SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – I – Contemporary Directions in Architecture – SAR1405

I. UNIT 1
Critiquing Modernism

GENERAL INTRODUCTION

Architectural history is the discipline that records, studies and interprets architecture. It studies its forms, purposes, and most importantly its evolution. Fortunately, ancient architecture can easily be observed and recorded. Studying architectural history enables us to understand the society and culture, which is very useful when working as a contemporary architect.

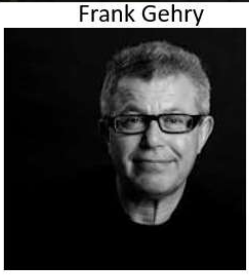
Comparing and studying ancient and contemporary architecture is essential. It allows an architect to consider a buildings or cities as more than a visual phenomenon and therefore the architect would have a more fundamental and culturally inclusive approach to architecture than an approach based purely on architect's own taste or style.

The study of architectural history can also be a good way to inspire modern day architects into trying new forms of design. Without access to differing styles of architecture, a designer would become stagnant and locked into one kind of building. The study of historical architecture will help to stimulate the creative juices in the minds of the students and this will make for more creative and flexible architects overall. For these reasons, it is important to study ancient architecture and learn the how and why these buildings were constructed.

Waren Chalk | Ron Herron | Peter Cook | David Greene | Mike Webb | Dennis Crompton

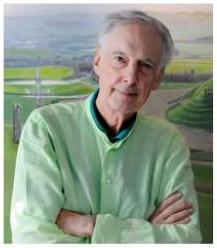
THE MAIN MEMBERS OF Archigram

Frank Gehry



Daniel Libeskind

Zaha Hadid



Charles Jencks

Christopher Alexander

Jane Jacobs

Kenneth Frampton

Robert Venturi

BRUTALISM

INTRODUCTION

Brutalist architecture is a style of architecture which flourished from the 1950s to the mid 1970s, spawned from the modernist architectural movement. The British architects Alison and Peter Smithson coined the term in 1953, from the French *béton brut*, or " concrete",.

Boston City Hall, part of Government Center, Boston, Massachusetts

The structure illustrates typical ,Brutalist characteristics such as top-heavy massing, the
use of slender base supports, and the sculptural use of raw concrete.

The New Brutalism of the British members of Team 10, Alison and Peter Smithson, is more related to the theoretical reform of the CIAM (in architecture and urbanism) than to "béton brut".

Many stations of the Washington Metro system display Brutalist characteristics

The Interior of the Phillips Exeter Academy Library, 1965-1971, by Louis Kahn.

Initially popular with government and institutional buildings, the movement experienced the majority of its success from the **1950s to the 1970s.**

The Jatiyo Sangshad Bhaban (National Assembly Building of Bangladesh), 1961-1981, by Louis Kahn.

The Habitat 67 in Montréal, Québec, Canada

Trellick Tower,London,1966-1972,designed by Erno Goldfinger

BRUTALISM-History

First used in an Architectural context by Swedish Architect Hans Asplund in 1950 who discussed nybrutalism (new Brutalism)

↓

1954,Reyner Banham used the term more widely in his writings to refer to the work of English Architects Alison and Peter Smithson who created the iconic Hunstanton School in Norfolk and later Robin Hood Gardens in Poplar,East London

↓

The term brutalism came to refer to function raw concrete buildings emerging in the UK and London in particular in the post –war period

↓

Due to the relatively low cost of concrete ,Brutalism was popular for rebuilding government buildings and providing social housing in the period of social solidarity following the second world war

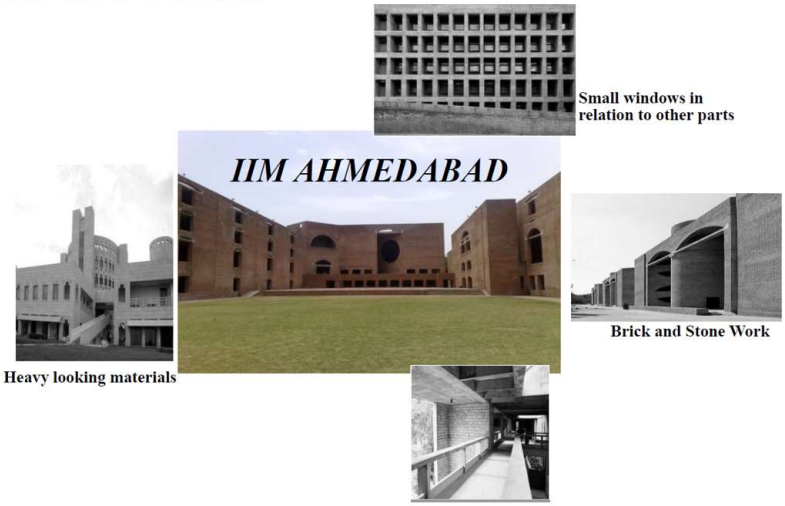
J. Edgar Hoover Building in Washington, D.C.

- Brutalist buildings usually are formed with striking repetitive angular geometries, and, where concrete is used, often revealing the texture of the wooden forms used for the in-situ casting.
- concrete is the material most widely associated with Brutalist architecture, not all Brutalist buildings are formed from concrete.
- Instead, a building may achieve its Brutalist quality through a rough, blocky appearance, and the expression of its structural materials, forms, and (in some cases) services on its exterior

BRUTALISM-Characteristics

- Brutalist building materials also include brick, glass, steel, rough-stone
- Conversely, not all buildings exhibiting an exposed concrete exterior can be considered Brutalist, and may belong to one of a range of architectural styles including Constructivism, International Style, Expressionism, Postmodernism, and Deconstructivism.
- common theme in Brutalist designs is the **exposure of the building's functions—ranging from their structure and services to their human use—in the exterior of the building**
- Brutalism as an architectural philosophy, rather than a style, was often also associated with a socialist utopian ideology, which tended to be supported by its designers, especially Alison and Peter Smithson, near the height of the style.
- Critics argue that this abstract nature of Brutalism makes the style unfriendly and uncommunicative, instead of being integrating and protective, as its supporters intended.

BRUTALISM -Features



Brutalist buildings are

- massive,
- monolithic and
- 'blocky' appearance with a rigid geometric style and
- large-scale use of poured concrete.



BRUTALISM -Projects


- The best known early Brutalist architecture is the work of the Swiss architect Le Corbusier, in particular his Unité d'Habitation (1952) and the 1953 Secretariat Building in Chandigarh, India.
- Le Corbusier's **first Unité d'Habitation** is arguably the most influential Brutalist building of all time. With its human proportions, chunky pilotis and interior "streets", it redefined high-density housing by reimagining a city inside an 18-storey slab block.
- Completed in 1952 in Marseille, the building took Le Corbusier's most famous quote – that a house is "a machine for living in" – and applied it to an entire community. The result was a self-contained concrete vessel that is structured like an ocean liner.

It is a large building with a height of 42m and an astonishing length of 254m. The two protruding parts are the 'ramp shafts'.
The building is composed of ten-storey block divided by expansion joints and measures over 74 long, bookended by two sculptural ramps providing vertical circulation throughout the facilities' at various levels levels.

General floor plan of the Secretariat Building

The southeast facade of the Secretariat Building, 1958,

BRUTALISM-Recognition

- Brutalism gained considerable momentum in the United Kingdom during the mid twentieth century, as economically depressed (and World War II-ravaged) communities sought **inexpensive construction and design methods for low-cost housing, shopping centres, and government buildings.**
- Nevertheless, many architects chose the Brutalist style even when they had large budgets, as they appreciated **the 'honesty', the sculptural qualities, and perhaps, the uncompromising, opposed, nature of the style.**

The Barco Law Building at the University of Pittsburgh School of Law

The Mathematics and Computer Building at the University of Waterloo in Waterloo, Ontario

BRUTALISM-Criticism

- Brutalism also is criticised as disregarding the social, historic, and architectural environment of its surroundings, making the introduction of such structures in existing developed areas appear starkly out of place and alien.
- Brutalism has some severe critics, including Charles, Prince of Wales.

His speeches and writings on architecture have criticized Brutalism, calling many of the structures "piles of concrete".In these climates, the concrete becomes streaked with water stains and sometimes with moss and lichens, and rust leaches from the steel reinforcing bars

Archigram

Waren Chalk Ron Herron Peter Cook David Greene Mike Webb Dennis Crompton

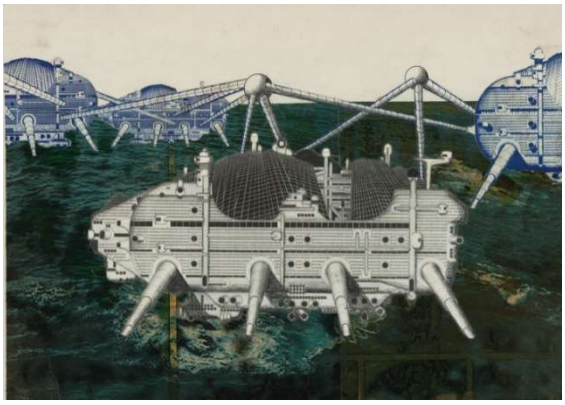
THE MAIN MEMBERS OF THIS GROUP

- Archigram was an Avant-grade group that existed between 1961 and 1974,that was a futuristic, anti-heroic and pro-consumerist thinking group, drawing inspiration from technology in order to create a new reality that was solely expressed through hypothetical (imaginary)projects, such as, A Walking City, Living Pod, Plug In city and Instant City.
- The Archigram pamphlet was printed in 1961 and held all their ideas of high tech survival technology.
- They experimented with modular technology and how a structure would move through an environment and although they focused on the technology of the machine and the advancement of the world, they dismissed social and environmental issues.
- Their projects were all **conceptual projects** that were to lead to bigger and better things later. Many of their **designs were never built** even with the help of the media since the **technology available** was not as their brainstorming (Suggesting)
- Most of their designs were never created or explored ,but they documented every project that they thought of.
- The high tech design was driven by the emerging technologies of this time. With these new inventions appearing, designers were exposed to endless design opportunities
- The members of Archigram took advantage of these possibilities and thought of ideas that were beyond the imagination of the average person, some of their designs included The Walking city, where buildings would be able to freely move around a city
- The type of thinking that Archigram displayed was beyond average.They were also seeking to go beyond. What they had available and tried to do bigger and better things then what had been done previously.
- Their projects were evidence that designers were now looking beyond what was present and trying to streamline into the future.

Archigram-Walking City

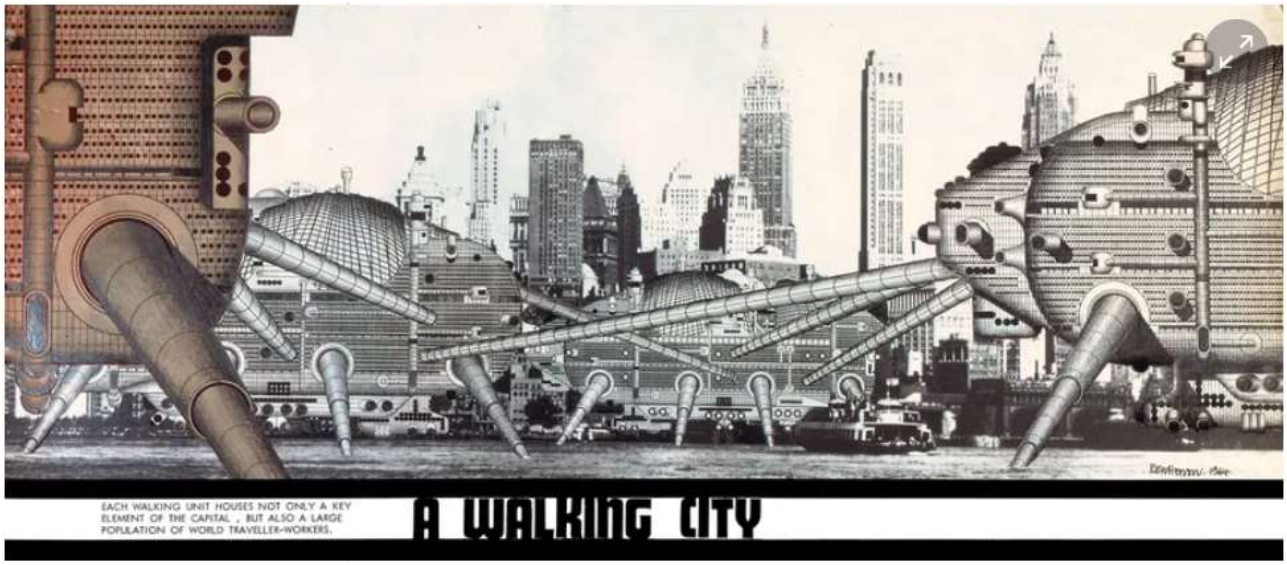
Ron Herron's A Walking City was originally set in a dystopian New York, the giant robots would walk over water and land to wherever they were required, connecting with others to create one big hub just like a city.

By creating moving cities, Herron proposed that this was the change that was needed, these mobile giants could bring resources and urban development's wherever they were necessary.



- Where building would be able to freely move around a city. The thought behind this was easily relocate buildings and to constantly have a new view through a window.
- The building in the city would be able to plug into various stations where they would be hosted.
- This was never created but the thought behind this design was beyond the technology they had available

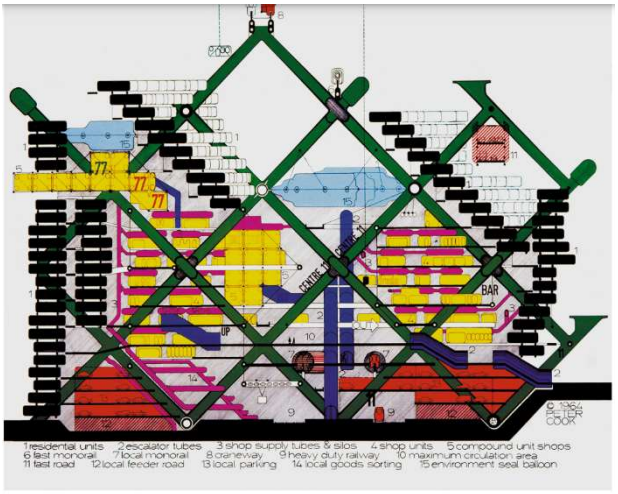
ARCHIGRAM-THE WALKING CITY



Herron's initial inspiration for the roaming robots came from insects combined with revolutionary machinery. Although the pods seemed independent they relied on the transfer of goods and people wherever they landed, they did this by 'plugging into' way stations to exchange.

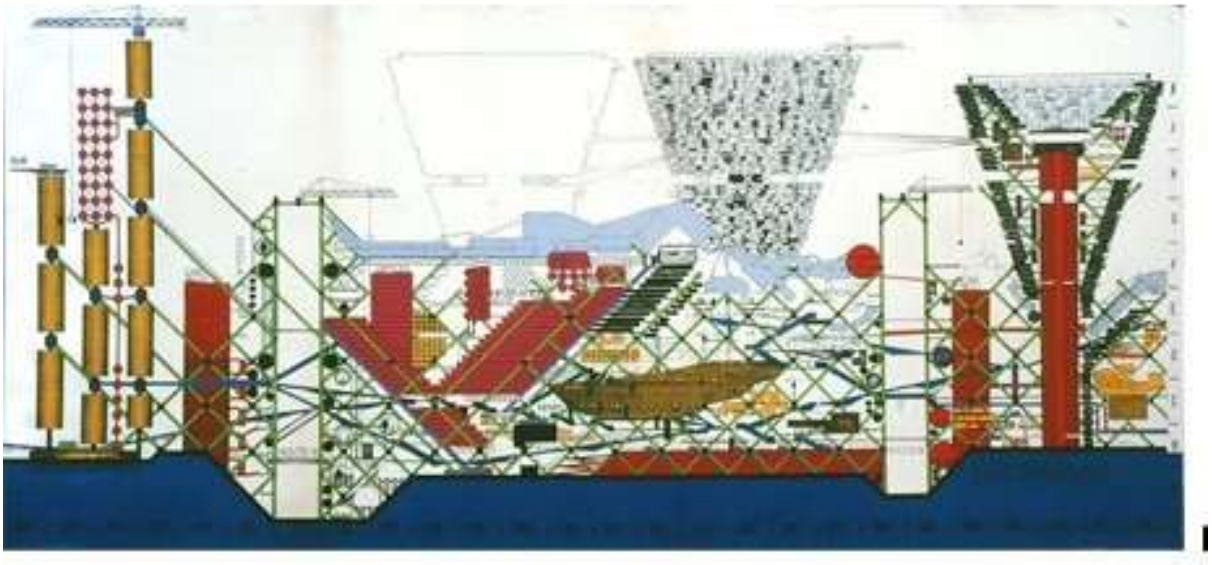
Archigram -Plug in City

The Plug-In City, by the avant-garde group Archigram. Though never built, their projects and ideas provoked debates, combining architecture, technology and society; when Plug-In City was proposed in 1964, it offered a fascinating new approach to urbanism, reversing traditional perceptions of infrastructure's role in the city.
Between 1960 and 1974 Archigram created over 900 drawings, among them the plan for the "Plug-in City" by Peter Cook. This provocative project suggests a hypothetical fantasy city, containing modular residential units that "plug in" to a central infrastructural mega machine. The Plug-in City is in fact not a city, but a constantly evolving megastructure that incorporates residences, transportation and other essential services--all movable by giant cranes.



Archigram's Plug-In City concept was developed between 1963 and 1966

Persistent precedents and concerns of modernism lay at the heart of Plug-In City's theoretical impulse, not limited to the concept of collective living, integration of transportation and the accommodation of rapid change in the urban environment.
The Plug-In City, along with other projects such as The Walking City ,suggested a nomadic way of life and, more importantly, a liberation from the modernist answer of suburbia.



Between 1960 and 1974, Archigram published nine challenging issues of its magazine and created more than nine hundred exuberant drawings illustrating imaginary architectural projects ranging in inspiration from technological developments to counterculture, from space travel to science fiction. The group's work opposed the period's functionalist ethos; Archigram designed nomadic alternatives to traditional ways of living, including wearable houses and walking cities—mobile, flexible, impermanent architecture that they hoped would be liberating.

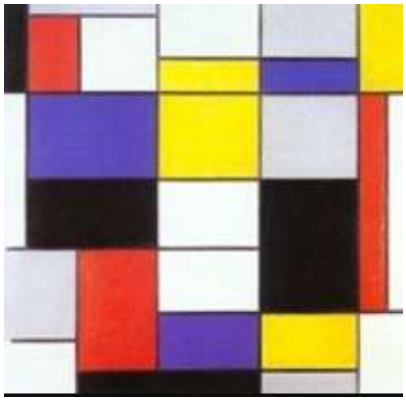
CONSTRUCTIVISM

Constructivism was an artistic and architectural philosophy that originated in Russia beginning in 1919 by Vladimir Tatlin and Alexander Rodchenko. The movement rejected decorative stylization in favor of the industrial assemblage of materials. Constructivists were in favour of art for propaganda and social purposes, and were associated with Soviet socialism, the communists and the Russian avant-garde.
Constructivist architecture and art had a great effect on modern art movements of the 20th century, influencing major trends such as the Bauhaus and De Stijl movements. Its influence was widespread, with major effects upon architecture, sculpture, graphic design, industrial design, theatre, film, dance, fashion and, to some extent, music
Constructivism borrowed ideas from **Suprematism, Neo Plasticism and Bauhaus** the style incorporated straight lines, cylinders, cubes and rectangles; and merged elements of the modern age. The architectural movement didn't last long, only till 1932 but the effects of it are still seen today.

WHAT IS SUPREMATISM

Suprematism is an **art movement** focused on basic geometric forms, such as circles, squares, lines, and rectangles, painted in a limited range of colors. ... The term **suprematism** refers to an abstract **art** based upon "the supremacy of pure **artistic** feeling" rather than on visual depiction of objects

WHAT IS Neo Plasticism



Neo-Plasticism, articulated most completely by Dutch artist Piet Mondrian, relied on the most basic elements of painting - color, line, and form - to convey universal and absolute truths

Key Ideas & Accomplishments

Instead of representations of natural forms, Neo-Plasticism relied on the relationships between line and color to match the opposing forces that structured nature and reality. Neo-Plastic compositions juxtapose horizontal and vertical lines along with the primary colors of red, yellow, and blue against the non-colors of black, white, and grey to produce timeless balance.

BAUHAUS

Bauhaus—literally translated to **"construction house"—**originated as a German school of the arts in the early 20th century. Founded by Walter Gropius, the school eventually morphed into its own modern art movement characterized by its unique approach to architecture and design.
Today, Bauhaus is renowned for both its unique aesthetic that inventively combines the fine arts with arts and crafts as well as its enduring influence on modern and contemporary art.

History

In 1919, German architect Walter Gropius established *Staatliches Bauhaus*, a school dedicated to uniting all branches of the arts under one roof. The school acted as a hub for Europe's most

experimental creatives, with well-known artists like Josef Albers, Wassily Kandinsky, and Paul Klee offering their expertise as instructors.

BAUHAUS ARCHITECTURE

Similar to Bauhaus art, architecture in this style is characterized by harmoniously balanced geometric shapes and an emphasis on function.Featuring open plans and lots of glass, it is inspired by the simple yet polished look of the American Arts and Crafts movement—a type popularized by master architect and Prairie School pioneer Frank Lloyd Wright.

BAUHAUS LEGACY

Today, Bauhaus is often credited as the catalyst for modern architecture and furniture and as an important influence on mid-20th century painting and sculpture. Some buildings—including Bauhaus Dessau, a UNESCO World Heritage Site—have been turned into tourist destinations and house museums, while many major modern art museums incorporate the works of art into their permanent displays and popular exhibitions

Bauhaus Characteristics

The main characteristic of constructivism was the application of **CUBISM** to abstract and non objective elements. The style incorporated straight lines, cylinders ,cubes and rectangle and merged elements of the modern age such as radio antennar, tension cables ,concrete frames and steel girders Modern materials were also explored, such as steel frames that supported large areas of glazing, exposed rather than concealed building ,balconies and sun decks.The style aimed to explore the opposition between different forms and surfaces, predominately between solid walls and windows ,which are often gave the structures their characteristics sense of scale and presence

CONSTRUCTIVISM ARCHITECTURE

Constructivist architecture emerged from the wider constructivist art movement. After the Russian Revolution of 1917, it turned its attentions to the new social demands and industrial tasks required of the new administration. According to constructivism, objects are to be created not for beauty or the artist's outlook or to represent the world but to carry out fundamental analysis of the materials and forms of art one which might lead to the design of functional objects.

Two Distinct threads Emerged

The first was encapsulated (sum up)in Antonio Pevsner's and Naum Gabo's Realist ,manifesto which was concerned with **Space and Rhythm**

The second represented a struggle within the commis-sariat for enlightenment between those who argued for pure art and the productivists such as Alexander Rodchenko and Vladimir Tatlin

More socially oriented group who wanted this art to be absorbed in industrial production. A split occurred in 1922 when Pevsner and Gabo emigrated. The movement then developed along socially utilitarian lines (becomes functionalism, which stresses that the design for a building should be based on its purpose). The productivist majority gained the support of the Proletkult and the magazine LEF, and later became the dominant influence of the architectural group O.S.A., directed by Alexander and Moisei Ginzburg.

Tatlin Tower,1919

El Lissitzky,Print Shop

Commissioned to create a monument to the Bolshevik Revolution in St.Petersburg, **Tatlin** conceived of his **building** as the headquarters for the Third International – the world organization of the Communist party founded in 1919 and intended to spread global revolution

CONSTRUCTIVISM-Characteristics

Constructivist architecture movement emphasized and took advantage of the possibilities of new materials. Steel frames were seen supporting large areas of glass. Joints between various parts of buildings were exposed rather than concealed. Many buildings had balconies and sun decks. Large windows in order to let as much light as possible.

The most admirable part of Constructivism is how solid and large the buildings look. They have a sense of scale and presence. Very solid and rectangular with a touch of circular shapes and glass to offset the solid blocks.


Barsch and Sinyavsky - Moscow Planetarium


Melinkov House

The style combines straight lines and various forms such as cylinders, squares, rectangles, cubes.
Elements of Constructivist art/architecture are:

- minimal
- geometric
- spatial
- architectonic
- experimental

Constructivism explores opposition between different forms as well as the contrast of different surfaces: walls and windows. Windows are usually square or rectangular. Often wrapped around an entire building. There are round windows as well, usually at the top of the building.

DECONSTRUCTIVISM

Deconstructivism is a movement of postmodern architecture which appeared in the 1980s. It gives the **impression of the fragmentation** of the constructed building. It is characterized by an **absence of harmony, continuity, or symmetry.** Its name comes from the idea of "Deconstruction", a form of semiotic analysis developed by the French philosopher Jacques Derrida. Architects whose work is often described as deconstructionism (though in many cases the architects themselves reject the label) include **Peter Eisenman, Frank Gehry, Rem Koolhaas, Daniel Libeskind, Bernard Tschumi, and Coop Himmelb(l)au.**

Semiotic analysis: Semiotics is the study of meaning-making or Interpretation of signs, the study of sign processes and meaningful communication which includes, indication, designation, likeness, analogy, metaphor, symbolism, signification, and communication

Deconstructivism **"broke the rules"** of classical architecture through the French language. Besides fragmentation, deconstructivism often manipulates the structure's surface skin and creates by non-rectilinear shapes which appear to distort and dislocate elements of architecture. The finished visual appearance is characterized by unpredictability and controlled disorder.

Deconstructivism came to public notice with the 1982 Parc de la Villette architectural design competition, in particular the entry from Jacques Derrida and Peter Eisenma and the winning entry by Bernard Tschumi, as well as the Museum of Modern Art's 1988.

Deconstructivist Architecture exhibition in New York, organized by Philip Johnson and Mark Wigley. Tschumi stated that calling the work of these architects a "movement" or a new "style" was out of context and showed a lack of understanding of their ideas, and believed that Deconstructivism was simply a move against the practice of Postmodernism.

Deconstructivism attempts to move away from the constricting (narrowing down) 'rules' of modernism such as "form follows function," "purity of form," and "truth to materials."

Any architectural deconstructivism requires the existence of a particular archetypal *con*struction, a strongly-established conventional expectation to play flexibly against the design of Frank Gehry's own Santa Monica residence, (from 1978), has been cited as a prototypical deconstructivist building. His starting point was a prototypical suburban house embodied with a typical set of intended social meanings. Gehry altered its massing, spatial envelopes, planes and other expectations in a playful subversion, an act of "de"construction"

Two strains of modern art, minimalism and cubism, have had an influence on deconstructivism. Analytical cubism had a sure effect on deconstructivism, as forms and content are dissected and viewed from different perspectives simultaneously. A synchronicity of disjoined space is evident in many of the works of Frank Gehry and Bernard Tschumi.

Walt Disney Concert Hall, Los Angeles, California

Guggenheim Bilbao, Spain

Gehry was awarded the Pritzker Prize in 1989. A man with seemingly no limits

Bernard Tschumi'S Approach

While a rigorous theoretical argument was developed over a period of years, theory is rarely the starting point of a project. It is rather the general framework. Practice can precede theory, much as theory can precede practice. Below is a rough approximation of Bernard Tschumi's approach:

1. Quickly diagram several alternative concepts, spatial configurations, or strategies. Then immediately leave them aside. If any of them are valid, they will reappear at a later stage.

2. Take the program. Assign dimensions, places, and relationships; distinguish between generic and specific programmatic spaces; test alternatives. Do it quickly; be precise, but not necessarily detailed.

3. Introduce circulation or vectors of movement, establish priorities in how the building will be used and experienced. Enhance sequences (test alternatives). Establish whether the envelope is unitary or broken down into two or more sub-envelopes in relation to the findings of steps 1 and 2. Look at material options.

4. Test alternatives. If applicable, take advantage of the site constraints: zoning constraints, slope, height limitations, potential materials as per climate or local construction industry, but with a broad approach.

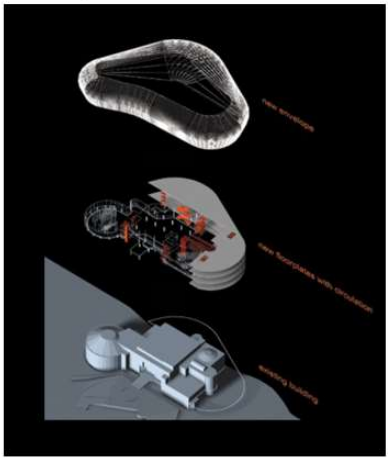
5. Then, only then, begin conceptual work. Do not start with a form. Make a concept emerge, balancing steps 1 to 4. No form, please (unless it can become a generating concept). *What is a concept? There is no answer to this. There can be no restriction to what a concept or overriding*

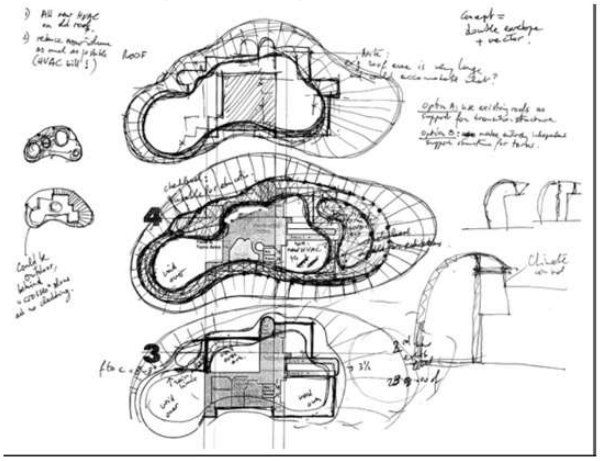
idea is. The concept must allow for the resolution of steps 1 to 4.

