art Center
Charles Correa, 1992
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

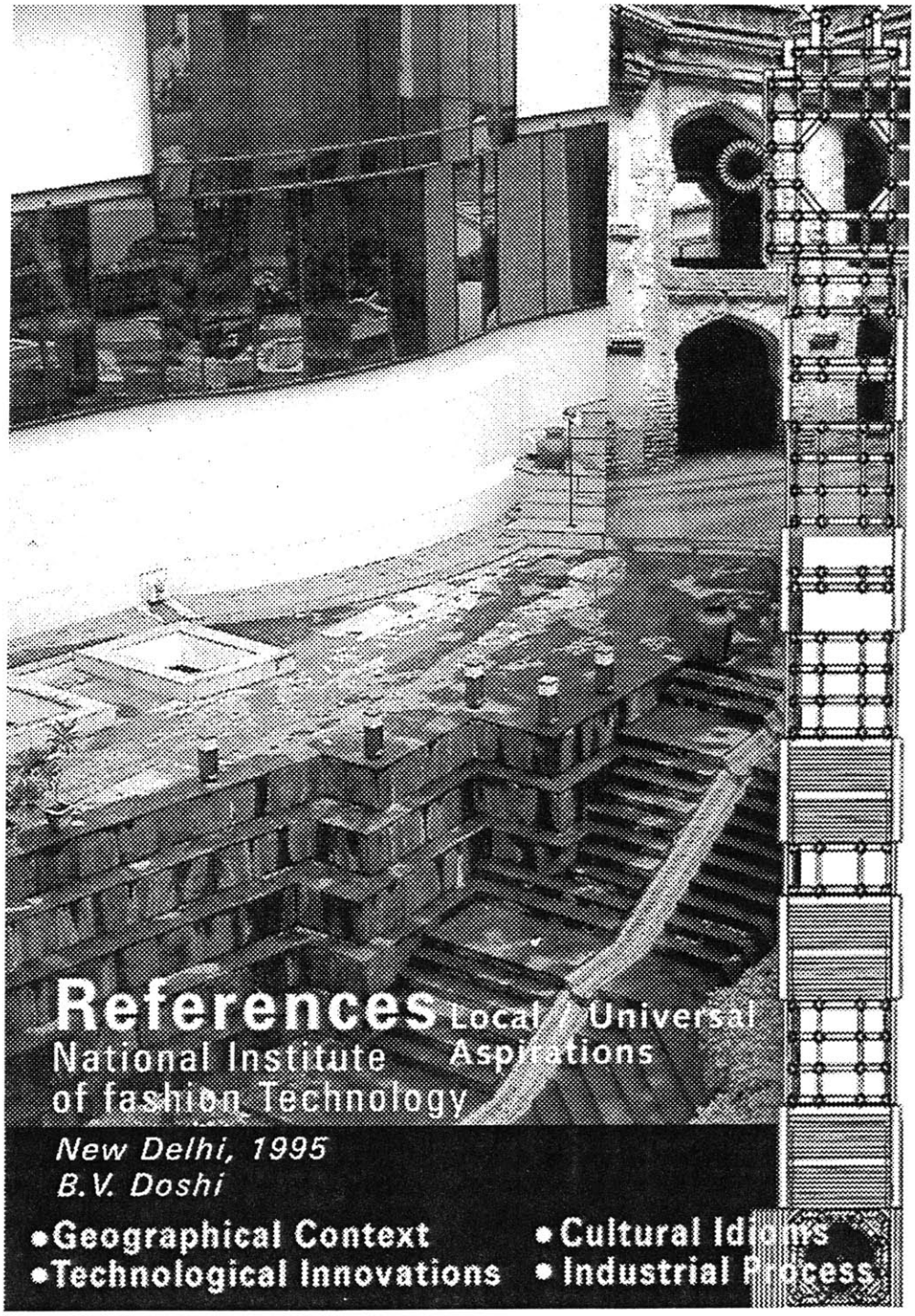
structure? This form of expression seems to be a product of "Recognizability Syndrome", where it becomes important that the urban reader recognizes the representation. Hence the process of transformation is halted and the idea is reduced to mere imagery. Does it not exemplify the media trained sensibilities that call for global appropriation of our traditional legacy? It is, in fact, an example of establishing a kind of postcolonial identity where the architect or the building is craving to be a part of the global dialogue, and in the process we lose out its sacredness.

INDUSTRY: By the late 1960's, the use of exposed brick and concrete had become ubiquitous among Indian architects. Charles Correa, s design vocabulary favored with the use of smooth stucco, in a way similar to mud plaster used in the vernacular/rural settings for surface decorations. He patronized the local form of industry by engaging craftsmen, painters and using folk idioms and patterns as valid sources of imagery.
Aware of climate, culture and people, his architecture is seeking deeper structures of the Indian sensibilities like myth etc. Dwelling more into the intellectual idea, where the design process abstracts at various planes the cultural idioms using colors, finishes, murals, patterns etc.

CONCLUSION:
Though Le Corbusier's International style jolted our Indian sensibility, he created a new aesthetic for the Independent India and appropriated the intangibles of culture into his own philosophy. But there is a difference between now and then; our context has changed and we cannot look at the past in the same way as Le Corbusier did. He did show us a way that has the potential to change according to our indigenous circumstances.

As we trace down the history of our past fifty years, one can see how the Indian architect has been trying to reconcile with the idea of " An Indian identity". The initiation of 1950's has led to experiments in the field of architecture and a search for ideological and philosophical standpoints. Each of these projects evokes its own images and associations, constantly trying to rhyme with uneven development, cultural variety and the urban / rural contradictions. The crystallization of the principles of our past and its reinterpretation in our context has been a common theme, falling into the categories of Revivalism, Neo-Traditionalism and Post-Modernism. Simultaneously, the building industry (the key participant in this process) has also molded the Reinforced Cement Concrete initiation to its own indigenous modes of production. Though there has been development of new materials and techniques, there is a lack of a critical dialogue between our indigenous culture and the technological growth. An

PLATE IX


References
Local / Universal
Aspirations
National Institute
of fashion Technology
New Delhi, 1995
B.V. Doshi
•Geographical Context
•Cultural Idioms
•Technological Innovations
•Industrial Process

insensitive initiation towards crafting of local idioms into global patronage.

Today, there is a need among architects to be a part of the larger global dialogue and to address the issue of "Regional Identity" to the Western audience. This need is the product of global appropriations by architects who have a tendency to reduce our culture to mere imagery, many a times in the garb of symbolism and iconography. It is true that the basis of our aesthetics is iconographical but these images and symbols are intertwined with rituals and philosophy. They are never explicit as a visual image of a painting or a sculpture, but they hint at associations without being specific. But the 'Kitsch' that is generated today reflects the media trained sensibilities of our architects who appropriate the non-tangible aspect of our oriental culture to a tangible commodity of the global market.

It is this thematic vocabulary of architects that projects the "Indian Contemporary" to the global audience. One tends to disregard the other sensitive works that highlight the innate sensibilities of vernacular through ingenuity rooted in the regional construct. These are people to whom the process of building is important rather than the thematic concerns.

The introspective tendency of the socially conscious professional is now mirrored in the efforts of some architects to promote the concept of an appropriate technology, as the answer to India's development needs. The practitioners assumes the role of personally demonstrating an alternative lifestyle by the use of alternative building materials, structures, and passive systems for the climatic control of the built environment. Giving meaning to the voluntary suspension of technological progress they propose, towards a conservative perspective. The effort to diminish dependence on industrial production encouraged the investigation of organic materials and manual methods of construction.

A renewed interest in vernacular building technology and its aesthetics is a natural corollary of this research. " From the pre-industrial perspective of the Third World village, the philosophy of optimizing the use of local resources and labor promises tangible results, such as improved agricultural output, cottage industry and innovative techniques of cost effectiveness, all of which constitute a plausible rewards of full-fledged industrialization." [21]

In the next chapter, I will critique the process employed by two such practices (Nari Gandhi in Maharashtra and Laurie Baker in Kerela) that are addressing this larger issue of "Crafting a Regional Contemporary Aesthetic". Through a culture of building rooted in the resources.

21. Bhatt, Vikram and Scriver, Peter; "After The Masters, Alternatives for a developing India", Mapin Publishing Pvt. Ltd., Ahmedabad, 1990, p. 96.

Chapter II

AN ALTERNATE PARADIGM TOWARDS A 'REGIONAL CONTEMPORARY AESTHETIC'

THE STUDY SHOWS THAT THE CONTEMPORARY ARCHITECTURAL practices can be grouped into two types: one that addresses the 'local' aspirations and the other that appropriates the local into universal ideas.The 'local practices', in an effort to revive the vernacular culture of building, they have fallen trap to sentimental nostalgia, eclecticism and historical mimicry. Using 'craft' in the 'graft' sense, the traditional images and memories are decoded and transplanted into another context and time (Architect Revathi Kamath). Sometimes fragments of history are used for their visual interest, but in the absence of the transformation process they are stripped of their ritualistic and spiritual value.
(Architect Gerard De Cunha)

The 'universal practices' when caught in the global construct, try to play with the intellectual themes that would have wider recognition and acceptability in the world order. When trying to be a part of the larger global dialogue, they get entangled with the ill-informed product rather than understanding the processes of transformation that need to go into an art-craft integration.
(Architect B.V Doshi, C. Correa)

It is in this context that a renaissance in the Indian architecture or the absence of one is being questioned. We need to be critical of the dichotomy between culture and technology... Projecting a form of practice that transforms and translates both local and global idioms to create a cultural link with the processes involved from conceptualization to actual production.
Direct borrowing from our traditional craft skills would only lead to 'transfer' and not 'transformation', a necessary ingredient to move towards a regional contemporary vocabulary. To my understanding Craft skill is not necessarily art. It comes from performing a series of actions again and again (practice) such that these actions are a sequence of clean movements towards achieving a certain aspect of physical clarity. Whereas art belongs and is born from abstractions as the mind visualizes, not necessarily as reality exists but as what the individual perceives and reflects. This reflection being in a form in which the person excels. 'Craft' can belong to a group of people with a deep understanding of the ethos of the region, its cultural geography, folk idioms and spatial manifestations. But to arrive at sophisticated narrative elements that transform the vernacular belongs to the realm of 'art'.

This study suggests that it is vital to look critically into the resources embedded in the region in order to bring culture to a level of graceful resolution –integrating Art with Craft. The strength of the vernacular lies in this art-craft integration and its ability to adapt and change, transfer and transform within a given environment, while maintaining the basic integrity of regional tradition.

It is also vital to understand this 'process' of building and shed our bias towards the 'product' to craft a regional contemporary aesthetic.
Some contemporary alternate practices are attempting to address this issue by expressing an ethos through the indigenous culture of building in varied ways. The case studies are chosen based on practices that achieve a design economy by emphasizing on the larger web of the extended natural patterns of the region. The two designers Nari Gandhi's (Maharashtra, Western India) and Laurie Baker's (Kerela, South India) approach, project an intellectual understanding of the cultural and social aesthetic dimensions, within the contemporary scenario. Exploring the vernacular heritage principle beyond its direct application, towards a well-crafted environment.
Thus, it would be interesting to find...

How do designers trace back the roots, identifying the narrative elements to create an ethos of place?
How their design process integrates with the building process, setting precedents that show new directions towards architectural practice in India?

Architect Nari Gandhi, Western India, Maharashtra
Nari Gandhi spent his childhood in the traditional Parsi family. A singular and versatile man, his ideals were incorporated into his work. Simplicity, gentleness and purity, words that describe him as a person, are appropriate for his architecture too. His ascetic lifestyle is inseparable from his architecture itself, which has become a physical embodiment of his profoundly Indian mentality. It is important that we don't look at him as an iconoclast in the classic mould.

The freedom that Gandhi believed in his own personal life found a new meaning in his works. An admiration and appreciation for nature, its patterns, system, materials and structure contributes a great deal to this sense of freedom. He used archaic principles and techniques that offered an existential level of meaning to regionalism. To him, being traditional was responding to context (Human values) and site (Regional values), moving away from pastiche notions of indigenous vocabulary of design and decoration. Lifting the notion of regional cultural issues to the level of, both the timeless and the temporal quality, 'spirituality true to the Indian sensibility'.

While Frank Lloyd Wright was organic in an architectural way with formalistic concepts of horizontality, cross-axial composition, emphasis on line etc, Nari Gandhi was organic in a craftsman way, to the level of minutest detailing. He was free of the industry and worked as a master builder with his own set of craftsmen, exploiting the potential of the local material to an extent that it

became a craft in itself. An important point to be stressed is that, Nari Gandhi's architecture is wholly a matter of experience. His architecture revolves around the five senses of man, for he believed that senses were the key to fulfillment of life on earth. Photographs tend to focus at details that appear over designed, but the spatial experience of his architecture surrounds your senses and the pictorial aspects are purely incidental but integral.[22]

BACKGROUND/REFERENCES

Mother & Nature: Nari once remarked that "Architecture is not an outside thing, is an expression of one's inner self—It's like the love a mother gives a child so basic fundamentally true. Building is a primordial instinct of man. Building a shelter is best learnt from mother. We learn from Nature, the way a child instinctively imbibes a way of doing things from his mother." [23]Nari Gandhi's beliefs were simple, his needs were minimum and he bowed to nothing but the truth. His spontaneity and attitude to life, helped him design with value and grace. His way of discussing architecture was by bringing in the rich diversity of all experience, until finally he emphasized the structure of life.

According to Nari, the set of principles derived from a patient observation of nature inspires architecture to be organic, flexible and free. Nari gives innumerable examples of Nature's precise geometry: like the spiral of the snail's shell, the foliate structure of the pine cone, the bipartite corn kernel and the rows of grain on the cob, all adding up to an even number.[24]

Frank Lloyd Wright (1956-63): The Taliesin experience helped him to develop an attitude towards the basic understanding of nature, an utter dedication to work and relationship of architecture with the other arts, imbibing the principle rather than the formula. He was inspired by Mr. Wright's principles of organic simplicity, plasticity and tectonic figuration. Also influenced by Mr. Wright's material sensibility that was unlike both the abstract purity of the International style and the picturesqueness of eclecticism.
"All things are in some continuous state of becoming. Nurturing strawberries, building a house there is no difference. You do it from within The house would come alive, when you are more alive." [25]This was a statement by Frank Lloyd Wright that he fondly remembered. And he himself believed that if you do anything from within, the soul gets established in the place.

