UNIT I

INTRODUCTION TO ARCHITECTURE

CHAPTER I

INTRODUCTION

Origin and definitions of architecture as need based, cultural, environmental, social, psychological response of human society.

Architecture as phenomenological mediation of nature.

CHAPTER II

COMPONENTS OF ARCHITECTURE

Components of architecture:

use, means, site, shelter, relation to nature, structure, skin, materials, services, circulation, typology, aesthetics, expression, character, symbolism, experience, etc.,

CHAPTER III

HISTORY AND TYPES OF DESIGN IN ARCHITECTURE

History and types of design in architecture –

unself-conscious/ self-conscious design, design through craft/ design through drawing, pragmatic/ iconic/ canonic/ analogic design.

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Origin and definitions of architecture as need based, cultural, environmental, social, psychological response of human society.

Architecture as phenomenological mediation of nature.

https://abiboo.com/phenomenology-in-architecture/

CHAPTER I

INTRODUCTION

Origin and definitions of architecture as need based, cultural, environmental, social, psychological response of human society. Architecture as phenomenological (PHILOSOPHY)mediation of nature.

"WHAT IS ARCHITECTURE?"

It is a fundamental question that architects ask themselves, so simple and complex at the same time. Each of them describes architecture in his way, and the answer fully characterizes his work. Frank Gehry - *Architecture should speak of its time and place, but yearn for timelessness*. And here we are: his works are full of expressiveness, created in such a way that they impress both now and will continue to impress in the future. This is just one of the expressions of famous architects about architecture

Architecture is one of the most comprehensive fields of human activity, dealing with the organization of space and solving any spatial aesthetic and social problems. It is an art and science of designing and constructing various buildings, structures, and complexes etc for human life and diverse activities. **Architecture -** also the appearance of buildings and structures,. The description of the architecture is very broad indeed. But the main is... there is no architecture without construction. Architectural works are often seen as cultural or political symbols. The architecture allows the vital functions of society to be carried out, while at the same time directing the processes of life. However, architecture is created first and foremost according to the capabilities and needs of people.

Interrelationships in architecture are functional (purpose, utility), technical (strength, durability), and aesthetic (beauty). One of the most important tasks in constructing a beautiful building or facility is ensuring the overall unity and harmony of the architectural composition. To do this, it is necessary to observe the optimal proportions and scale, the principles of symmetry and asymmetry, as well as skillfully use the advantages of contrast and other nuances.

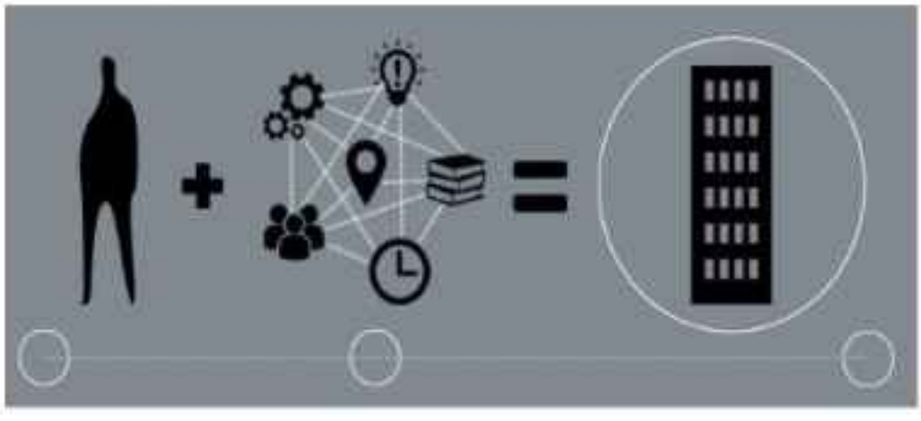
ORIGIN AND DEFINITION OF ARCHITECTURE

Origin and definitions of architecture as need based, cultural, environmental, social, psychological response of human society. Architecture as phenomenological (PHILOSOPHY)mediation of nature.

Architecture refers to the art and science of designing and building structures, or large groups of structures, in keeping with aesthetic and functional criteria.

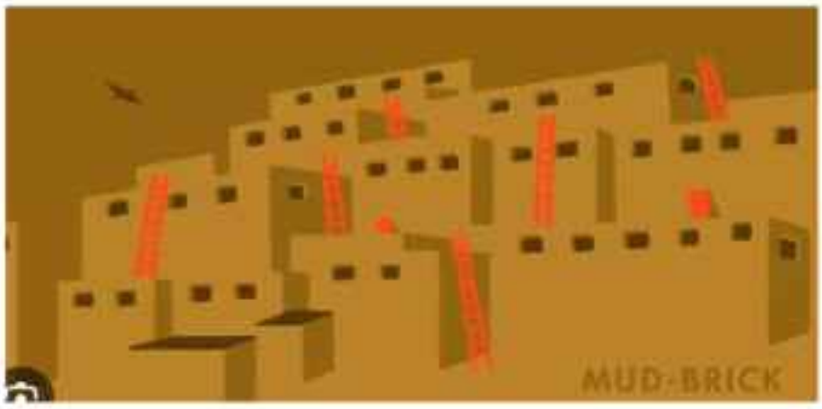
There are many definitions that have been put forward trying to capture the true meaning of architecture, with such dictionary explanations as:

- The art and science of designing and organizing spaces, as well as non-building structures. The art or practice of designing and building structures and especially habitable ones. The art or practice of designing and constructing buildings.
- The art and practice of designing and making buildings. Architecture is the art of planning, designing, and constructing buildings.
- The art of building, tasteful application of scientific and traditional rules of good construction to the materials at hand.