6. Then, only then, let the image or the architecture emerge. Select final materials; architecture is the materialization of concepts. The image will emerge with energy and evidence. Sometimes the image is no image, if the concept calls for no image.

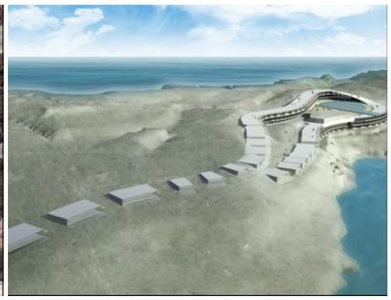
7. As the project (concept) is developed, weaving into it all technical constraints and construction details, keep utmost clarity in mind. Never do anything for design's sake, work only for concept's sake. (Stay on concept the way one stays on message: Repeat, repeat, repeat. Edit, edit, edit.) Construction or budget constraints are good ways to clarify priorities.

8. You may break rules, but never at the expense of concept.





Bernard Tschumi'S Works



Aphrodite Astir Hotel
Athens, 2008.Bernard Tschumi

Sanjay Puri's Works

Sanjay Puri architects is a Mumbai-based firm, the renowned Indian practice focuses on evolving design solutions that are contextual and creating spaces that revolutionize the way they are experienced form the essence of the practice's design philosophy. Sanjay Puri's style resembles deconstructivist architecture, according to an article in Wallpaper* magazine, which analysed several Indian architects. Puri's work is inspired by those who have actively practised deconstructivism, such as Bernard Tschumi and Rem Koolhaas. Several large volumes intersect and juxtapose at several points in Puri's design. The Architect explores the thought of sculpting the entire space; instead of breaking the project into forms that juxtapose.

His avant- garde architectural style is truly unique and a true expression of his creativity. The essence of Sanjay's design theory is creating innovative design spaces that are contextual but at the

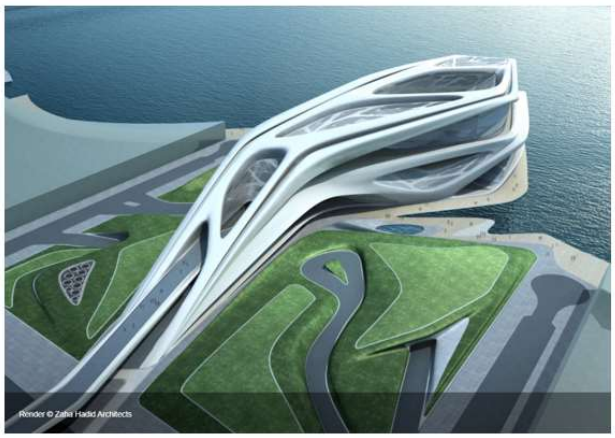
same time sustainable. “The ways spaces are being perceived and used are constantly evolving and architectural and design is incorporating these changes of perception based on demand as well as exploring new possibilities of space dynamics.”


D Hotel, Lucknow, India

Iskon temple: e temple’s basic plan & configuration is derived from traditional temples alluding to the past with the deity facing east as is mandatory. Its volume is expressed by fragmenting the traditional ‘shikhara’ shape into a series of planes that allow the large structure a lightness in perception.

Zaha Hadid Works

Zaha Hadid is a well-known name in the global architectural arena. Celebrated for her deconstructive approach to architecture, this Iraqi born British citizen is also the first female recepient of the Pritzker Architecture Prize in 2004. Here's how she traversed the path from a degree holder in Mathematics to a renowned architect who has made her presence felt in a predominantly men's world.



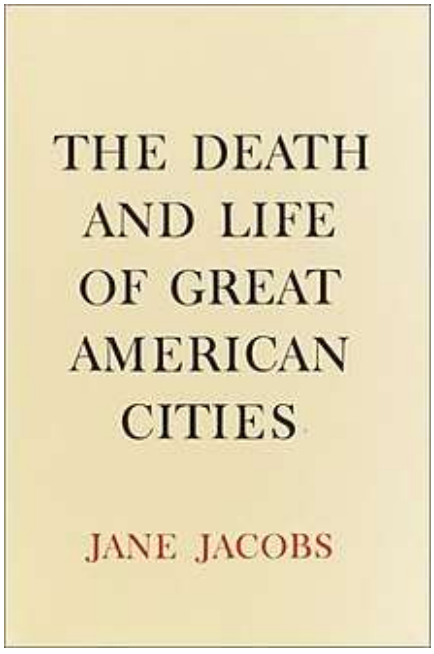
Abu Dhabi Performing Arts Centre

She pushed boundaries of design, resisted architectural rules and conventions and builds what used to be unbuildable. She created her own radical rules of design from her own experience and rationalism. She searches for aesthetics in art, nature and architecture and applies them in design.

Writings of Jane Jacobs
Jane Jacobs

• (May 4, 1916 – April 25, 2006)
• was an American-Canadian journalist, author, and activist best known for her influence on urban studies
• Her influential book The Death and Life of Great American Cities (1961) argued that urban renewal did not respect the needs of most city-dwellers.
• The most influential American book on urban planning and cities.
• Widely read by both planning professionals and the general public, the book is a strong critique of the urban renewal policies of the 1950s, which, she claimed, destroyed communities and created isolated, unnatural urban spaces.

- Jacobs advocated the abolition of zoning laws and restoration of free markets in land, which would result in dense, mixed-use neighborhoods and frequently cited New York City's Greenwich Village as an example of a vibrant urban community.
- ***Cities and the Wealth of Nations*** attempts to do for economics what The Death and Life of Great American Cities did for modern urban planning, though it has not received the same critical attention. She coined the terms "social capital", "mixed primary uses", and "eyes on the street", which were adopted professionally in urban design, sociology, and other fields.
- Beginning with a brief treatment of classical economics, this book challenges one of the fundamental assumptions of the greatest economists. Classical (and Neo-classical) economists consider the nation-state to be the main player in macroeconomics.



The Death and Life of Great American Cities, which holds responsible for the decline of many city neighborhoods in the United States. The book is Jacobs' best-known and most influential work. She argued that modernist urban planning overlooked and oversimplified the complexity of human lives in diverse communities. She opposed large-scale urban renewal programs that affected entire neighborhoods and built freeways through inner cities.
She instead advocated for dense mixed use development and walkable streets, with the "eyes on the street“ (Natural surveillance limits the opportunity for crime by taking steps to increase the perception that people can be seen. Natural surveillance occurs by designing the placement of physical features, activities and people in such a way as to maximize visibility and foster positive social interaction) of passers-by helping to maintain public order.

- Jane Jacobs is a fantastic observer. **The death and life of great American cities is a powerful and convincing book, which she illustrates with examples from around us and comparisons**, which are easy to relate to.
- Instead of blindly accepting the handed down misconceptions doctrined by trained city planners, who define sub urbanism as the ideal city life, she has gone about analyzing what in actuality makes a city work and what makes them fail.
- What does a city need in order to become successful? she has done on various scales, from a street to a district. And has concluded that these blind ideals, (big housing projects, highways, business districts, zoning, un-slumming and urban renewal) implemented by the city planners are actually compounding our problems rather than remedying them. The city planners have infact been simply destroying functioning cities
- A city should hold something for everyone. It should have an overlap of temporal (progressive) activities and mixed use in every neighbourhood, intricately mingled in mutual support, which makes them more lively and inviting.
- She analyses the reason behinds the success of sidewalks as social spaces and the failure of planned places. When a street supports a mixes use then there is a steady stream of users and the sidewalks become the place for unplanned activities and for socializing
- It also becomes a place for children to play, where the adults can supervise them. Mixed use in a neighbourhood would also support temporal activities and the street would be crowded with activity almost constantly


- If a city were to be strictly zoned then a street would become monotonous with single use spaces and the diversity, which contributes to the success of the city, would be lost
- If there were old buildings in a neighbourhood along with new ones, the place would tend to look more interesting. So blight can only be relieved by breaking the stringent zoning practiced by city planners and planning adequate mixed use in every neighbourhood and district.
- Jacobs says High density is essential to the success of a neighbourhood. Its often confused with overcrowding by professional city planners who condemn it.
- Urban renewal and relocation are not the solutions for eradicating slums. Doing so simply relocates the slums to another place. Slum renewal is always done with insensitivity. When

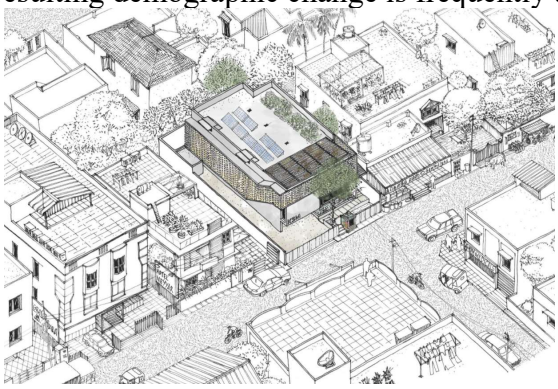
we impose an artificial environment on people and expect them to stay there, it fails. The people simply evacuate and go back to the slums. They sell out the place to higher income groups.

- If a city were to be strictly zoned then a street would become monotonous with single use spaces and the diversity, which contributes to the success of the city, would be lost
- Gentrification is a process in which higher income households displace lower income residents of a neighbourhood, changing the essential character and flavour of that neighbourhood. Under this definition, gentrification has three specific conditions: displacement of original residents, physical upgrading of the neighbourhood, particularly of housing stock, and change in neighbourhood character
- Gentrification is seen in almost all the slum renewal projects in madras.

Urban renewal is the clearing out of blighted areas in inner cities to clear out slums and create opportunities for higher class housing, businesses, and more.

Urban regeneration is the attempt to reverse that decline by both improving the physical structure, and, more importantly to enhance, the economy of those areas. In all **regeneration** programmes, public money is used as an attempt to pump prime private investment into an area.

Gentrification is a process of changing the character of a neighborhood through the influx of more affluent residents and businesses.[1] It is a common and controversial topic in politics and in urban planning. Gentrification often increases the economic value of a neighborhood, but the resulting demographic change is frequently a cause of controversy.

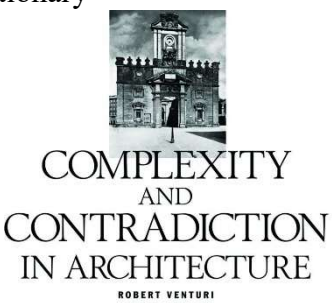


Complexity and Contradiction to Architecture

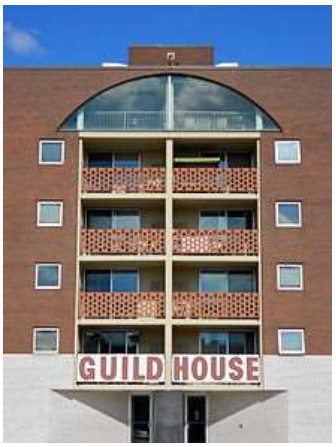
Robert Venturi

- born June 25, 1925
- He is an American architect, founding principal of the firm Venturi, Scott Brown and Associates, and one of the major architectural figures in the twentieth century.
- Together with his wife and partner, Denise Scott Brown, he helped to shape the way that architects, planners and students experience and think about architecture and the American built environment. Their buildings, planning, theoretical writings, and teaching have also contributed to the expansion of dialogue about architecture.
- Venturi was awarded the Pritzker Prize in Architecture in 1991
- Venturi is also known for having coined the maxim "Less is a bore", a postmodern antidote to Mies van der Rohe's famous modernist dictum "Less is more".
- Venturi was a controversial critic of the blithely functionalist and Symbollically vacuous architecture of corporate modernism during 1950's.

- Venturi has been considered a counterrevolutionary



- Their buildings, planning, theoretical writings and teaching have contributed to the expansion of discourse about architecture.
- Venturi was awarded the Pritzker Prize in Architecture in 1991; the prize was awarded to him alone despite a request to include his equal partner Denise Scott Brown.
- He is also known for coining the maxim "Less is a bore" a postmodern antidote to Mies van der Rohe's famous modernist dictum "Less is more".
- He published his "gentle manifesto, "*Complexity and Contradiction in Architecture*" in 1966
- The book demonstrated, through countless examples, an approach to understanding architectural composition and complexity, and the resulting richness and interest.
- Drawing from both vernacular and high-style sources, Venturi introduced new lessons from the buildings of architects both familiar (Michelangelo, Alvar Aalto) and then forgotten (Frank Furness, Edwin Lutyens).
- In 1962, Venturi wrote *Complexity and Contradiction in Architecture* under a grant from the Graham Foundation. It was re-published by the Museum of Modern Art (New York) in 2002 as part of a series of occasional papers on the theoretical background of modern architecture.

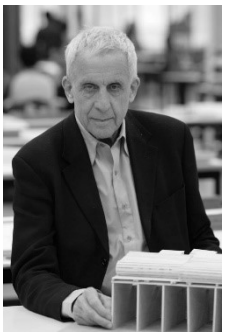


- The re-publication of the book was not to accompany a museum exhibition, rather its purpose was to recognise the importance of Complexity and Contradiction as a critical and historical expression of a turning point in modern architectural history
- Le Corbusier demanded a “noble purism” in architecture, Venturi’s position is the opposite: he suggests that architecture should welcome the complexity and contradictions of urban experience.
- He made a case for "the difficult whole" rather than the diagrammatic forms popular at the time, and included examples—both built and unrealized—of his own work to demonstrate the possible application of the techniques illustrated within.

Ten points of Complexity and Contradiction

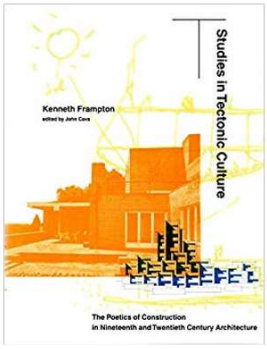
- Non straightforward Architecture : A Gentle Manifesto
- Complexity and Contradiction vs simplification Picturesqueness
- Ambiguity
- Contradictory levels.The Phenomenon of Both “,And” in Architecture
- Contradictory Levels continued : The Double functioning Element
- Accomodation and the limitations of Order : The conventional Element
- Contradiction Adapted
- Contradiction Juxtaposed

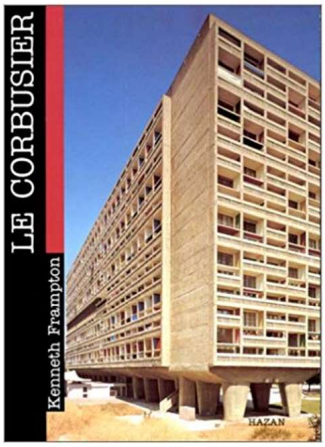
- The Inside and the Outside
- The Obligation toward the difficult whole

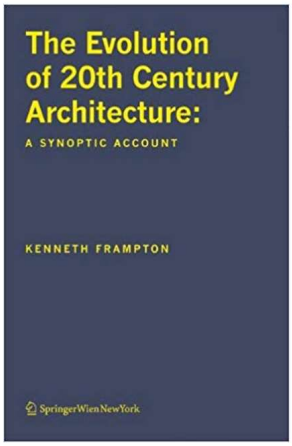


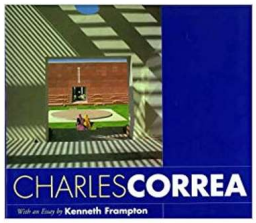
Critical Regionalism

Kenneth Brian Frampton (born 20 November 1930 in ,), is a British architect, critic, historian and the Ware Professor of Architecture at the Graduate School of Architecture, Planning, and Preservation at Columbia University, New York. Frampton is regarded as one of the world's leading architecture historians of modernist architecture.









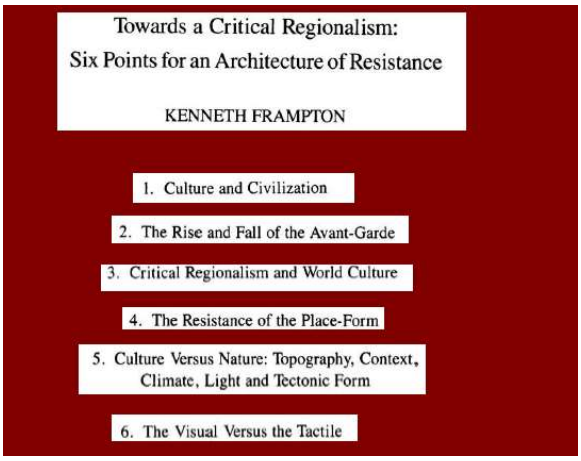
An approach to architecture that strives to counter the placelessness and lack of meaning in Modern Architecture by using contextual forces to give a sense of place and meaning.

- The term critical regionalism was first used by Alexander Tzonis and Liane and later more famously by Kenneth Frampton in *"Towards a Critical Regionalism:*
- *Six points of an architecture of resistance.“*
- Regionalism is an idea stuck to vernacular, and Modernism is about total newness
- Critical regionalism says,’do not copy vernacular as such, as the region/context does not exist anymore’. You are not disapproving regionalism, but being critical about it.
- Sometimes Regionalism goes back to just Conservatism and options to blind use of vernacular.
- But Critical Regionalism seeks architectural traditions that are deeply rooted in the local conditions.
- This results in a highly intelligent and appropriate architecture.
- In its broadest sense, then, the Critical Regionalist sensibility looks to the **uniqueness of site and location**
- a design method that is assuredly modern but relies on the organic unity of **local material,**

climatic, and cultural characteristics to lend coherence to the finished work.

- The result is an architecture suited to light and touch.

The architect should take clues from the topography and avoiding bulldozing in order toflatten space.Using top-lighting and exposing the elements ofconstruction, speaking more of the relationshipof the building to its space.



• "Fatehpur Sikri's courtyards always fascinated me, and the gardens of Bangalore influenced me.

If you pick up the gardens and put them in the courtyard, then the character changes. Instead of a courtyard that is dry and rigid, you make a green corridor, in which you can walk and be comfortable.

Of course, when I talked to the clients, I did not talk about Fatehpur Sikri. I talked about Madurai temple. I said there are courtyards, there are open spaces, and there are corridors, which are the focal points. I said that we will create a contemporary institution as important as the temple, as a temple of learning.

• it had to be done with local materials, to have a local identity, and working with local craftsmen is cheaper, and local materials are long lasting. That is how stone was used.

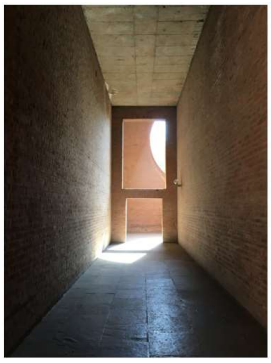
• I preferred that the building disappeared, and that you feel that you are only in spaces. The whole idea began with that: do you really want dominant architecture? Or architecture that merges with the society and becomes a part of society. There is a dialogue between the building, the space, and the people. That is the point."

B V Doshi on IIM Bangalore design

Critical Regionalism In india- Examples

- Modernist Architectural thinking in its context
- Frampton has visited city of Chandigarh, Delhi, Agra, Jaipur, and Ahmedabad, there is abundance of traditional architecture in India.
- Le Corbusier and Louis Khan responded to the context. Understanding issues like shading, passive ventilation, appropriate use of material and landscape
- Architects like B V Doshi,Bimal Patel ,Rahul Mehrotra are witnessed the Modern regional Architectural language





CEPT (Centre for Environmental Planning and Technology)

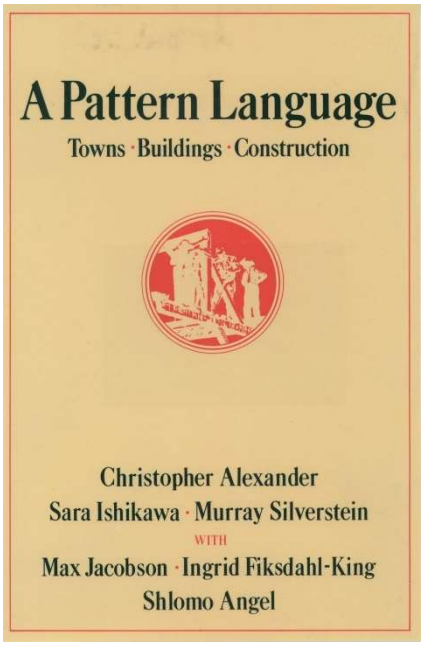
Pattern language

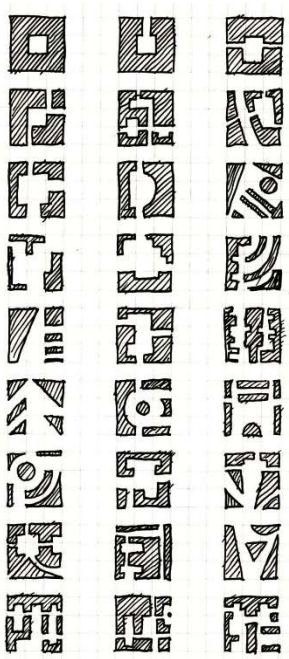
Christopher Wolfgang Alexander (born 4 October 1936 in Vienna, Austria) is a widely influential British-American architect and design theorist, and currently emeritus professor at the University of California, Berkeley. His theories about the nature of human-centered design have affected fields beyond architecture, including urban design, software, sociology and others.

Alexander has designed and personally built over 100 buildings, both as an architect and a general contractor. Alexander is regarded as the father of the pattern language movement.

A **pattern language** is an organized and coherent set of *patterns*, each of which describes a problem and the core of a solution that can be used in many ways within a specific field of expertise. The term was coined by architect Christopher Alexander and popularized by his 1977 book *A Pattern Language*.

*A **Pattern Language*** by Christopher Alexander is renowned for providing simple, conveniently formatted, humanist solutions to complex design problems ranging in scale from urban planning through to interior design. Created 253 patterns



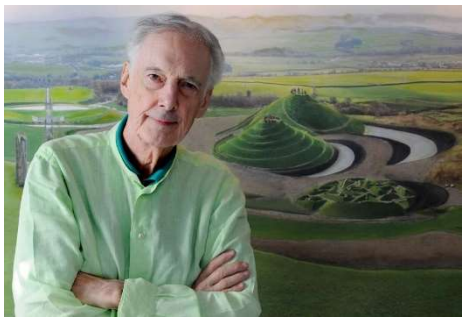


A Pattern language is a method of describing good design practices or patterns of useful organization within a field of expertise.

This text is also believed to be the most widely read architectural treatise ever published. For Christopher Alexander, it is most important to think about the people who will come in contact with a piece of architecture. One of his key values is making these people feel more alive. He talks about the "quality without a name" .

Alexander tried to show that architecture connects people to their surroundings in an infinite number of ways, most of which are subconscious. For this reason, it was important to discover what works; what feels pleasant; what is psychologically nourishing; what attracts rather than repels. These solutions, found in much of vernacular architecture, were abstracted and synthesized into the "Pattern Language"

Charles Jencks



Charles Jencks is a renowned cultural theorist, landscape designer, architectural historian, and co-founder of the Maggie's Cancer Care Centres. His best-selling books include The Language of Post-Modern Architecture, The Architecture of the Jumping Universe and The Architecture of Hope (on Maggie's Centres). His recent landscape work is summarised in The Universe in the Landscape. Scotland is home to several of his most exciting landscapes including The Garden of Cosmic Speculation and Jupiter Artland, outside Edinburgh.

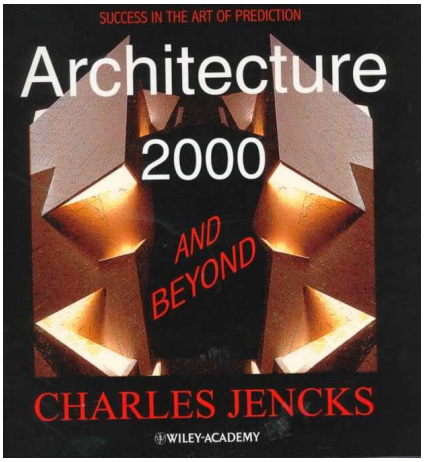
Charles Jencks Statement

To see the world in a Grain of Sand, the poetic insight of William Blake, is to find relationships between the big and small, science and spirituality, the universe and the landscape. This cosmic setting provides the narrative for my content-driven work, the writing and design. I explore metaphors that underlie both growing nature and the laws of nature, parallels that root us personally in the cosmos as firmly as a plant, even while our mind escapes this home.

Jencks discussed his theories of postmodern architecture in *The Language of Post-Modern Architecture* (1977), which ran to seven editions. He examined the paradigm shift from modern to postmodern architecture, claiming that modern architecture concentrates on univalent forms such as right angles and square buildings often resembling office buildings.

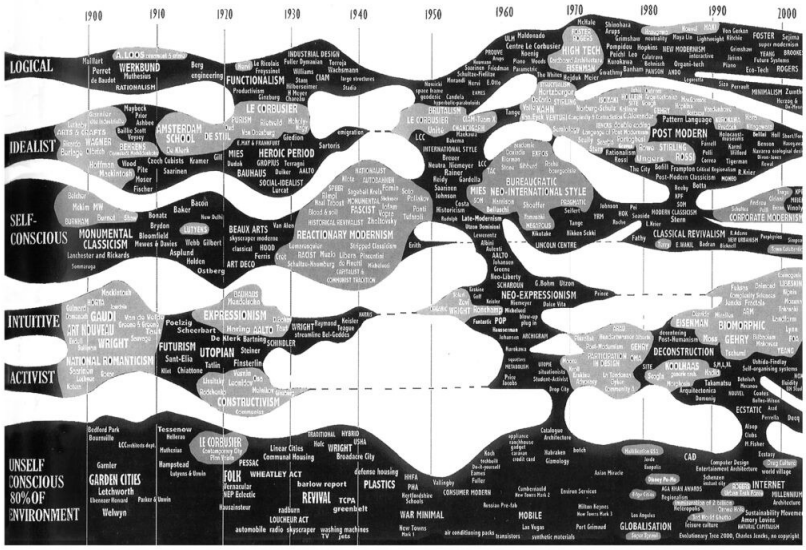
However, postmodern architecture focuses on forms derived from the mind, body, city context, and nature. In 2007, he published '*Critical Modernism*,' the fifth edition of his *What is Post-Modernism?* Jencks addressed issues of who is the ultimate user of architecture, what values should be crystallised in architecture, and what public architecture should represent. This was followed by other collections

on semiotics.



His book *Critical Modernism - Where is Post-Modernism Going?* came out in 2007. It is an overview of postmodernism in which Jencks argues that postmodernism is a critical reaction to modernism. This **classic of prediction**, written in 1969, has now been brought up to date, the **prophecies judges**, and the **omens extended to 203**0.The success rate of Jencks' forecasts and his method of combining expert prediction with structural analysis make this book an important contribution to the art of guesswork.
Not only did he **predict a series of innovations** that have changed the world, such as the Internet, but he **identified six main architectural traditions** that continuously transform over time. This provides a method of gauging what are likely to be the future movements in architecture, a useful and fascinating tool for speculation. No other book of forecasting is like it, a hypertext of retrospection, judgement and further prophecy.

Jencks defined the six major traditions that frame the development of architecture from the 'logical' to the 'idealist', the 'self-conscious', the 'intuitive', the 'activist' and the 'unself-conscious'.