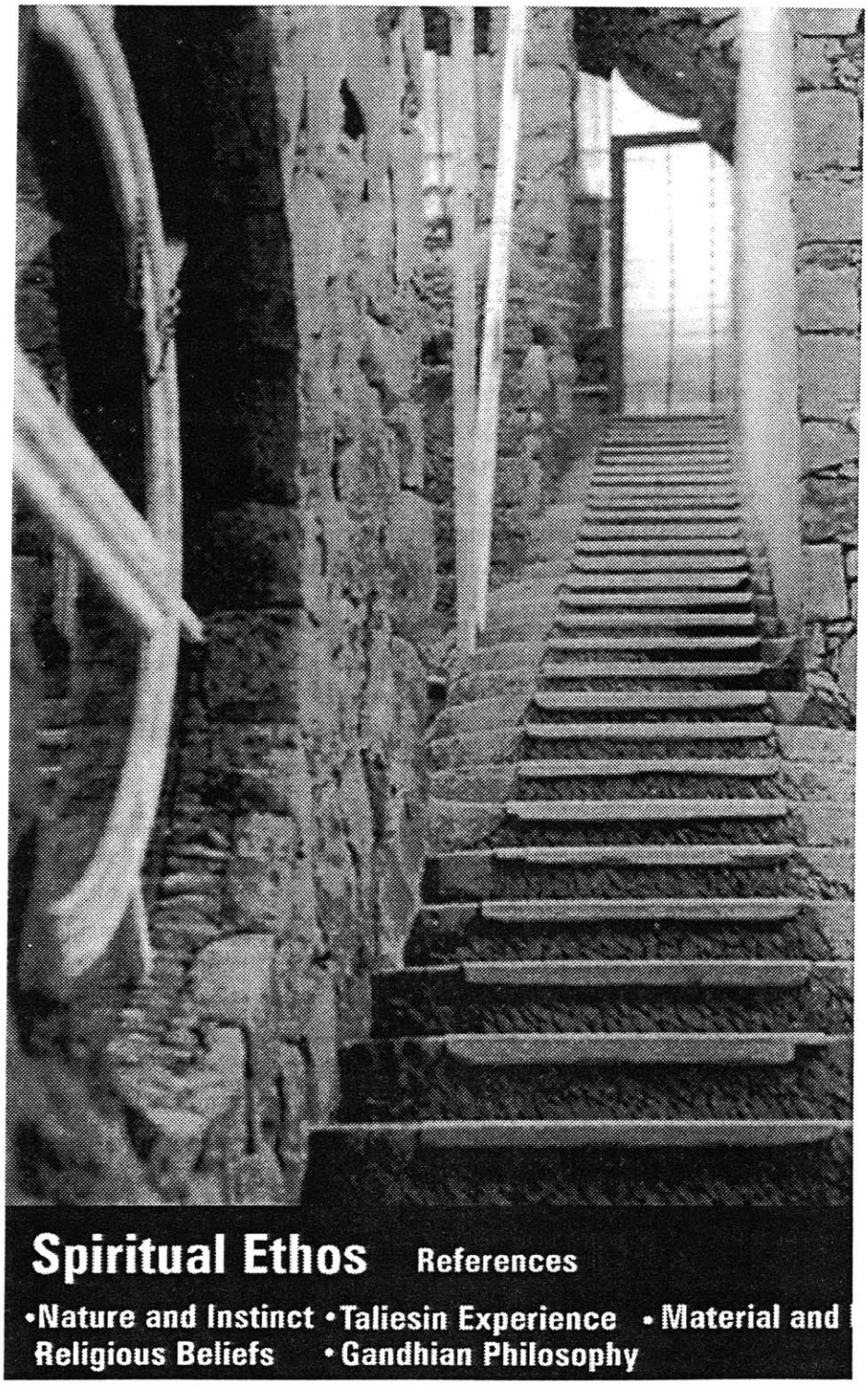
Pottery and Soji Hamada: Nari Gandhi believed that all forms of art are aspects of the human striving for grace. After the Taliesin experience, Nari spent fifteen months at the Kent University, Ohio studying ceramics, weaving, wood carving and photography. Inspired by the works of Soji Hamada, a Japanese ceramic

22. Rahul Gore, Indian Architect and Builder, May 1998.

23. Pervin Eichert; 'A State of Becoming', Inside Outside, Indian design Magazine, p. 19.

24. ibid.; p.23.

25. ibid.; p. 33.


Spiritual Ethos References
•Nature and Instinct •Taliesin Experience • Material and
Religious Beliefs • Gandhian Philosophy

designer, he once remarked: "Both pottery and architecture are concerned with basic forms. The shape of the hand dictates the shape of the cup; the cup upside down becomes a hut". There was simplicity, a lack of pretense in Soji Hamada's work. Nari commented that "The turning of the wheel was not a part of him; it was an extension of the great Japanese master". (A State of Becoming, pg. 33). The experience seems to have added another dimension of plasticity in his work. A brilliant potter himself, Nari's feel for the material and complex mastery over structure helped him to balance forces at absolute will.

J. Krishnamurthi (Philosopher): Nari was closely associated with J. Krishnamurti to an extent that they both shared a mutual respect for each other. The core of Krishnamurti's teaching that inspired Nari Gandhi could be understood in the statement he made in 1929 when he said:
Man has built in himself images as a fence of security - religious, political, personal. These manifest as symbols, ideas, beliefs. The content of his consciousness is his entire existence. The individuality is the name, the form and superficial culture he acquires from tradition and environment. The uniqueness of man does not lie in the superficial but in complete freedom from the content of his consciousness, which is common, to all mankinds. So he is not an individual.
Freedom is pure observation without direction. Is without motive; freedom is not at the end of the evolution of man but lies in the first step of his existence. Freedom is found in the choiceless awareness of our daily existence and activity. Thought is time. Thought is born of experience and knowledge, which are inseparable from time and the past. Time is the psychological enemy of man. Our actions are based on knowledge and therefore time, so man is always a slave to the past.
When man becomes aware of the movement of his own thoughts he will see the division between the thinker and thought, the observer and the observed, the experiencer and the experience. He will discover that this division is an illusion. Then only is there pure observation, which is insight without any shadow of the past or of time. Total negation is the essence of the positive. When there is negation of all those things that thought has brought about psychologically, only then is there love, which is compassion and intelligence." [26]

Inspired by J. Krishnamurthi, a few qualities that Nari Gandhi exhibits in the endeavor of designing spatial environments are:
- Timelessness (independent from stylistic movements and fashions or rather a sense of freedom from prescribed observations/methodologies)
- Selflessness (free from the designer's self!)
- Wholeness (designs that have integrity, the whole becoming greater

26. Web Source; Krishnamurthi Foundation; http://www.krg.org

than the parts)
- Silence (spaces that make people calm, deeply observing the subtle processes)
- Harmony (appropriate proportions; form and function complementing each other; the inter-relationships in his compositions were complete and nothing was superfluous)
- Natural Instinct (drawing from and respecting the natural environment, the light, the seasons etc.)
-Order (building intuitively using natural geometric patterns and clarity of thought process, unobtrusive, clutter-free and spacious)

Gandhian philosophy: Nari Gandhi brings to the profession a truly Gandhian approach that is far removed from the simple life. He believed in the Gandhian ideas of self-reliance, loved being natural detested false pretense and projected the unity of life. He believed that "We are acquiring second hand minds, for everything we look to the west. But in order to go forward we have to go back to our own roots to the primordial man. It's not a paradox, it's a pathos." [27]

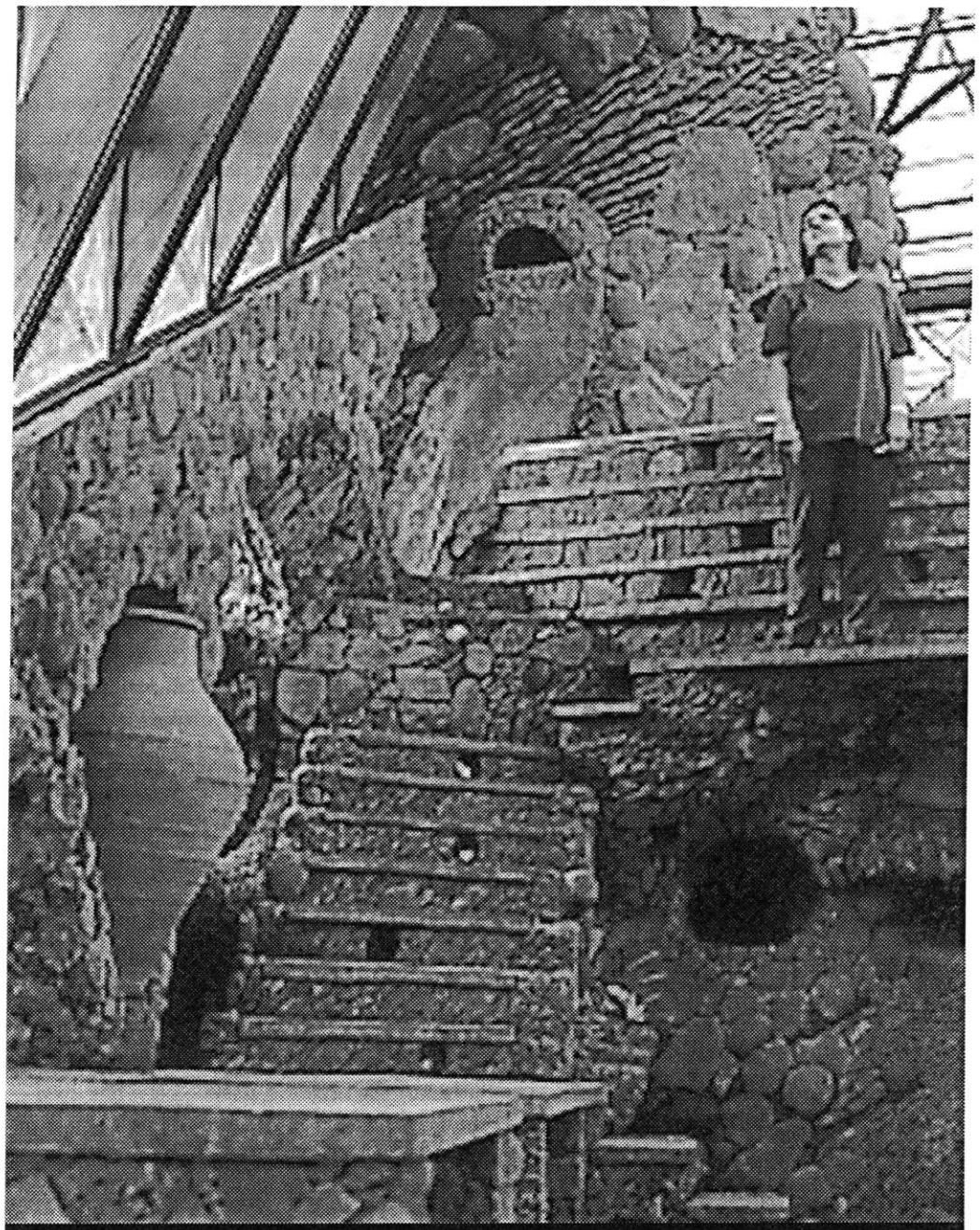
MODUS OPERANDI: Evolution of a spiritual process.
Each project is shaped by conditions particular to each commission. These conditions include the special needs of the client, the character of the site and the qualities of the proposed materials and structure. Most of Nari's clients remember him more as a friend and a great individual than as an architect. Wanting complete surrender by his clients, Nari compared them to unworked clay of a potter. He tries to get the feel of the clay. Then he puts it on the wheel and gradually tries to bring the clay to the center. Nari would observe his clients and would judge for himself what the client needs, rather than being told about what to do.

"A house is organic; it evolves and grows. I need heart and mind not static blue-prints." A remarkable aspect of his architecture was that he had no office from where he operated, nor did he make any drawings for the execution of the work, but personally supervised the site. He insisted that projects can only reach their final definition through work on site Added to his knowledge of architecture was the intimate knowledge of construction, structure and other forms of art.[28]

Nari's way of architecture is by bringing in the rich diversity of all experience, until finally he is emphasizing the structure of life itself. His architecture is not contained in the roof and the walls, but in the space within. Based on the study of his projects, one can decipher his basic underlying principles of Natural Pattern Structure, Organic Simplicity and Plasticity — achieved through

27. Pervin Eichert; 'A State of Becoming', Inside Outside, Indian design Magazine, p. 22.

28. Nari Gandhi; in Friends of Kebyar, A+U journal, October , no 193, 1986.



Process

- Redefining Tradition
- Simplicity
- Resource Concious Economy
- Legacy

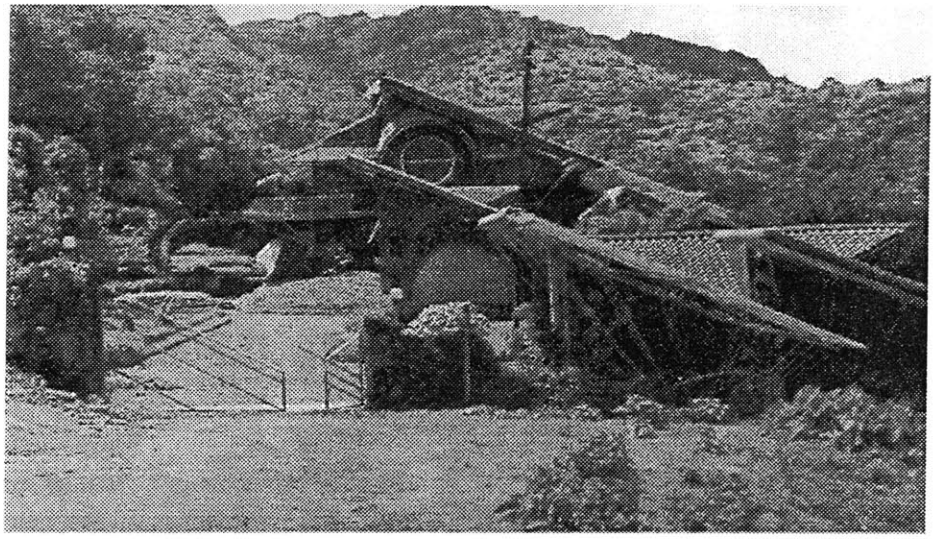
material Expression, geometry/ structure, ornament, pattern and texture.

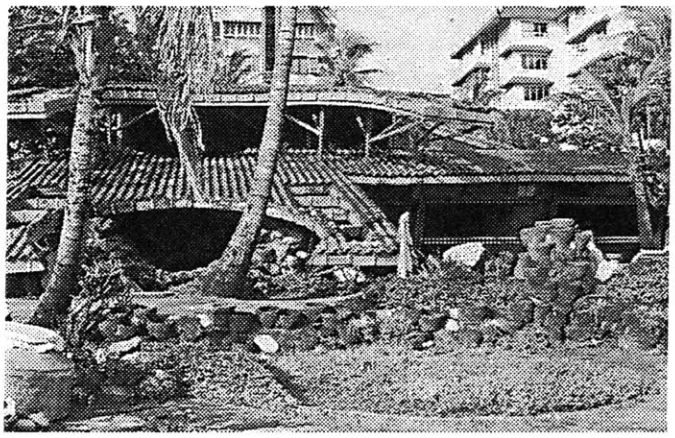
UNDERLYING PRINCIPLE:*Natural Pattern Structure*
Nari Gandhi's work stems from a patient study of the patterns and rhythms of nature and an intuitive knowledge of its guiding principles. It is the knowledge of "line, color and form" found in the "organic nature", that furnish the guidelines and a rational basis for his work. Spontaneity of nature is reflected in his primordial nature of expression. His works aim towards a complete self-supporting ecosystem, where the material is not violated and the circumstances and surroundings are understood. It achieves a unique regional identity with the location with is not just traditional or vernacular but an ethos that creates a spiritual link with the past.