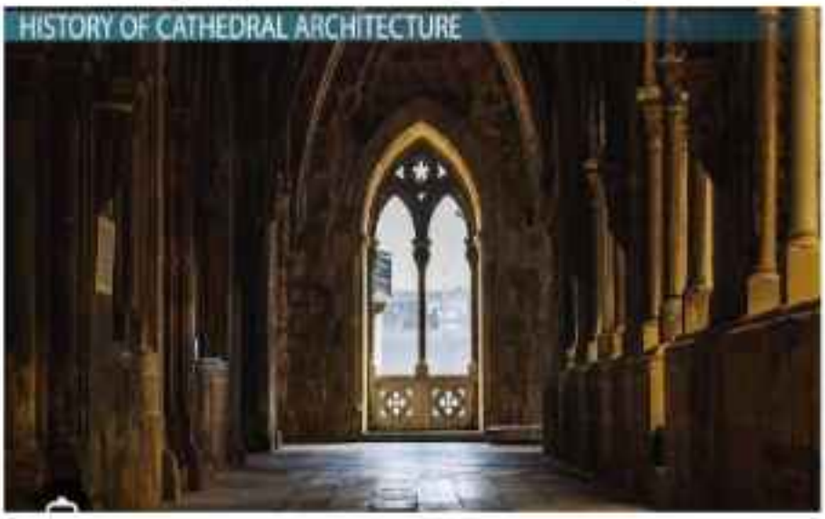


- Architecture is both the process and the product of planning, designing, and constructing buildings or any other structures.

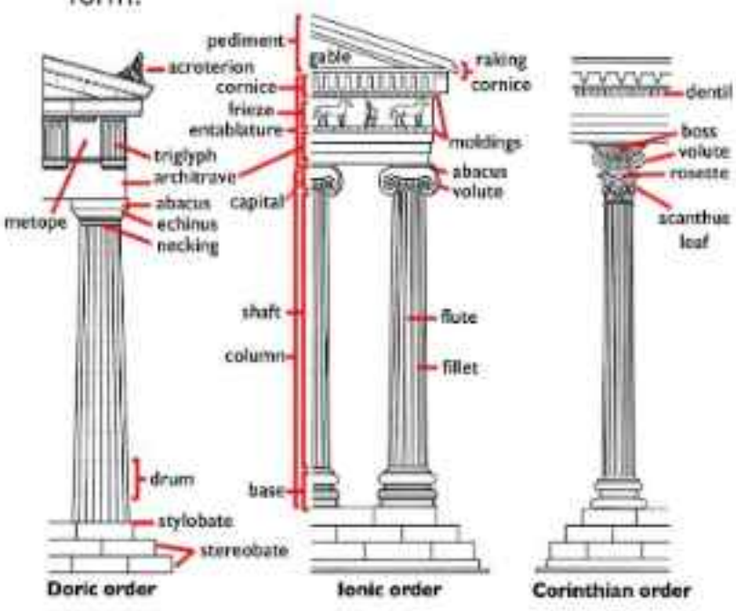
- The profession of designing buildings, open areas, communities, and other artificial constructions and environments, usually with some regard to aesthetic effect. Architecture often includes design or selection of furnishings and decorations, supervision of construction work, and the examination, restoration, or remodeling of existing buildings.



- The study or practice of designing buildings.



- Discipline deals with the principles of design and construction and ornamentation of fine buildings.
- Architecture is defined as the method of designing and building something into a usable, pleasing form.

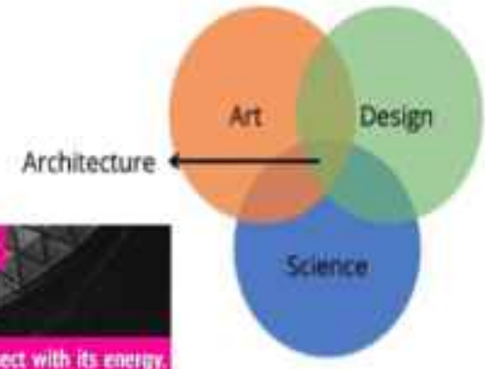


IIINTRODUCTION TO ARCHITECTURE

DEPARTMENT OF ARCHITECTURE

PURPOSE

- Architecture exists to **serve society** and generally **improve the quality of life.**
- Judging from its history, architecture has played a major role in the **civilization of human beings**, constantly encouraging humans to **expand their creativity.**