Reference

http://www.architecturecourses.org/ introduction-history-architecture#:~:
https://www.youtube.com/watch?v=VGwVAxRHxgM
Brutalist-paper-architecture pdf
https://medium.com/@emilyrowlings/a-walking-city-archigram-and-ron-herron-7dbf2c8fae99
https://www.youtube.com/watch?v=v3HPCarhOyg
https://www.youtube.com/watch?v=LYHG_t7SF8E&t=22s
https://monoskop.org/images/ff/Sadler_Simon_Archigram_Architecture_without_Architecture.pdf
https://www.theartstory.org/movement/constructivism/
https://mymodernmet.com/what-is-bauhaus-art-movement/
https://www.worldofleveldesign.com/categories/architecture/constructivist_architecture/constructivist_architecture.php#:~:text=Constructivist%20architecture%20is%20a%20form,it%20are%20still%20seen%20today.
https://www.nbmcw.com/articles/architects-a-project-watch/1416-zaha-hadid-%09the-diva-of-deconstructive-architecture.html
https://en.wikipedia.org/wiki/Gentrification
http://www.historiasztuki.com.pl/kodowane/003-02-05-ARCHWSP-REGIONALIZM-eng.php

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT

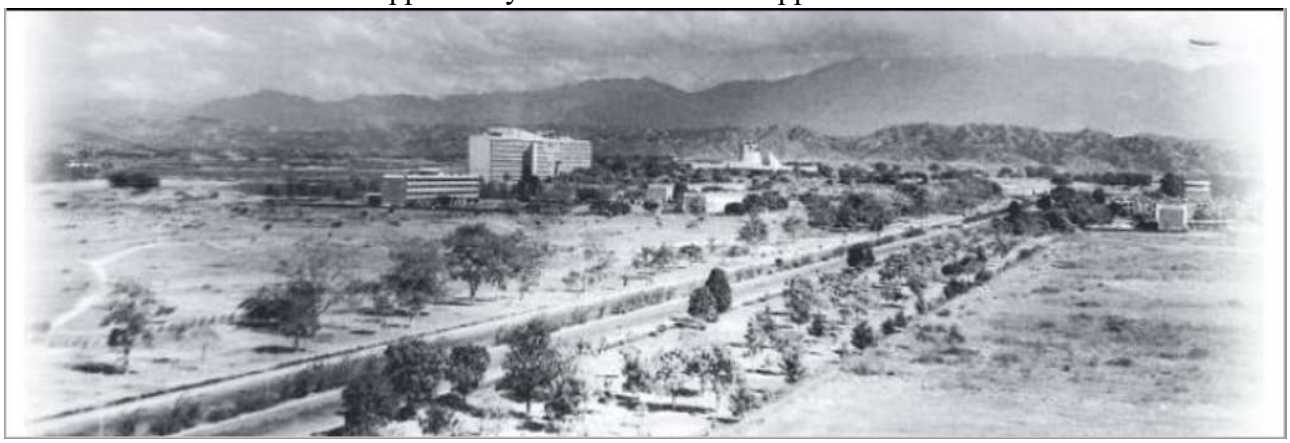
DEPARTMENT OF ARCHITECTURE

UNIT – II– Contemporary Directions in Architecture – SAR1405

II. UNIT 2

Works of the masters in India

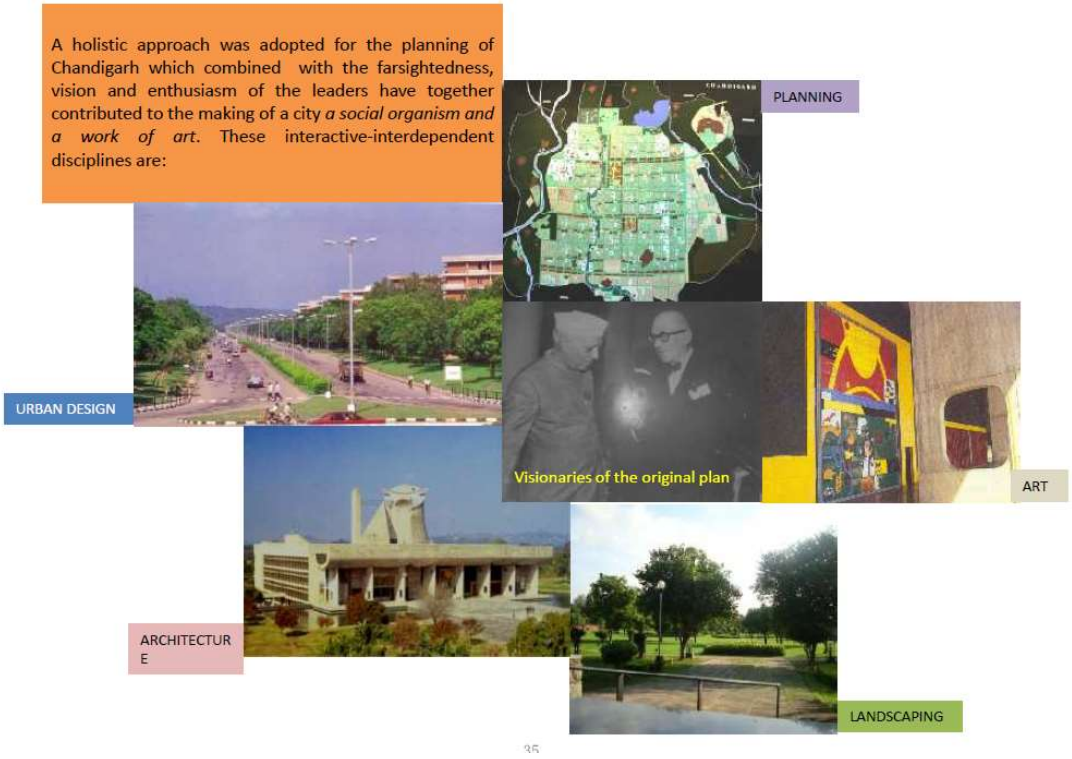
Chandigarh was the dream city of India's first Prime Minister, Jawaharlal Nehru. After the partition of India in 1947, the former British province of Punjab was divided into two provinces, East Punjab in India (mostly Sikhs and Hindus) and West Punjab in Pakistan (mostly Muslims). The Indian Punjab required a new capital because the former capital, Lahore, had become part of Pakistan after the partition.The city has one of the highest per capita incomes in the country. The city is the cleanest in India based on a national government study.In 2015, a survey by LG Electronics ranked it as the happiest city in India over the happiness index.



Location, extent and physiography

The Union Territory of Chandigarh is located near the foothills of the Shivalik Range in the north-western region of our country.

It has a geographical area of 114 sq. km.Chandigarh has a cold dry winter, hot summer and sub tropical monsoon**.**

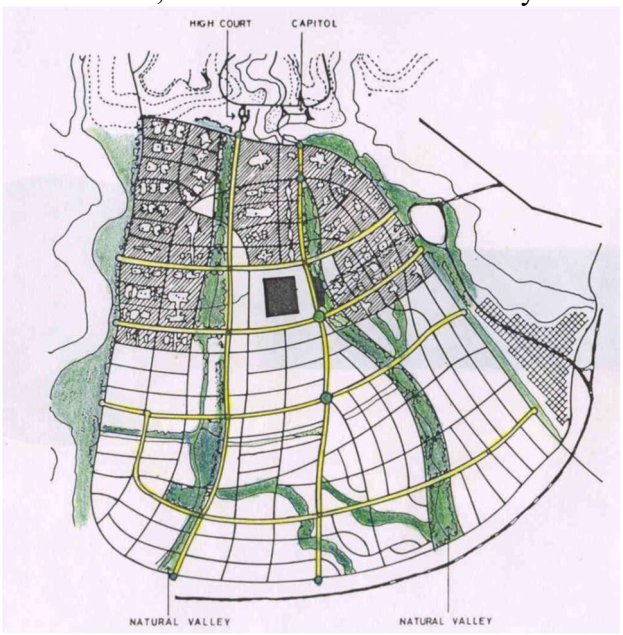


CHANDIGARH *Urban Planning Concepts*

- The city is located at the picturesque junction of foothills of the Himalayas Mountain range and the Ganges plains.
- It houses a population of 1,054,600 inhabitants (2001) and is one of the richest cities of the nation.
- American architects Albert Mayer and Mathew Noviwki were the first architects to be appointed for the project.
- After the death of Noviwki in 1950, Le Corbusier was commissioned.

Judicial Court and State Assembly Buildings designed by Le Corbusier

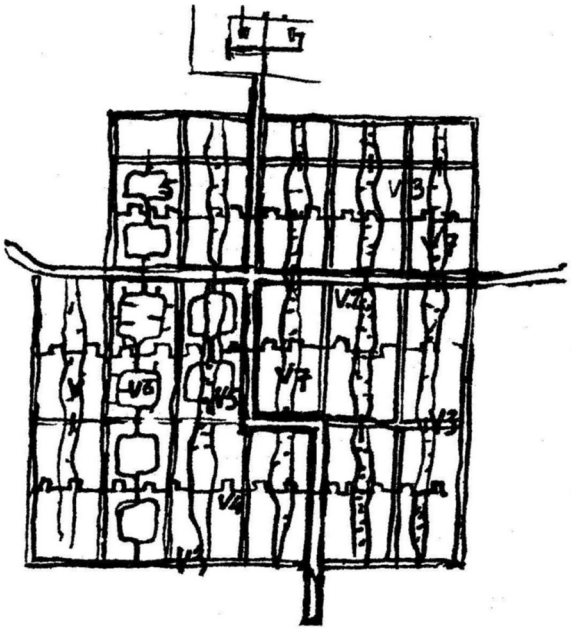
Most of the government buildings and housing in the city were designed by the Chandigarh Capital Project Team headed by Le Corbusier, Jane Drew and Maxwell Fry



Fan-shaped Master Plan proposed by Albert Mayer

GREEN CITY CONCEPT

Planned as a Green City with abundance of open spaces, Chandigarh ensures that every dwelling has its adequate share of three elements of Sun, Space and Verdure. Location of green belt was in north south direction to link all sectors with the Shivalik range of hills / mountains.

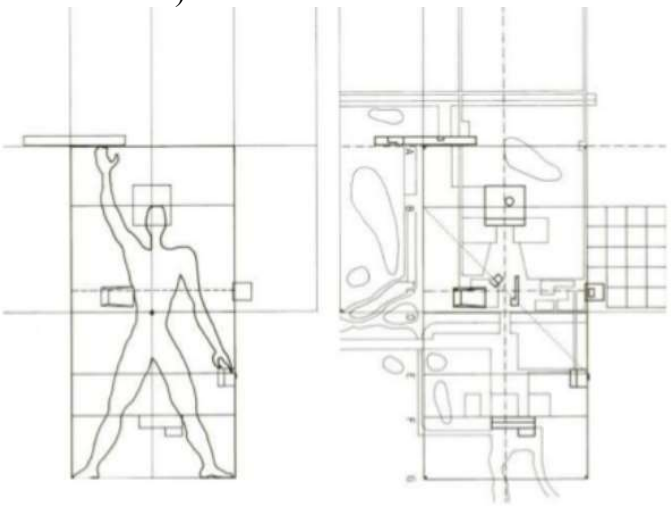


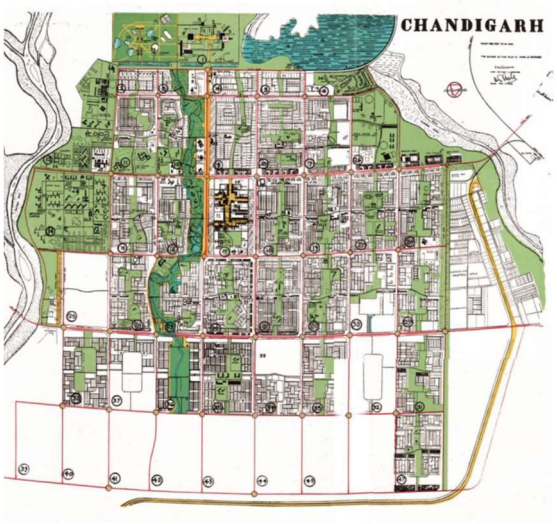
Grid-Iron Master Plan proposed by **Le Corbusier**

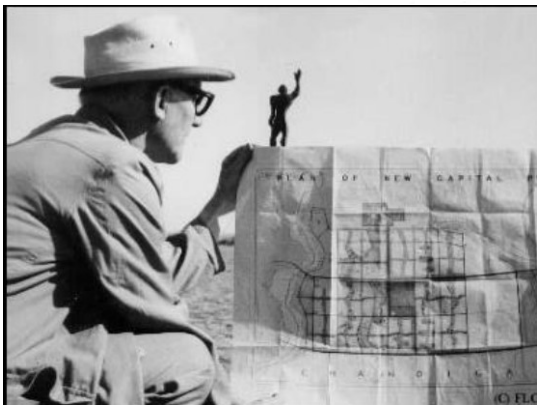
BASIC PLANNING CONCEPTS

The city plan was conceived as post war '**Garden City**' wherein vertical and high rise buildings were ruled out, keeping in view the living habits of the people.

- ***Le Corbusier*** conceived the master plan of Chandigarh as analogous to **human body**, with a clearly defined
- ***Head*** (the Capitol Complex, Sector 1),
- ***Heart*** (the City Centre Sector-17),
- ***Lungs*** (the leisure valley, innumerable open spaces and sector greens),
- ***Intellect*** (the cultural and educational institutions),
- ***Circulatory system*** (the network of roads, the 7Vs) and
- ***Viscera*** (the Industrial Area).



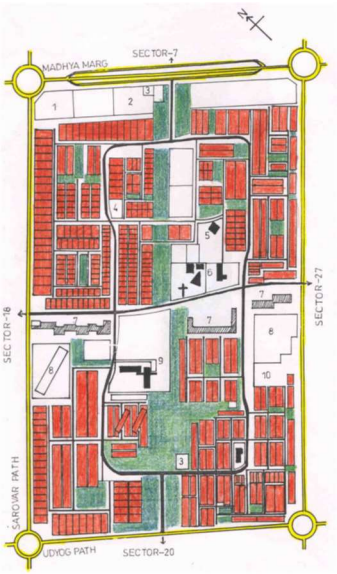




Corbusier's Master Plan
Rectangular Shape with grid iron pattern for fast traffic roads.
Economic constraints the master pan is divided into two phases catering –total Population of half a million
Phase 1-1-30 low density sector -9000 aces (sector 1 to 30) for 1,50,00o people
Phase II – high density sectors (sector 31 to 47) 6000 acres -3,50,000 people
Theories defining four major city-functions i.e. Living, Working, Care of Body & Spirit, and Circulation.

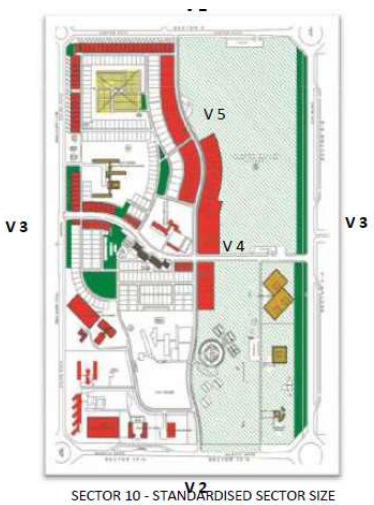
Working Areas – The Capitol Complex Sector 17, commercial belts along Jan Marg, Madhya Marg, Himalaya Marg , Udyog Path, Dakshin Marg.
Living - the Sectors
Care of body and spirit – Leisure Valley, Sukhna Lake, parks, green belts, cultural belts and the educational belts
Circulation – the 7v network of roads on a modular grid iron pattern .

BASIC PLANNING CONCEPTS



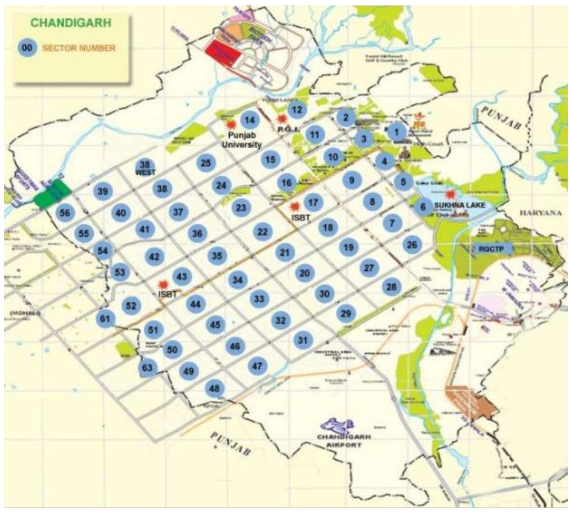
The primary module of city's design is a **Sector**, a neighborhood unit of size 800 meters x 1200 meters.
Each SECTOR is a self-sufficient unit having shops, school, health centers and places of recreations and worship
The population of a sector varies between 3000 and 20000 depending upon the sizes of plots and the topography of the area.

Layout of a typical residential sector



SECTOR 10 - STANDARDISED SECTOR SIZE

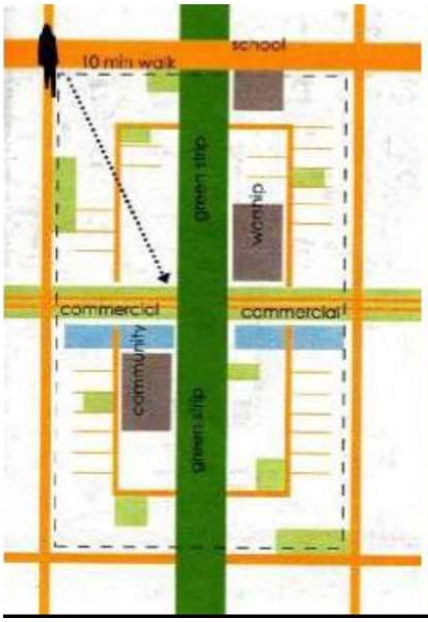
SECTOR 2 IN THE NORTHERN REGIONAL BELT



Circulatory system (the network of roads, the 7Vs)

- **(V1)-Fast roads connecting Chandigarh to other towns)**
- **(V2)-arterial roads**
- **(V3)-Fast Vehicular roads around the sectors**
- **(V4)-Meandering shopping streets**
- **(V5)-Sector circulation roads**
- **(V6)-Access roads to houses**
- **(V7s and V8s)-Footpaths and cycle tracks**

View of typical Roads and Round-abouts in the city



Sector size - 800m x 1200 m determined by maximum 10 minute walking distance from facilities

Introvert planning with sealing walls along main roads so as not to be disturbed by the fast vehicular traffic outside

Emphasis on family life and community living

Schools along green belts safe for children, dispensaries, shopping, community centres, centrally located in 10 minutes walk and bus stops on main road within walking distance.

Parks within 300m

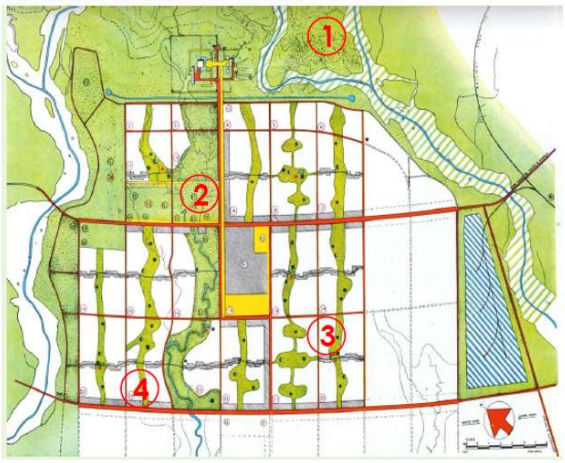
Meandering profile of the V4/V5 to enable slow carriageways

Comfortable vehicular and pedestrian access right to the doorstep of the house

Inter-sectoral connectivity along NS green belts.

Sector Size determined by Walking Distance

BASIC PLANNING CONCEPTS



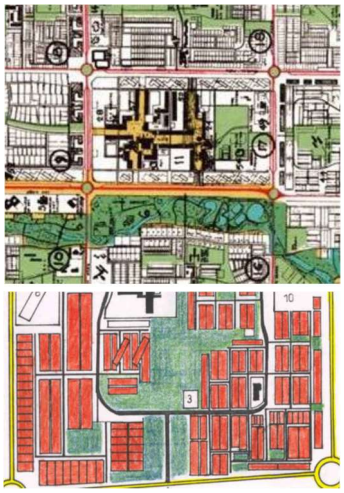
HIERARCHY of GREEN AREAS

A Hierarchy of Green Spaces can be observed in both the layout ranging from Public Greens at City Level to Semi-Private to Private Green Areas.

The *Leisure Valley* is a green sprawling space extending North-East to South-West along a seasonal riverlet gradient and was conceived by Le Corbusier as the lungs of the city.

Apart from large Public Parks and special Botanical Gardens, it houses series of Fitness Trails, amphitheatres and spaces for open-air exhibitions.

CENTRAL PUBLIC COMPLEX & BUILDING TYPOLOGIES



The **Central Sector** of the city, Sector 17, is the main Public Congregation area of the city.
It houses all major Shopping Complexes, Sports Facilities and Congregation Spaces. The Basic Building Typology is observed as extremely Rectilinear with similar proportions.

In both the developments the smaller individual Residential Units are arranged around central common Green Spaces, although the shapes are different.

Housing

Every House to have 3 elements-Sun,Space & Greenery

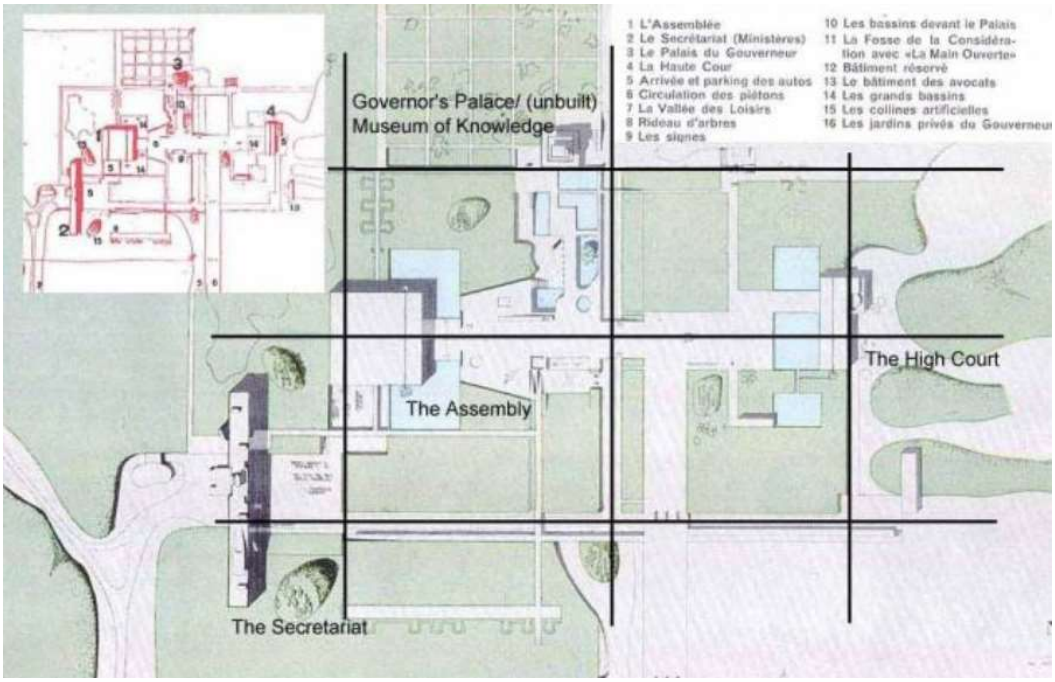
Government Housing-13 Caregories

Private Housing

Plot area 114sq.m to 4500 sq.m

<u>Chandigarh has 4 main work centres</u>

- The Capitol Complex
- The Educational Institutes-Nort west
- The City Centres in the heart
- The Industrial Area in the south east



Capitol Complex



Bhubaneswar

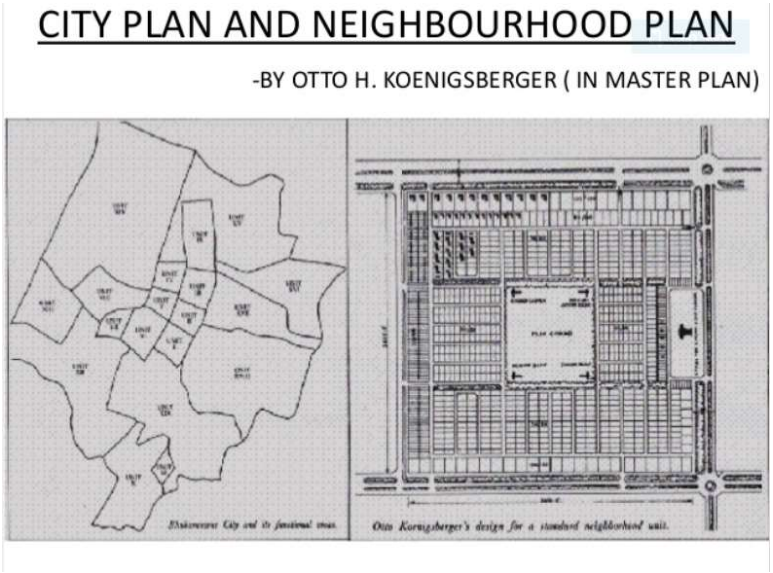
Sir Otto H Koenigsberger,1954


Otto Königsberger - A pencil sketch by Sarbjit Bahga

- The city is designed for a population of 40000 people
- Salient features like an air field, a railway line
- Concept to transform –traditional India into a modern welfare state
- Visualization –Horizontal plan-Budget constraints
- Demanded of decentralization –use of the neighbourhood units

Neighbourhood Concept:

- "group of houses", large enough to afford major urban amenities like school, dispensaries, shopping centres, entertainment, public libraries, etc but at the same time small enough to keep all these amenities in convent walking distances for the inhabitants and to preserve the main advantage of rural life: the immediate neighbourhood to the open country



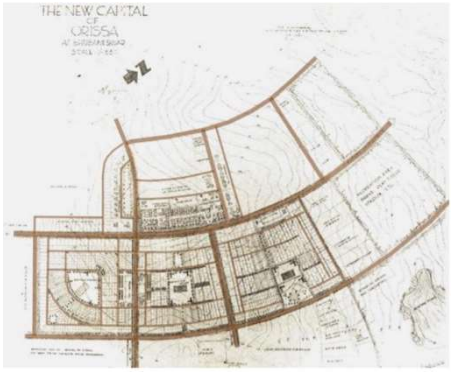


Fig. 1: Different types of roads for different groups of users and for different functions.
Source: Otto Koenigsberger's map annotated by author

The low-scaled neighbourhood planned city was to accommodate the requirements of modern life. Out of the eleven principles that the planner believed and integrated in the plans of Bhubaneswar, one of the main concepts was to bind the city within convenient walking distances.

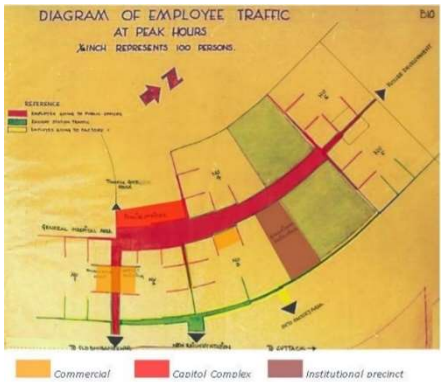


Fig 2: Diagram for traffic flow during peak hours.
Source: Otto Koenigsberger's map annotated by author

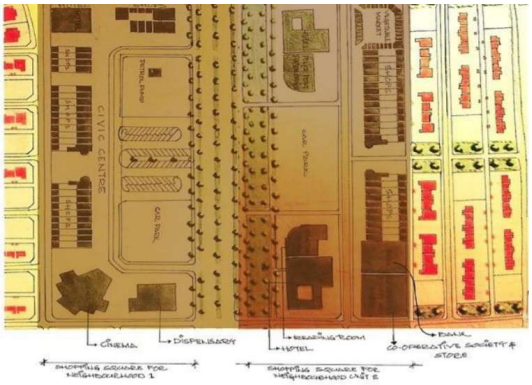


Fig 4: Market Building, Unit 1, Detailed Plan.
Source: Otto Koenigsberger's map annotated by author.

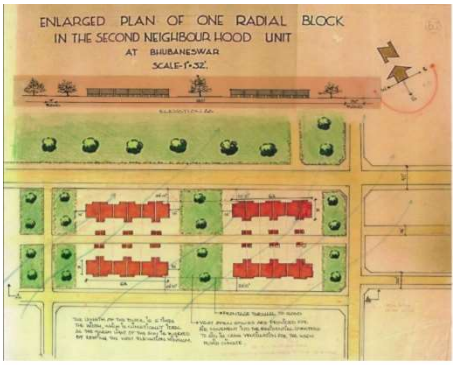
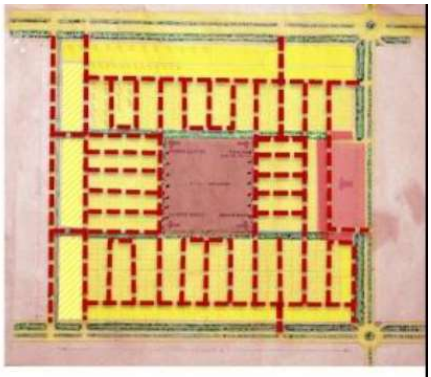


Fig 5: Detailed Residential Plan within the Neighbourhood.
Source: Otto Koenigsberger's map annotated by author.

Similarly, Jane Jacobs, who critiques neighbourhood planning and modern city building, explains: Koenigsberger's approach to the street as commute is analysed further through three parameters:
(1). Planning streets to keep the safety and lively factors activated within the neighbourhood units.
(2). Understanding the role of "traffic" within the planned city.
(3). Clearly defining the seven different types of roads for seven different groups of users and for seven different functions.
The ideas of the planner allow for major future development in the city and opens up scope for incorporating newer transport planning within the urban fabric, irrespective of whether the town would have electrical trains, electric tram lines, electric trolley buses, petrol, diesel oil or producer gas driven vehicles.