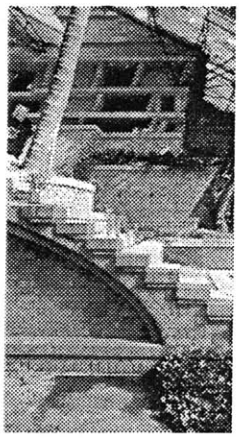
*Organic Simplicity — towards spirituality and freedom:*Simplicity — lack of pretense — State of Grace and perfection.
As one can see from his projects, Nari's architecture was characterized by clarity of thought, design and significance to achieve simplicity. To him, 'Simplicity' did not mean 'Plainness'; it meant that every feature of his design would become a harmonious element in the harmonious whole, achieving a state of simplicity towards spirituality and freedom. The inter-relationships in his compositions were complete and nothing was superfluous. The spaces seek freedom from all kind of fear of the alien or of one's own self. His intuitive knowledge of what to elaborate and what to eliminate has been exemplified in his works where he has sought complete freedom of expression. Emphasis on textures, materials and patterns and expressive changes of surfaces, have made his architecture more simple and eloquent.

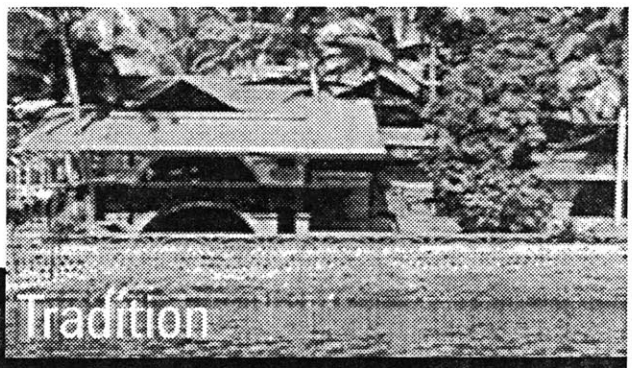
Plasticity: For Nari Gandhi, Form and Function were one; intertwined with each other without any separation or complication. The idea of Plasticity is used as the element of continuity and flexibility, where there is elimination of separation and joinery in favor of expressive flow of continuous surfaces. Inspired by Frank Lloyd who defined plasticity as "— the expressive covering of the skeleton as contrasted with the articulation of the skeleton itself", Nari has used plasticity to promote his idea from the material to the spiritual plane. He lets the walls, ceilings, floor become component parts of each other, achieving continuity in the whole. The spaces that are carved are with the understanding of a craftsman and with the love of an artist aspiring for aesthetic fitness/ perfection.

The underlying principles have been given formal expressions through Material Expression: Nari's organic simplicity and plasticity depended on his understanding of the nature of materials and using technology as a resource to exploit it to









Redefining Tradition

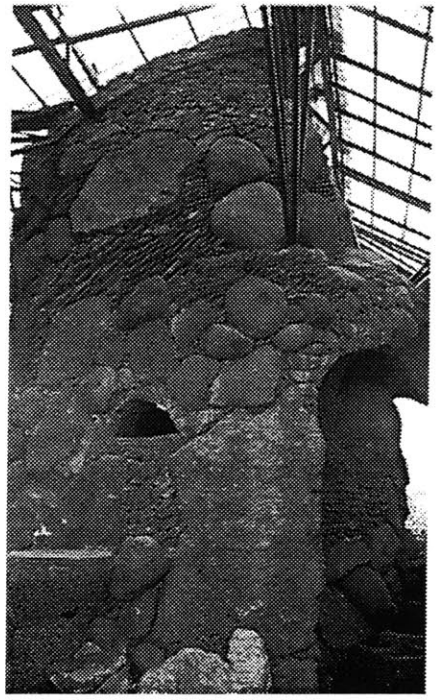
Residences in Mahrashtra

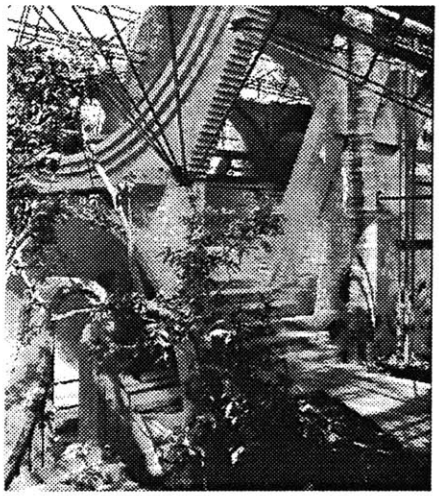
its fullest. He understood the properties of each material individually (usually brick, stone, steel and timber) and their relation to one another. Understanding their peculiarities, his control over materials was that of a master. Gandhi customized the project the inherent potentials of the materials, based on the principle that appropriate designs for one material would not be appropriate for another. With great sensitivity, he took advantage of the patrimony of tradition in Indian craftsmanship transforming crafts tradition to a level of 'Art'.
He believed in Michaelangelo's statement that "The essential quality of stone should remain even after it has rolled down a hill, reinforcing the innate strength of the material" . His projects are viewed not as architecture but expression in its purest form; one so inclusive of that it encompasses all art form, and uses materials for their precious worth.

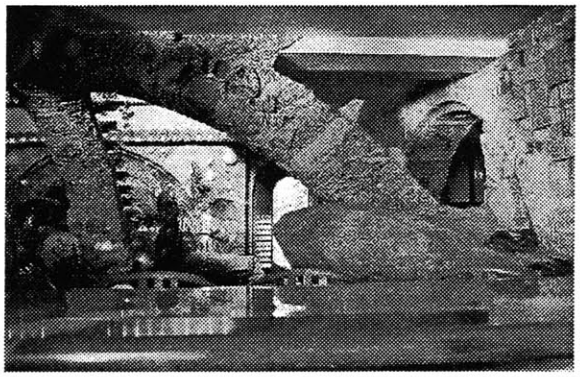
Geometry Structure: Nari Gandhi uses nature's precise geometry, extending it to project an understanding of the context. The geometrical expression is inherent from the overall structure to the minutest detailing. The geometry is not only used as a means of organizing materials and spaces but also in the third dimension. Thus, the buildings are created in three dimension as coherent organisms such that it has no main view or façade. He had no structural engineers and intuitively produced some dramatic structures with large stone and brick arches. The structure comes alive with the overall organic flow of compositions and detailing.

Ornament, Texture and Patterns: He uses ornament to render a natural pattern to the structure of the building, another step towards achieving organic simplicity. He endeavored to create a 'skin' for his structure that was alive. The structure is made visibly articulate by it and the building develops a sense of whole. The patterns sometimes reflected the texture of local rock formations. He would incorporate semi precious stones, statues and artifacts into the wall surface, walls themselves becoming murals. The material, texture and ornament are used to express the inner rhythm of form. Examples illustrate the mural technique as a part of the wall construction, ingenuity in design and reuse of scrap materials, broken glass strips were used in the making of glass domes, table supports etc. Though his personal life style is frugal, it does not inhibit Nari Gandhi's sculptural exploration of textures that offer visual and tactile delight. The tactile influence of his designs is strong enough to bypasses the brain and operate directly on the senses. It is understandable that this might constitute an assault on the mind of a puritan, who might dismiss the building as vulgar or kitsch.

PROJECT, TUNGARLI HOUSE, LONAVALA: Built as a weekend home, the house amidst its beautiful setting, inspired a sense of freedom. Standing like a piece of







Simplicity

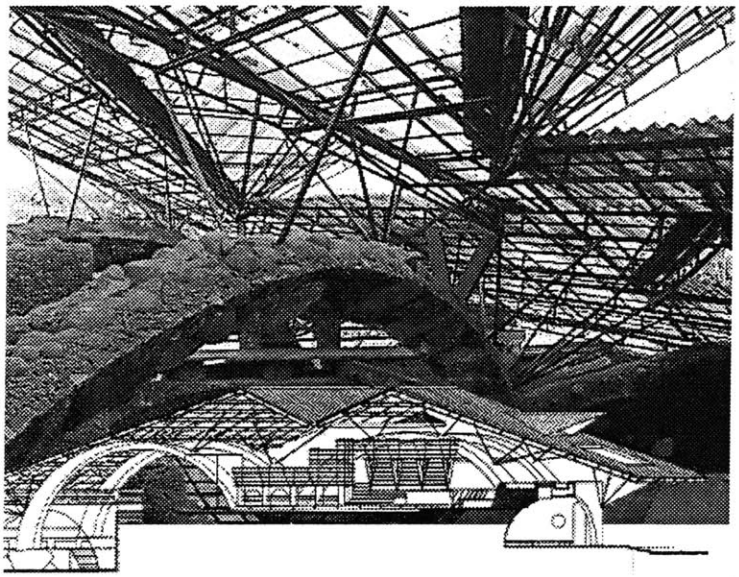
sculpture, the house is a harmonious composition.

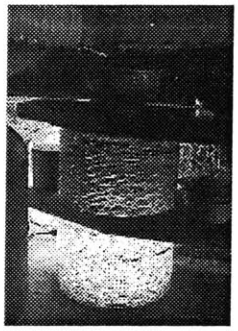
Natural Site Forces: The triangular site plan addresses the two major site forces – the commanding view of the valley and the rain/wind direction. One edge of the plan faces the Rajmachi fort, whereas the adjacent edge faces the view of Valvan Lake such that the apex has landscaped gardens overlooking the entire valley. The third face opposite the apex has the building that opens up to the southwest wind direction. The house represents an analogy of a 'tree'. The stone arches rise as the trunk with steel members branching out in all directions support the roof. The supported translucent roof lets the sunlight filter through, like the filtering through leaves.

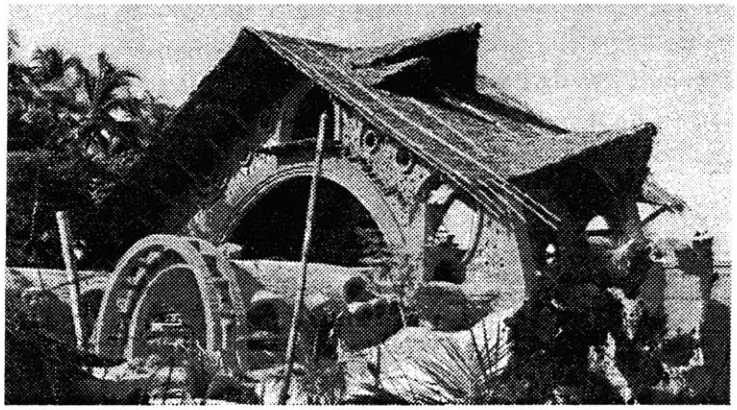
Geometry/ Structure: The house is based on triangular geometry and does not posses any right angle. A high degree of complexity is achieved as a result of this, giving the place a spatial tension. Its geometry permeates to every detail, from the main structure to the flooring pattern. The plan itself becomes a graphic textural pattern on surfaces. Main structure is primarily a series of dry stone arches that supports a floating roof (translucent FRP sheets) by a mesh of steel members on certain points. The roof has a floating effect since both the plan and the roof follow independent triangular geometry, achieving a dynamic quality through this articulation.

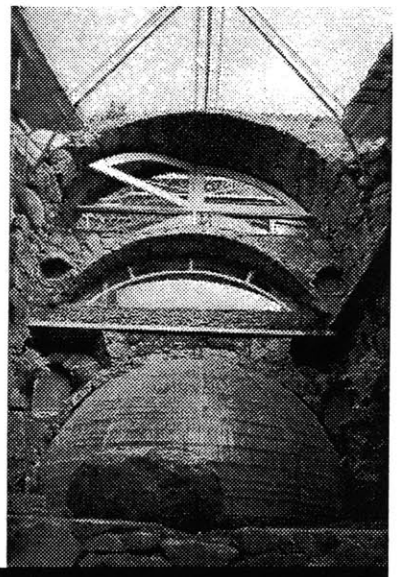
Spatial Configuration: In defining both the interior and exterior volumes, Nari has used multiple boundaries and ambiguous spatial layers that belong to more than one volume. Thus, the built is characterized by continuity of living spaces and easy transitions from one area to the other. Instead of being defined by walls, the spaces are defined by their changing levels, form and structure. Without walls and with a translucent roof above them, the spaces present a degree of transparency with the natural environ and within themselves. Tungarli is characterized by generous semi-open spaces that act as transitions to savor nature. Very often, the openings have no glazing and it is very difficult to pinpoint the line of demarcation between inside and outside. Even the roof structures are such that they offer shelter but do not shut out organic life.

Plasticity through Material expression, ornament, textures and patterns: In the Tungarli house in Lonavala and most other projects, Nari lets the walls, ceilings, floor become component parts of each other, achieving continuity in the whole. The spaces that are carved are with the understanding of a craftsman and with the love of an artist aspiring for aesthetic fitness/ perfection. He uses stone, steel and fiberglass sheets as primary materials. The stone as a material is exploited to its fullest with its use varying from large boulders to finely chipped pieces.









Resource Concious Economy

The walls are not neutral—they proclaim to be support, strength and shelter. Intricately patterned, these walls exhibit natural colors of greys, browns and ochres. A combination of both solid and perforated screens, the walls provides varied sensual experiences suited to the defined space. The inter-relationships of form, space and patterns are so strong that it represents a harmonious composition, such that the eye would reject a framed picture or painting which did not complement the overall gesture.

LEGACY OF HIS DESIGN PROCESS:Nari Gandhi echoes Frank Lloyd Wright's allusion to tradition that is rigorous instead of being preservative. Standing aside from Eclecticism and International style of his period, Wright believed that " What is transmitted (by tradition) is not things, and least of all monuments, but situations not solitary artifacts but strategies that construct and mobilize them". With the same ideal, Nari relied on archaic impulse, the feeling for traditional principles valid then and hereafter. He emphasized on both the temporal and the timeless quality of tradition. 'Temporal' meaning the transient concept of tradition based on growth as per change in time and context, and 'Timeless' meaning the underlying principles that remain constant throughout the process of growth. Nari has, thus, left us with a legacy of looking at tradition and culture in the most basic or universal sense. Adding on the complex layers that are subject to the regional context and the state of technology or innovations.

Nari worked as a master builder, an approach methodology that conceived and built in totality. Nothing could be removed from his compositions because the inter-relationships were so complete. From basic structure to the minutest detail of a carpet design, all received the same care and attention. A meticulous attention to detail extended not only to constant supervision, but also involved training unskilled masons and carpenters on site. The overall budget was low because he chose the materials with a craftsman's eye, using as far as possible local stone and brick. Like Laurie Baker, his designs also reflected resource conscious economy, in the sense of gracefully crafting them to a level of art.

Nari Gandhi was one man who was free of the industry. He was able to do what he did, owing to his innate sense of freedom from prescribed methodologies and observations, hence was open to see deep into relationships. As philosopher J.Krishnamurti puts it "Freedom from consciousness". Instead of simply patronizing tradition and using the vernacular as a picture frame, Nari developed it into a new vocabulary that was contemporary. The uncompromising integrity of his approach, his way of conceiving each project, elevates it to the statues of art. Though he worked more in the style of a master builder training a team of craftsmen for his work, Nari has left behind a legacy of art and craft that could

serve as another model/ethos for the building industry to patronize. One can't say what would have happened had he lived more, but one can definitely see a possibility of eventual standardization of his customized craft. Also, one could try and understand the underlying principles that could move towards standardization in a customized manner.