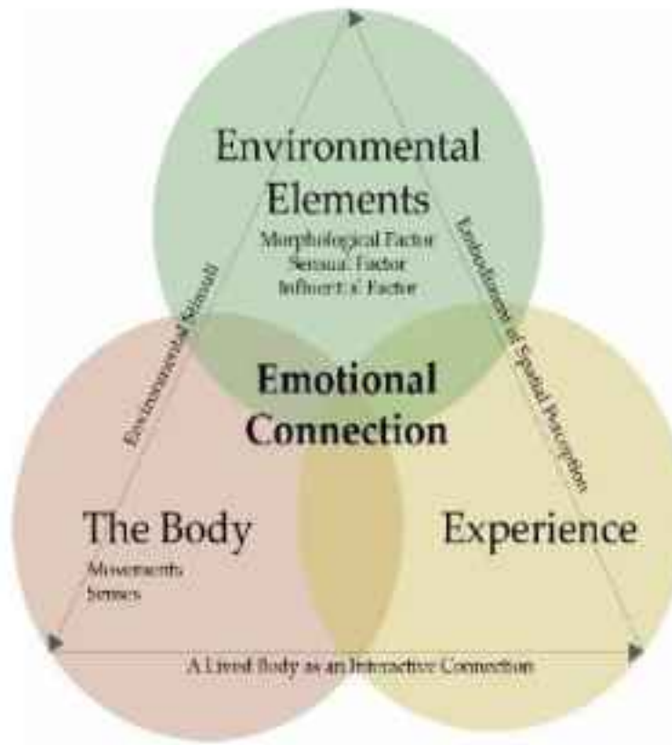


- Architecture primarily serves to **create a physical environment** in which humans can live.

- The discipline aspect of architecture facilitates the **construction of new forms of knowledge** which are meant to enhance and advance architecture itself.

NEED OF ARCHITECTURE FOR HUMAN SOCIETY AND ENVIRONMENT

- Architecture whether good or bad creates **environments and atmosphere**, that in turn **evoke positive and negative human feelings and emotions.**
- Aside from the subjective nature of architecture, its success is measured by the **quality of the place it creates**, which if accomplished, will be enjoyed and regularly occupied.
- We need architecture it in both a **physical and emotional** sense.



How can architecture be applied as a background in satisfying the human need in the design?

- Only by delivering a design which incorporates all the need of the designed space to satisfy human who is going to use the designed space, in terms of
  - **FUNCTIONAL NEED**
  - **AESTHETIC NEED**
  - **PSYCHOLOGICAL NEED**

EXPLORATION OF A WORLD WHERE ARCHITECTURE AND DESIGN INTERSECT WITH NATURE

FUNCTIONAL NEED

What is functional?

- It is the activity that is going to take place in the designed space.

What is Functionalism?

- **Functionalism**, in architecture, is the principle that architects should design a building based on the purpose of that building

The original – "Form follows function"

- **Louis Sullivan, exact word describing form follows function in his article.**

Whether it be the sweeping eagle in his flight, or the open apple-blossom, the toiling work-horse, the blithe swan, the branching oak, the winding stream at its base, the drifting clouds, over all the coursing sun, form ever follows function, and this is the law.
And
"It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and things superhuman... that form ever follows function, This is the law ..."

- **The ever so famous quote used by all modernist architects "form follows function" actually comes from Sullivan's original quote "form ever follows function".**
- **Louis Henry Sullivan was an American architect (1870-1920's) who has been called the father of modernism and the father of skyscrapers.**

When we say the that the form follows function we say that the purpose defines the look and shape of the object and that's efficiency.

- **He defined the style in architecture which expresses the 'verticality' of high rise buildings.**
- **His architecture was defined my beautiful modular ornamentation on simplistic building forms, striking a perfect balance in art nouveau and modernism.**
- **The underlying idea behind this philosophy is "efficiency". Efficiency in materials, space planning and ornamentation provides a way to minimize the cost of construction and increase the profit margin.**
- **The idea of efficiency suddenly became central to the high rise architecture because of modular construction that greatly supports repetition.**
- **All of the new ideas in efficiency were shown in Sullivan's first masterpiece- The Wainwright building in St. Louis.**

Louis Sullivan's phrase "form (ever) follows function" became a battle-cry of Modernist architects after the 1930s. The credo was taken to imply that decorative elements, which architects call "ornament," were superfluous in modern buildings.

Balancing money, Aesthetics, Supply-Demand & Innovation

What's so special about form follows function?

- **Sullivan's speciality was not cutting costs with efficiency, rather his abilities shined in "optimization".**
- **It is the idea of striking a balance to optimize aesthetics, economics, experience and usability of any architecture.**
- **For example: he often used beautifully crafted terra cotta tile mouldings on the exterior of the buildings. In this way, he optimized aesthetics of the building without sacrificing the economics since the same tile was repeated in many place.**
- **He used ornamentation only where needed, namely in pediments, cornice and common areas in the interior of the buildings.**
- **He always used custom ironwork railings and elevator doors since these are high traffic areas.**
- **He expressed verticality with exterior columns and believed that every inch of a tall building should reflect its 'tallness'. This can be seen in his choice of ornamentation, facade and spatial organization.**