Typical Unit Plan

Overall design-one main traffic artery to which the neighbourhood units are attached like the branch of tree.The Neighbourhood-connected to the main artery with the main centre or centres of business and professional life.Capitol complex or the central group of public buildings is the unifying focus

Six units were designed at first place and public utilities like market,hospital ,fire station were distributed in each unit

In contrast to the Old Town, the land under different uses are segregated from each other so that the foul smell, smoke or dust of an industry does not affect the residential areas nor the crown and noise of a commercial area affect the silence and seriousness of an administrative and educational area

Arterial Road (200 ft)-wide with earthen flanks or foot path of 10 feet on each side and provided with drains and plantations.

The Major unit roads -150 feet in width with earthern flanks,drains and plantations on each side

The Major Housing Streets-collect the internal traffic of housing units and transmit to the major and arterial roads .the width of such roads is **100 ft**-provided with earthern flanks and drains

The width of minor housing streets varies between **30ft and 40 ft** depending upon the mportance of the locality.

Key Factors stressed by Nehru

- Neither caste nor socio economic segregation to exist
- Gender equality to be stressed
- Climate and context to be emphasized
- Idea of reducing differences between rich and poor

Planning Principles:

City laid out in a linear fashion

Central artery –main spine.Neighbourhood units-attacjed

Each Neighbourhood unit accommodated major amenities of life –Schools,clinic,shopping centers,libraries,etc

Easy walking distance even for a kid

Fairly high density unit can hold up to 5000 to 6000 people

Each unit planned around educational & recreational area.

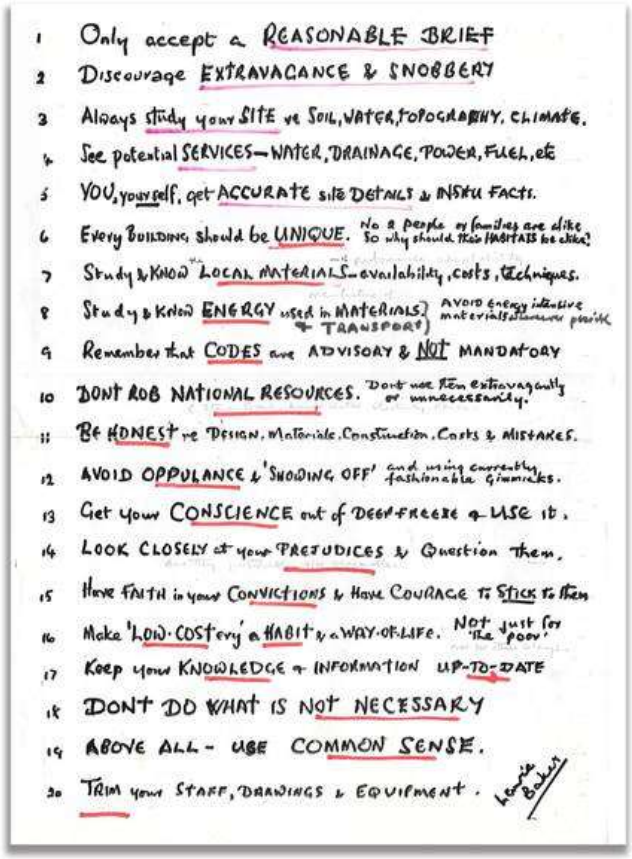
Shopping center for every two units

Central shopping district near railway station

	CHANDIGARH	BHUBANESWAR
YEAR	**Foundation laid by Nehru in the year 1947.**	**Foundation laid by Jawaharlal Nehru on April 13, 1948**
AREA	**Chandigarh covers an area of approximately 114 km².**	**Bhubaneswar covers an area of approximately 92 km².**
POPULATION	**The city was designed for 500,000 people**	**The city was designed for 40,000 people**
ARCHITECT	**Le Corbusier, the famous French Architect and planner**	**OTTO KOENIGSBERGER, German architect, planner and Egyptologist**
CONCEPT	**Le Corbusier conceived the master plan of Chandigarh as analogous to human body**	**The concept of "action planning" - community**
ZONING	**The primary module - Sector, a Neighborhood unit of size 800 meters x 1200 meters. Each SECTOR is a selfsufficient unit. The population of a sector varies between 3000 and 20000**	**Each Neighborhood unit accommodates major amenities.Easy walking distance even for a child. Fairly high density unit can hold up to 5000 to 6000 people**

	CHANDIGARH	BHUBANESWAR
RESIDENTIAL	*Modular type residence*	*To avoid boredom and uniformity the Neighborhood units are designed individually with the object of giving it a Distinct character.*
INSDUSTRIAL	*Industrial sector has been concentrated more.*	*Less concentration has been given to industrial sectors*
COMMERCIAL	*Main commercial zone has been designed and each residential zone was designed with small Commercial complex*	*each residential zone was designed with small Commercial complex*
TRANSPORTATION	*The roads of the city are classified into seven categories, known as the system of 7 Vs*	*Four categories of roads have been adopted for the city*

Contribution of Master Architect in India
"Laurie" Baker


1 Only accept a REASONABLE BRIEF
2 Discourage EXTRAVAGANCE & SNOBBERY
3 Always study your SITE re SOIL, WATER, TOPOGRAPHY, CLIMATE.
4 See potential SERVICES — WATER, DRAINAGE, POWER, FUEL, etc
5 YOU, yourself, get ACCURATE site DETAILS & INSITU FACTS.
6 Every Building should be UNIQUE. No 2 people or families are alike. So why should their HABITATS be alike?
7 Study & KNOW LOCAL MATERIALS — availability, costs, techniques.
8 Study & know ENERGY used in MATERIALS & TRANSPORT. Avoid energy intensive materials wherever possible
9 Remember that CODES are ADVISORY & NOT MANDATORY
10 DONT ROB NATIONAL RESOURCES. Don't use them extravagantly or unnecessarily.
11 Be HONEST re DESIGN, Materials, Construction, Costs & MISTAKES.
12 AVOID OPPULANCE & 'SHOWING OFF' and using currently fashionable Gimmicks.
13 Get your CONSCIENCE out of DEEP FREEZE & USE it.
14 LOOK CLOSELY at your PREJUDICES & Question them.
15 Have FAITH in your CONVICTIONS & Have COURAGE to STICK to them
16 Make 'LOW-COST' a HABIT & a WAY-OF-LIFE. Not just for the poor!
17 Keep your KNOWLEDGE & INFORMATION UP-TO-DATE
18 DONT DO WHAT IS NOT NECESSARY
19 ABOVE ALL - USE COMMON SENSE.
20 TRIM your STAFF, DRAWINGS & EQUIPMENT. Laurie Baker

COSTFORD (Centre of Science and Technology for Rural Development), an organisation to promote low-cost housing.
Laurie has been called the "Gandhi of architecture."
Also Known as Poor man's Architect

CONSTRUCTION TECHNIQUES

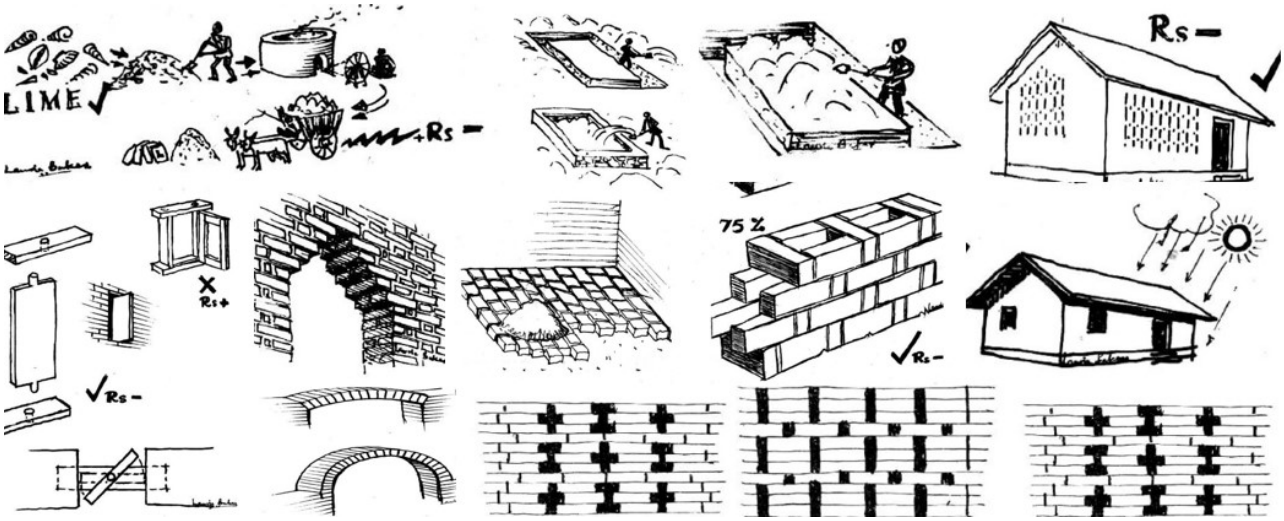
- Rat trap bond, the gap between the bricks acts as the insulation.
- Filler slab- light weight roof
- Use of arches
- Irregular, pyramid-like structures on roofs, with one side left open and tilting into the wind.
- Brick jalli walls, a perforated brick screen for natural air movement and create patterns of light and shadow.
- sloping roofs and terracotta Mangalore tile with gables and vents allowing rising hot air to escape
- curved walls to enclose more volume at lower material cost than straight walls.

buildings should be made from materials sourced within a five mile radius of the site

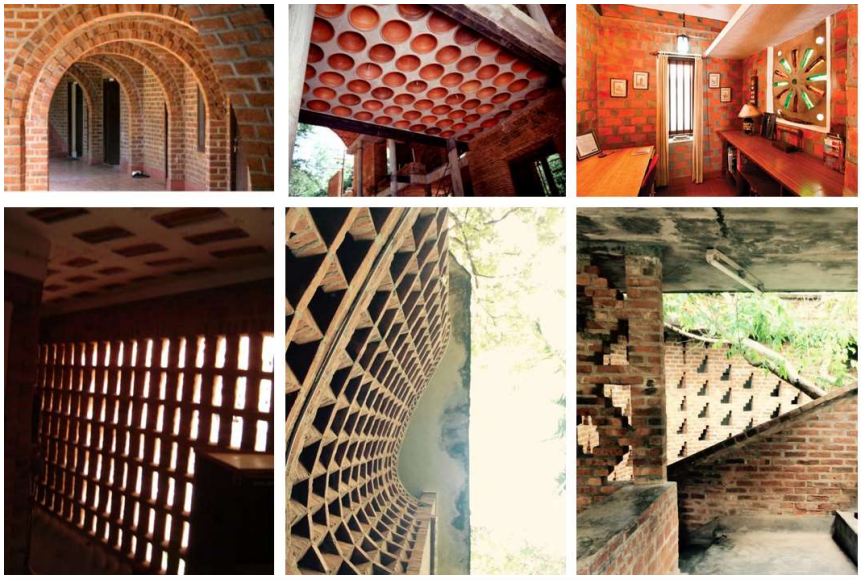


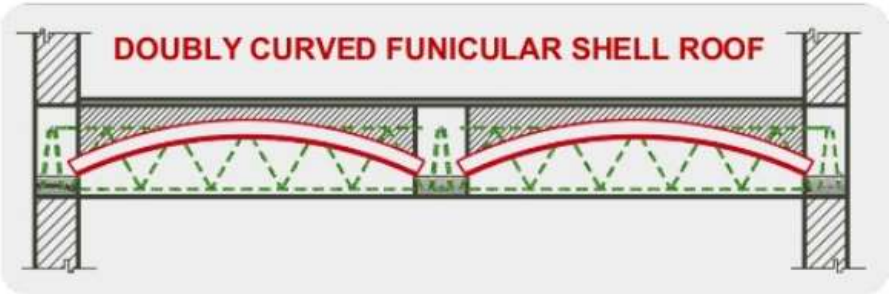
COST-EFFECTIVENESS

- Use of locally available materials
- With respect to nature, he designed the building.
- Avoidance of energy-intensive materials
- Wastage minimization to create low-cost, beautiful, high quality buildings achieving eco-friendliness and sustainable architecture.



- He used only clay excavated onsite to make good country bricks.
- Five thousand, even ten thousand were moulded using the building site's clay.
- These were stacked to form a cube which was then fired, producing reasonably strong red bricks.
- There was no need to transport materials onto the site, and the hole from the excavated clay became a pond for water conservation during construction.
- The onsite brick production method was a sustainable, low skilled, and low cost method of construction, and Laurie loved it.
- He could always use less bricks to achieve more
- He could provide security and privacy while toying with light and shadow.
- He would bend brick walls in places to create columns to support overhead roofs – negating the need for concrete columns.
- he would always favour an arch or dome above an opening so as to do away the need for added beams and lintels.
- He was always looking for ways to reduce the amount of material required.
- He laid his bricks using a 'rat trap' bond — an adaptation of Flemish bond — that uses 25 percent less bricks by leaving a cavity between the wall surfaces.
- Whenever a concrete slab was required, he would fill the lower portion of it with old roofing tiles or other reclaimed materials to reduce the amount of concrete needed.



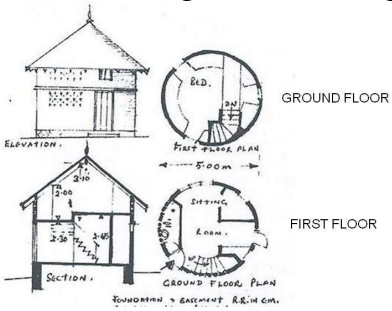


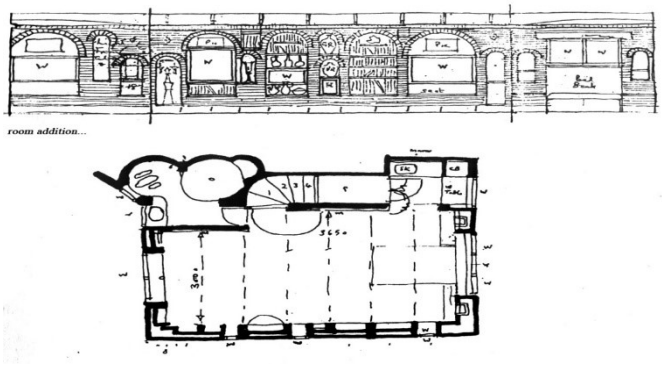
Filler slab : Advantages:
20-35% Less materials
Decorative, Economical & Reduced self-load
Almost maintenance free
25-30% Cost Reduction
Arch : Advantages :
Energy saving & Eco-Friendly compressive roofing.
Decorative & Highly Economical
Maintenance free
Masonry Dome, Advantages:
Energy saving eco-friendly compressive roof.
Decorative & Highly Economical for larges spans.
Maintenance free
Funnicular shell : Advantages:
Energy saving eco-friendly compressive roof.
Decorative & Economical
Maintenance free
Masonry Arches : Advantages:
Traditional spanning system.
Highly decorative & economical
Less energy requirement.

Example

LAURIE BAKER'S HOUSE, "THE HAMLET" LOW COST HOUSING

- THE HAMLET, Baker's own residence is called 'The Hamlet'.
- It has been built in Thiruvananthapuram, built on a steeply sloping and rocky hillside that hardly had any vegetation when Baker started construction.
- Baker has truly adopted his motto to "make low-cost habit and a way of life" by reusing everything, from brick to glass bottles, as building materials.
- First he built a single room hut of timber, which consists of the library of medical books & also as bed room, living room , drawing room & study. And later the plan was extended





- The site was highly contoured and rocky, but baker did not disturb even a single rock or a tree. The hamlet' has been built on a steeply contoured site

LOW COST HOUSING

- Baker always designed to utilize sunlight effectively and minimize the need for artificial lighting.
- He made an extensive use of timber in his house, like in the living room of house, the detailing in wood and mud bricks are wonderful.
- This door is made from two traditional old Kerala doors that was torn down which baker bought and joined together to create this unique door

- Simple yet beautiful windows of Baker's type made from waste wooden planks and grills made of thrown away metal pieces.


- Another cost effective window is Typical traditional tiling used in South India mostly in areas where sloped

- Baker's innovative use of discarded bottles, inset in the walls giving a very good effect of light and creating an illusion of stained glass.

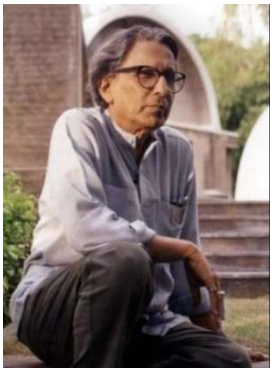
- A jali wall Creative wall fixtures

- He uses inbuilt furniture's

Contribution of Master Architect In India –Ar B V Doshi

Le Corbusier´s five points of a new architecture

1. The Pilotis. A grid of concrete or steel columns replaces the load-bearing walls and becomes the basis of the new aesthetics. ...
2. The roof garden. Both as a kitchen garden and as a sun terrace. ...
3. The free ground plan. ...
4. The horizontal windows. ...
5. The free façade.



Balkrishna Vithaldas Doshi, (born 26 August 1927) is an Indian architect. He is considered to be an important figure of Indian architecture and noted for his contributions to the evolution of architectural discourse in India.Having worked under Le Corbusier and Louis Kahn, he is a pioneer of modernist and brutalist architecture in India. In 2018, he became the first Indian architect to receive the Pritzker Architecture Prize, which is considered one of the most prestigious prizes in architecture

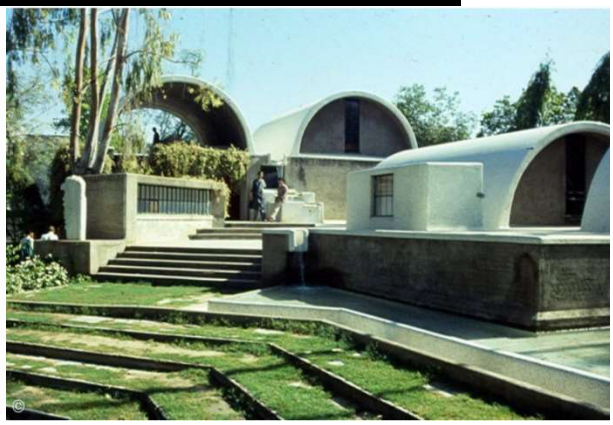
PHILOSOPHIES:

- Architecture of a building is conceived not as a container of specific activities but as a place to be inhabited, as a place to facilitate the course of human environment
- Doshi's work has consistently revolved around the Interrelationship of indoor and outdoor space, an appropriate and honest approach to materials, proper climatic response and observance of hierarchy and order that has always been present in the best modern architecture
- A 'filter' between contemporary and traditional architecture which Doshi has masterfully brought in.

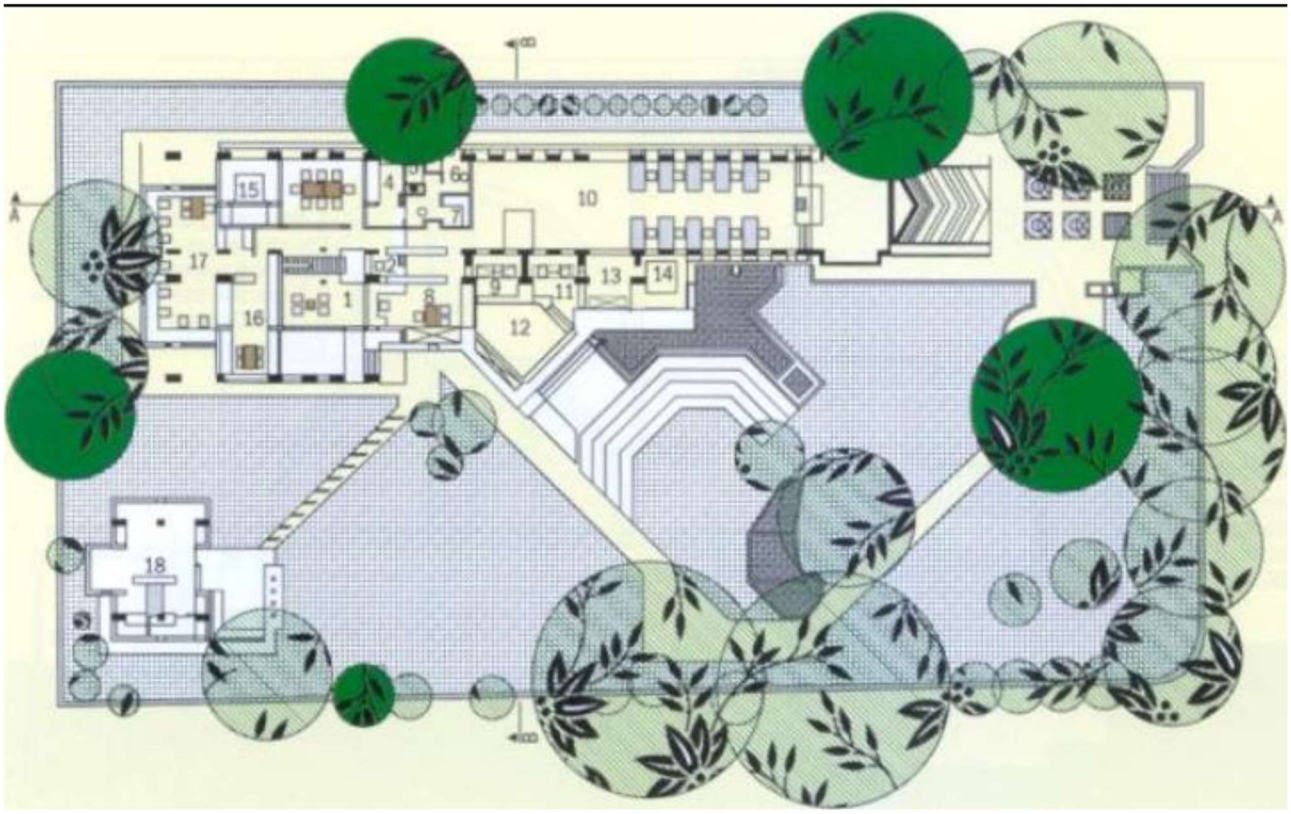
PRINCIPLES:

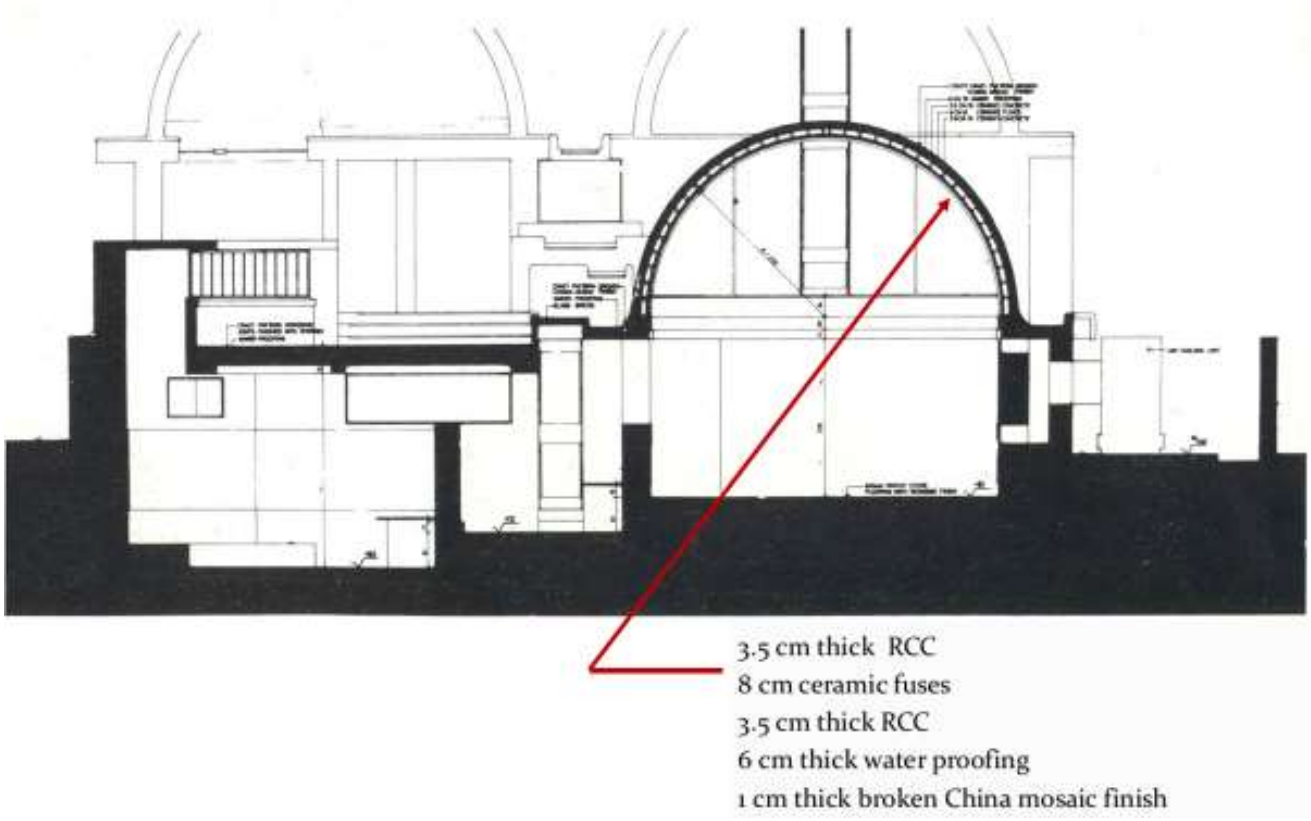
1. 'Mythical Sense' of space
2. Vaastu-Purusha Mandala
3. Transformation of Energy
4. Human Institutions
5. flexible rather than rigid approach to the structure
6. Symbolism
7. Amorphous rather than finite forms"
8. Timelessness

SANGATH means "moving together through ."Participation
It is an architect office
Location: Thalte Road,Ahmedabad 380054
Client: Balkrishna Doshi
Period of construction: 1979-1981
Project Engineer: B.S. Jethwa, Y. Patel
Site area: 2346 m2
Total Built-up Area: 585 m2
Project Cost: Rs. 0.6 Million (1981)



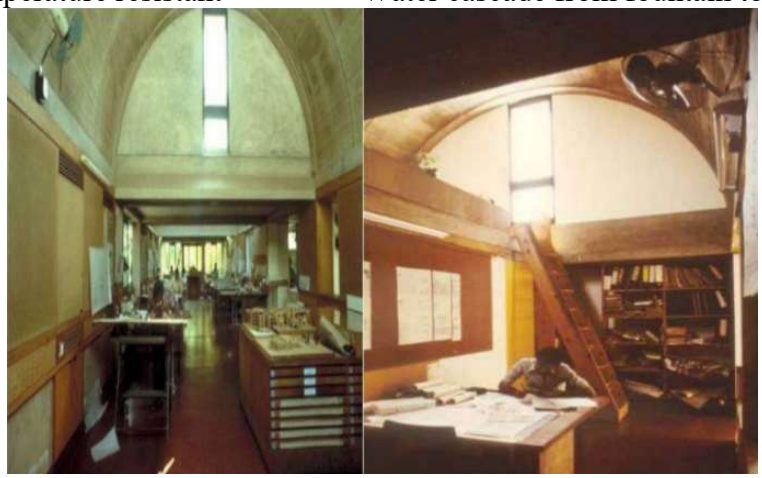
Designed by Vastu Shilpa Foundation





Ceramics are temperature resistant

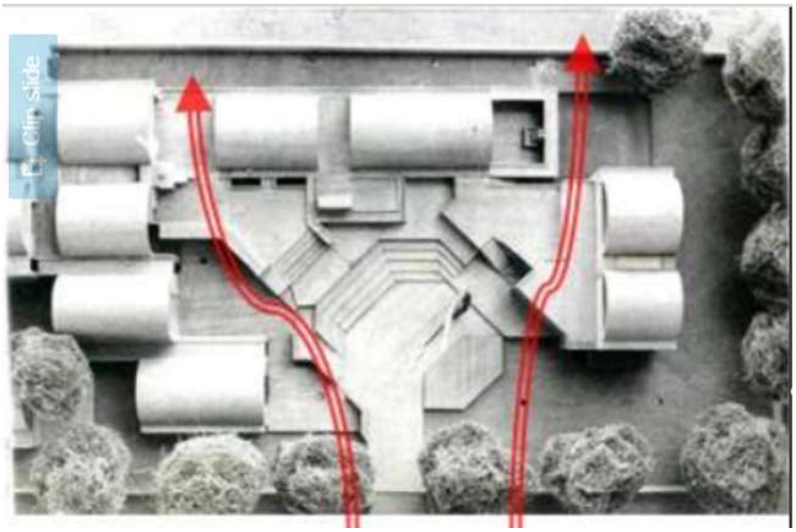
Water cascade from fountain to series of channels



Diffused Light

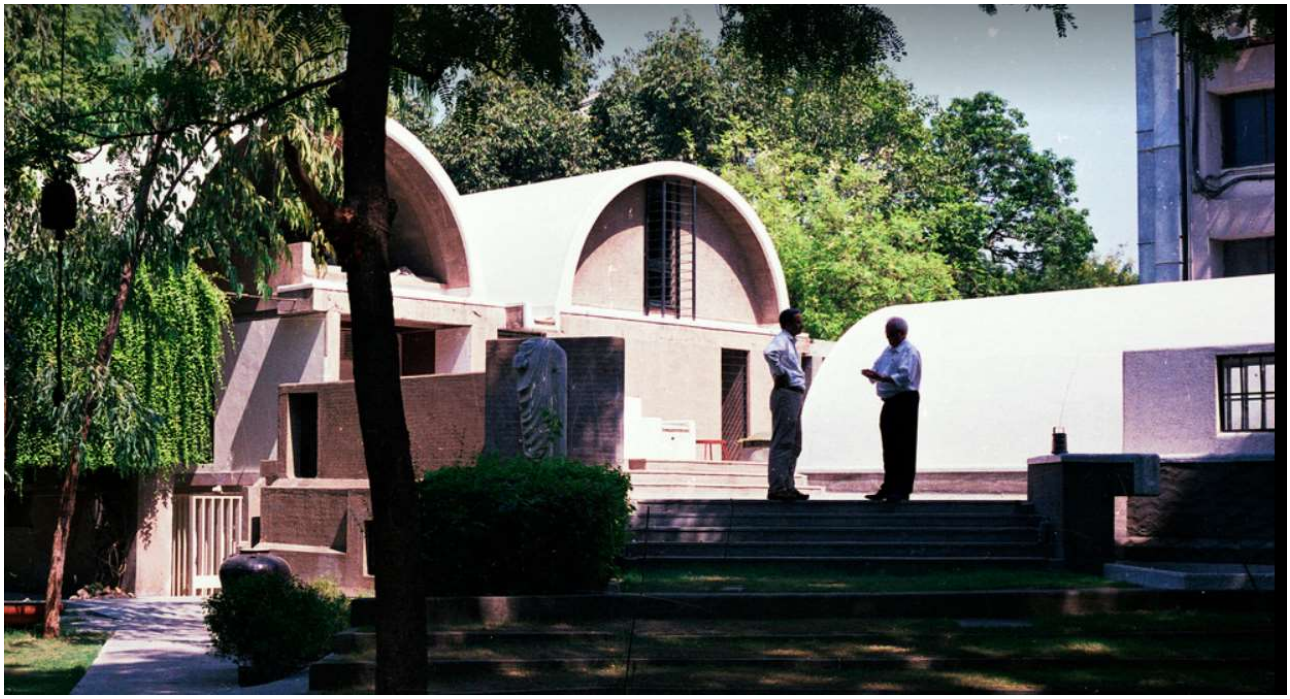
Design Concept and Features
Design Concern of climate
Extensive use of vaults
Features

- Very less of mechanical instruments
- Special materials are used resulting in a low cost building costing
- Continuity of spaces
- Complete passive design
- Lot of vegetation and water bodies
- Use of diffused light



Site Planning:

Maximizing Wind Flow : Wind from West and South-West side is taken in by juxtapositioning structures so as to create a central open space through which wind can flow unobstructed.