ARCHITECT LAURIE BAKER, SOUTH INDIA, TRIVANDRUM

At the beginning of the century, architects genuinely believed that the Modern Movement would provide new techniques and new materials to serve the needs and improve standard of living of the masses. The necessity for speed was one of the big factors that contributed to that break with tradition in contemporary times. However rapid industrialization only increased the demand for housing that has now grown tremendously and the inflexible sterility of the Modern Movement has become even more apparent

At a time when India and Indian architecture is passing through a phase of turn from rapid industrial growth to one of controlled social developments, Baker's ethos shows new, appropriate directions towards a socially conscious architecture. His efforts can be viewed as a part of larger global effort to re-examine cultural values, shifting the emphasis away from technology towards an earthy humanism. Each of his efforts sought the development of a contemporary vernacular, seeking to evolve buildings out of severe economic constraints. [29]

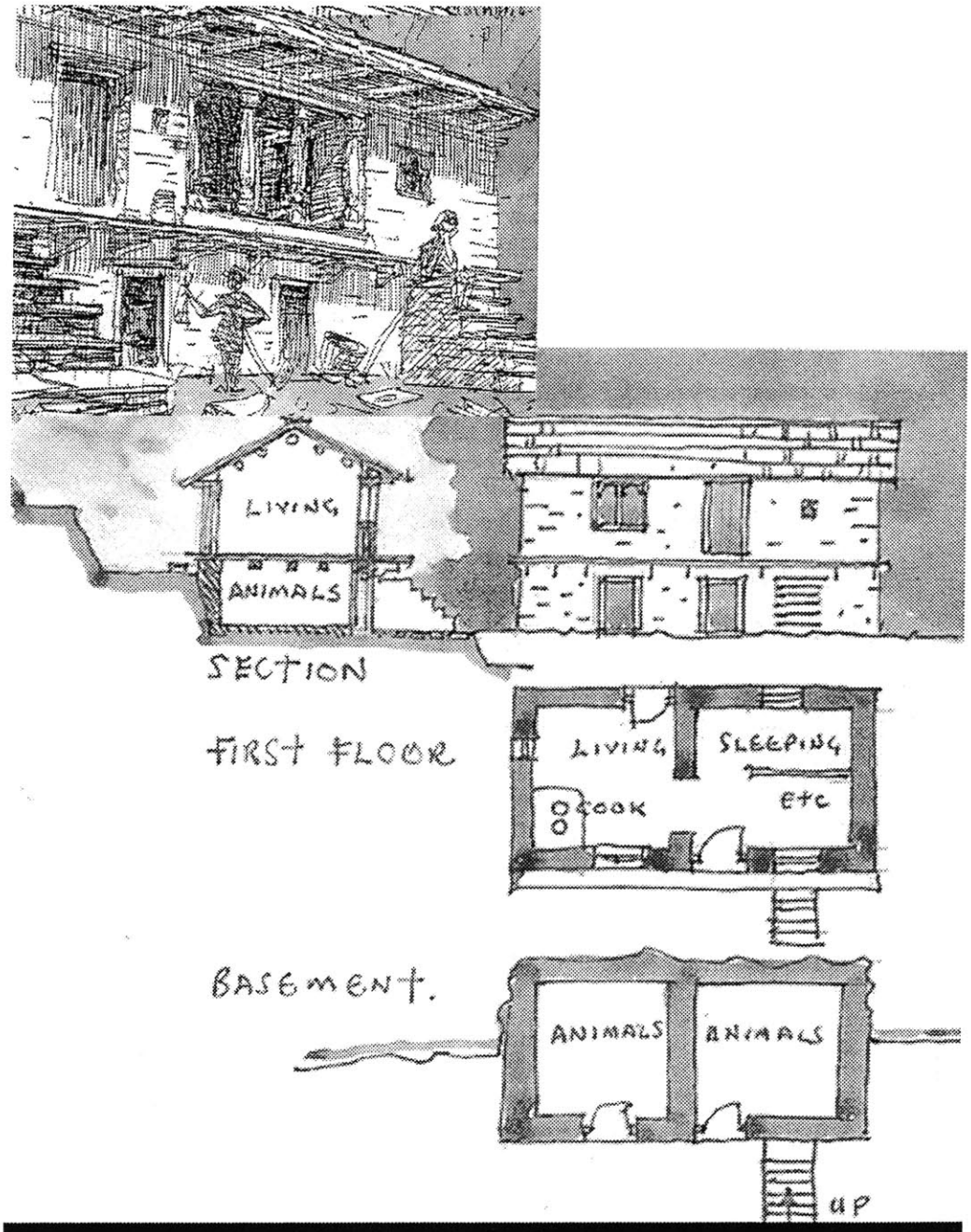
He developed an alternative practice methodology that is now labeled as 'appropriate, cheap, ethnic, hand crafted, innovative. It is mostly low-rise with a pronounced presence of the natural, apparently of low technique and its very nature appears to challenge the existing values and provides a social critique. Baker is a product of the true modern doctrine as his design economy is based to improve living conditions, architecturally seeking a purposeful link with tradition.

Deep seated vernacular ideas, appear in the architecture of Baker. He works within a clear design ideology based on a conservation ethic, where regionalism is derived from a pragmatic response to the aesthetic dimensions of society.

Background Inluence: Laurie Baker's work speaks of the resource conscious attitude towards a harmonious balance between his life and his work. The austere percepts of his Quaker faith were integrated with his sense of beauty and harmonious proportions, and illuminated by the simple truths of the preaching of Mahatma Gandhi.

Quaker background: Laurie Baker was a Quaker, member of a religious society

29. Bhatia, Gautam; "Laurie Baker: Life, Works, Writings", Published by Penguin Books, India Pvt. Ltd., 1991



Social Ethos References

- Quaker Background
- Gandhian Philosophy
- Indeginous Architecture

called 'The Society of Friends' that dispensed traditional forms of religion, believed in philanthropy, pacifism and Christian mysticism. As a Quaker, he became a part of the Friends Ambulance Unit in South East Asia during the World War II. In India, he worked with the civilian population dealing with people afflicted with leprosy. Bakers work often included renovating old asylums into modern hospitals. The great passion and missionary zeal with which he confronts even the minutest task has to do with his Quaker background, his association with relief work during the war and perhaps, his chance encounter with Mahatma Gandhi.

30. Gautam Bhatia, "Baker in Kerela", Architectural Review, July-September 1987.

Gandhian Philosophy: Baker developed a sincere friendship with Gandhi, based on their common interest of helping the ordinary people. He shared Gandhi's views that real work in India meant working for the poor and liberating them from the grinding poverty of their lives. Gandhi believed in the permanence of rural values through education and promotion of local industry and indigenous craft. He wanted to revive in his own countrymen a pride in native craftsmanship, a desire to create with their own hands, an attitude of self-reliance. And for the forty years in which Laurie Baker has practiced architecture in India he has consistently used his skills and talent in the service of the rural poor, along the same principles. He was influenced by Gandhi's ideology of progress is to look critically into our own resources both social and material, developing a vocabulary based on common sense indigenous conditions. He believed in the Gandhian notion of "the ideal houses in the ideal village will be built of materials which are found within a five -mile radius of the house." And that we had no right to squander or waste or use unnecessarily money, materials or energy.

Indigenous Architecture: Setting up his own leprosy hospital, Laurie Baker lived among the poor in Pithoragarh, foothills of Himachal Pradesh for nineteen years. Building hospitals, schools and community buildings, he began to understand the value of vernacular and the honest use of local materials. 'Learning to adapt his skills and knowledge to the frugal conditions, to the uncompromising terrain and to adverse extremes of climate, Baker was forced to re-learn the art of building. The building that resulted from the unusual alliance between an English architect, Tibetan masons and local materials, were naturally low key because they were direct by-products of the site conditions. Their natural brick finishes or rough-hewn surfaces of random rubble – were assembled to make maximum use of local skills and labor.' [30]

To him, the vernacular form of building was a reflective form of architecture, towards its environment. Inspired by it, he felt that "There was an incredible honesty and a strong aspect of truth in all vernaculars built form.Mud looked

Gautam Bhatia, "Baker in Kerela", Architectural Review, July-September 1987

like mud and was never made to look like some 'superior material'; ingenious patterns often gave beauty and scale to the buildings. The material was used for its inherent nature, exploiting the potential". The concern for the less privileged, the resource based economy in design and utilization of India's rich building tradition in innovative ways, makes Baker's work truly rooted in the region.

MODUS OPERANDI: Process of evolution of a social ethos.
For while the Indian modern architecture has depended heavily on the 'new' mass-produced materials like cement and concrete, steel and glass, in fact those materials which are critically scarce and energy intensive in India's capital-starved economy. Baker's work adopts the values of available local resources and human energies, generating its own kind of spirituality. Exploring forms and patterns through a resource conscious process that expressed an identity, a sense of place and a balance in the Eco-system

He has developed a vocabulary in which tradition and innovation and extreme simplicity are integrated. Baker's practice is a common sense approach to design and is devoid of thematic abstractions — towards a methodology that can be seen as a possibility to cope with environmental and social problems within economy of means. Traditional elements are a product of years of research. Unconsciously or consciously when one incorporates them in their process of design, you also exploit the potentials of the properties in-built in it. Therefore when Baker uses local skills, labor and materials, a lot of local detailing gets incorporated into the process. His vocabulary of design follows the vernacular process of building, which was free of aesthetic preconceptions, only an aesthetic of necessity is dominant.

Re-defining the Traditional: Laurie Baker developed a vocabulary rooted in its regional context with local materials, local labor and improvisation of local techniques. He re-created the traditional prototype for various building components, in contemporary rendition. He has customized the use of concrete; limiting its use and making it labor intensive. Infill materials like broken bricks, reject tiles, lime-shells etc. have been used to lessen the weight of concrete as a construction material. Developing a prototype for the roof, he has redefined the role of new Mangalore tiles as roof covers, eliminating the use of scarce timber. The resulting form is a traditional roof using locally produced alternatives, but without the expense of labor and construction. His ingenuity of design extends to the Thermal Design of the buildings too. An effort to interpret the traditional patterns of thermal design in contemporary idioms, by using double skin surface with the help of patterning in brick. His works displays skillful manipulation of the natural elements to create desired macro/micro environments reflecting

sheer elegance and simplicity, all the projects are done with an intuitive process of building and demonstrate economy in use together with spirituality in purpose.

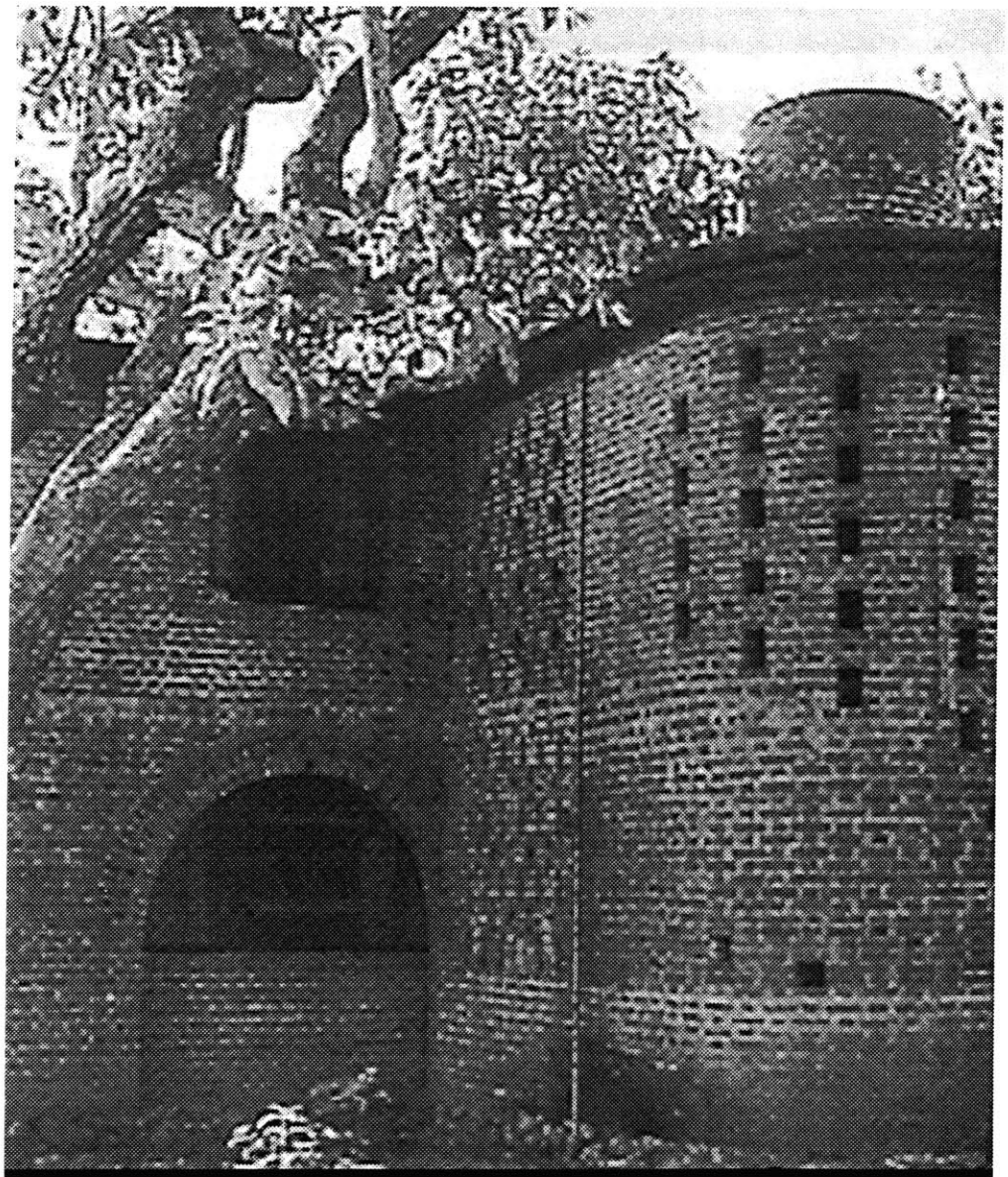
Cost Effectiveness: To achieve cost effectiveness was the most important goal, Baker has used various methods in structure, building elements and detailing based on availability of skill and production processes within the indigenous building industry. He stresses on energy conservation, in terms of human comfort, building maintenance and provision of security.

He has devised various techniques to structurally build just adequate. One such example is composing half brick thickness wall systems and rendering strength / longevity to these walls by the use of varied structural methods like stepping and curving them. He developed building elements like the folded slab design of the pitched roof and use of broken filters mixed in concrete to make the roof thin and inexpensive.

Cost effective detailing has been used which results in elimination of certain elements. Like the construction of door openings where he corbels the brick over the openings or securing the door directly to the wall. Another example is the cost saving elimination of plaster that unveils the graphic potential of brick and mortar. Rich textures have been generated in varied bonding patterns, in pointing and in the ubiquitous use of the Jali patterns. Brick Jalis were also used in lieu of door openings that allowed ventilation and soft diffused light.

Material Expression: Baker carefully adapts elements of the vernacular into his work, rooted in the regional context. While his architecture has accepted modern materials, it has adopted them to traditional patterns in a reflective manner so that the principles of the vernacular remain intact. He does away with heavy construction and extraneous materials, basing his vocabulary of design on an intuitive process of building.