LOUIS SULLIVAN : Father of Modern Architecture

- **Their buildings were not only functional examples of metal frame technology, but successful artistically in unifying a skyscraper's repetitious components.**
- ***The Wainwright Building* (1890) is a ten-story, steel-skeleton structure that emphasizes verticality with, for the first time, an aesthetically effective shell.**
- **A major landmark in American architectural history, the Wainwright building was hailed by Frank Lloyd Wright, as the first structure with "height triumphant.**
- **Sullivan influenced a generation of architects by designing the modern skyscraper as an organic whole. Whatever is beautiful rests on the foundation of the necessary."**
- **He delineated three major visible sections in his works:**
  - **A strong base with broad windows for shops,**
  - **A middle section for offices with vertical elements to dramatize height, and**
  - **A capping cornice housing mechanical equipment.**
  - **The tripartite division corresponds to practical requirements.**

The Wainwright Building (1890)

LOUIS SULLIVAN : Father of Modern Architecture

- The Guaranty Building (1895-96) with its giant arches, even more gracefully meets the challenge of imposing coherent visual organization on a tall tower.
- Here, Sullivan doubled the number of vertical piers (every other pier is not load bearing) to express not just function but as a design element forcing the eye to read the middle ten floors as one continous, soaring unit.
- In Sullivan's treatment of Guaranty Building, the whole seems to grow organically. He clad its strong simple form in floral ornament, which he likened to "poetic imagery." With a deft touch, Sullivan transformed pure structure and function into an aesthetic statement.

CHICAGO STYLE

If we review the characteristics of Chicago Style, the most important items were as follows:

- Use of new material, new building techniques
- Elimination of historical ornaments
- Inventive and fresh surface decoration
- Expression of structure
- Abundance of antique styles
- Expression of building's commercial purpose:

As a result, LOUIS SULLIVAN (1856-1924) is considered as the father of American Modern architecture.

- He saw that the new vertical towers demanded wholly a new aesthetic. He was one of the earliest to use the steel frame .
- Therefore, the exteriors of his designs echoed: not only the building's function, but its interior skeleton.
- He rejected antique styles, and the 19th century European architecture, but did not avoid using ornamentation .

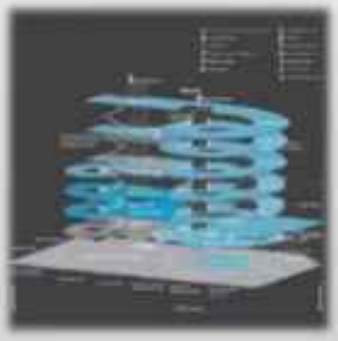
FUNCTIONAL NEED

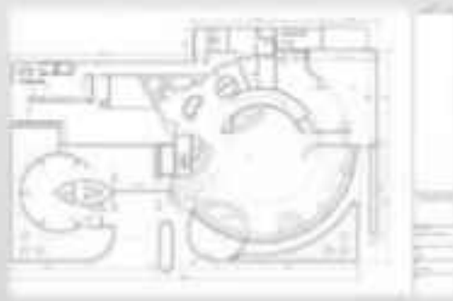
GUGGENHEIM MUSEUM

- Frank Lloyd preferred the Guggenheim Museum be built outside New York City.
- The aerial photo of the museum, shows natural elements.
- As we approach the museum's entrance, the openness you previously felt is replaced by the imposition of a hovering , low ceiling.
- The entrance is simple and understated. At every step of the way design directs what you see and when you see it.
- According to design, visitors would enter the building, take an elevator to the top, and enjoy a continuous art-viewing experience while descending along the spiral ramp.
- With a pointer, trace the path that Wright intended for visitors to travel. In this way design conform to the principle of "form follows function".
- In 1956 Wright designed one of his final buildings, the Guggenheim Museum in New York.
- It is the culmination of decades of innovations throughout his architectural career, and shows the progression of his designs from linear to circular.

GUGGENHEIM MUSEUM

- He based the design of the Guggenheim on one shape from nature : <u>the spiral</u>.





- The floor plan is one single fluid ramp spiraling up six stories and resembling the inside of a seashell.
- There is conventional approach to museum design, which led visitors through a series of interconnected rooms and forced them to retrace their steps when exiting.
- In fact it is not divided into individual floors connected by staircases or elevators, but is instead one single fluid ramp spiraling up six stories .

- A skylight illuminates the interior from above, and the white concrete walls reflect the light.

FUNCTIONAL ASPECTS OF A DESIGN IN ARCHITECTURE

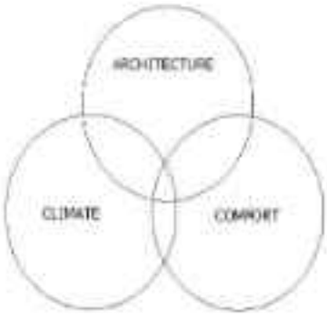
Functionalism, in architecture, the principle that the form of a building should be determined by practical considerations such as use, material and structure, as distinct from the attitude that plan and structure must follow to a preconceived picture in the designer's mind.

- CONVENIENCE
- COMFORT
- EFFICIENT
- UTILITY
- PURPOSE
- ACTIVITY
- SHARE OF THE SPACE
- CLIMATE
- PROCESS SEQUENCE
- CULTURE
- STYLE







*"Architecture can be defined as **DURABILITY, UTILITY and BEAUTY** at the right time and at the right cost."* - **Marcus VITRUVIUS Pollio**

DURABILITY – it should stand up toughly and remain in good condition

UTILITY – it should be useful and function well for the people using it

BEAUTY – it should delight people and raise their spirits.