Contribution of Master Architect In India –Ar Charles Correa

Charles Mark Correa (1 September 1930 – 16 June 2015) was born an Indian architect and urban planner. in Secunderabad Credited for the creation of modern architecture in post-Independent India, he was celebrated for his sensitivity to the needs of the urban poor and for his use of traditional methods and materials.In 1958, Charles Correa established his own professional practice in Mumbai.

Work

Charles Correa designed almost 100 buildings in India, from **low-income housing** to **luxury condos**. He rejected the glass-and-steel approach of some post-modernist buildings, and focused on designs deeply rooted in local cultures,

Contribution of Master Architect In India

Projects

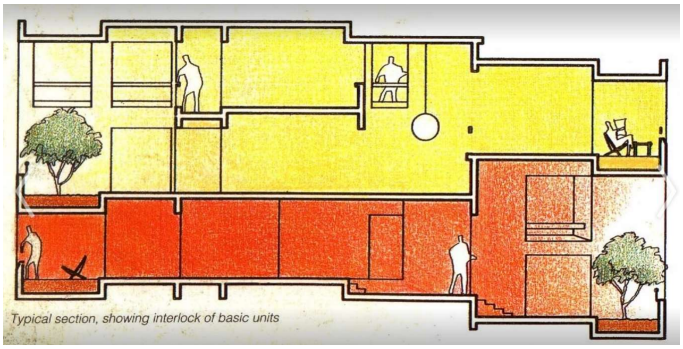
Mahatma Gandhi Sangrahalaya Mahatma Gandhi Memorial	Sabarmati Ashram, Ahmedabad
Tube House	Ahmedabad
Madhya Pradesh Legislative Assembly	Bhopal
Kala Academy	Goa

And many more.....

Kanchenjunga Apartment

Began: 1970
Completion: 1974
Architect : Charles Correa
Associate Structure Engineer : Shirish Patel & Association Construction Pvt.Ltd
Structure Type : High Rise Building
Location : India, Mumbai, Cumballa Hill
Height : 84 Metres
Floor : 27
Function : Housing (Residential)
Type : Modern Structure
Material : Concrete
Architecture Style: Modern, Brutalism

The Kanchanjunga Apartments are a direct response to the present culture, the escalating urbanization, and the climatic conditions for the region.In Mumbai the building as to be oriented east-west to catch the prevailing sea breezes. The best view that can be seen from a skyscraper are also located in east (Arabian sea), and the west (harbour).Unfortunately, these are also the directions of the hot sun and the heavy monsoon rains. So he designed the two floor high loggias, because they make it possible to have aview from inside apartments to the harbour and the Arabian sea, but they function as a protection against direct sunlight.



FACADE :

The garden terraces of Kanchanjunga apartments are actually a modern interpretation of a feature of the traditional Indian bungalow; Veranda.

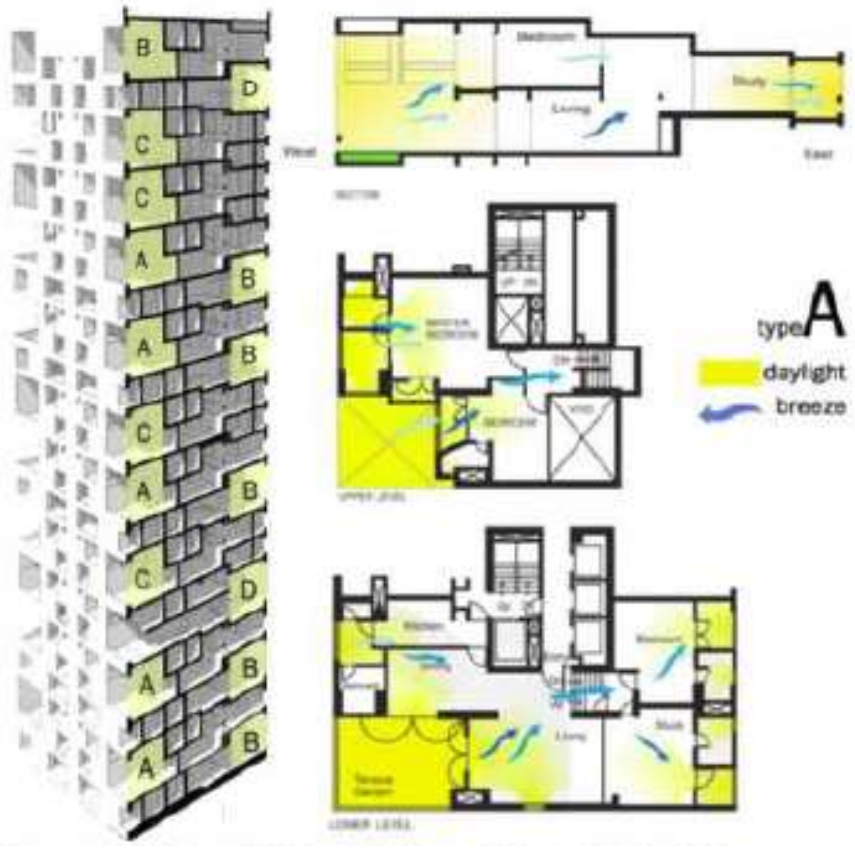
In India and other Asian countries, one finds predominance of reds and yellows. This tower attracts & deserves attention. The facade is also performed in reinforced concrete. Living there is a pleasant for its inhabitants, because they have lot of space and their own terrace garden.

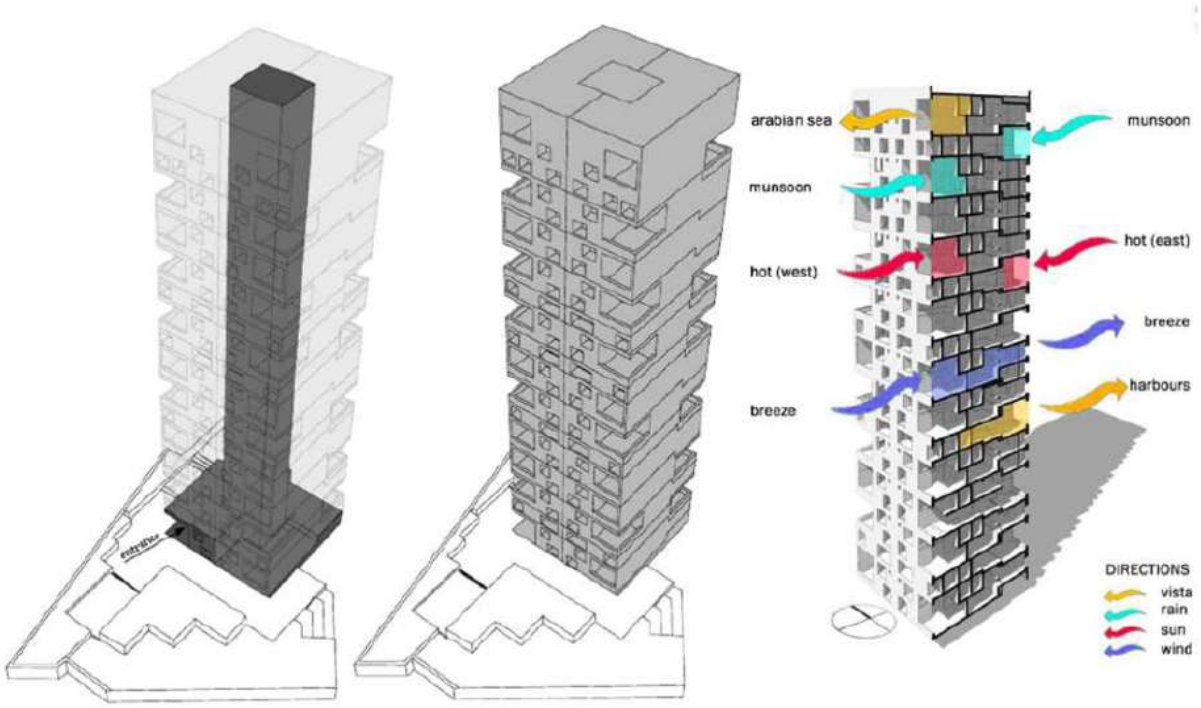
STRUCTURAL SYSTEMS :

The two concrete construction form a tube in tube system which gives structural stability against the lateral load. External wall is also treated with concrete to support the cantilevered terrace portion.

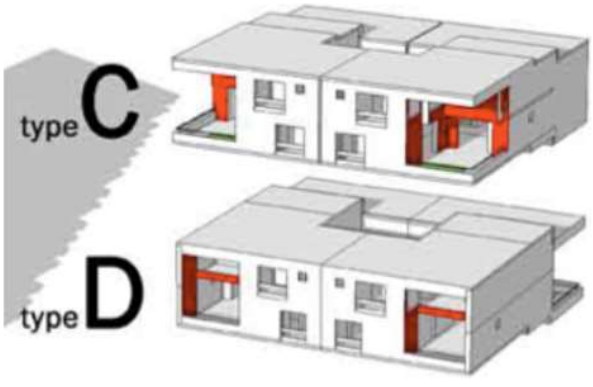
TRANSPERANCY IN DESIGN :

Great deal of transparency has been achieved by the use of large opening & terrace garden. Correa has rarely been tempted to import Western ideas into India. His response to Mediterranean sun with his "great sculptural decisions (the over-hangs, the double heights) placed facing the element.




arabian sea
munsoon
munsoon
hot (east)
hot (west)
breeze
harbours
breeze
DIRECTIONS
vista
rain
sun
wind


type A
type B


type C
type D

Reference
http://spa.ac.in/writereaddata/Chandigarh.pdf
https://landlab.files.wordpress.com/2011/04/chandigarh-qt8.pdf
https://www.archdaily.com/806115/ad-classics-master-plan-for-chandigarh-le-corbusier
ISVS e-journal Vol 1
https://www.youtube.com/watch?v=r6ni3aFraXE
https://www.youtube.com/watch?v=A3aqLWHZ108
https://identityhousing.wordpress.com/2009/12/03/charles-correa-kanchanjunga-apartments-cumballa-hill-mumbai-1970-1983/

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT

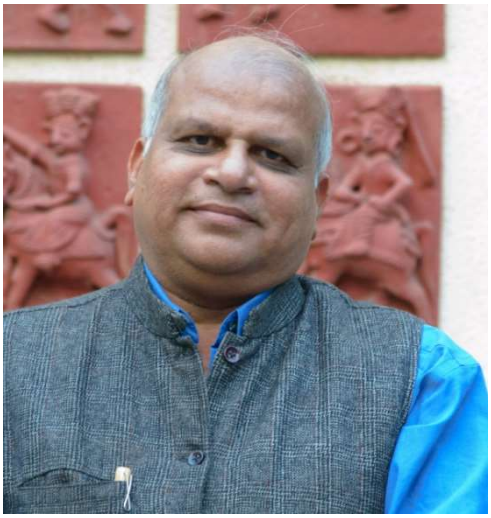
DEPARTMENT OF ARCHITECTURE

UNIT – III– Contemporary Directions in Architecture – SAR1405

III. UNIT 3

Contemporary Trends in Indian Context

Yatin Pandya



- Yatin Pandya born on 6th July, 1960.
- Is an author, activist, academician, researcher as well as the practising architect, with his firm FOOTPRINTS E.A.R.T.H. (Environment Architecture Research Technology Housing).
- Graduate of CEPT university, Ahmedabad he has availed Master of Architecture degree from McGill University, Montreal.
- Yatin has been involved with city planning, urban design, mass housing, architecture, interior design, product design as well as conservation projects
- He has written over two hundred articles in National and International Journals.

"SUSTAINABILITY IS PHENOMENON AND NOT A FORMULA"

- **Footprints E.A.R.T.H. is a professional service organisation involved in environmental studies, architectural design, indigenous research, alternative technology and affordable housing.**
- **Research, applied research and dissemination are tri prong activities of the organisation. Contextual relevance, socio cultural appropriateness, affordability, sustainability and humaneness are the primary concerns for the design at FOOTPRINTS E.A.R.T.H.**

YATIN PANDYA
FOOTPRINTS
E.A.R.T.H
Environment Architecture Research Technology Housing

DESIGN PHILOSOPHY :

"Holistic architecture is experientially engaging, environmentally sustaining, socio-culturally responsive and most importantly contextually appropriate.

Context in terms of culture, climate and construction.

In the context of India history is alive through lived in traditions. We are lucky to find repository of traditional wisdom through its deep long passage of time. We endeavour to create contextually relevant contemporary resolutions that inspire from the rich Indian traditions and yet aspire for its future dreams."

Non Polluting Environment, Economic Empowerment And Affordable Built Forms Are The Three Key Dimensions Of This Initative.

The Project Is An Outcome Of Three Years Of Empirical Research At The Vastu Shilpa Foundation For Studies An Research In Environmental Design With The Goal Of Converting Municipal Waste From Domestic Sector Into Building Components**.**

Example

MANAV SADHNA ACTIVITY CENTRE-Ar Yatin Pandya

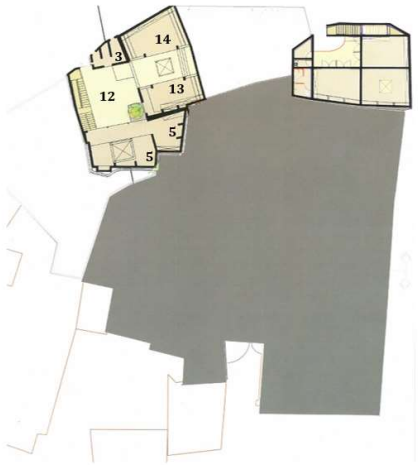
AHMEDABAD, GUJARAT

The activity centre is located amidst the largest squatter settlement of Ahmedabad, and was created under the initiative of the social NGO, Manav Sadhna.

The Centre functions throughout the day, serving various communities from the settlement, at different times in the day.in the morning the Centre functions as a school for young children, while, in the afternoon it offers vocational training to women and young men from the settlement, helping them gain better employment opportunities.

In the evening the Centre serves as a gymnasium for young men. The recently added crèche takes care of toddlers from the settlement, while their mothers can find employment opportunities. The Centre also has health related camps on weekends. During festivals and holidays it serves as a major congregation area for the entire squatter settlement thus outreaching all its classes.

GROUND FLOOR PLAN


FIRST FLOOR PLAN

The centre is an apt example of sustainable design using recycled waste as the building components. Waste such as fly ash, dump fill site waste, crate packaging, plastic water bottles, glass bottles, rag, wrappers, metals crap and broken ceramic wares, compact disc and electronic hardware etc. have been transformed into walling, roofing, flooring and fenestration elements.

RECYCLED GLASS AND PLASTIC BOTTLES FILLED WITH ASH AND WASTE RESIDUE ARE USED AS PARTITION WALLS

The architecture thus creatively demonstrates environmental concern by reducing pollution and energy through recycling of waste, empowers the poor economically by generating economic opportunities through value addition processes and improves their quality of life by developing affordable and durable alternative building products for their homes.

Sanjay Mohe

was born and brought up in Mumbai, with the seed of architecture sowed in him early in life. An enigmatic personality, he graduated in architecture from Sir JJ College of Architecture in 1976 and went on to work with the likes of Ar. Charles Correa

Mindspace strives towards a more sustainable approach towards Architecture and their ideals revolve around the five elements of nature. Climate and context are the two main factors around which their designs are centered. Instead of imitating the west and designing glass blocks unsuitable for India's climate, one needs to act with common sense while constructing spaces and design spaces responsive to local climes.The human mind perceives its surroundings in five different ways – sight, sound, smell, touch and taste. For a complete experience of any space, the built form has to cater to all five senses

INDIAN INSTITUTE OF MANAGEMENT, BANGALORE

A management college, this isn't just a built structure of Steel and RCC but invokes life within it's walls. A space which evokes positive emotions from students, teachers and visitors alike, IIM-B focuses on the internal potentials of a space rather than just the external ornamentation.

Intertwined with greenery, the corridors and the student blocks are a true amalgamation of mass and nature. A major section of the college is designed by Master Architect B.V.Doshi, and Mohe has done an excellent job of lending his touch to the form and structure.

The wide angles and symmetry in the arrangement makes for a beautiful experience. The library and student block are designed in context with climate and surroundings and keeping in mind the needs and personality of the management students studying

TITAN INTEGRITY, BANGALORE:

Other Examples

Teri,Bangalore

Care College of Architecture,Trichy

AR. CHITRA VISWANATH

Chief architect in Biome Environmental Solution Pvt Ltd,

B.Arch,CEPT university.

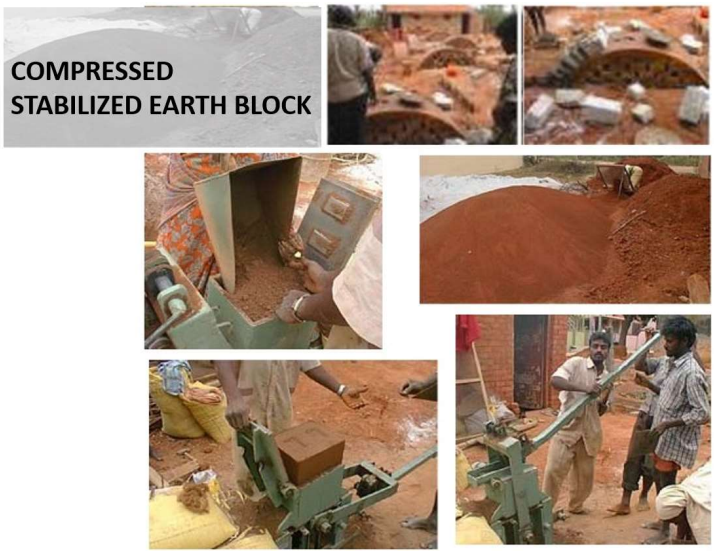
By 2008 Chitra Vishwanath Architects had established a name on design of ecologically sensitive architecture which integrated building with earth as well as intelligent water and sanitation

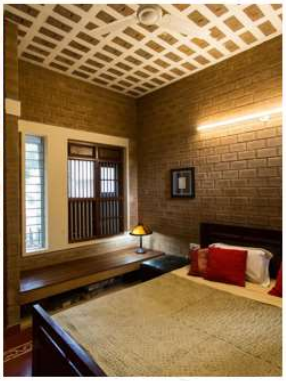
solutions. “Biome is defined as an – ecology of a place- and since we work on ecological designs we felt this was an apt name for the office.

- **Firm :**Biome Environmental Solutions Pvt Ltd is a Bangalore-based design firm focused on ecology, architecture and water.
- **Design principle:**
  Has designed and implemented hundreds of real estate developments – residences, institutions and resorts – guided by ecological principles, integrating sound water, energy and land-use thinking into design.

- **Inspiration** The philosophies and methods of Laurie Baker, the Indian Institute of science and its innovations in mud construction and all the different works at Auroville .
- **Project type**Residential.Institutional,Resort.
- **Focus:** To reduce the **ecological and carbon footprint and embodied energy** of the building.She believed in Mahatma Gandhi’s philosophy -- **“The future depends on what you today”**

“MUD” is a major component since it is well suited for local conditions, is relatively labor intensive and locally available. Earth in the form of compressed stabilized blocks and stabilized rammed earth is used for load bearing structure, arches, vaults and domes.





JALIS allow for free air flow and keep the inside very fresh.

➢A **FILLER SLAB** roof using Mangalore Tiles as a filler material.

➢Materials commonly used are old Mangalore tiles, mud pots, and thermocol and coconut shells.

➢Filler slab, cheaper and lighter material also reduces the weight of the slab.

FILLER SLAB AND JALLIS

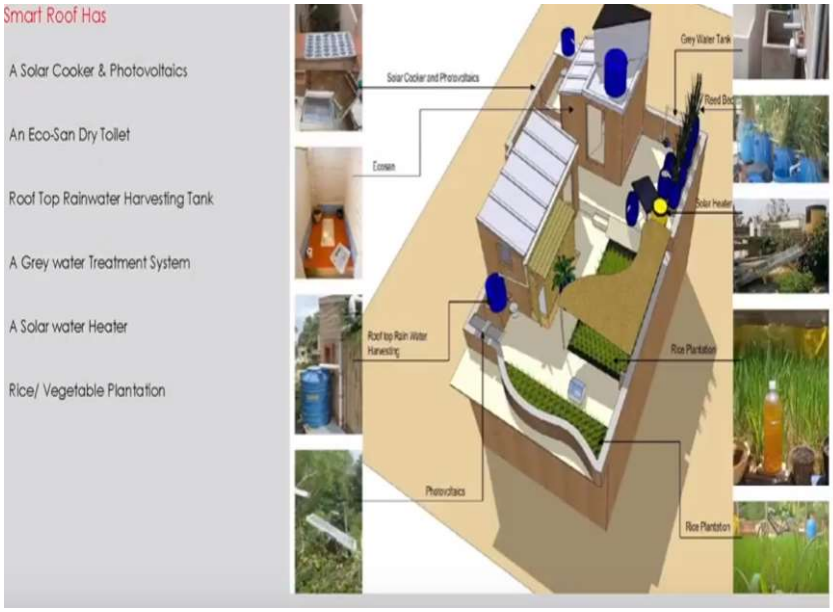
➢The roofs and floors are of precast arch panels.

➢These panels and beams were made at site and lifted up placed as the walls reached the required heights.

➢Precasting saves time as well as steel and cement.

➢The use of stabilized earth, such alternative systems and energies are used: wastewater treatment system, grey water recycling system, rainwater harvesting, solar and wind energy generation system.

➢They are designed and integrated to complete buildings as sustainable systems – economically, socially and ecologically.



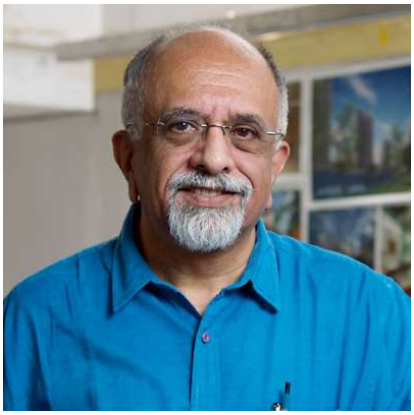
An earth construction with stone arches, east light, top lighting and no fans. The basement provided mud for the blocks & mortar used in the construction. The building harvests 90,000 litres of rainwater (20,000 from the neightbours), reuses washing machine water, uses solar energy for cooking, lighting and water heating. The house harbours the owner, her husband, son and dog as well as slaves who labour in the basement as part of an architectural practice.

Other Example

Name of the project: The Atelier School.
Location: Sarjapur Road, Banglore , India

Architects: Biome Environmental Solutions Pvt Ltd
Site Area: 1955 sq.m.
Built up Area: 985 sq.m.
Year of completion: 2016

CnT Architects



CnT Architects (earlier known as Chandavarkar & Thacker Architects Pvt Ltd.) traces its roots back to being **Bangalore's first architectural firm** with its practice founded by the late Mr. Narayan Chandavarkar in 1947.

It was reorganised under Chandavarkar & Thacker Architects Pvt. Ltd. in 1963 by Mrs. Tara Chandavarkar and the late Mr. Pesi Thacker.

The firm is currently run by Prem Chandavarkar, Mehul Patel and Vikram Desai.

Through its various generations, CnT has retained a value system that focuses on high-quality design, ethical practice and a working philosophy based on courtesy consideration and collaboration.

MINDTREE WHITEFIELD, BANGALORE

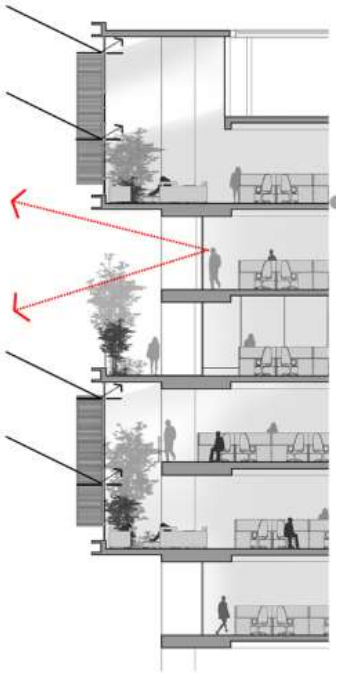
INSTITUTIONAL BUILDINGS

•BENGALURU, INDIA

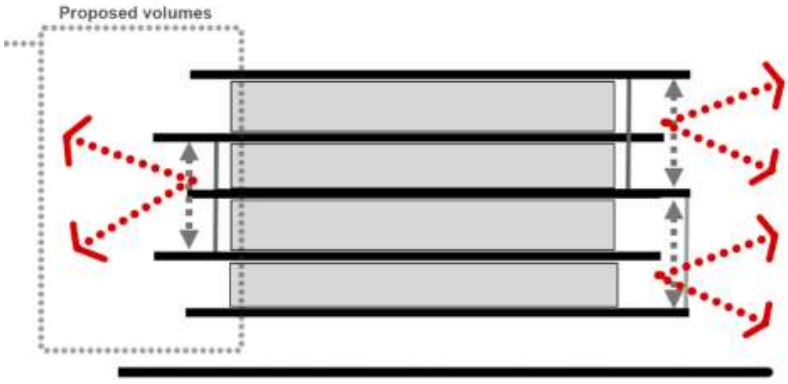
Architects: CnT Architects

Area: 320000 ft²

Year: 2016



New building block is an insert within the site to create the sense of community. Building blocks are connected by the atrium space to allow the community interaction along side of welcoming entry. Key proposition for the project is to recognize that organisations actually function as communities and the design of the office should reflect the complex scales and identities of communities. It is important to break away from the typical office design which consists of uniform grids of desks and cubicles.



Ar Sen Kapadia

Sen kapadia (b. 1936) received his diploma in Architecture from sir J.J. COLLEGE of Architecture in 1962. He worked with LOUIS KHAN for setting up his independent practice. He is a recipient of several awards for his architectural design and his work. His academic output lectures, seminars, exhibitions, writing and theoretical projects. He has been the director of the Kamla Raheja Vidhyanidhi Institute for architecture in Mumbai.His projects embeds **local materials** responsive to environment forces that led to some potentially significant works. They attain a certain layer of local craftsmanship and assume a definite position in culturally specific to the decade and social history of its environment Main projects are water and land management institution and solar efficiency building.