Difficulty in mobilization of limited resources, lead towards a form of improvisation of the existing local crafts towards an art-craft integration. Since the material resources were the most accessible, it's expression in the form of techniques became an important aspect of the vernacular culture. Regional variations were based on construction techniques evolved by responding to Locale, Climate, Social Structure, Religious beliefs, Technological know-how, Economics of means, Precedents and models, Stylistic preferences and Symbolic conventions. Building and material systems have been developed in the indigenous process based on the concept of re-assembly; entire structure was fabricated on the ground and assembled in position on the site. This gave more flexibility



Process

- Redefining Tradition
- Simplicity
- Resource Concious Economy
- Legacy

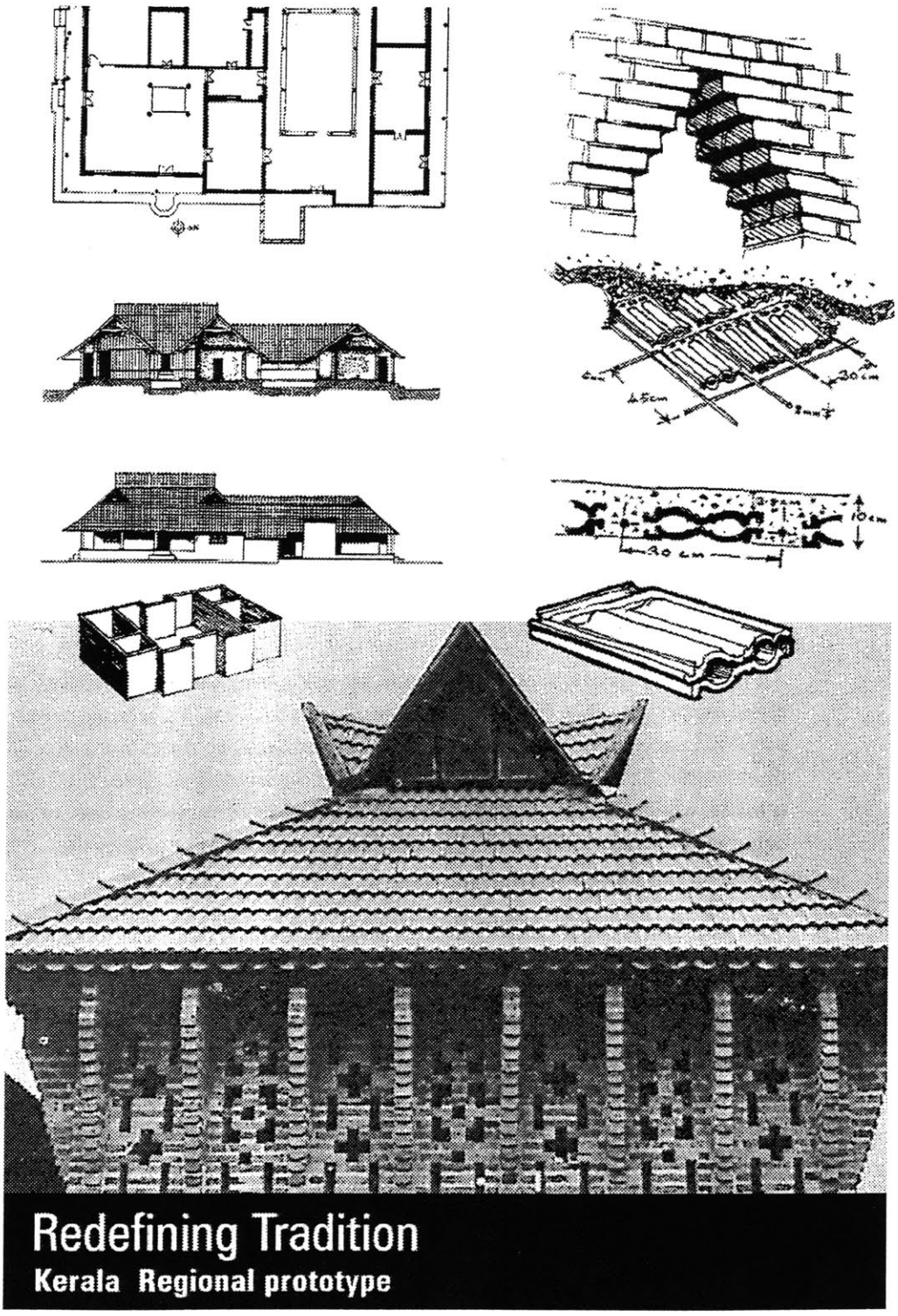
at the same time reducing the cost. Re-use of waste/scrap products and the use of renewable resources, were some of the valuable lessons exploited from the principles of vernacular systems. These have been adopted and appropriated by Laurie Baker's design and build approach methodology, towards a culture of appropriate aesthetics.

Project: Responding to all scales, Laurie has designed a large number of public and private buildings. One of the institutional building 'The Center for Development Studies in Trivandrum' has been analyzed in detail.

THE CENTER FOR DEVELOPMENT STUDIES IN TRIVANDRUM:
Form: The architecture of this complex has been conceived as a demonstration of a prototype based on economically responsible building practices, expressed in the organization of the plan, the nature of the construction and the materials used. Consistent detailing brings harmony to the free form planning with no spatial standardization, at least in the original structures. The complex has been gradually expanding, each phase demonstrating a refined vocabulary of low cost materials and techniques. Openings are arched, corbelled or spanned using brick lintels. All shapes and volumes have been experimented and modified with, to study their economy of means.

The addition of a computer block, requiring an environmentally controlled space has been built in the same principle of open lattice wall planning, breeze-ways and use of brick and stone as the rest of the blocks on the campus. A double walled building with an outer surface of intersecting circles of brick jalis is made, while the internal shell fulfills the constraints of controls necessary for a computer laboratory. The space between the two walls accommodates the secondary requirements for offices etc.

Structure: The foundation and plinth is made of local stone laterite in random rubble using surkhi mortar (lime manufactured on the site from seashells -fuel-free materials), avoiding the problem of environmental degradation of the area. For the super structure, the simple load bearing potential of the brick is exploited, using a four and a half-inch thick wall to construct a four-storey building. The creativity is extended towards transforming the shape of the wall to give it that added stiffness, as seen in the men's hostel building in the center. Walls are reduced to mere structure and screens to allow breezes to pass through the building. Wherever nine inch thick walls were required, and then various bonding techniques were devised to save twenty five percent of the total number of bricks and the cost of the wall.The roof structure is made of 'filler slab', a cost-effective application of concrete. Filler construction substitutes reject clay



Redefining Tradition

Kerala Regional prototype

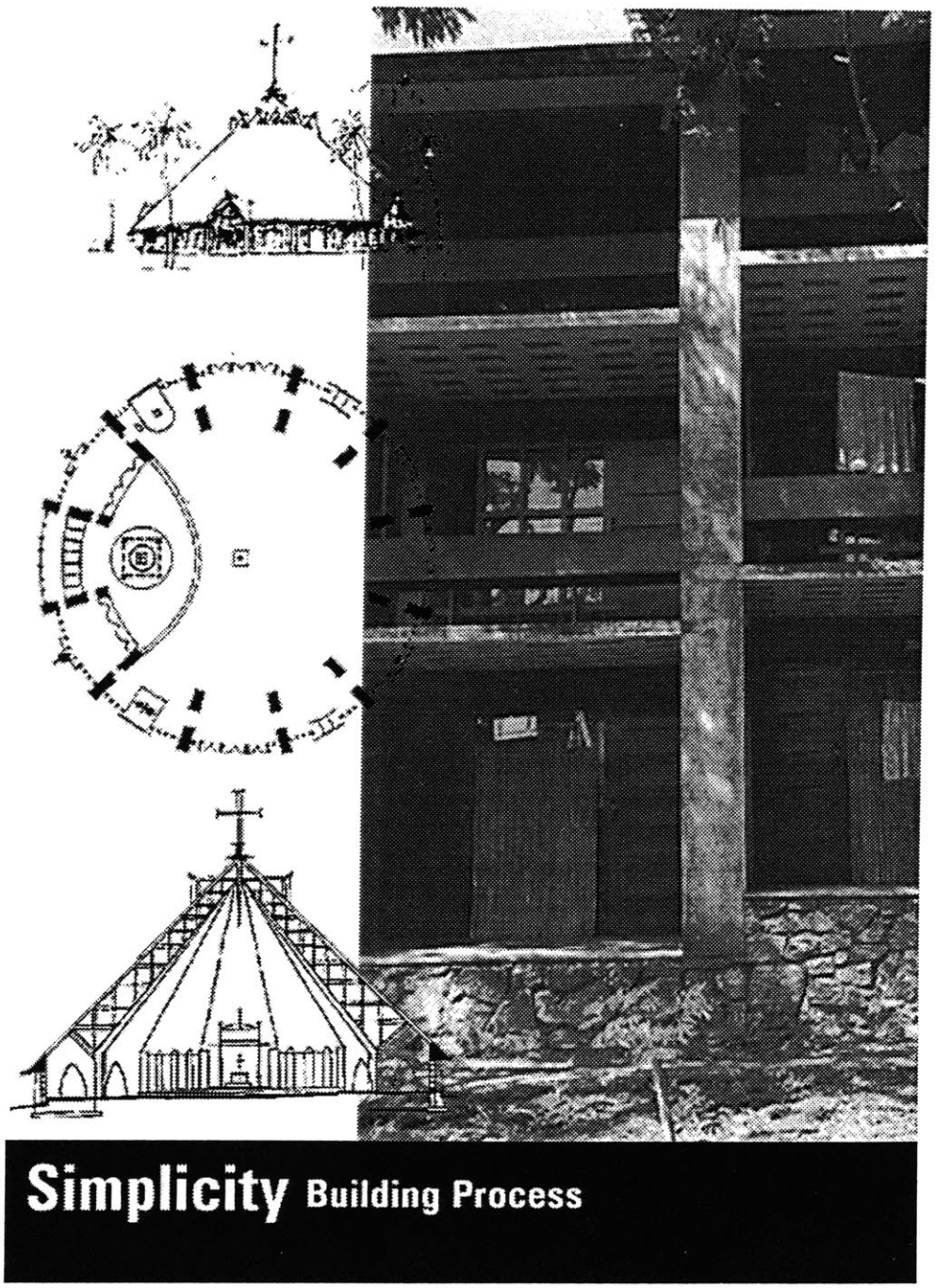
tiles for expensive concrete slab where the steel performs the only structural role. The economy of this method is complemented by the aesthetic coffered effect.

Material and Technique Expression: the building unit was made on site and fired with locally available coconut palm wood. Exploited the potential of exposed brick masonry, using different bonding, eliminating the plaster, he has unveiled the graphic potential of the material and mortar using a simplistic rendering of form.

Industry:The kind of building legacy developed by Baker can absorb every type of worker from the highly skilled scientist to the completely non-skilled laborer, developing a unique building culture. It aims at the use of local materials appropriate to the climate, minimize the use of non-renewable resources and maximize local employment by encouraging small-scale industry. Design process is informed by sensible/minimal environmental solutions towards economics, simple, widespread production units that can help to solve unemployment problems, producing fine, efficient and versatile building materials with tremendous savings in building costs and energy.

Thus, Laurie Baker has developed a design vocabulary with customized elements that have been worked on in the design process toward standardization. Allowing variations in form, integrating industrial with the cultural process.

The key issues addressed by his alternate practice have been:
- Modes of construction based on local and social dynamics.
- Renewable, Recyclable, Reusable Materials/ Resources
- Resource Conscious Economy.
- Minimal appropriate Usage – improvisation in the existing local prototype.
- Cost reduction strategies – Simple cost effective detailing to assemble things together.
- Material exploitation/expression – to generate varied potentials of the Resource.
- Craftsmanship – Reorientation of Craft to Contemporary purpose.
- Adaptive and Accommodative Architecture – multi-purpose Planning Agendas and Incremental system of building to accommodate regional spirit of collective growth.
- Conservation of Energy both in the production of material and in their assembly.



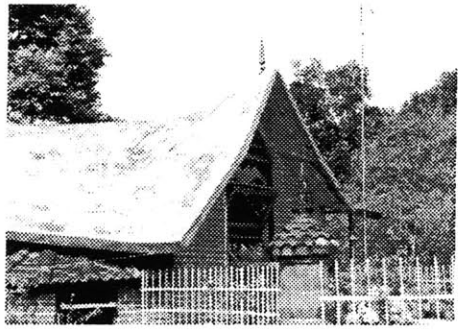
Simplicity Building Process

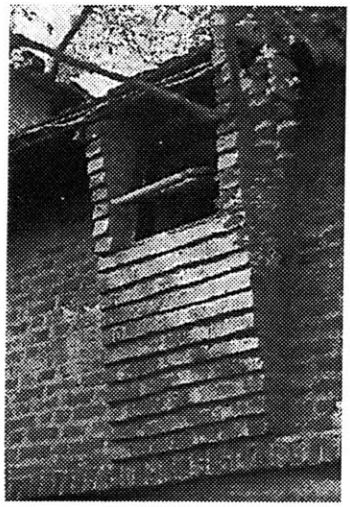
NIRMITHI KENDRA, KERALA: BUILDING CENTER— http:// *www.anangpur.com*
Based on the efforts of Laurie Baker, the Nimriti Kendra in Kerela was the first building center that came up in 1986 and served as a model for its methodology of systems approach, different from the hierarchical government public works department methodologies. It has contributed to the housing and to the building industry through indigenous technological innovations, skill upgrading and policy formulation. It undertakes the design and implementation of housing projects for the low-income groups. It designs building components that are cost-effective and that preferably use local materials. Innovative building materials produced at the centers are used with indigenous building technologies in the execution of these projects.

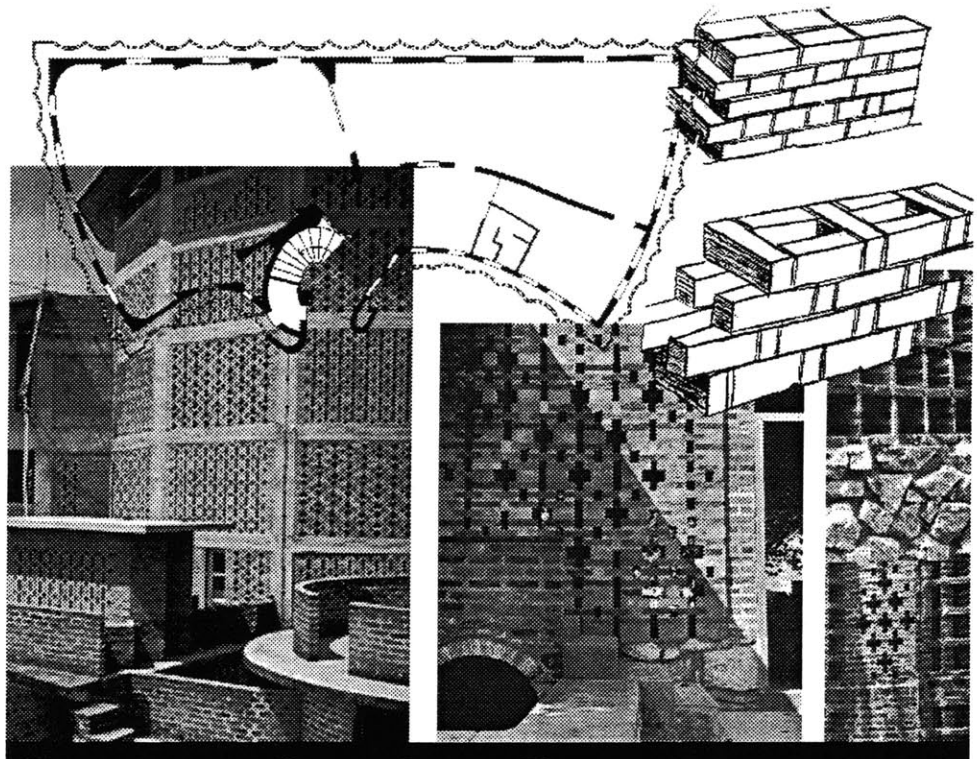
The Nirmithi Kendra often supplements the efforts of organizations such as COSTFORD (Center of Science and Technology for Rural Development) which is a non-profit voluntary organization that trains masons, artisans, carpenters, architects and engineers in low-cost construction practices and transfers them to the field through its housing projects.