- A more modern **concept** was suggested by Louis Sullivan, a prominent 19th-century architect who formulated the principle based on the shape of a building relating to the function or purpose it was built.
- This concept primarily focused on the **function of a building**, leaving structural and aesthetic considerations fully dependent on it.

GUGGENHEIM MUSEUM BY FRANK LLOYD WRIGHT

AESTHETICS

- Philosophy dealing with nature of beauty, art, and taste, with creation and appreciation of beauty.
- It is more scientifically defined as the study of sensory or sensory-emotional values, sometimes called judgments of sentiment and taste.
- Aesthetics "critical reflection on art, culture and nature."

Concept Of Aesthetic

- The relation between man and nature
- An objective rather than subjective revelation of beauty.
- Aesthetics consisted in the description of a whole culture

PSYCHOLOGICAL

What is psychological?

- **Psychology** is an academic and applied discipline that involves the scientific study of mental functions and behaviors of human ultimately aims to benefit society
- Psychologists attempt to understand the role of mental functions in individual and social behavior,

- ASPECTS
- PERCEPTION
- COGNITION
- ATTENTION
- EMOTION
- PHENOMENOLOGY
- MOTIVATION
- BRAIN FUNCTIONING
- PERSONALITY
- BEHAVIOR
- INTERPERSONAL RELATIONSHIPS

Theory

• The theory or architecture is broad and far-reaching. The Roman architect Vitruvius wrote the earliest known work on the subject of architecture and its principles in the early 1st century AD.

• According to him, a building had to have **durability,** meaning that it should be able to remain in good condition over time; ultimately meaning that it had to have a **purpose and beauty**, meaning that it had to be aesthetically pleasing.

• Architecture is a process & the product of planning, designing, constructing buildings

CULTURE & ARCHITECTURE

Architecture as a matter of human life reflects the **culture in every society** interacting closely with structural, historical, political, economic and social features of society.

Culture shaping architecture is a very inherent concept. But we usually tend to overlook this concept or idea. In order to truly understand this concept, let us first try to understand what culture is. Culture is defined as *the ideas, customs and social behavior of particular people or society.* The behaviors we are accustomed to and have been taught are the factors determining the kind of spaces we need to live in. Culture is defined as the ideas, customs and social behavior of particular people or society. The behaviors we are accustomed to and have been taught are the factors determining the kind of spaces we need to live in. "Architecture becomes a frame for constructed situations" – Bernard Tschumi

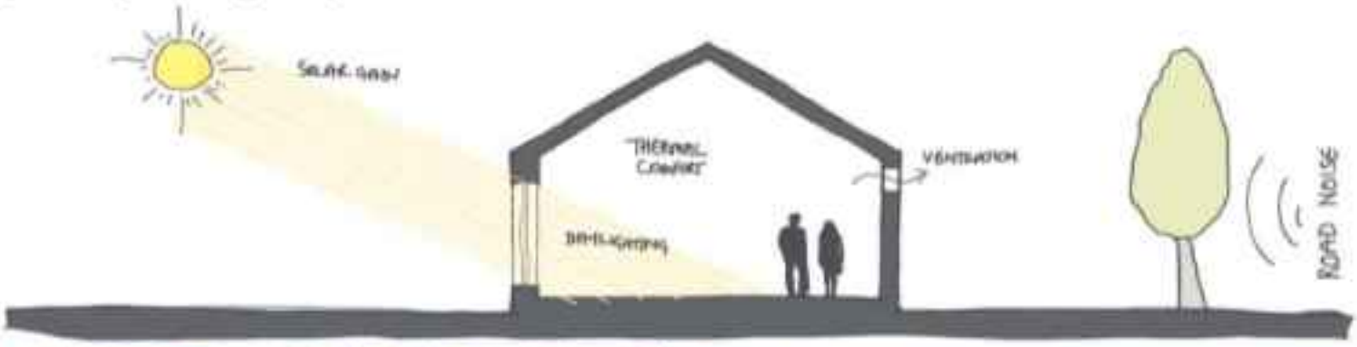
Examples that demonstrate this fact:

•Temples of South India make this fact very evident. *prakara*, around the main idol, to fulfill the practice of going around the idol ,tradition of the Hindu people. Also have *natyamandapas* provides for dances,served the purpose of communicating principles of religion. The inscriptions on the temple's *upapitha* (the portion above the plinth also tell stories. The need for this portion of the wall to be well demarcated arises from the culture of telling stories through stories that are usually written on this part.