WATER AND LAND MANAGEMENT INSTITUTE
BHOPAL, MADHYA PRADESH

The WALMI was established with the objective of **increasing the effectiveness of irrigation** projects. The Institute conducts research and training programmes in classes and in the field. The scheme has a total built up area of 10,800 m2 and the site is located on a flat top hillock adjoining the Kaliasote dam. The building blocks follow the contour of the hill it sits on.

GROUND FLOOR PLAN

Orientation:
- The building is oriented along the east-west axis for north-south exposure. The extensive north exposure ensures good daylighting through window openings, while the deep-set south facing corridor reduces solar gain, glare and induces cross ventilation.

Thermal strategy:
- Use of high bulk local stone walling adds to thermal mass to ensure the interior is 10°C cooler than the outdoor.

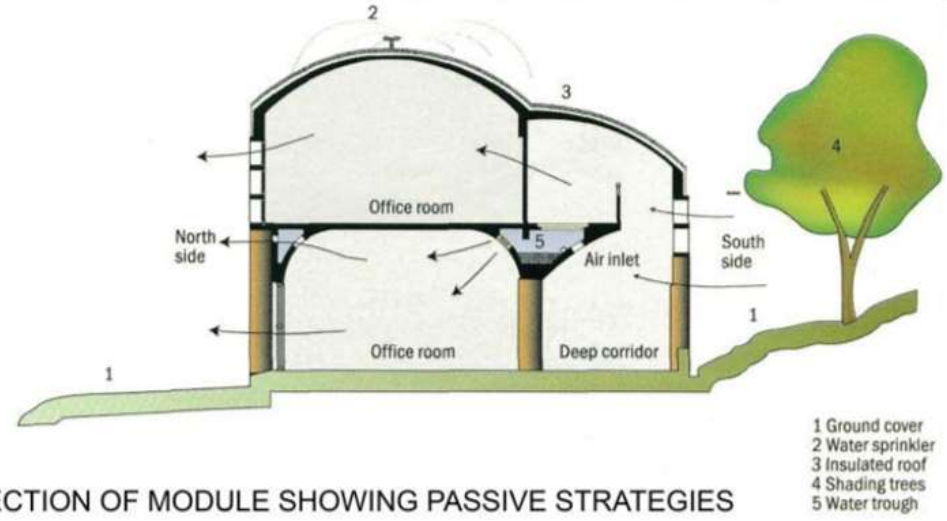
Landscaping:
- Adjoining areas with soft ground cover and drip irrigation avoid all reflected heat and glare. Dense planting of evergreens that reuses water from the building. Use of indigenous trees requires minimum maintainence.

Use of water:
- Water pumped from the Kaliasote reservoir is stored in overhead water tanks above the building. Cascading water is used as a coolant for air-conditioning units.
- Water sprinklers on the roof allow cooling through evaporation. On the lower floor, the air is admitted through a built-in trough of water ensuring higher humidity and coolth during dry hot summer months.

Waste/ sewage management systems:
- 2 gobar gas plants that not only effectively manage waste disposal but also yield fertilizer and methane gas.

MATERIAL USAGE & CONSTRUCTION SYSTEM

TYPOLOGY	Built as a 230 metre long "landscraper", using of a modular unit of 7mx 25m, that is easily adaptable for use as laboratories, a library and administrative functions, constitutes the main bulk of its built form.
ROOFING SYSTEM	The roof is insulated with a 2.5-cm layer of thermocol over RCC shell and topped with stone tiles.
WALLING SYSTEM	High bulk local stone walling
FLOORING	Local natural stone
SEMI-OUTDOOR SPACES	South facing single loaded corridor along length of the building.



SECTION OF MODULE SHOWING PASSIVE STRATEGIES

GERARD DA CUNHA is a well known name in modern Indian architecture.

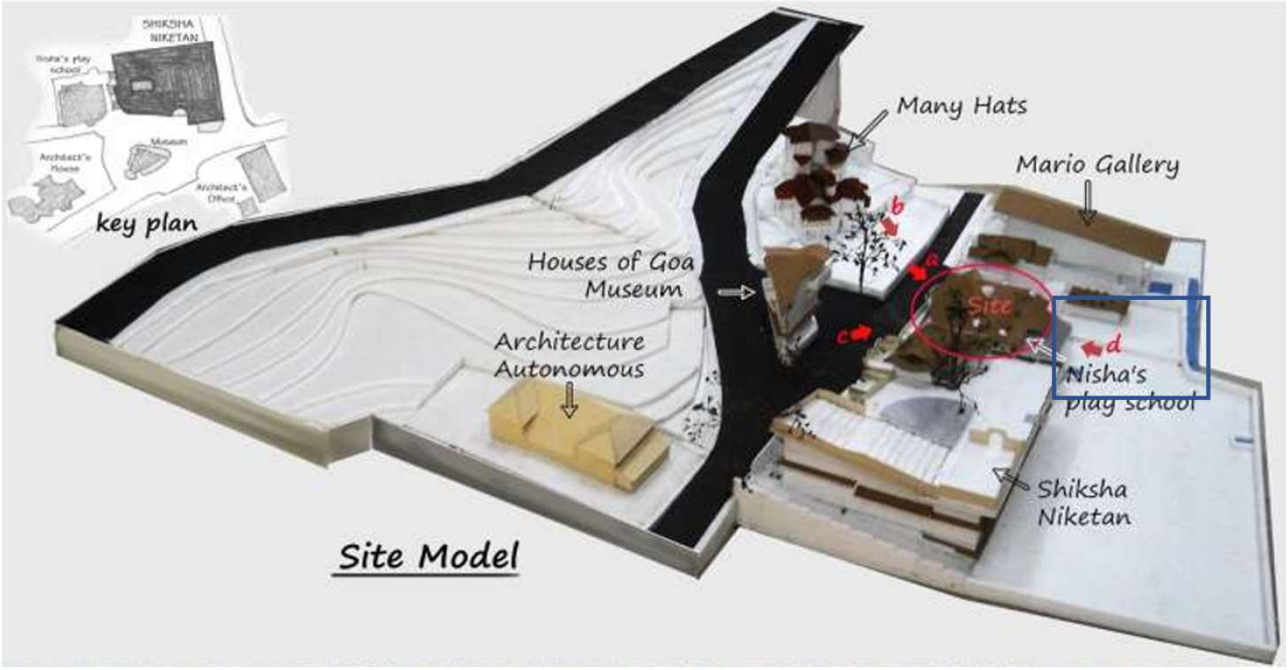
He prefers working with natural stone and his unique projects are seen all over the country.

He received the Award in Rural Architecture, Designer of the Year Award and the Prime Minister's National Award for Excellence in Urban Planning and Design.

Da Cunha is a Goa based Architect specializes in eco-friendly , site specific architecture

WORKS OF GERARD DA CUNHA:

- Nisha's Play School of Goa
- Library of Hampi's Kannada University
- Kutiram Tourist Resort of Bangalore
- JVSL Township in Torangallu
- Day Care Center
- House of goa



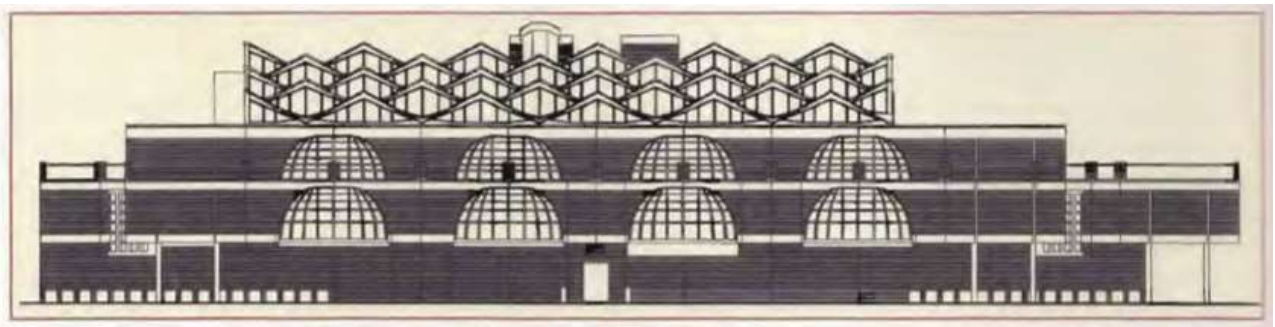
PEDA office complex, Chandigarh*

Architects Arvind Krishan and Kunal Jain

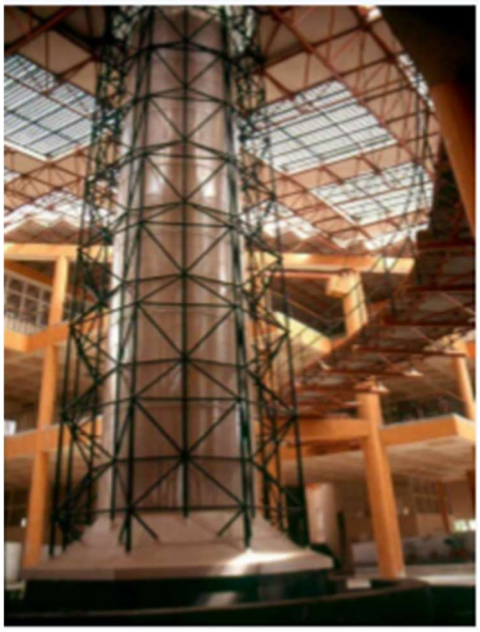
Solar architecture in an urban context with rigid architectural controls

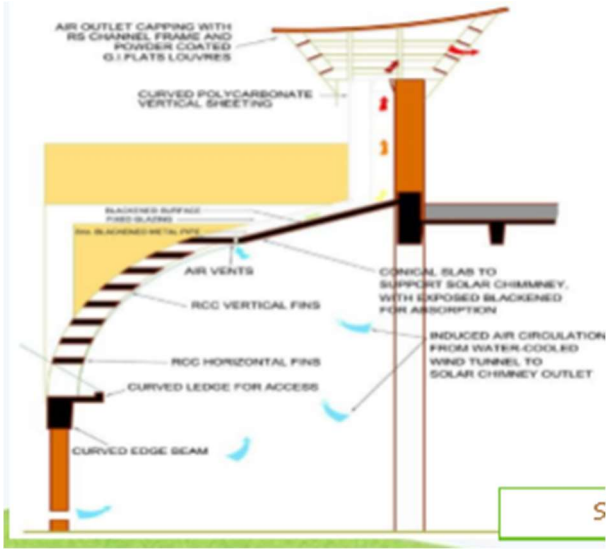
The climate

The PEDA (Punjab Energy Development Agency) office complex is located in Chandigarh, on a practically square site that lies on flat land with no major topographical variations. Chandigarh experiences wide climatic swings over the year, i.e. very hot and dry period of almost two and a half months (maximum DBT [dry bulb temperature] 44 °C) and quite cold period of a shorter duration (minimum DBT 3 °C). The hot dry period is followed by a hot humid monsoon period of about two months (maximum DBT 38 °C and maximum relative humidity 90%), with intervening periods of milder climate.

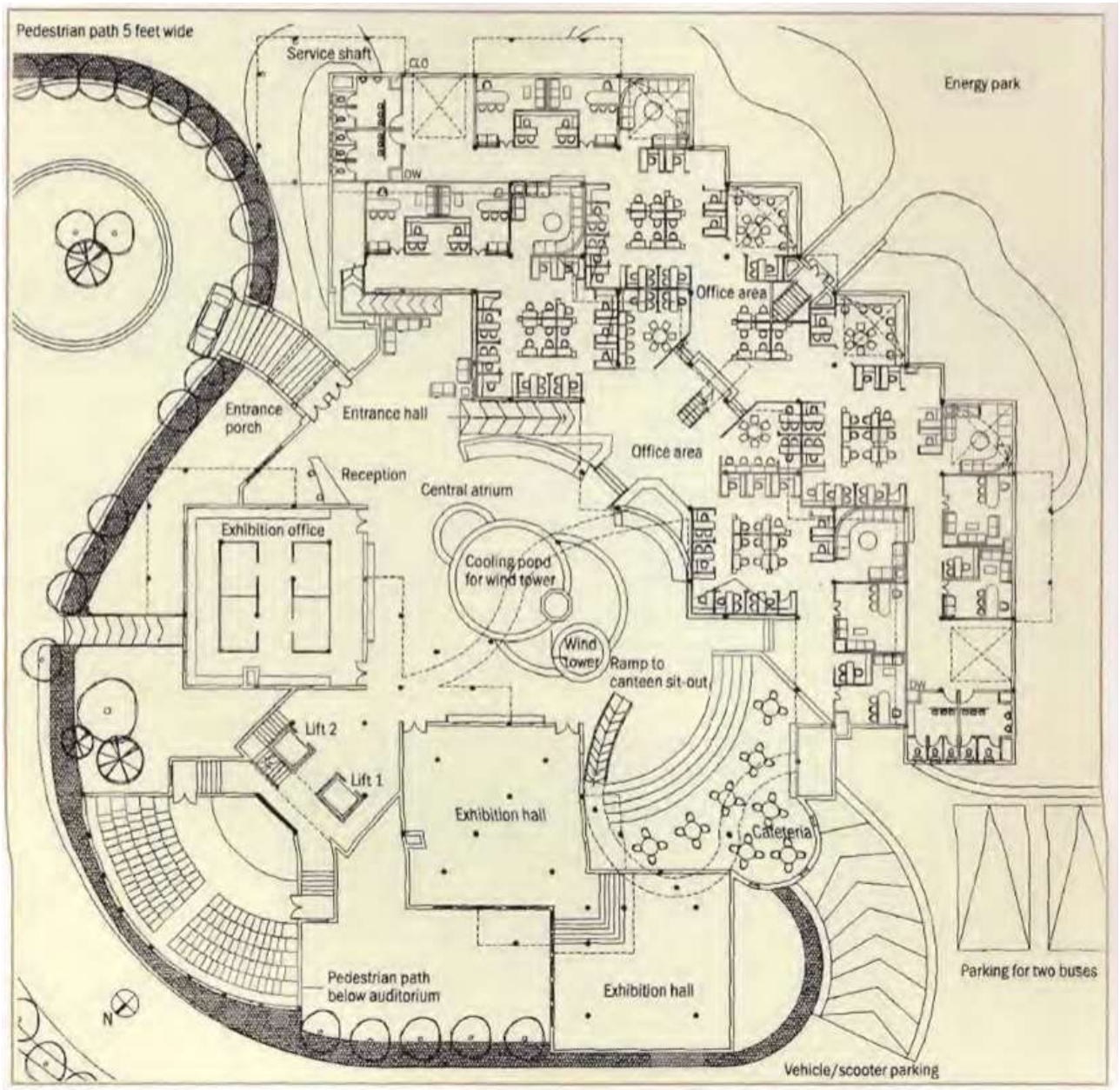


▲ South elevation showing domical roofs and vertical roof glazing systems for daylight integration and ventilation



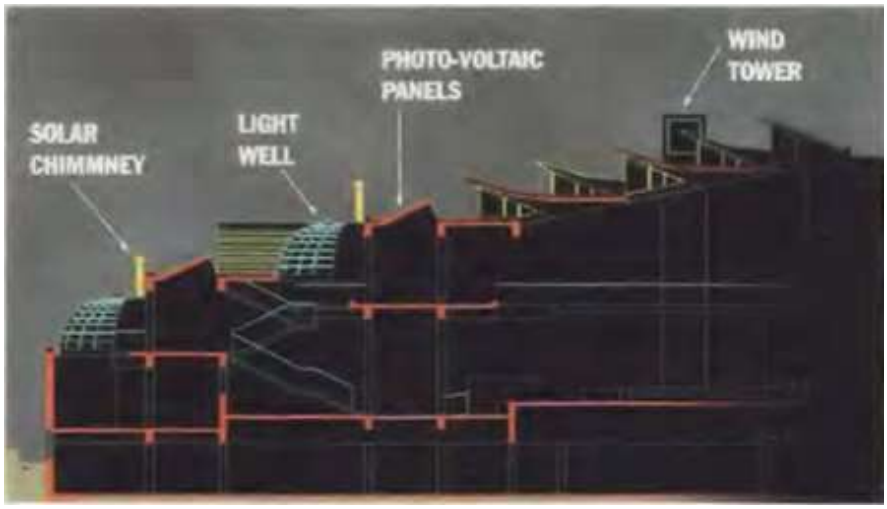


The demand on building design, therefore, is to respond to the extremes: eliminate (minimize) heat gain in the hot-dry period, maximize ventilation in hot humid period from zones / areas designed as heat sinks and maximize heat gain in the cold period. Within the context of the radical experiment that is Chandigarh, the PEDA building has been designed with an ethos: design with nature. The physical context although unique in itself, i.e. the urbanity of Chandigarh, offers yet another challenge for design.



▲ Site plan of PEDA office complex, Chandigarh

▲ Interconnected volumes of space to enable passive space conditioning of entire volume of building



While the three-dimensional form of the building has been developed in response to solar geometry, i.e. minimizing solar heat gain in the hot-dry period and maximizing solar heat gain in the cold period, the scale and form of the building responds to its urban context as well. Whereas, expression of the building on the two main roads of the intersection bears the character and scale of an office building, the building responds to the residential context on the south/south-east edges by gradually scaling down in mass and volume.

Light wells, solar chimneys, and wind towers

To achieve a climate-responsive building, an innovative concept in architectural design has been developed. In place of the 'central loaded corridor' plan stacked on top of each other to make various floors, which has become virtually the generic form for an office, the PEDA building is a series of overlapping floors at different levels in space floating in a large volume of air, with interpenetrating large vertical cut-outs. These vertical cut-outs are integrated with light wells and solar-activated naturally ventilating, domical structures. This system of floating slabs and the interpenetrating vertical cut-outs is then enclosed within the envelope of the building. The envelope attenuates the outside ambient conditions and the large volume of air is naturally conditioned by controlling solar access in response to the climatic swings, i.e. eliminating it during hot-dry period and maximizing its penetration in cold period. The large volume of air is cooled during the hot period by a wind tower, integrated into the building design, and in the cold period this

A computer generated image showing sectional view of the domical roof for ventilation and daylighting

volume of air is heated by solar penetration through the roof glazing, generating a convective loop. The thermal mass of the floor slabs helps attenuate the diurnal swings.

While thermal performance of the building is a major parameter of design, adequate distribution of daylight within the entire working zone of the building is a major criteria for design. This has been achieved through the domical structures designed above the light wells, which are evenly distributed throughout the building. Consequently, the design is thermally responsive to its climatic context and good daylight distribution is achieved, thereby minimizing the consumption of electricity.

The PEDA office complex is located in Chandigarh on a practically square site with no major topographical variations. The structure is designed to achieve a climate-responsive building with a series of overlapping floors at different levels with interpenetrating large vertical cut-outs.

Project details

Building type Commercial (office building)
Climate Composite
Architects Arvind Krishan and Kunal Jain
Built-up area 7000 m²
Client/owner Punjab Energy Development Agency
Contractor Amarnath Agarwal and Sons, Chandigarh
Completion (expected) December 2001
Cost Not available

Design features

- Floors interconnected volumetrically to enable passive space conditioning of the entire volume of the building
- Large cut-outs for light and ventilation wells
- Building-integrated solar photovoltaics and solar water heating
- Winter heating by direct solar gain through roof glazing
- Summer cooling through wind tower
- Thermal mass of floor slabs moderates diurnal swings

Reference

https://archnet.org/sites/6569/publications/2344

https://mindspacearchitects.com/

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

UNIT – IV– Contemporary Directions in Architecture – SAR1405

IV. UNIT 4
Sustainable Logics and Design Processes

Post modernism - Cesar Pelli, Mario Botta

César Pelli (October 12, 1926 – July 19, 2019) was an Argentine-American architect who designed some of the world's tallest buildings and other major urban landmarks.

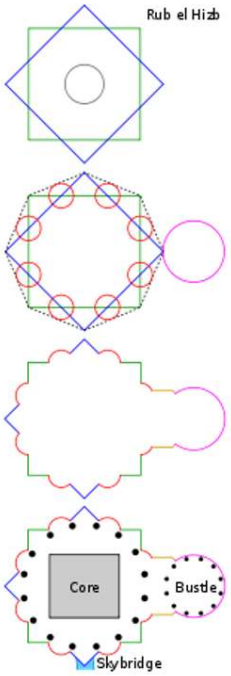
Pelli was named one of the ten most influential living American Architects by the American Institute of Architects in 1991. In 1995, he was awarded the American Institute of Architects Gold Medal

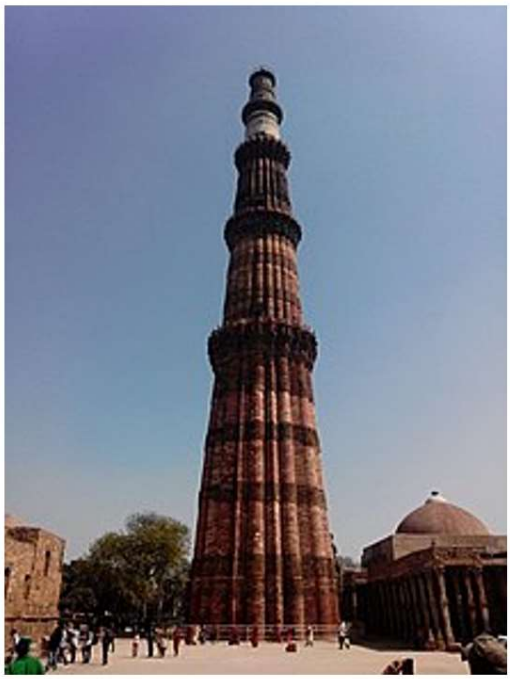
SOME OF THE ICONIC CONTRIBUTIONS TO THE POST MODERNISM:

- UNI CREDIT TOWER
- REPSOL YPF TOWER
- CARNEIGE HALL TOWER
- WELLS FARGO CENTER
- GRAN TORRE SANTIAGO
- 138 East 50th Street – The Centrale

Buildings designed by Pelli during this period are marked by further experimentation with a variety of materials (most prominently stainless steel) and his evolution of the skyscraper.

The **Petronas Towers** were completed in 1997, sheathed in stainless steel and reflecting Islamic design motifs. The dual towers were the world's tallest buildings until 2004. That year, Pelli received the Aga Khan Award for Architecture for the design of the Petronas Towers
The **Petronas Towers**, also known as the **Petronas Twin Towers** are twin skyscrapers in Kuala Lumpur, Malaysia. According to the Council on Tall Buildings and Urban Habitat (CTBUH)'s official definition and ranking, they were the tallest buildings in the world from 1998 to 2004 when they were surpassed by Taipei 101.
The Petronas Towers remain the tallest twin towers in the world.
The buildings are a landmark of Kuala Lumpur, along with nearby Kuala Lumpur Tower; they remain the tallest buildings in Kuala Lumpur





The cross section of the Petronas Towers based on a *Rub el Hizb*, an eight-pointed star that is found in Arabic calligraphy. albeit with circular sectors, similar to the bottom part of the Qutub Minar

Philosophy : Pelli believes that a building should not just be designed based on ones ideologies; it should be designed around its environment and its purpose. He believes that designs should always be based on the local materials and with those materials solutions to design problems should be solved.

Mario Botta

Philosophy

He show respect for topographical conditions and regional sensibilities and his designs generally emphasize craftsmanship and geometric order. Because he attempts to reconcile traditional architectural symbolism with the aesthetic rules of the Modern Movement.

His design elements are:

Modernism

Symbolism

Regionalism

Culture

Light

Vernacular material

Diagonal axis

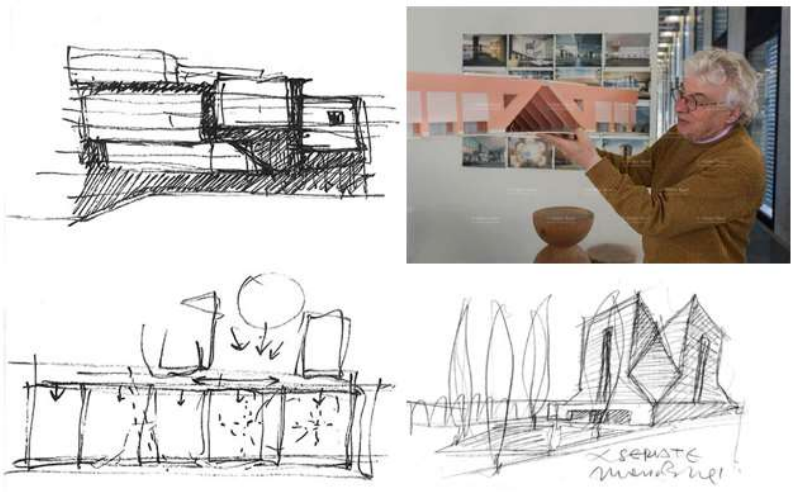
Spaces of poetry

Geometry

Revive an old Transformation

Topography

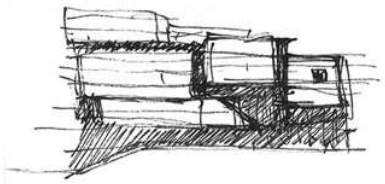
Social environment

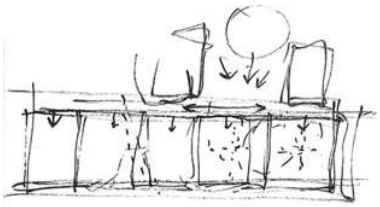


SAN FRANSISCO MUSEUM OF MORDERN ART

Location :San Fransisco , USA
Typology: Museum

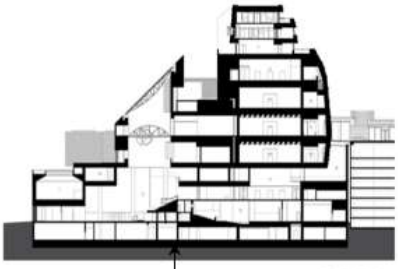
Despite its miniscule scale in comparison to adjacent skyscrapers,
Boot's museum to command its city centre block .





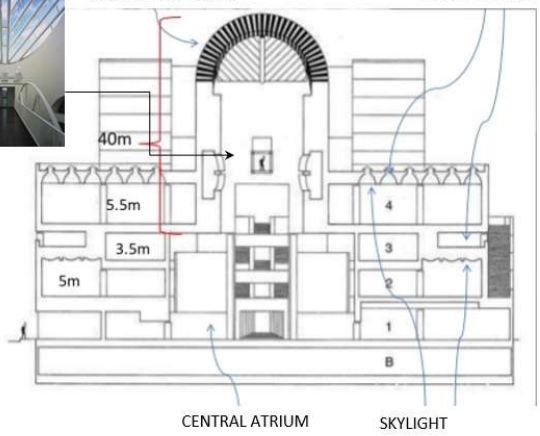
The SFMOMA project came with high expectations. It needed to establish a visual identity for a museum that didn't have one, and it needed to do so in a district characterised by dilapidated buildings. At 225,000 square feet (20,900 square metres), it was slated to be the largest building in the American West dedicated to modern art.

Creates a contrast with the surrounding which gives it's a monumental feel.

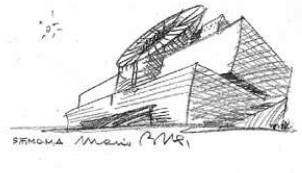


Building is boldly autonomous

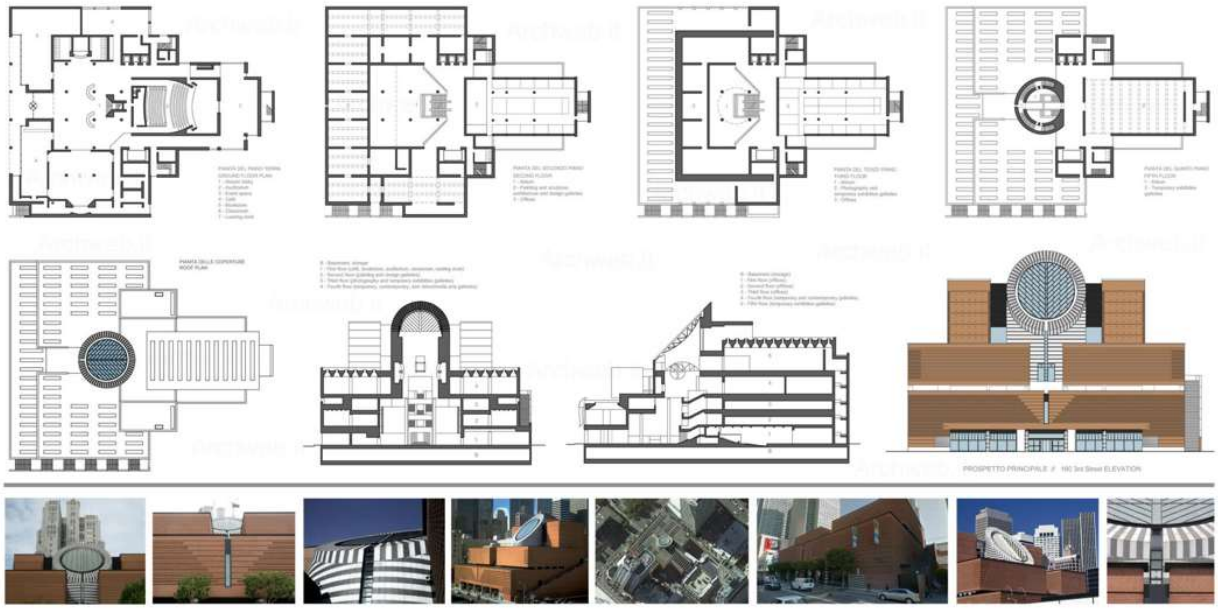
- Imposing brick clad blocks recessed to allow natural light.
- Composition of stacked and set-back, heavy brick masses pervades a fortress like aspect to the surrounding streets and building
- Solid homogeneity is relieved by patterning of brick work which create subtle variation of lighting and shadow on monochromatic surface .