Together, their projects provide simple layouts, economical house designs; use of locally available material resources and indigenous construction techniques, which reduce material, costs and are labor-intensive.
Baker's construction systems are propagated through the Nirmithi Kendras. Examples of numerous jali (Brick lattice) designs are to be seen at the Nirmithi Kendra in Trichur which show that a verandah jali may sometimes suffice to lend individuality to a house. It also demonstrates the versatility in designs of brick compound walls with reinforced cement concrete copings and various kinds of gateposts. Innovations such as patch pointing, brick jali, cow-dung and flyash flooring; brick corbelling, etc. have been incorporated in the housing projects. Sometimes, these centers develop products such as the hollow concrete block, funicular shells, etc. Often, the buildings do not need separate and costly "good finishing", since the materials used for structural purposes are put together to render aesthetics that are more natural and pleasing than marble cladding or walnut polish can ever provide. Needless to say, this has to be done with a certain amount of trial and error based on the availability of only theoretical guidelines to suit Indian social and physical conditions.

There are no elaborate drawings and most of the construction is based on sketches made by Laurie Baker who prefers to also allow for innovations on site by the laborers. The staff members of Nirmithi Kendra and COSTFORD supervise the on-site development and improvise as and when necessary. Some of the







Resource Concious Economy

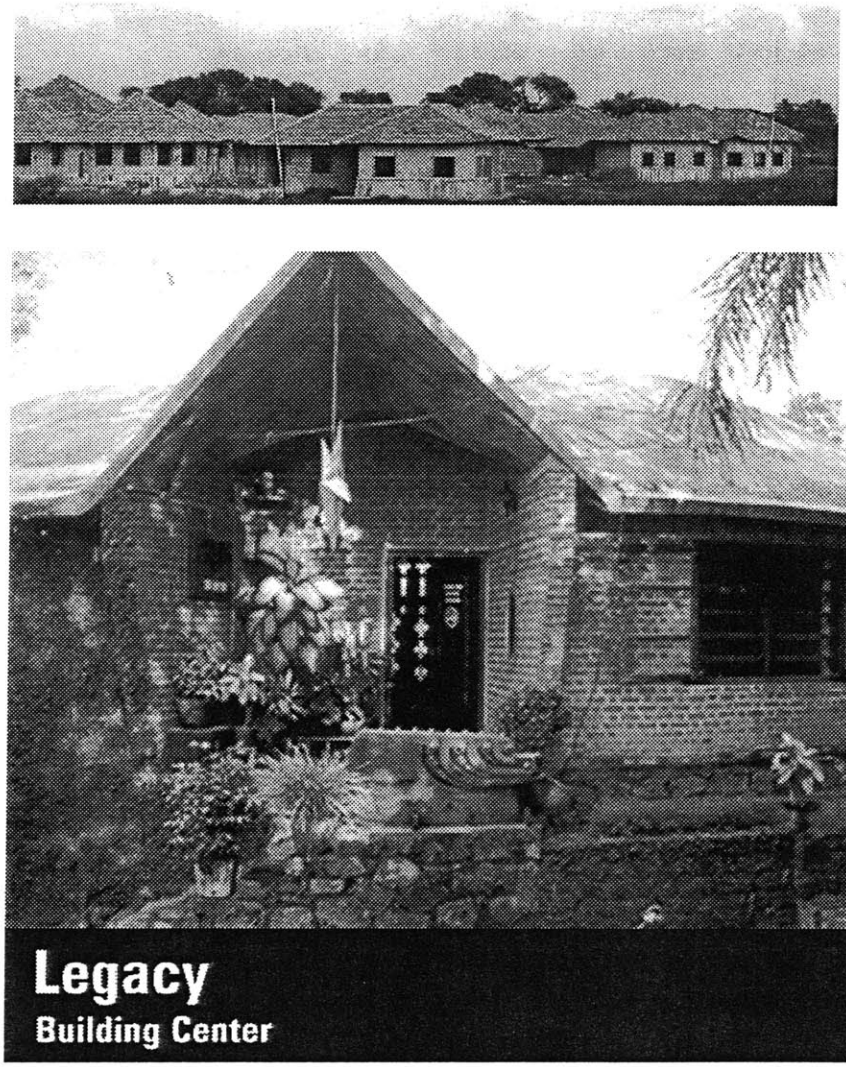
Material Economy

architects who worked here had earlier participated in Laurie Baker's other projects and hence were themselves skilled artisans in brickwork.

LEGACY — OF HIS DESIGN PROCESS:
At a time when Indian Architecture is passing through a phase of change, turning from rampant industrial growth to one of controlled social development, Laurie Baker's contribution is becoming increasingly relevant in the local construct. Recognizing the importance of people's aspirations for 'a better life', his buildings and ideas were a direct response to this spirit. His philosophy comes from the region, where the agenda stems from vivid reality that about 25 million people are homeless and our natural resources are depleting at a fast rate. He questions the issue of using resources at an alarming rate, especially when we have the top science brains in the country. He has harnessed the diversity of local terrain and materials, the contradictory effect of poverty, extra manpower and limited resources. Laurie Baker has integrated architectural practice; craft and industry with a social agenda that calls for a building practice based on resource conscious economy. He sets up a legacy, with a minimalist spiritual aesthetic of his own, rooted in the local conditions, making it a polemic to prevalent trends.

He looks upon the imitation of foreign techniques of buildings and the superficial superimposition of Indian details as aspects that only exaggerate the poverty of the country's architecture. His work questions the complex nature of rootedness and transforms his precedents into a sophisticated critical social agenda. Baker takes the principles of modernism in its pure sense and uses simple, minimal, multi-purpose planning to accommodate change in lifestyle over the life of the building. Linking together the various stages of design, fabrication and use in a continuum of transformation and metamorphosis. His method of working with the design and build concept in the manner of the traditional master craftsman has produced its own kind of craft. There are no pretensions of being monumental or seeking global acceptance, it is simply crafting 'a regional contemporary aesthetic' through an intuitive process.

The vocabulary of common-sense design has been established after many experiments derived from a deep understanding and practical knowledge of the vernacular. Baker chose to live and work close to the people, interpreting their needs and aspirations, and embarked on a journey characterized by an intense personal dedication, and a humane and creative commitment. User is not just kept in mind but understood by his manner of living, within the space as well as in the regional spirit of collective growth in the physical as well as time frames. Laurie baker pioneered the concept of building centers that researches into

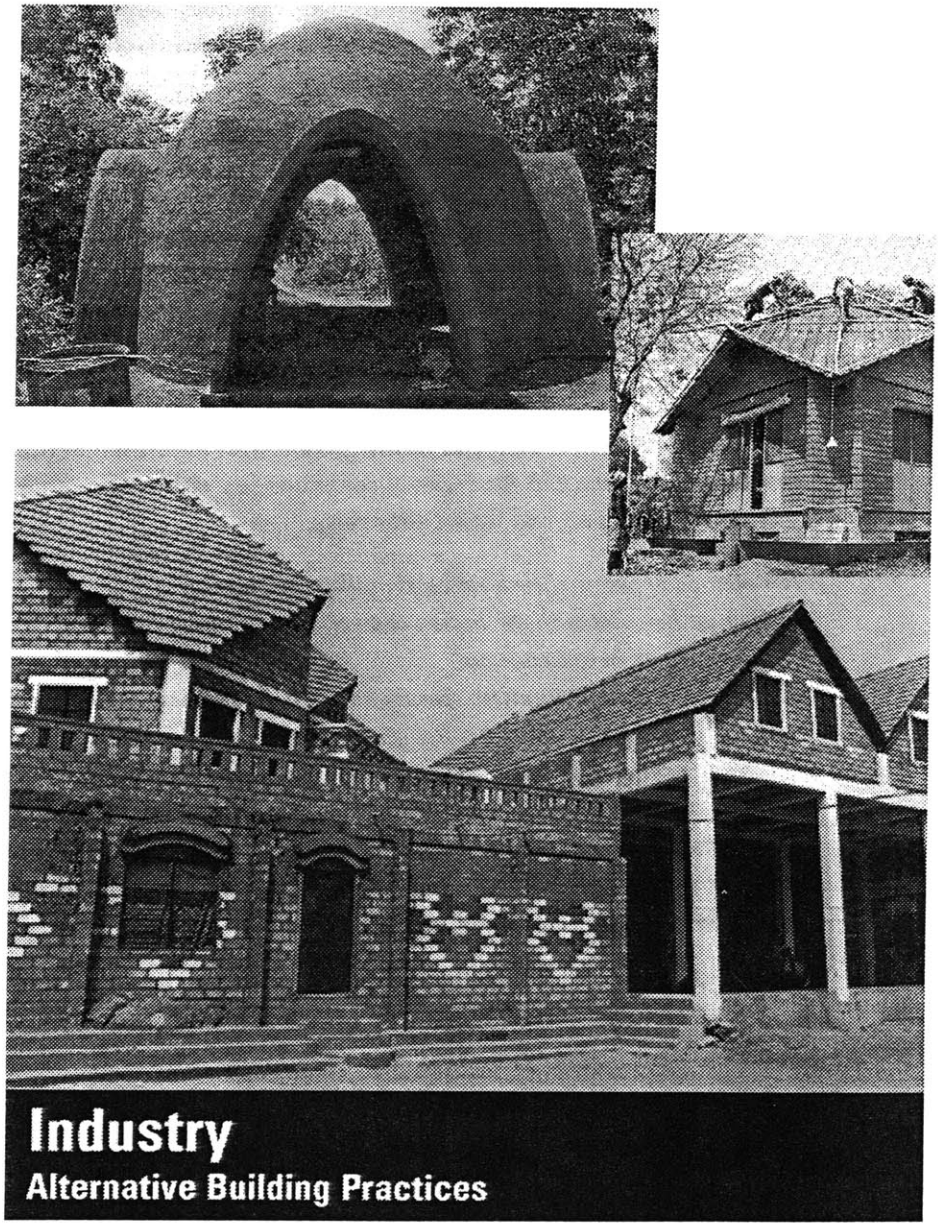

Legacy
Building Center

material resources, technological skills and the form making processes towards regional customizations. Inverting the principles of standardization, he turned mass produced parts into unique elements, effectively transforming and individualizing standardization. These centers have a common approach to design and create similar elements in assemblies that vary according to the function and scale of each project. The built form enables continuity of traditional craftsmanship, provides room for innovation in design needs and seeks to reveal a locally appropriate aesthetic. This model can be adopted by the building industry in India as an alternative paradigm to follow, as opposed to the existing universally standardized approach.[31]

31. Gautam Bhatia, "Baker in Kerela", Architectural Review, July-September 1987.

He has created a new form of craft legacy by patronizing labor, local resources and cost effective detailing, and its integration with industrialization. The style developed a reference in the regional contemporary rather than the larger picture of global past and future constructs.

His method of practice/work evokes the following questions:
a) Can we be modern in the Indian context, without using brick and reinforced cement concrete in construction?
b) Can we apply our twentieth century knowledge and know how while still deriving inspirations from what has gone before?
c) Can a regional contemporary vocabulary be developed by the judicious understanding and application of resources and by being innovative in use methodology?
d) Can the attention to craft and use of manual labor intersect with the state of industrialization? And how can this enter into a larger dialogue within the global community?



Industry

Alternative Building Practices

Chapter III

INDIGENIZING THE BULIDING INDUSTRY

DURING THE PAST TWO DECADES, THERE HAS been a resurgence of Gandhian philosophy on the work and attitude of various Indian activists. A basic premise of Gandhianism is that Indian culture is still rooted in the village, and that society should continue to develop within the self-nurturing security of that rural order. A necessary counterpart to Gandhi's philosophy of develop -ment is commitment to live by it. This demand appeals to a variety of architectural practices that have opted to sacrifice conventional practice and engage in 'grassroots initiatives'.

E. F. Schumacher, in his book 'Small is Beautiful' presents a study of the economics as if people mattered. He provided a blueprint for a co-operative, proto-industrial approach to life and work that guided many counter-cultural experiments in the years to come. Bernard Rudofsky's sweeping celebration of vernacular craftsmanship in Architecture without Architects and subsequent books, has been another influential polemic in an era that has become increasingly skeptical of the idea of progress. Such sympathetic external influences have reinforced the stamp of Gandhi and brought about a change in the concept of an architect as an elite form-giver that is contrary to the ideal of democratic, people-oriented development.[32]

32. Bhatt, Vikram & Scriver, Peter Contemporary Indian Architecture After the Masters, Mapin Publishing Pvt. Ltd., Ahmedabad, 1992.

The last two decades, a new crop of nostalgic iconoclasts have captured a following among architects and social planners.
the introspective tendency of the socially concious professional is mirrored in the efforts of some architects to promote the concept of an appropriate technology as the answer to India's development needs.

This thesis has been a search for an alternate paradigm for both the architectural practice and the building industry that could patronize 'Indigenous solutions' towards a 'Regional Contemporary Aesthetic'.

One such effort has been the organization of training cum production 'Building Centers' in India that offer innovative building components and cost-effective techniques, appropriate to the local conditions.
Pioneered by Architect Laurie Baker in Kerela, the concept of 'Building Center' is relatively new and its planning and production strategies primarily target the increasing housing problem in India towards affordable solutions.

The first such center was started in Quilon in the State of Kerala in 1986. Based on the success of this Center, also called the Nirmithi Kendra, the Ministry of Urban Development and HUDCO (Housing & Urban Development Authority) decided to start a model Building Center in Delhi at Nizamuddin and subsequently establish a network of centers all over the country. These building centers are expected to be autonomous societies under the managerial control of a combination of public institutions and professionals. Due to an inherent resistance to change from the municipal authorities, the program has taken considerable time to pick up and has received mixed responses from the various state governments, professionals and contractors.

The three examples of building centers that seem more successful than the others are
(I) Nizamuddin Building Center, Delhi
(ii) Nirmithi Kendra, Kerala
(iii) Anangpur Building Center, Haryana
This chapter will try to study the concept of Building Centers, their approach and working methods relative to the state of industrialized production systems — *towards understanding an indigenous form of building industry.*

THE CONCEPT OF A BUILDING CENTER

Conceived as a research, training and development center, the building center carries out building materials research, develops cost-effective technologies of building, provides on-site training for masons, architects and engineers participating in any of its projects and prepares documentation of its work for further dissemination. It implements housing projects for the low-income group as also institutional buildings using its cost-effective techniques. With the integration of the architect, the engineer, the artist and the artisan, it employs a self-sustainable work methodology.