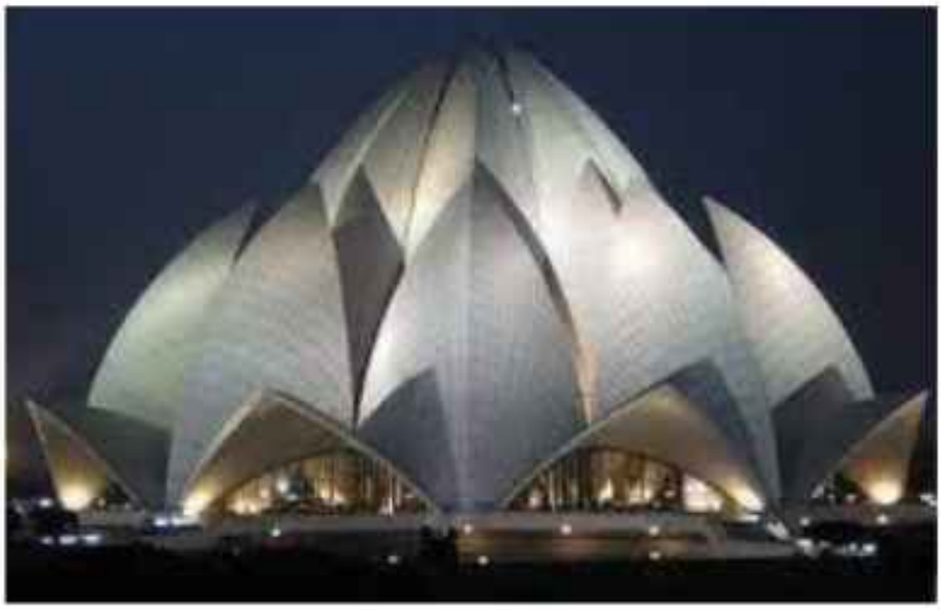
If the architect is not aware of these facts, then a temple that doesn't fulfill these purposes would be produced, They are raised to such great heights that they are made visible from long distances, to remind all people living in the vicinity of the gods.

ENVIRONMENT & ARCHITECTURE

- Architecture and Environmental Studies are natural companions. It is impossible to design good buildings without understanding their relationship to natural systems. It is also impossible to understand the natural environment without knowing how human intervention affects it – both positively and negatively.



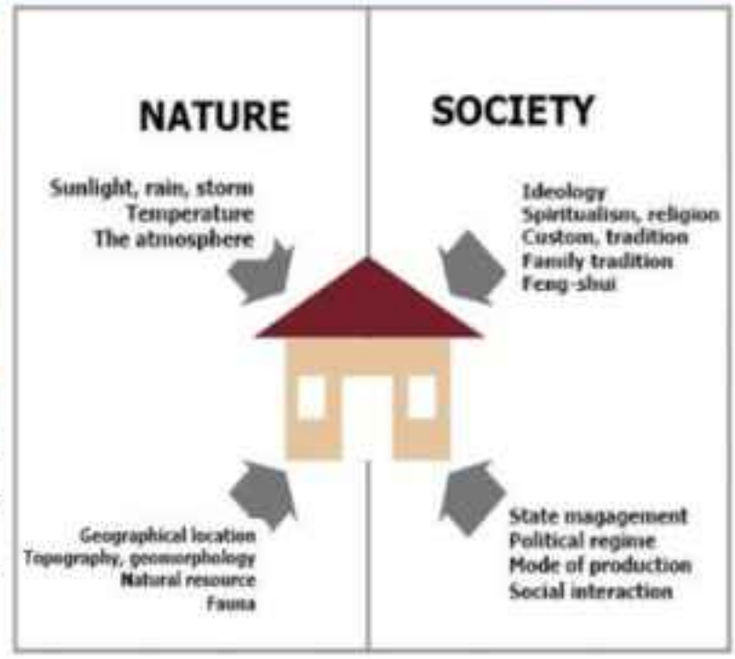
Biomimicry Architecture; is often referred to as a unique and technical approach to mimicking nature in creating various designs in architecture



Located in the national capital Delhi, lotus temple was designed by Fariborz Sahba as a house of worship dedicated to the oneness of humanity of religion. The sacred flower of Hindu mythology, the lotus is used not only to develop its form but also to draw symbolism of spirituality and purity. The form is enabled to block the harsh sun rays and keeps the interiors cool and well lit even during the scorching summer of India.

SOCIAL

- Social architecture is **the conscious design of an environment that encourages a desired range of social behaviors** leading towards some goal or set of goals.
- Architecture not only **affects society on a high level** but also on a more personal level, it can have a profound impact on its occupants. Everything from the layout of the space to the material finishes can contribute towards occupant health, mood, and productivity.
- An Architect helps achieve and fulfill the needs of society, individually and socially, based on our past experiences and our vision of the future.



Denise Scott Brown said: "Architecture can't force people to connect; it can only plan the crossing points, remove barriers, and make the meeting places useful and attractive." Although it cannot control the outcome, architecture holds the potential to set the stage for chance encounters and social interactions, thus nurturing community building and influencing the fabric of our social culture.