The main attraction is the 41m high chamfered cylindrical funnel clad in black and silver granite floods the 60m high central atrium below with daylight.



Stepped section permits lights to enter internal gallery spaces despite the museums deep plan.
Bridge crossing underneath the skylight provides Birds eye view of lobby.



| Six alternative logics of ecological design which have their roots in competing conceptions of environmentalism

| Diverse technical design strategies and conceptions of ecological place making

| Defining what we mean by calling a building "green"

| Social constructivist perspective on the development of sustainable architecture.

| Technological strategies and alternative visions of sustainable places.

Eco- Aesthetic | Iconic, Architectural, New Age

Eco- Technic | Commercial, Modern, Future Oriented

Eco- Centric | Polluter, Parasitic, Consumer

Eco- Cultural | Authentic, Harmonious, Typological

Eco- Medical | Healthy, Living, Caring

Eco- Social | Democratic, Home, Individual

Table 2: Competing logics of sustainable architecture (extracted from Guy and Farmer, 2001: 141).

Table 1 The six competing logics of sustainable architecture

Logic	Image of Space	Source of Environmental Knowledge	Building Image	Technologies	Idealized Concept of Place
Eco-technic	global context macrophysical	technorational scientific	commercial modern future oriented	integrated energy efficient high-tech intelligent	Integration of global environmental concerns into conventional building design strategies. Urban vision of the compact and dense city.
Eco-centric	fragile microbiotic	systemic ecology metaphysical holism	polluter parasitic consumer	autonomous renewable recycled intermediate	Harmony with nature through decentralized, autonomous buildings with limited ecological footprints. Ensuring the stability, integrity, and "flourishing" of local and global biodiversity.
Eco-aesthetic	alienating anthropocentric	sensual postmodern science	iconic architectural New Age	pragmatic new nonlinear organic	Universally reconstructed in the light of new ecological knowledge and transforming our consciousness of nature.
Eco-cultural	cultural context regional	phenomenology cultural ecology	authentic harmonious typological	local low-tech commonplace vernacular	Learning to "dwell" through buildings adapted to local and bioregional physical and cultural characteristics.
Eco-medical	polluted hazardous	medical clinical ecology	healthy living caring	passive nontoxic natural tactile	A natural and tactile environment which ensures the health, well-being, and quality of life for individuals.
Eco-social	social context hierarchical	sociology social ecology	democratic home individual	flexible participatory appropriate locally managed	Reconciliation of individual and community in socially cohesive manner through decentralized "organic," nonhierarchical, and participatory communities.

ECO- AESTHETIC LOGIC

Description

Here the role of sustainable architecture is **metaphorical** and, as an **iconic expression** of societal values, it should act to **inspire** and convey an increasing identification with **nature** and the **non-human world,** what is required is a "**new language** in the building arts."

Method

Shifting the paradigm of the society to **new age-ism**, a sensuous and aesthetic society.

Definition of sustainable architecture according to this logic

A **sensuous, stylish, creative** "Green Architecture"

How?

A move back towards **organic-ism, expressionism**, the chaotic, and the non- linear is the "aesthetic . . . growing out of this new world view; a language of building and design close to nature, of **twists and folds** and undulations; of **crystalline forms** and **fractured planes**."

- **Greg Lynn** (born 1964) is owner of the Greg Lynn FORM office.
- He got into drawing as a kind of sport.
- Lynn graduated cum laude from Miami university.
- He produce irregular, biomorphic architectural forms.
- He uses of advanced technology for design and fabrication.
- In 2001, Time Magazine named Greg Lynn one of 100 of the most innovative people in the world for the 21st century.
- In 2008, he won the Golden Lion at the 11th International Venice Biennale of Architecture.
- In 2010, he was awarded a fellowship from United States Artists.

DESIGN METHODOLOGY

CONCEPT:
- FORCE
- CURVATURE
- TOPOLOGY
- MULTIPICITIES

TECHNIQUES:
- SPLINE
- NURBS SURFACE
- METABALLS
- FLOWERS
- LATTICES
- STRANDS

TECHNOLOG:
- DIGITAL SOFTWARES
- AUTOMATION

CONCEPT → TECHNIQUES → (TECHNOLOGY) ENDPRODUCT

IDEAS FROM NATURE

SOFTWARES

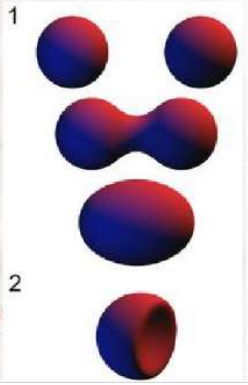
3DPrinting 3DScanning Adobe
AfterEffects Analysis Animation CES
CNC Digital Fabrication Ecotect
EnvironmentalAnalysis Form
Grasshopper Illustrator Images
Indesign Interview Kangaroo Kinect
Ladybug Landscape Lecture Lecture
Series Maxwell Mesh MeshEdit
Parametric Performance
Photoshop Physics Portfolio Pratt
Rendering Resources Revit
Rhino3D Robotics
SolarRadiation Topography
Tutorials virtual reality
Visualization Weaverbird
William Katavolos
Workshop

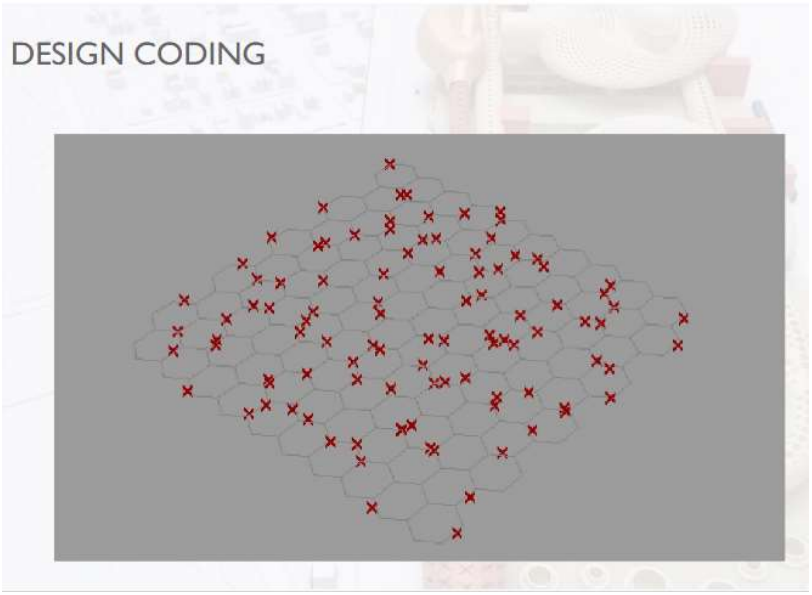
ANIMATE FORM:

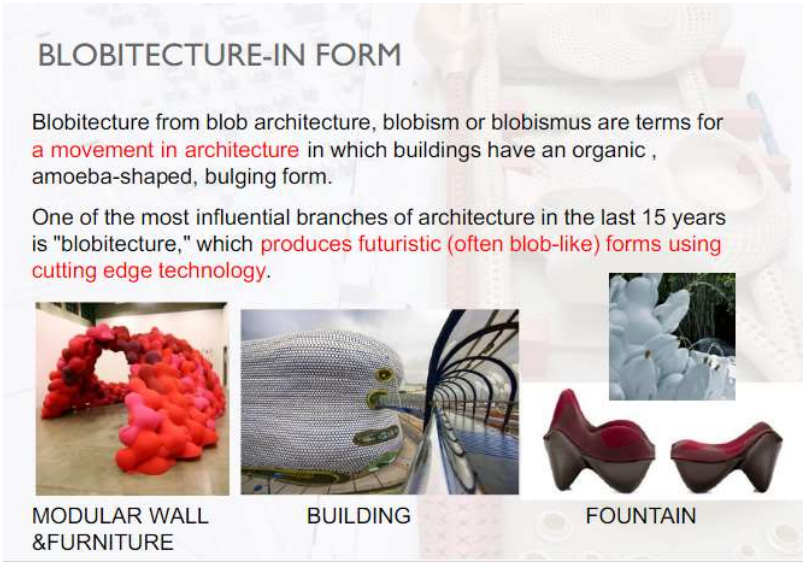
Greg Lynn's Perspective Animation - the evolution of a form and its shaping forces. Virtuality - to abstract scheme that has the possibility of becoming actualized, often in a variety of possible configurations. Animate design is defined by the co-presence of Motion and Force at the moment of formal conception. Cartesian fixed point coordinates vs. Vector based interactions Terminologies: Virtual Force Differential variations Active Abstract Space Dynamical Flows

BLOBITECTURE

- The term 'blob architecture' was coined by architect Greg Lynn in 1995 in his experiments in digital design with metaball graphical software.
- The Rise Of Organic Architecture Buildings, mean blobs, are taking over the world.
- The word *blobitecture* first appeared in print in 2002
- Architects and furniture designers began to experiment with this "blobby" software to create new and unusual forms.
- The closest thing in real life to the creation of metaballs is the merging of water drops

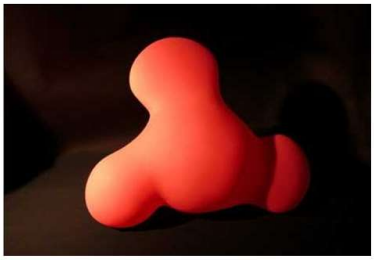






INTRODUCTION

- Blobwall is a **material and form study** by Greg Lynn ('Form') which explores the definition of **modular construction** and **space separation** in the coming century.
- Design and construction of Blobwall are heavily influenced by Lynn's work with advanced **three dimensional modeling and manufacturing techniques** and follow an evolutionary path from his earlier work with **biomorphic architectural forms.**
- The wall is composed of:
  - **Identical**
  - **Preformed**
  - **Three lobed**
  - **Hollow pieces**
  - **Low-density plastic polymer**
  - **Varying color**



- The system is **self supporting** and can be stacked in a number of ways to create **walls, arches and domes.**
- Results illustrate how a **repeating element** could be combined to create an **extraordinary organic structure**.
- High price in terms of :

  - time, labor, and manufacturing capability and hides a requirement for complete customization

Inspiration for Blobwall emerged from Greg Lynn's concept of creating a **modular wall building** product that could be easily assembled and would work like **'bricks'** in traditional construction.

UNITS – BRICK ⟶ BLOB

- Units are a very important concept in construction.
- Characteristics:
  - Structural integrity
  - Opacity
  - Thermal properties
  - Moisture resistance
  - Durability
  - Weight
  - Availability
  - Size

- Generally, materials **easily handled** by craftsmen and **readily available** were the most used.
- The small units are **transportable** and can be **assembled** by one laborer without need for mechanically powered equipment.
- The widespread use of masonry units bricks and stone is no surprise given their natural ingredients and usefulness.
- To reinterpret the 'unit' is a worthwhile exploration especially given the huge developments in **digital design and manufacturing technology**.

Eco - TECHNIC Logic

Description

Technocentric approach, science and technology can solve environmental issues

Method

Through rational analysis and management of the environment.

Definition of sustainable architecture according to this logic

Energy sufficient architecture, the development of technology to create energy-efficient built environment.

How?

The usage of translucent insulation, new types of glass and solar shading, intelligent facades, double-skin walls and roofs, and photovoltaics. Energy efficient lighting, passive solar design and daylighting, the useof natural and mixed-mode ventilation, more efficient air conditioning and comfort cooling, combined withsophisticated energy management systems are all part of the High-Tech approach.

About the architect ..... ?

- Arthur Huang is the founder and CEO of Miniwiz Co., Ltd.
- He is a structural engineer, architect, innovator of loop economy building material solutions and
- Specialized in post-consumer trash recycling applications to help to accelerate the shift to a close-loop economy.
- In 2005, he established Miniwiz, an internationally operating company based in Taiwan, Shanghai and Berlin, and dedicated to up-cycling and consumer trash and industrial waste.
- Known for his innovative and ambitious concepts and works, many of his works challenge the traditional liner economy, ranging from representatives of consumer products to architectures.
- Arthur and Miniwiz was recognized as Technology Pioneer by World Economic Forum in 2015.

" BUILDING A BETTER ENVIRONMENT WITH STUFF YOU'D THROW AWAY "

- Arthur Huang wants your trash to be involved. He's helped Nike turn old sneakers into construction brick for stores around the globe, used beer-brewing waste to make a mass-manufactured "hops chair," and is working to get recycled material into planes, cars, and boats.

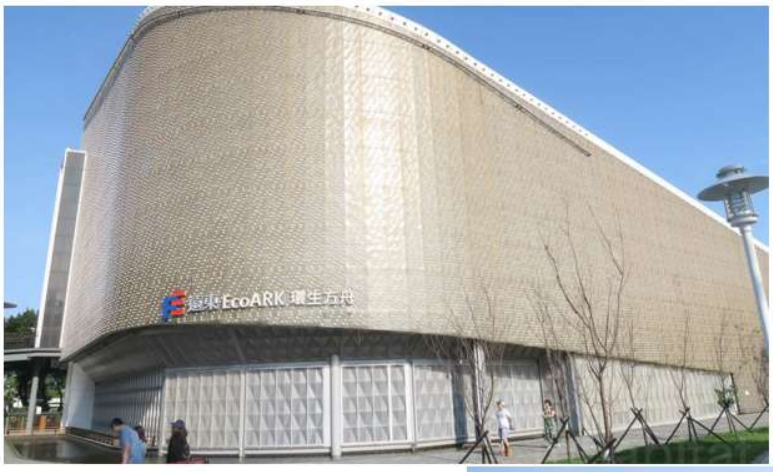
- For the past decade, the Taiwanese engineer has been turning post-consumer waste into "high performance materials" via the company he founded, Miniwiz. And as it turns out, the endeavor involves a lot more intrigue than you might expect.

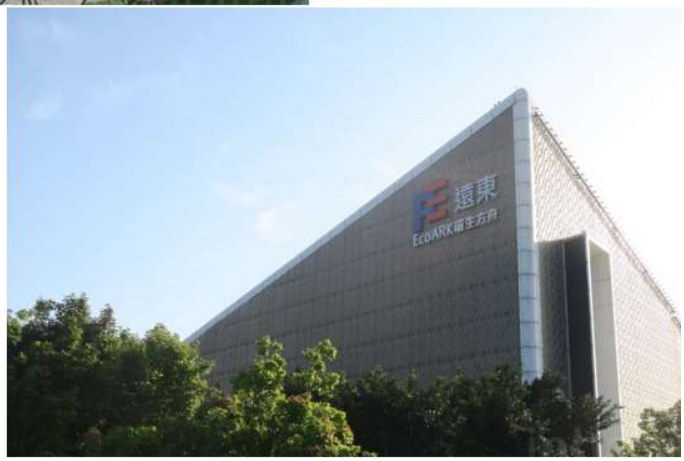
- "PEOPLE CAN TALK ABOUT GREEN, BUT IN REALITY, THE ACTUAL IMPLEMENTATION HAS NOT CAUGHT UP TO THE CONSCIOUSNESS OF THE CONSUMERS, OR WHAT YOU EXPECT FOR DEVELOPED NATIONS. WE ARE TRYING TO BRIDGE THAT GAP."

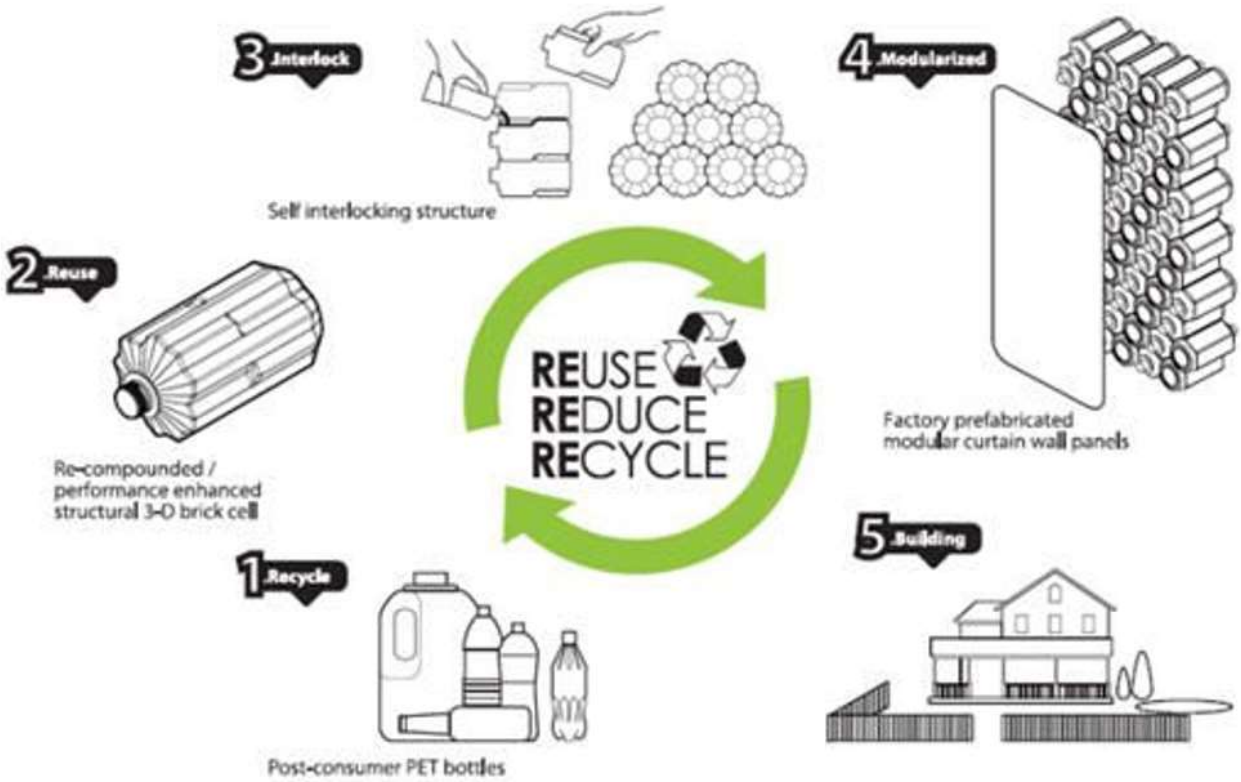
  —Arthur Huang

EcoARK Pavilion

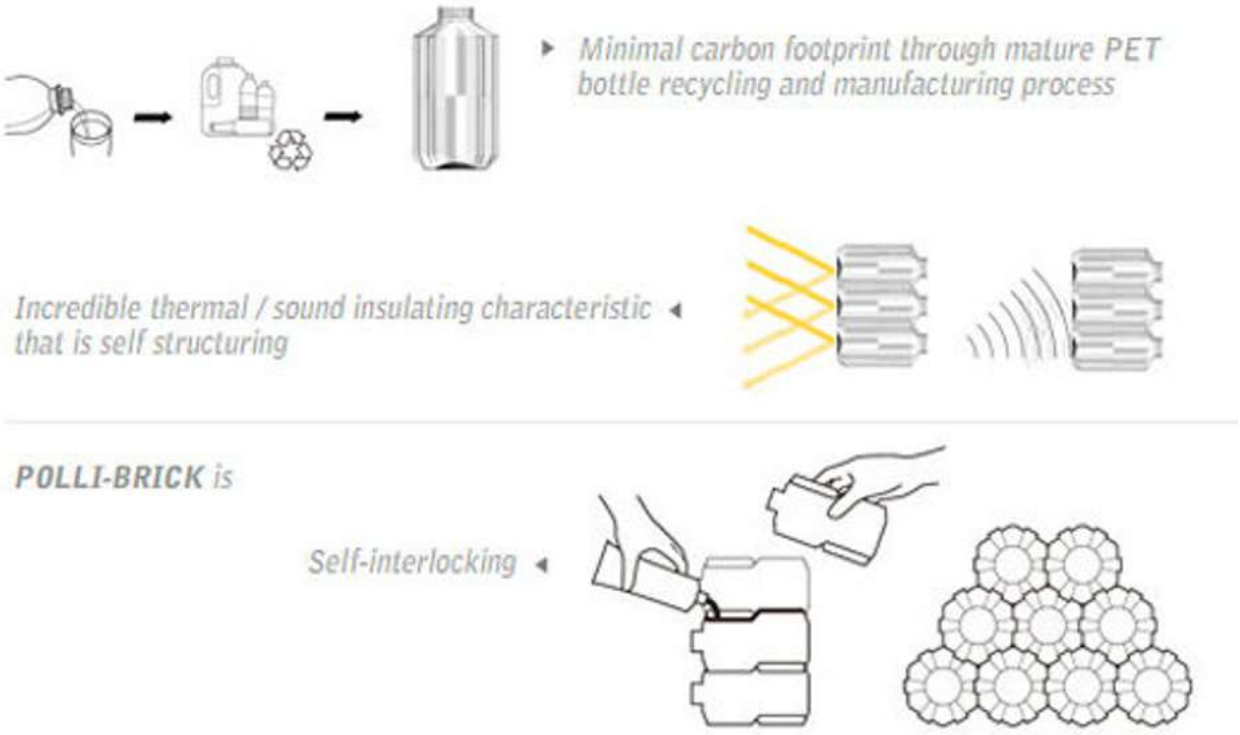
- **Taipei's great contribution to modern ecodesign ideas 2010-2011**
- **Plastic bottle** architecture is fantastic at turning a problem into an eco-friendly opportunity. The EcoARK in **Taipei**, Taiwan is one such example.
- Built from **1.5 million recycled plastic bottles**, this massive pavilion is surprisingly strong enough to **withstand the forces of nature**—including fires and earthquakes! Designed by architect **Arthur Huang**, the nine-storey $3 million USD pavilion is powered by solar energy and was built to the mantra of **"Reduce, Reuse, and Recycle"**.
- One green product made from recycled **plastic wastes** here are **Polli-Bricks.** Such Polli-Bricks were originally created by MINIWIZ, a sustainable development firm, which focuses on **energy, biodesigns, and recycling**.
- **The advert on the company's website says of the Polli-Brick: "Your Trash, Our ECO Building Material."**
- **http://www.miniwiz.com/**


遠東EcoARK 環生方舟

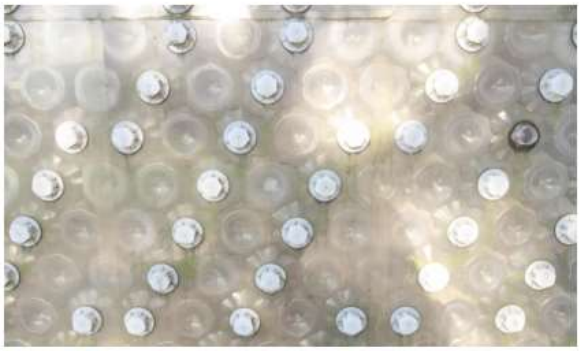

遠東
EcoARK環生方舟


3 Interlock
Self interlocking structure
4 Modularized
Factory prefabricated modular curtain wall panels
2 Reuse
Re-compounded / performance enhanced structural 3-D brick cell
REUSE
REDUCE
RECYCLE
1 Recycle
Post-consumer PET bottles
5 Building

- A **POLLI-Brick** is a "recycled polymer bottle that can be interlocked to build an incredible array of structures". It is made from recycled PET bottles, the lightweight bricks offer excellent acoustic and thermal insulation and can build anything from fences and roofs to pots for plants, skylights and beautiful walls of light."
- Taiwan is already one of the world's biggest recyclers of plastic bottles. "According to the group, the inspiration for the EcoARK came from the large number of plastic bottles recycled in Taiwan every year — **totaling 90,000 metric tons — the equivalent of 4.5 billion 600 ml bottles."**
- It **weighs 50 percent less** than a conventional building, yet it is strong enough to withstand the forces of nature, including fire!"
- **POLLI-Bricks** have been used [in Taiwan] on a grand scale in the EcoARK they can be used to make anything from a vase to a garden wall to a house. Just a **small amount of silicone** is placed **between the bricks to make a bond** between their specially designed **interlocking structure**."
- **"'EcoARK is the world's lightest, movable, breathable environmental miracle,' said Douglas Hsu, Chairman of the Far Eastern Group**

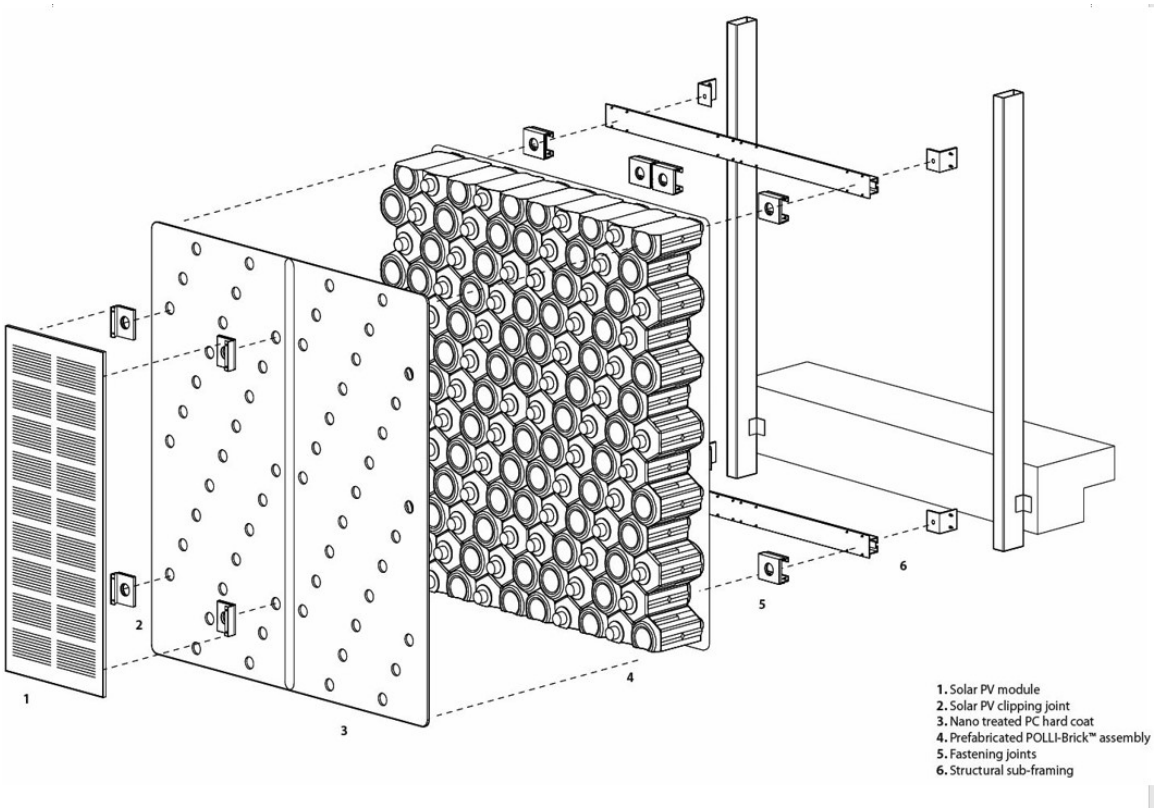


- "The **130 meter long** structure is completely **deconstructable** — it can be **taken apart and reassembled** at another location, kind of like a giant LEGO building.

- Once assembled into flat rectangular panels, the polli-bricks are **coated with a fire- and water-resistant film**. The EcoARK's curved and transparent facade is made up of these modular panels **screwed and mounted onto a structural steel frame**. Although the EcoARK weighs half as much as conventional buildings, it's resistant to earthquakes and cyclones, and can withstand sustained winds up of to 130 kilometers per hour.





- Use of recycled plastic bottles isn't the only eco-friendly feature of the EcoARK. The pavilion was built with low-carbon building techniques to maintain a zero-carbon footprint during operation. The building stays cool without air conditioning thanks to natural ventilation. The air inside the polli-bricks also provides insulation from heat and rainwater is collected and reused to cool the building. The polli-bricks' transparency allows natural light to illuminate the interior during the day. **Solar**– and wind-powered systems generate the electricity needed to power 40,000 LEDs that light the building up at night.

ECO- CENTRIC LOGIC

Description

Natural approach, building is against the nature.

Method

Reducing ecological footprint.

Definition of sustainable architecture according to this logic

Zero ecological footprint, natural buildings came from natural **materials**. Building can be a part of nature itself.