Working at the grass-root level, these institutions are in close proximity to the people and aim towards a deeper understanding of the factors that may help or hinder the housing process. It works towards progress in cost-effective technology and develops houses that use basic engineering principles based on common sense rather than trying to provide designs for building systems that are only aesthetically pleasing or that try to imitate foreign systems.

It develops a critique against the easy and quick solutions offered by the governmental organizations that has created an alien environment for the people. These usually are in the form of identical, row houses or identical, detached units which were repeated over the given land allocation. The building centers offer a low-cost architecture with appropriate indigenous technology and inherent aesthetics that provides a link to traditional forms, to climate, to culture as well as to modern day-to-day needs.

APPROACH AND WORK METHODOLOGY

Research into indigenous materials and alternate technologies:
The building centers research into various indigenous and new materials and alternate technologies towards cost-effectiveness and resourcefulness. Natural materials like stone and mud have been harnessed, conventional materials like cement, steel and brick have been used innovatively and alternate materials have been developed from recyclable waste products like fly-ash etc. various kinds of

building blocks, roofing, walling and foundation systems and other building components have been developed.

Needless to say, it is done with certain amount of trial and error to suit Indian social and physical conditions.
One such example is the Anangpur Building Center where the building systems being developed and are not seen as "innovations" but as the 'accepted systems' of the past. It considers Reinforced Cement Concrete (RCC) constructions, amongst the systems in use today, as an innovative system that has still to prove its worth, to stand the test of time. It considers what are referred to as conventional systems as the actual unconventional systems of construction. The traditional systems are the conventional systems and they are time-tested. Hence, it tries to resurrect the basic, common-sensical application of materials instead of using the currently used systems that go against the behavior of materials.
Other example is the Nimrithi Kendra in Kerela that propagates Laurie Baker's construction techniques and innovative use of brick as the basic building material. Examples of numerous jali (Brick lattice) designs are to be seen which show that a verandah jali may sometimes suffice to lend individuality to a house. It also demonstrates the versatility in designs of brick compound walls with RCC coping and various kinds of gateposts. Innovations such as patch pointing, brick jali, cowdung and flyash flooring, brick corbelling, etc. have been incorporated in the housing projects.

COST-EFFECTIVE STRATEGIES:
The center tries to achieve cost reductions through its innovativeness in design of building components and building techniques. The various systems developed for the Walling Materials, Roofing Systems, Finishes, Shuttering are based on appropriate technologies that are cost-effective.
Costs are affected by the design of a component or technique, but also depend on the specifications and on the availability of the raw materials at a particular time. This is achieved by studying the performance criteria of the building component and also by a change in the delivery system. Further, the change of delivery system requires policy intervention.
The recommended building systems try to reduce the input of expensive materials. They try to increase instead the labor input, since labor is abundant and cheap in India.

TOWARDS A SUSTAINABLE ENVIRONMENT:
Building centers aim towards the conservation of selective natural materials (like timber, a depleting resource) and harnessing other natural materials (like stone and mud instead of bricks and concrete) towards a resource conscious design

economy. It propagates intelligent use of conventional materials like the cement and brick while developing new alternatives from waste products. Different building systems and energy efficient practices are developed towards resourcefulness. The systems are self-sustainable and the technologies that are developed generate employment within the zones that the materials are taken from or the zones that the technologies are incorporated in.

SKILL UPGRADING AND INFORMATION DISSEMINATION SYSTEM:
They also have skill upgrading and information dissemination programs. This ensures that there will be a continuity of skills and ideas and that there will be technological diffusion.

These building centers engage the training of professional like the engineers, architects to the artisans, masons, carpenters and transfers them to field through housing projects.The center recruits the construction worker in the city, who is the artisan and returns him to his local background as the habitat worker. He returns to help solve the local housing problems with appropriate low-cost building technologies and to teach others what he has been taught for better employment, income generation and better housing.

The Building Centers to also organize training programs for small contractors in which apart from improved building skills, management issues are taught. They can learn more about interpretation of architectural drawings, preparing estimates of small jobs, accounting, labor laws, etc. The small contractors thus trained would play a crucial role in promoting affordable housing.
Between the two levels, of professional architects and engineers, and the building artisans are the field supervisory personnel. These may be junior engineers, community development workers, etc. These functionaries play a crucial role in motivating, guiding and assisting the communities in improving their living and economic conditions.Along with the technical training, they are given broader knowledge and understanding of habitat issues and the appropriate attitude for resolving these issues.

The Center carries out an information dissemination system to support the technological diffusion. Setting up organizations like the Habitat Technology Network, the aim is to provide commonly sought after information and data on alternative building techniques in a comprehensive and easy to understand manner. The Technology Network makes efforts to reach out to people through various mediums. It helps owners make the correct decisions about the building system that suits their needs best, gives architects the information they require about availability of material, structural strength, ease of construction and the

time factor. It also is the training manual for the mason. Laborers can learn how to adapt their skills in using the new techniques.

PRAGMATIC AND RESPONSIVE SETTLEMENT PLANNING:

The building centers have been successful in generating a critical dialogue towards the concept of 'basic housing'. The bias is more towards developing a new set of pragmatic and responsive settlement standards/patterns that are suitable to the lifestyles of the communities that they are built for.
Studies of slum settlements seem to indicate an apparent inversion of values where space often takes precedence over permanence. This seems especially true of the public spaces in slum areas, which are characterized by their richness and diversity. However, most sites & services projects minimize these circulation spaces, making them rudimentary and inadequate, and inhibiting the dwellers' social and spatial lifestyles.

The Building Centers hope to propagate the use of innovative building technologies that are low-cost and which could be the grammar for a new architectural language that can lead to a more humane environment. They believe that it is not enough if the poor are given a minimum built-up area. It is important that this is more than just a unit comprising of walls and a roof. Thus, providing the right kind of spaces instead of permanent structures that do not adapt suitably to their needs. They have developed and implemented interlocking cluster planning layouts for housing projects, to improve land utilization and social responsibility.

HOUSING DELIVERY SYSTEM:

An inadequate housing delivery system has resulted in a large proliferation of slums in the city. The Building Centers contribute to it through technological innovations (in the form of improvised building components using local materials, and cost-effective methodologies of building demonstrated in the housing projects implemented by the Building Centers themselves), skill upgrading and policy formulation. Policy suggestions by grass-root institutions may help the housing delivery system at a broader level.

THE EFFECTS OF BUILDING CENTERS ON EMPLOYMENT GENERATION

Developing labor-intensive techniques foe the building industry is an important objective of these centers towards promoting employment opportunities. An informal construction skills development program with on-the-job training is another objectives of the Building Center Program. Participatory strategies are employed where the people from the low-income groups, for whom the houses are being built can be trained, (women also) in fabricating various types of

walling blocks, roofing panels, etc. which will be used extensively to construct their own settlements. This allows them to market such products or techniques learnt to outside buyers/developers.
Loans are given to new artisans to start small-scale building materials manufacturing units /co-operatives of their own that develop innovative, cost-effective building components, using indigenous materials. A lot of other measures could be used to improve the economic base of the people, especially in the low-income groups.

A NEW OCABULARY OF INDIGENOUSMATERIALS AND ALTERNATE TECHNOLOGY
These are a few examples of systems developed for the Walling Materials, Roofing Systems, Finishes, Shuttering and the Use of mud are innovative in terms of cost effectiveness and resourcefulness.

Walling materials
On account of the poor quality of the bricks being produced in the county, it has become necessary to plaster and paint brickwork, further increasing the cost of construction of walls.

The introduction of modular bricks based on unscientific data has added to the problem. The Indian classical bricks were no more than two to two and a half-inch thick facilitating the proper baking of the core of the brick. The British had introduced the 9"x 4 1/2"x 3" bricks during their colonial rule in India. Their use continues to this day although they are unsuitable. Rejecting traditional wisdom and misinterpreting the concept of modular coordination, the Central

Building Research Institute (CBRI) introduced the 8"x 4"x 4" (20x20x10 cm) bricks which are found to be inconvenient for manufacture and handling.
The compressive strength of the walling materials has to relate to the bearing capacity of the soil on which the structure rests. On this basis, the compressive strength of 70kg/cm2 required for burnt clay bricks is too high. It seems to have been prescribed since bricks with this strength have a well-baked, non-absorptive surface. On the other hand, the compressive strength of dry, unbaked mud bricks is 25 to 30 kg/cm2, which is adequate for most constructions but drops when the bricks are wet.

But, the surface of these unbaked mud bricks is water absorptive and prone to pitting. The stabilized and compacted mud block technology tried to improve both the strength of the block and the quality of its surface. Steel pins introduced into the conventional mud block machine create holes in the block, further compressing the mud and increasing its density. Also, drying the inside and the outside of the block is thus possible with less fuel consumption. Cement

dusting after molding helps the surface resist rain. These blocks provide good insulation and the high density makes half-brick wall, loadbearing construction possible.

For walling blocks, a hard surface and a soft core with the minimum crushing strength seems to be a suitable option. In Wardha, a group of young professionals evolved a burnt clay fascia tile, which could be locked into an ordinary adobe mud block. Concurrently, the Nizamuddin Building Center developed a range of lean concrete and mud blocks with attractive permanent finish fascia in different shades and different grades of stone, slate, burnt clay, etc.
The Building Center has found these blocks to be cost-effective, easy to make in hand moulds or block-making machines by semi-skilled labor. They also have a greater variety of applications.

At the Nirmithi Kendra at Quilon, Rubble filler blocks or Stone masonry blocks are produced using rubble and cement mortar. These blocks which can also be used as foundations save upto 15-20% as compared to conventional brick masonry.

Laurie Baker uses the rat trap bond in the masonry work to save on the quantity of bricks used. Also, window openings use brick arches instead of concrete lintels and often timber window shutters can be eliminated altogether by the use of brick jalis. A brick jali is a lattice or screen made by leaving regular gaps within the brickwork. It has been increasingly used by the Building Centers, especially in Kerala, to reduce the costs of thick walls by instead building cavity walls using the rat trap bond.

Roofing systems
Evolving low-cost methods in roofing is much more complex. Traditional roofing in tiles, slate, etc. required timber sub-structure and ceiling. Timber has now become scarce and expensive.With the advent of reinforced cement concrete, RCC is now largely used because of its durability and ease of handling of the material. RCC is best used in tension structures. These, however, need more steel and cement than compression structures. Further, they need more quality control. Poor quality of cement or an inadequate cover over the steel can lead to corrosion of the steel and the failure of the structure.

The other systems for roofs and intermediate floors were largely compression structures like domes, vaults and jack-arches. Such compression structures require less material, have considerable strength but the shuttering is difficult and expensive. If the problems of shuttering and the possible leakage at joints can be resolved, compression structures can be developed as the most appropri-

ate low-cost roofing systems.

The recent solutions developed by the building centers, to overcome these problems of shuttering have been the geodesic domes and the funicular shells. These reduce the shuttering required and therefore bring down costs of construction. At the Nizamuddin building center, the funicular roofing system is widely used. It is found to be structurally sound, cost-effective and easy to construct. The funicular shell is light in weight and does not require centering. It uses 25% of steel as compared to that used for ordinary concrete. It is a good alternative to RCC beam and slab construction for small to medium spans. A single funicular shell can span a grid ranging from 0.8m to 3.0m without intermediate supports. With intermediate beams, the total span possible is adequate for most residential buildings. The economy is achieved by reducing the amount of steel, cement and shuttering timber in the construction by using prefabricated, reusable, fiberglass moulds. De-molding is done within 24 hours. Various patterns can be created whilst laying the bricks/stone chips, eliminating the need to plaster the roof from the inside.

The Nirmithi Kendra at Quilon advocates the use of ferrocement rafters and tiled roofing as opposed to the expensive timber support structure for roofing. The percentage in cost saving by using ferrocement rafters and tiles is 17.5 % when compared to timber rafters. Ferrocement rafters protect forest wealth. They have a longer durability and therefore the maintenance or replacement is not a frequent burden on the user.

Finishes

Nowadays, in the cities, there is a trend to make buildings in one material, bricks or concrete, and finish them in other materials through plastering or cladding. This increases costs substantially. Poor quality of bricks and brick masonry has compelled home builders to plaster and paint walls resulting in high building as well as maintenance costs.

Houses can do without finishes if the brick masonry itself is used innovatively. In some housing projects executed in Kerala by the Nirmithi Kendra, patch pointing was used in plastering to avoid the extra expense of providing finishes to the walls.

Shuttering

For RCC and other kinds of building systems, shuttering becomes an expensive component. It also results in considerable wastage of timber, which is a scarce environmental resource. In addition, the timber shuttering often creates a surface, which is of uneven nature and has to be plastered.

Fiberglass moulds developed by the Building Centers are now being used in some housing projects, instead of the conventional timber shuttering. Their initial cost is found to be higher but they can be used a large number of times and therefore are highly cost effective.

These fibreglass moulds result in surfaces which can be left exposed; unpainted or painted without plaster. If Shuttering contractors were promoted who would have an inventory of standardized shuttering in fiberglass (or another appropriate material) to hire these out to homebuilders this would further reduce overall costs of shuttering for a given housing project.

Mud

Home builders, except those who have been traditionally living in mud houses, are usually reluctant to build in mud. Recently, environmentally conscious groups in India and abroad have taken to building in mud even in the cities. But, by and large, people hesitate to use mud structurally.
The building centers realize that mud can be put to secondary uses like internal plasters. In India, we still have a large number of traditional artisans and housewives who can provide excellent finishes, a variety of textures and colors in mud. Protected by a coat of fevicol or even rice water, they can remain fresh and attractive for several years. The market prices of paint and other finishing material are much higher than this improvised, indigenous method of finish that uses mainly mud with rice water or with a little extra expense can be combined with fevicol to make durable surfaces.