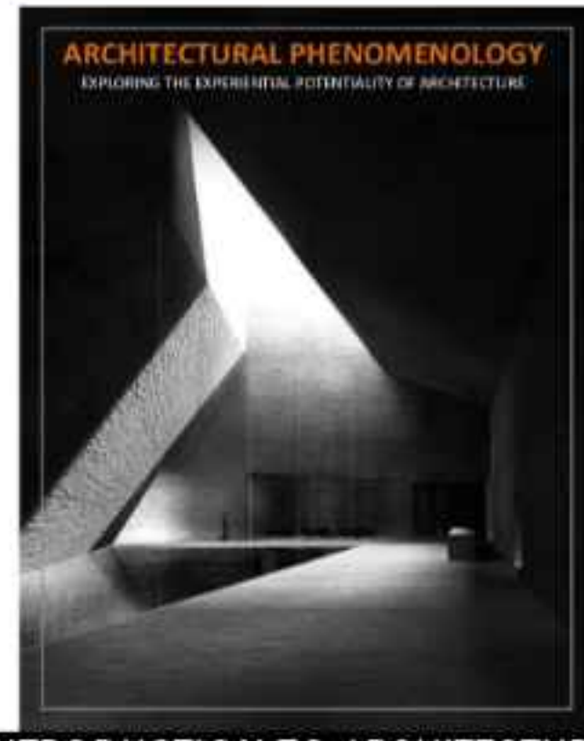
Architecture can improve social capital of its surroundings through design strategies and thoughtful programming, creating the fertile ground for social interaction among different groups of people.

ARCHITECTURE AS PHENOMENOLOGICAL MEDIATION OF NATURE

- Phenomenology demonstrated in architecture is **the manipulation of space, material, and light and shadow to create a memorable encounter through an impact on the human senses.** This theory promotes the integration of sensory perception as a function of a built form.
- The culture of societies makes their architecture and architecture works as the container of human behaviors influences the culture.
- Architectural phenomenology emphasizes human experience, background, intention and historical reflection, interpretation, and poetic and ethical considerations
- The phenomenological approach to architectural design points towards an understanding of architecture that is not confined to a design exercise but rather expresses a global concept of the relation between architecture and the human experience of space.
- Phenomenology, which aims to create sensory perception, is about creating an abstract experience beyond tangibility. Sensing beyond physical entities in spatial experience deepens meaning. Buildings and cities, essentially provide the necessary view to understand and confront the human existence.
- Taking inspiration for the design from shapes found in nature is known as biomorphic architecture. The shapes are inspired either directly from trees, leaves, animals, birds, etc., or in abstract form. Nature-inspired forms in architecture bring users close to the natural world.

10 WAYS ARCHITECTURE AND NATURE CAN BE COMBINED

Man, how much ever modern, is deeply tied with nature. Even in contemporary and technology-driven buildings, he finds ways to have greenery around him. Yet, these buildings have created a physical barrier between man and nature, and also, between man and other life forms. But he has realized the importance of nature around, and its consequences of not having it around. Architecture is a part of nature with a man-made environment. To combine architecture and nature, these are the ten ways.



1. Biomimetic Architecture

Biomimetic architecture is mimicking the systems and processes of nature, i.e., plants, animals, and other life forms. Nature always has solutions to adapt to the environment and the changes occurring due to climate change. It also has solutions to survive in the most extreme climates. Architects and designers have been greatly inspired by the mechanism that every plant, animal, and other life forms possess within them to adapt to their surroundings. Mimicking their mechanisms through technology and using it in designing structures is a way to combine architecture and nature for the building to adapt to the environment.

Eastgate center, inspired by Termites

2. Biomorphic Architecture

Taking inspiration for the design from shapes found in nature is known as biomorphic architecture. The shapes are inspired either directly from trees, leaves, animals, birds, etc., or in abstract form. Nature-inspired forms in architecture bring users close to the natural world. Nowadays, many architects use the concept of biomorphism in their designs.

Olympic stadium Beijing, inspired by birds nest

3. OPEN SPACES AND LANDSCAPE DESIGN

Having open spaces and landscape areas in combination with built spaces allow users to live in constant relation with nature. Architecture and nature coexisting with each other induces positivity and a fresh mood in people, and minimizes the environmental damage on a larger scale.

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4. Use Of Natural Materials

Using materials obtained from nature in raw form or the least refined form is one of the great approaches to combine architecture and nature. We come in direct contact with the spatial materials daily. So the use of natural materials like wood, clay, mud, stone, bamboo, etc., builds a natural atmosphere in the space and imparts the essence of the forest. Also, choosing a color palette that consists of colors found in nature like earthy, shades of grays, blue, brown, earthy green, and rusty shade creates an atmosphere of harmony between self and nature

MUD HOUSE AT MUDAVANMUGAL

5. BY USING THE FIVE ELEMENTS OF NATURE

When there is a presence of the five elements of nature around us, i.e., *earth, water, fire, air, and space*, we feel a stronger connection with nature. Our human bodies, too, are made with these five elements, and having it in spatial form around, the elements of our body and elements of nature synchronize with each other. In architectural space, *earth* refers to the built form made from earthy materials, *water* refers to the water bodies on the site, *fire* refers to the light energy obtained from the sun, *air* refers to airflow throughout the site- that can be achieved by having maximum trees on site, and *space* refers to the connection between built and open spaces.