How?

In terms of building materials, preference is for **renewable**, natural materials such as **earth**, **timber**, and **straw** combined with a reduction of the use of virgin building materials through **reuse** and **recycling**.

Eco -Centric

Shigeru Ban, Jeanne Gang, Michael Reynolds

Who is **Michael** E. "**Mike**" **Reynolds ?**

- an American **architect** based in New Mexico
- In 1969, after he graduated architecture in University of Cincinnati, he started his dream as small sustainable construction experimental study projects in ecological architecture from recycled materials with includes earth and wood seeing the depletion of environment and its impacts.

- He then decided to start solo working on environmental sensitive projects and publishing the study in an American magazine architectural records in 1971.

- His first house was built in 1972 in TAOS desert in NEW MEXICO, covering an area of 640 hectares, which contained an community with experimental houses which counts to 70 called Tres Piedras entirely self sustaining.

- Back in the 1970s, Mike was among the few who promoted radically sustainable living, eco friendly housing. Mike's work in environmental activism also led to the documentary film "Garbage Warrior."

FIRST EXPERIMENTAL HOUSE COMPLETED NEAR TAOS, NEW MEXICO USING EMPTY STEEL BEER AND SOFT DRINK CANS-

Ideologies and philosophies of Mike Reynolds:

- This documentary chronicles Michael's battle against outdated zoning laws and corporate-friendly building ordinances in order to create off-the-grid houses, using materials found in garbage dumps: tires, bottles, aluminum cans, cardboard, plastics and even panels from thrown away refrigerators, stoves and washing machines.

- Michael says, "Everything we are doing is a response to the media. We knew in the 70's that we were running out of fuel and water. I was inspired to create a way of life that responds to those problems. There are mountains of tires around the world, and no one knows what to do with them. Hawaii actually ships its used tires to California."

- Sustainable Environmentalist who experiments and teaches for self construction, which is 'prospectors approach'.

- Self-proclaimed 'Biotect'

  "I just blew off the architecture profession, really. I mean, I have blown it off in my mind as a profession because it's not addressing the issues that we face. So I coined a new word called 'Biotechure,' and I use that. A combination of biology and architecture, **I would say I'm a Biotect.' "**

- Mike's designs are often regarded as "unusual" and sometimes even "impractical," but one cannot help admitting that Mike's radical architectural designs are indeed fascinating.

- In one of the interviews Mike Reynolds explains ;

"A building is a carbon zero house, where a family of four could comfortably live without outside input."

- A biotech who Designed and built a bio harmonic home out of indigenous materials of rock and soil, but inclusive of old car tires, glass bottles cans etc, can manifest an exceptionally stable and sustainable 'Earth ship' home.

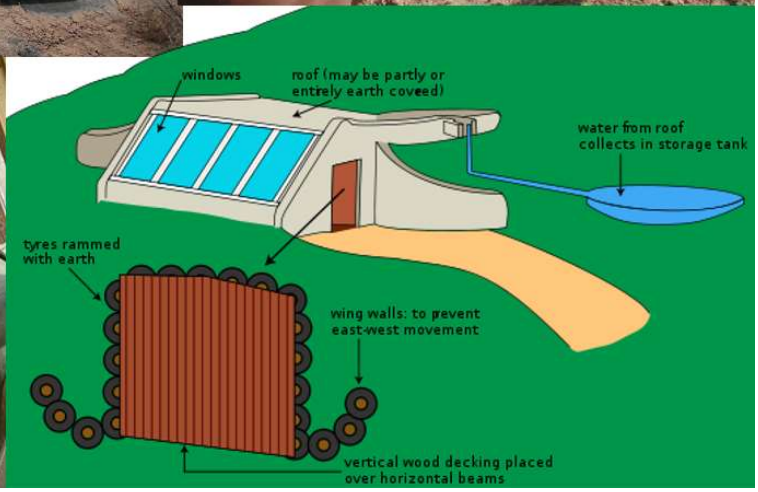
His construction techniques :

- The construction techniques included scavenged materials such as cans, bottles and tires (keep the heat thermal mass in and are also very earthquake resilient.
  Tires do not out gas) packed arranged in rows over each other filled with dirt.

- Self sustaining utilizing natural resources and passive strategies which include
  - collecting and recycling rainwater usage
  - solar heating and wind mill power,
  - greenhouse agriculture and
  - thermal mass regulated climate control making.
  - maintaining microclimate of 21 degrees all year long

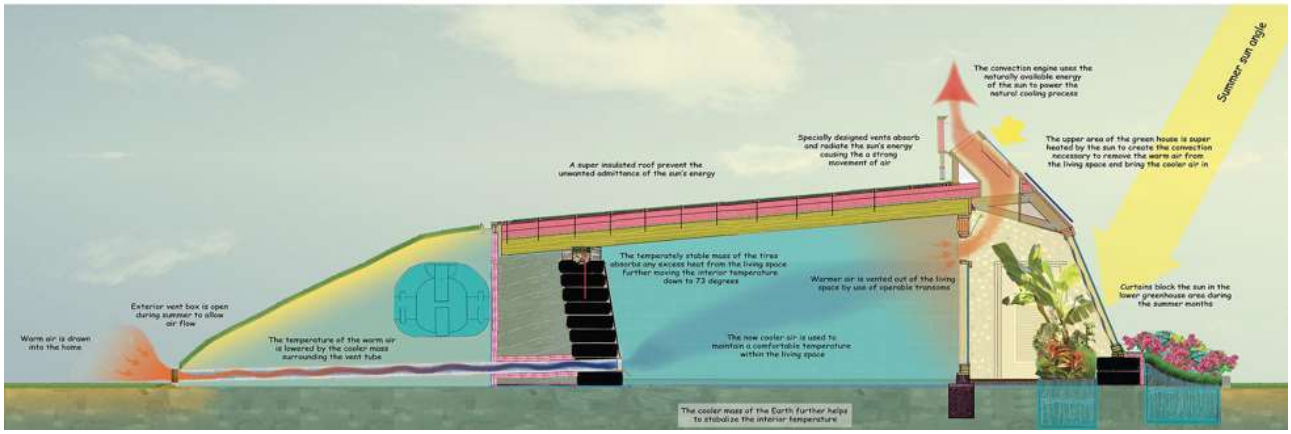
- The buildings are often horseshoe-shaped due to the difficulty of creating sharp 90 degree angles with rammed tires.

Service and passive stratergies



EARTHSHIP

- An **Earthship** is a type of passive solar house that is made of both natural and upcycled materials such as earth-packed tires, pioneered by architect Michael Reynolds
- An Earthship addresses six principles or human needs
- Thermo-solar heating and cooling
- solar and wind electricity
- self-contained sewage treatment
- building with natural and recycled materials
- water harvesting and long term storage
- some internal food production capability
- Earthship structures are intended to be "off-the-grid-ready" homes, with minimal reliance on public utilities and fossil fuels. They are constructed to use available natural resources, especially energy from the sun and rain water.
- They are designed with thermal mass construction and natural cross-ventilation to regulate indoor temperature.
- The designs are intentionally uncomplicated and mainly single-story, so that people with little building knowledge can construct them.



ECO- CULTURAL LOGIC

Description

Eco-cultural logic emphasizes sustainable architecture as **preservation of culture**.

Method

Preserving culture

Definition of sustainable architecture according to this logic

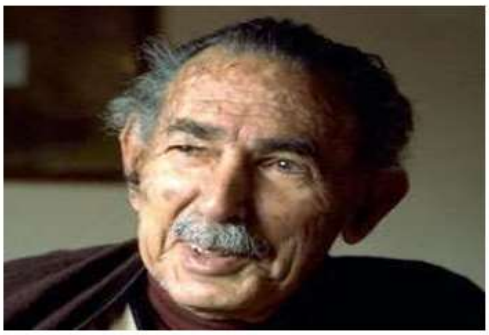
Within this logic it is suggested that sustainable architectural approaches should move away from universal and technologically based design methodologies as these often fail to coincide with the **cultural values** of a particular **place** or **people**.

How?

The eco-cultural logic emphasizes both the preservation and conservation of the variety of built cultural archetypes that already exist, combined with a concern for **cultural continuity** expressed through the transformation and reuse of **traditional construction techniques**, **building typologies**, and **settlement patterns**, each with a history of local evolution and use.

Building and its Authentic Place

Ar. HASSAN FATHY – Works in Egypt



ARCHITECTURAL PERSPECTIVES

- ❑ Ancient design methods and materials
- ❑ Utilizing a knowledge of rural Egyptian economic situation
- ❑ Space design suitable to surrounding environment
- ❑ Low cost construction without using R.C.C and steel.
- ❑ Training locals to build ones own house.

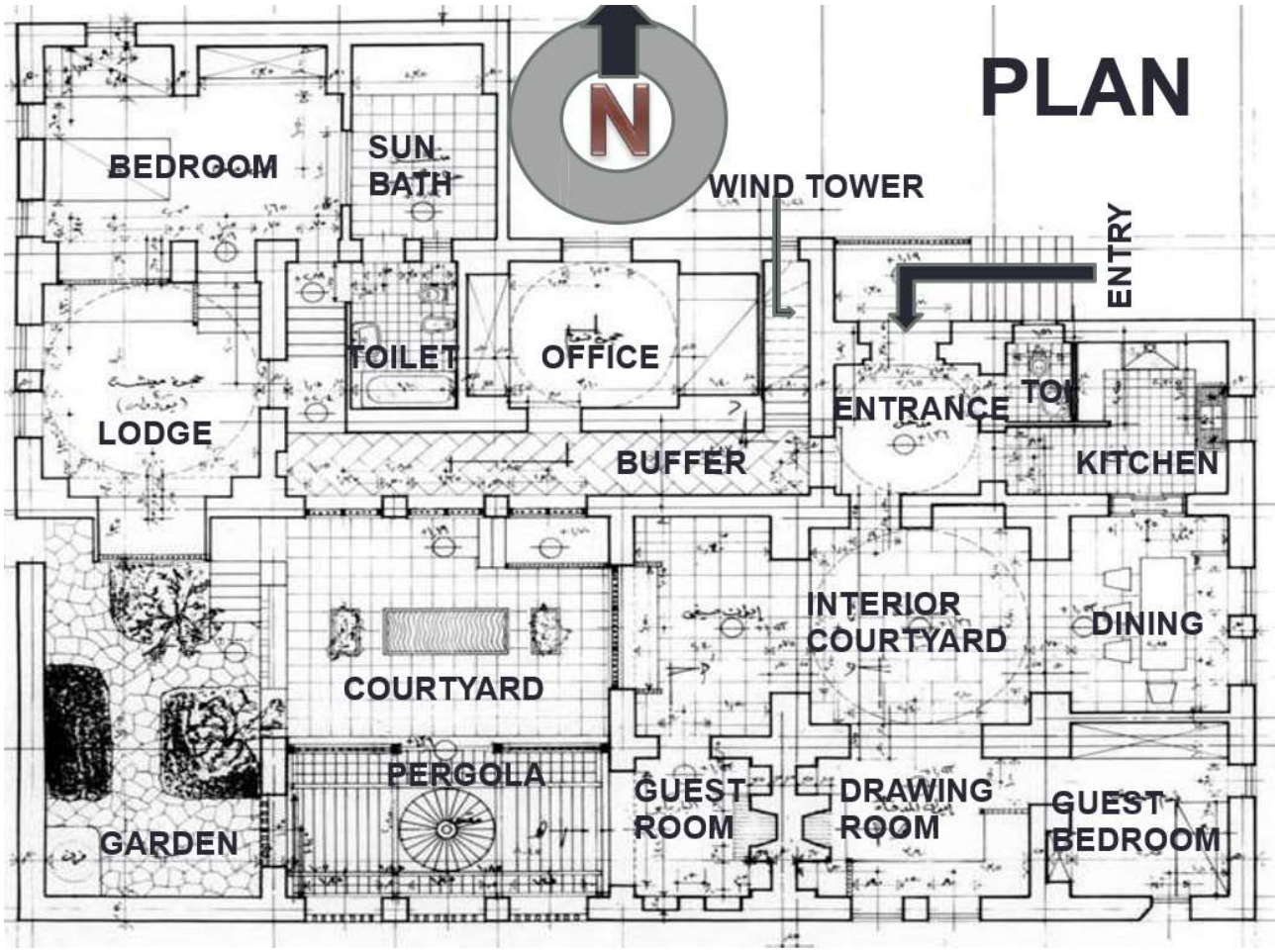
❑ **PRINCIPLES OF FATHY'S WORK :**

- The belief in the primacy **of human values in architecture**
- The importance of a universal rather than a limited approach
- The use of appropriate technology
- The need for socially oriented, cooperative construction techniques
- The essential role of tradition
- The re-establishment of cultural pride through the art of building

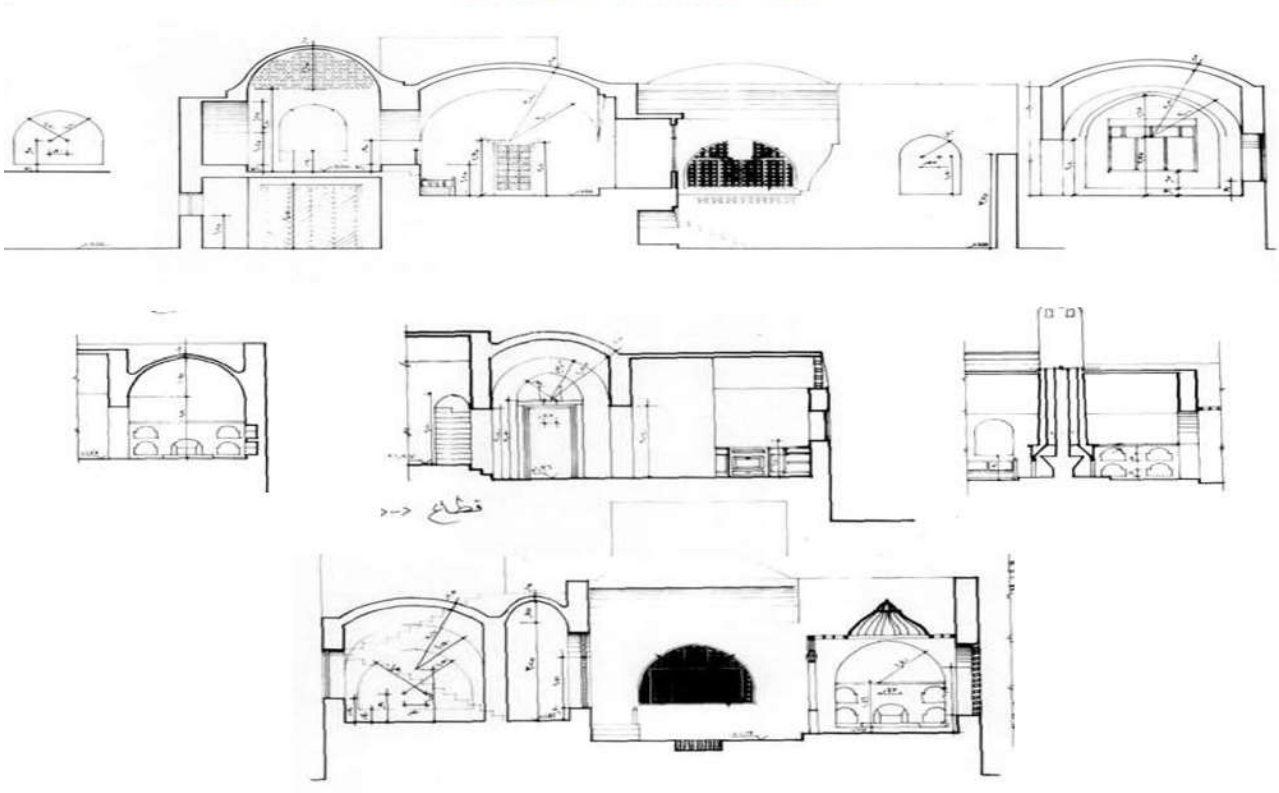
Ar. HASSAN FATHY

Akil Sami House

- **LOCATION** : Dahshur ,EGYPT
- ***ARCHITECT*** : Ar. Hassan Fathy
- **OWNER** : Dr Akil Sami
- **ARCHITECTURE** : Arab Architecture
- **TECHNIQUE**S : Egyptian and Islamic
- **MATERIALS** : Local Limestone, Wood



SECTIONS



EXTERIOR

ECO- MEDICAL LOGIC

Description

This logic utilizes a medical rhetoric to focus attention on the adverse impacts of the built environment and the causes of stress that engender **health problems**, both **physical** and **psychological**.

Method

Designing **healthy system** of housing and architecture

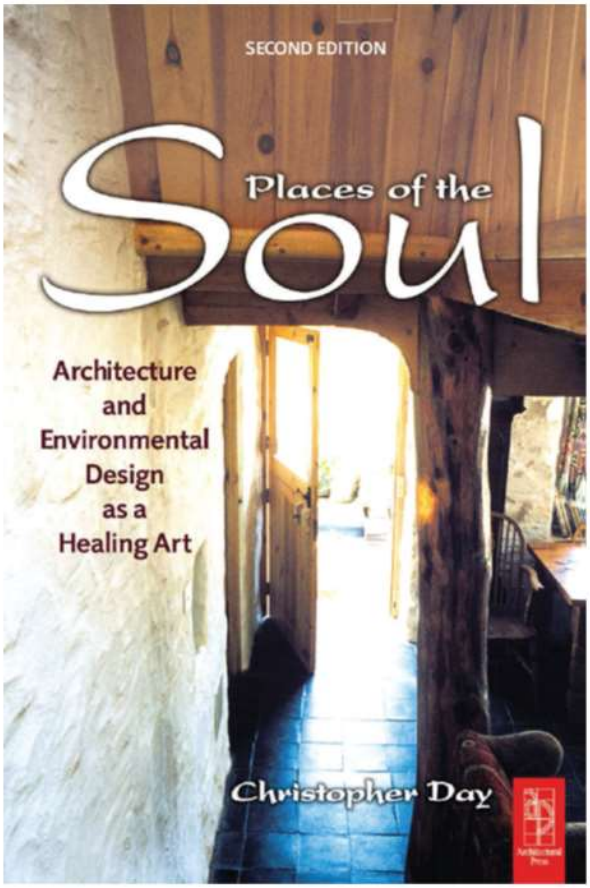
Definition of sustainable architecture according to this logic

The creation of "**healing environment**",sustainable buildings which supports the **healthy lifestyle** of the people.

How?

The use of **natural** and **tactile** materials and traditional building methods utilizing **organic treatments** and finishes, **natural light** and **ventilation**, and the use of colour to **promote health**.

Buildings and the Healthy Place



Eco - MEDICAL Logic

Description

This logic utilizes a medical rhetoric to focus attention on the adverse impacts of the built environment and
the causes of stress that engender health problems, both physical and psychological.

Method

Designing healthy system of housing and architecture

ECO- SOCIAL LOGIC

Description

The eco-social logic extends the social agenda of sustainability beyond a concern for the individual to encompass a political discourse that suggests that the root cause of the ecological crisis stems from wider **social factors**. It addresses the emblematic issue of **democracy** as the key to an **ecological society**.

Method

Participation of the people

Definition of sustainable architecture according to this logic

A building that embody the spirit of the **society**, **freedom**, and **togetherness**.

How?

The aim throughout is to construct **appropriate**, **flexible**, and participatory buildings that serve the needs of occupiers without impacting on the environment unnecessarily by using renewable **natural**, **recycled**, and wherever possible, **local** materials.

Eco Social Example

SHIGERU BAN
PRITZKER PRIZE WINNER 2014

- For Ban, one of the most important themes in his work is the "**invisible structure"**
- Avoiding overtly expression of structural elements and incorporating it in the design.
- Ban is not interested in the newest materials and techniques, but rather the expression of the concept behind his building.
- **He deliberately chooses materials to further this expression.**
- Work reflects blend of his **American Architectural training and his native Japanese influences.**
- Adopts a construction method in which the **structure** is **integrated into an over all design.**
- Innovative **exploration and Integration of materials** so as to enhance their structural potential.
- Materials ranging from **Paper, wood, bamboo and steel.**
- Most-famous now for his innovative work with paper and cardboard tubing as a material for building construction
- **Known as the 'Paper Architect'**
- As an Ecological architect
- " I don't like waste" – Shigeru Ban
- "even in disaster areas, I want to create beautiful buildings, this is what it means to build a monument for common people…"

HUALIN TEMPORARY ELEMENTARY SCHOOL - Chengdu, China, 2008

This collaborative project between Japanese and Chinese universities involved the design and construction of paper-tube-structured temporary classrooms at the elementary school struck by the Sichuan earthquake on May 2008.

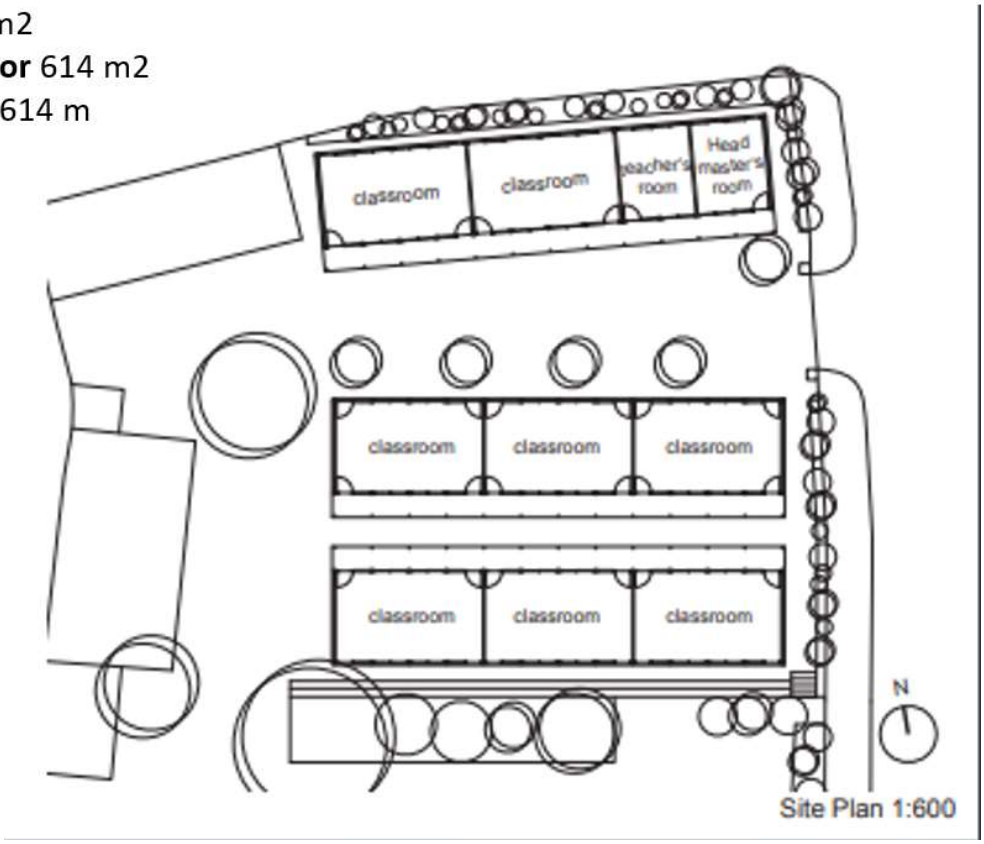
The Structure is designed as a temporary classroom buildings to be constructed using **paper tubes**, which are **cheap, recyclable, reusable, and readily available on site**. During the summer vacation,

about 120 Japanese and Chinese volunteers worked together on the construction while deepening mutual understanding.

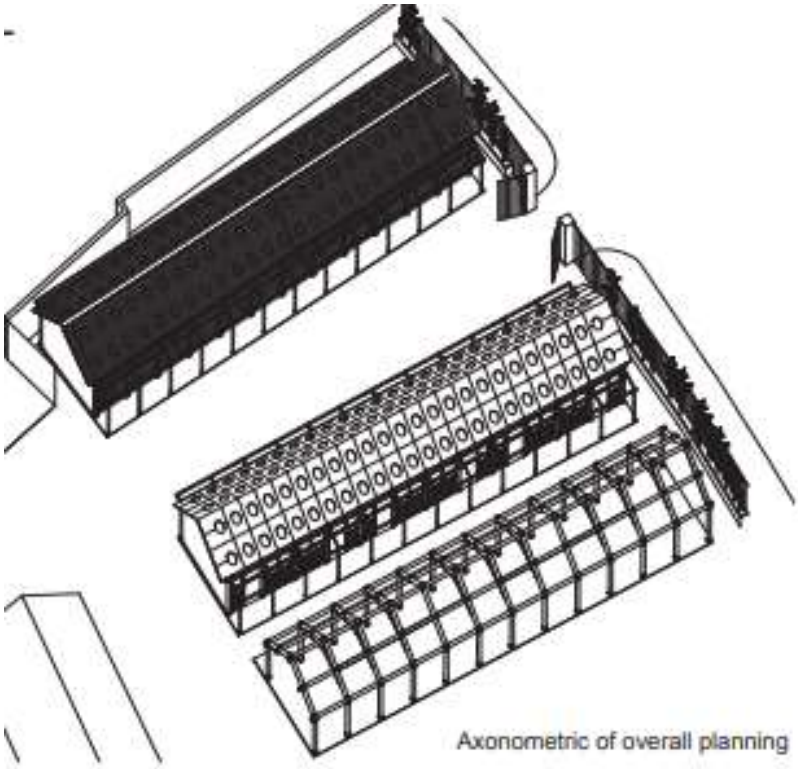
The Architect developed simple building methods and plans suited to unskilled people such as volunteers

SITE CUM GROUND FLOOR PLAN

Site 1'260 m2
Ground Floor 614 m2
Total Floor 614 m



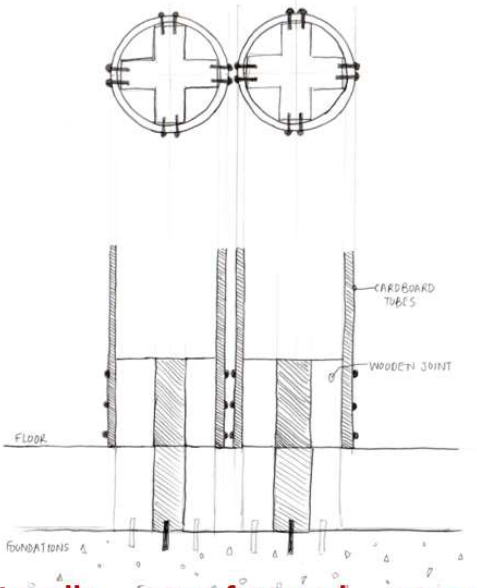
The pitched roofing is polycarbonate with plywood panels, while a post and-beam structure provides awning. Each structure accommodates three classrooms.



Axonometric of overall planning

With appropriate construction management, three buildings **(nine classrooms) were completed in about forty days**. These were the first buildings in China to have a paper-tube structure, and were also the first school buildings to be rebuilt in the earthquake-stricken area.

CONSTRUCTION DETAILS



Locally manufactured paper tubes and wooden joints
Former classroom foundation used.


Paper tubes and Wood joint


Exterior view, Children playing in the Corridor


Plywood Panel for Roo


Corrugated Polycarbonate Roofing

Reference

http://www.zigersnead.com/current/blog/post/blobwall-the-curse-of-customization/09-03-2008/1582/

https://www.scribd.com/presentation/361590399/GREG-LYN

https://dontlook.co/shorts/2017/1/9/architecture-blob-wall

https://www.youtube.com/watch?v=uYci63xhlbg&feature=youtu.be

https://en.wikipedia.org/wiki/Arthur_Huang

https://www.nationalgeographic.org/explorers-festival/2016/emerging-explorers/arthur-huang/

https://inhabitat.com/amazing-plastic-bottle-architecture-withstands-earthquakes-in-taipei/

https://www.youtube.com/watch?v=uYci63xhlbg&feature=youtu.be

https://www.designboom.com/design/nike-flyknit-collective-beijing-feather-pavilion/

https://www.build-green.fr/earthship-et-geonef-avantages-et-inconvenients/

https://www.ourplanet.org/greenplanetfm/mike-reynolds-architect-builder-earthships-the-garbage-warrior

https://myhero.com/Michael_Reynolds_2008

https://www.flickr.com/photos/95976276@N00/314653790

http://www.greenhomebuilding.com/earthship.htm

https://en.wikipedia.org/wiki/Earthship#/media/File:Earthship_plan_with_vertically_glazed_southern_wall.svg

https://www.otto.de/reblog/earthships-2299/

http://www.greenhomebuilding.com/earthship.htm

https://www.build-green.fr/earthship-et-geonef-avantages-et-inconvenients/

https://www.arch2o.com/earthships-michael-reynolds/

Videos – team work

https://www.youtube.com/watch?v=QTL8z5pbmHU

Construction techniques video

https://www.youtube.com/watch?v=qlijB6G392Q

http://aden-outlook.weebly.com/references.html

https://archnet.org/sites/2588/media_contents/30

625