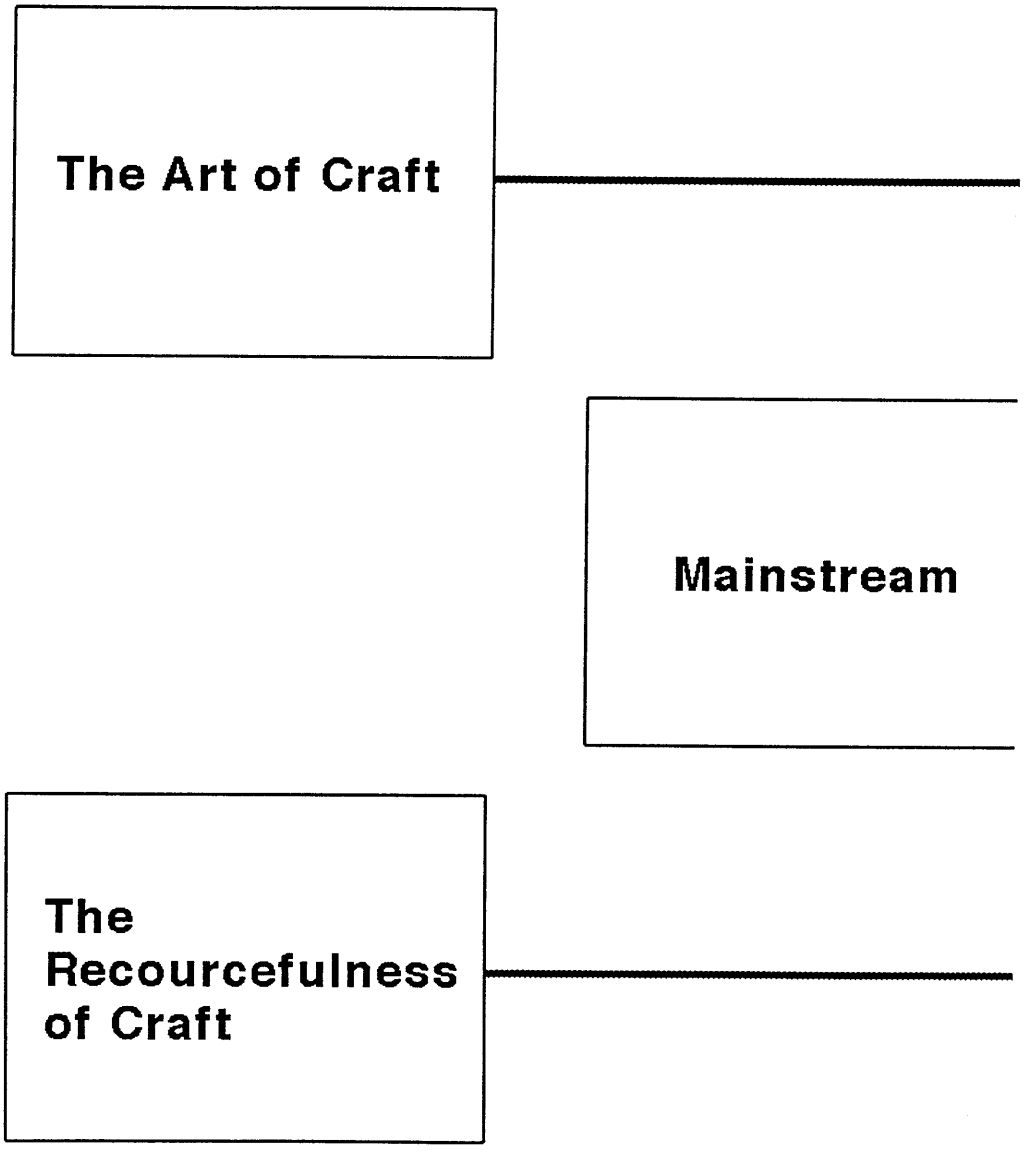
Attractive built-in furniture, otherwise an expensive item in wood, can also be made in mud. There are design inputs of a different kind but an expensive material such as wood can now be replaced with mud.Mud 'phuska' for thermal protection and water proofing of RCC roofs is already widely used in some parts of India. The Building Centers are now propagating the use of this lesser-known technique for thermal protection and water proofing.[33]

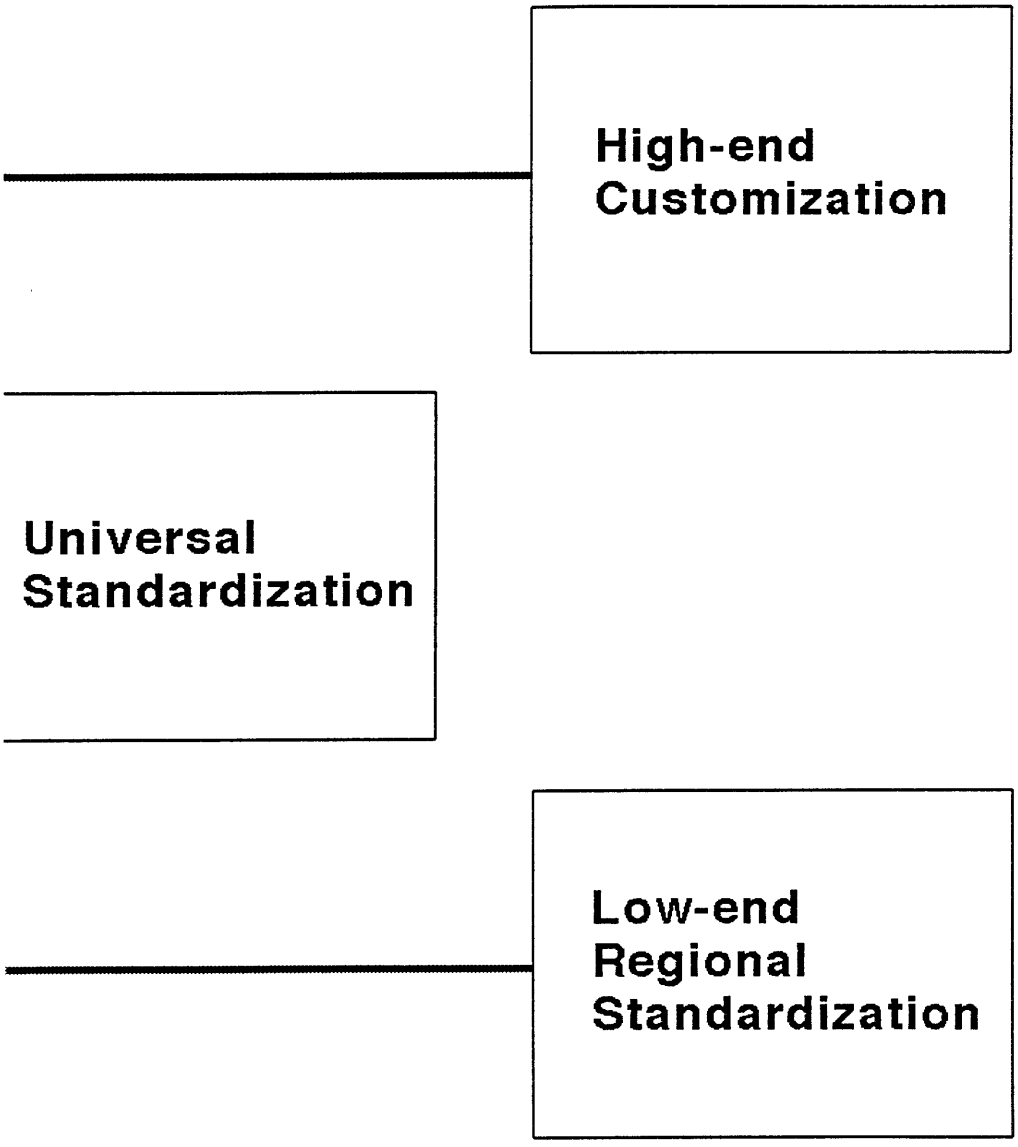
CONCLUSION

These building centers represent an effort to regionalize the building industry according to the socio-economic and physical conditions of the local/ regional context. Since it is primarily a research, training and development center, research into materials and alternate technologies has developed into its own vocabulary of regionally customized building components. These components have been selectively standardized to enable cost-effectiveness, efficiency and mass production of housing units at a large scale. Affordability of low cost techniques and easy replicability are two very important aspects of research and

33. Source
http://www.anangpur.com
http://www.india-buildtech.com

PLATE XXII


The Art of Craft
Mainstream
The Recourcefulness of Craft
Process



Industry Within the Context of India

development in these centers. But there needs to be an intelligent blending of region specific resource potentials and ritualistic cultural patterns, so that one could feel the spirit of the place beyond minimalism and utilitarianism. This is a pointer towards a practice methodology that lays stress on both the practical and altruistic aspects of the process of building.

With the building industry assuming global references, these building centers give a cue to find ways to preserve the 'local' within the 'global' in order to mitigate the effect of homogenization. The underlying principle of regional standardization could be a very important tool to indigenize the building industry in a culturally diverse country like India.

SUMMATION

INDIA ABOUNDS IN SKILLS OF CRAFTSMANSHIP, WITH regional cultures rendering unique identities. The prevalent mode of architectural practice patronizes these various skills in meaningful mannerisms towards a goal of native aesthetics. But craft only aids in presentation of the aesthetic. Whereas Aesthetics is born from abstractions, as the mind perceives and reflects, not necessarily as reality exists. Aesthetics belongs to the realm of 'art'. It is in this realm, that one can transcend limits to invoke the spiritual quality. A quality of space that is not just in the play of spaces but of the life form that goes around and with the space.
Unable to find the arts, architectural practice has been groping into the crafts. This form of patronization of a skill-based craft and not the art form leads to the projection of roughness born of decadence and negligence over a period of time. Hence, there is a need to project an understanding of the integrated evolution of art and craft, to create a regional contemporary aesthetic.

These contemporary architectural practices can be grouped into two types: one that addresses the 'local' aspirations and the others that appropriate the local into universal ideas.The 'local practices' look into their regional context and local conditions for references. Though many, in an effort to revive the vernacular culture of building, have fallen trap to sentimental nostalgia, eclecticism and historical mimicry. Using 'craft' in the 'graft' sense, the traditional images and memories are decoded and transplanted into another context and time (Architect Revathi Kamath). Sometimes fragments of history are used for their visual interest, but in the absence of the transformation process they are stripped of their ritualistic and spiritual value. (Architect Gerard De Cunha)
The 'universal practices'on the other hand, look at the larger world order for their referential base. But when caught in the global construct, they sometimes play with the intellectual themes that would have wider recognition and acceptability in the world order. When trying to be a part of the larger global dialogue, they get entangled with the ill-informed product rather than understanding the processes of transformation that need to go into an art-craft integration. (Architects B.V.Doshi and Charles Correa)

But within this kitsch of the contemporary, there exist alternate practices at the intersection of local and universal aspirations. They project an aesthetic through a process of transformations and art-craft integration...emphasizing the ritualistic and spiritual sensibility of the Indian way of life, rooted in place and time.
On one hand is Laurie Baker who uses the 'resourcefulness of craft' to achieve a 'pragmatic and minimalist' architecture, where the ethos is 'social'. Bakers aesthetics is derived from a sophisticated critical agenda based on the intersection of local conditions with the prevalent level of industrialization. The intuitive process of building derives an aesthetic based on a critical view of the ritual-

istic patterns of life and its economical responses to the forces of the environment. On the other hand is Nari Gandhi who uses 'art of craft' in order to achieve an 'organic and sensorial' architecture with an ethos towards the 'spiritual'. His approach to the creation of an environment is based on a sense of freedom from consciousness. Creating a harmonious whole, Nari's mind perceived and intuitively reflected on an aesthetic that elevated the form to a level of art.

Both practices represent an architecture of two extremes (Laurie Baker for the poor and Nari Gandhi forhis rich patrons) that borders towards 'exclusivity'. This concept of exclusivity stems from the fact that these practices developed their unique regional vocabulary through a process of transformations and have customized their designs accordingly. But this exclusivity does not work well with the middle class - the real patrons of mainstream architectural practice and building industry.

But within this exclusivity, there are a few common underlying principles that re-instate the role of a master builder/craftsman in the present context. Highlighting a 'building process' that culturally links practice with the craft and industry, they show the possibility of a renewed practice and industry that recognizes the regional differentiation.

The first common principle is of 'Re-defining the Tradition'. Nari Gandhi and Laurie Baker looked at tradition in a progressive way rather than preservative. Both emphasized on the temporal and the timeless quality of tradition. 'Temporal' meaning the transient concept of tradition based on transformation as per change in time/context and 'Timeless' meaning the underlying principles that remain constant throughout the process. On one hand, Baker developed a vocabulary rooted in its regional context with local materials, local labor and improvisation of local techniques. He re-created the traditional prototype in contemporary rendition. On the other hand, Gandhi relied on archaic impulse, looking at the principles of tradition and culture in the most basic/universal sense— and adding on the complex layers that are subject to the regional context and the state of technology.

Both aimed towards Simplicity - lack of pretense. Baker's simplicity was inherent in his pragmatic and minimalist attitude. To Nari Gandhi, 'Simplicity' did not mean 'Plainness'; it meant that every feature of his design would become a harmonious element in the harmonious whole. The inter-relationships in his compositions were complete and nothing was superfluous. But this did not depend on elimination—it could mean elaboration too.

The other concern projected was that of 'Resource conscious design economy'. Both practices aimed towards a complete self-supporting ecosystem, where the material is not violated and the circumstances and surroundings are understood. With cost-effectiveness as his most important goal, Baker devised techniques to build just adequate with respect to structure, material usage, space design and detailing – towards a concept of pragmatism and minimalism. Gandhi too believed in resource conscious design economy, though of a different kind. He never wasted any material, rather used every bit of it in some way or the other. Though not a minimalist, he judiciously recycled materials and devised unique detailing appropriate for their re-use.
Both the practices gain their strength from a deep understanding of the materials, their properties and their inter-relationships. Towards developing a culture of building that exploits the material expression to its purest form, with design customizations to suit its properties. While Baker has exploited brick to craft his spaces resourcefully and meaningfully, Gandhi has crafted stone to level of art.

They exhibit a sense of freedom from the mainstream building industry, but are dependent on a different customized form of it. An industry supported by partly technology, partly the use of skilled labor/craftsmen and of course their ingenuity. Laurie Baker pioneered the concept of building centers that researches into material resources, technological skills and the form making processes towards regional customizations. Inverting the principles of standardization, he turned mass produced parts into unique elements, effectively transforming and individualizing standardization. On the other hand, Nari used material and structural form daringly and skillfully, combining industrial products with craftsman's expertise... to a level of extreme personalization.
One can see that these principles are derived from an aesthetic based on a critical view of the ritualistic patterns of life and the regional forces of the environment. But one needs to acknowledge the fact that the architectural practice and the building industry are assuming global references, that has inherent in itself the concept of homogenization. Parallel to this is the fact that India, with its rich heritage, has a strong cultural bias that favors regional differentiation. Hence, critically looking at the intersection of global culture and regionalization, this thesis suggests an alternate paradigm to the current practice. One way to address this issue would be to encourage customization of design and building components that are rooted in their context and to standardize the building industry at the regional level. It would be like customizing the industry itself.

These alternate practices also represent a 'process' derived from the intersection of practice, craft and industry. It integrates the various stages of design, fabrication and use in a continuum of transformation and metamorphosis. The exist-

ing resource base and its craft are brought to a level of art through a series of abstraction. Art-craft integration. This kind of a building process is based on the concept of a master-builder—which in contemporary terms would mean an integration of practice, craft and industry. This thesis suggests that to achieve the above, one could tap the potential of 'global collaboration'. Global culture, with its notion of cross-fertilization of various disciplines, has made accessible the research and expertise of all fields — at any given time and in any given context. If such cross-fertilization is possible, then with the right intentions it could be possible for the industry to address the regional issues and incorporate local idioms into global patronage.

Thus, to link local culture to the global world order, our current practice would need to be a part of the larger 'process' that integrates craft and industry with itself.

A 'process' that—
- Addresses this issue of 'transfer' vs 'transformation'
- Ensures creative ingenuity towards 'art-craft integration'
- Patronizes regional customization and standardization
- And hopes to craft a regional contemporary aesthetic.

This thesis presents an optimistic view — towards a consciousness that 'change must be introduced incrementally through the system itself.

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