Water body near the structure, Water Cherry House - Connection between built and open spaces, sunrays entering in the structure

6. ANIMALS-BIRDS-OTHER SPECIES FRIENDLY ARCHITECTURE

When we say *combining architecture and nature,* we think about materials, landscape, and spaces inhabited by humans. But amid this, we forget that we also share our existence with thousands of other life forms. Man, right from the beginning, lived amongst this vast number of life forms. But over the centuries, we have created a separation between us and them through our high-tech designs and as a dire need for seclusion. It has not only created a detachment between *'us and them'* but also between us as a *'human'* and us as a *'species just like them'*. Yet, there are a few structures that have been designed thoughtfully for both humans and other life forms to reside in.

COTSWOLDS ECO-HOUSING WELCOMES WILDLIFE- ROOF HAS FLOWERS TO ATTRACT BUTTERFLIES AND INSECTS, WALLS WITH TIMBER SHINGLES PROVIDE SHELTER FOR INSECTS, OVERHANGING EAVES FOR BIRDS

7. Minimalism In Design

In Japanese tradition, there is a philosophy called *wabi-sabi* that can be used to combine architecture and nature. W*abi* means living with nature, simplicity, minimalism, and *sabi* means celebrating the beauty of ageing, rustic, and accepting the natural cycle of life-decay-death. In architectural space, simple and minimalistic design without unnecessary lines and forms, and natural materials that are allowed to age can create an environment that will keep users more connected to nature.

Minimal interiors, Modern Ryokan Kishi Ke

Wabi house by Tadao Ando

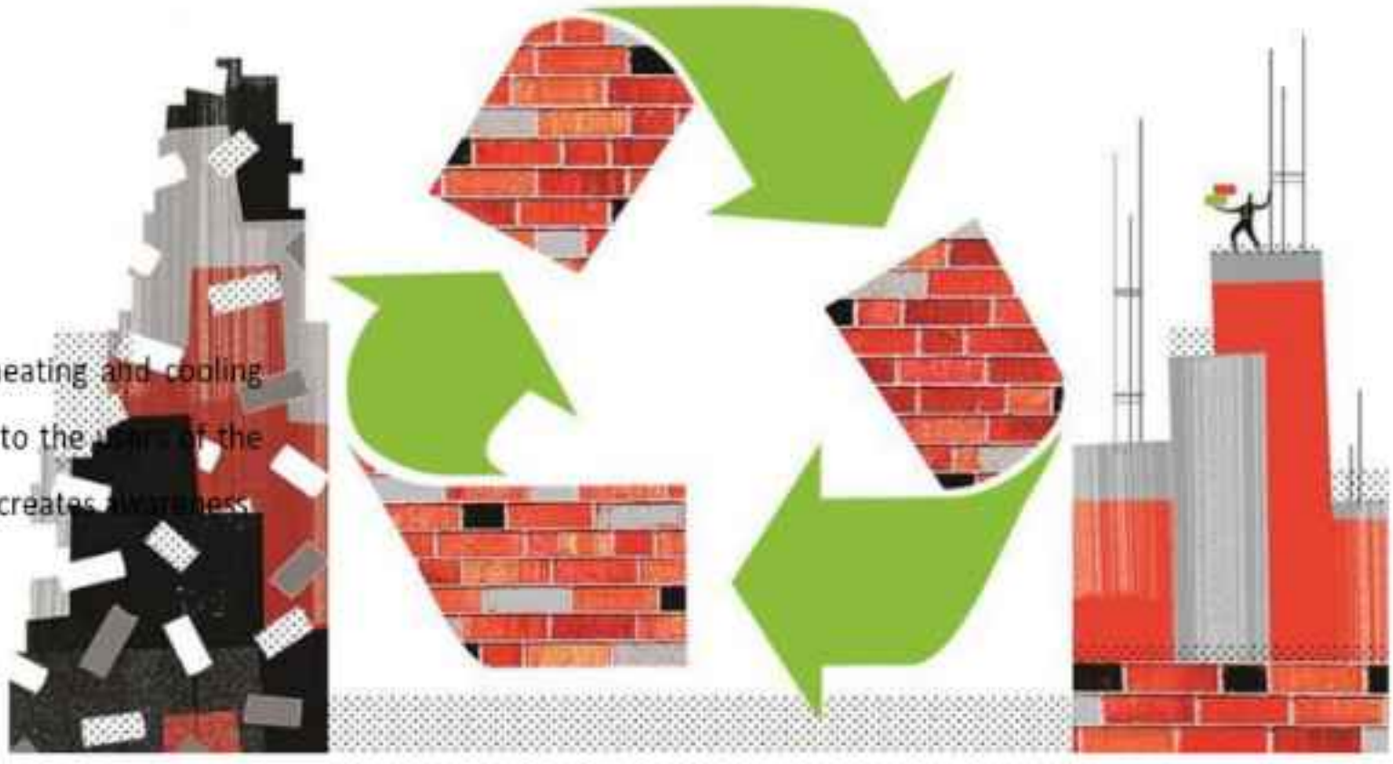
8. Views and Interior elements

Humans tend to feel connected to nature even by having the views of it. Having views through the windows of natural elements like trees, mountains, rivers, etc., and having daylight inside the structure and access to sunlight throughout the day is a way where architecture and nature can be combined. In the interiors, elements like natural stones can be used as decorative elements and sculptures, and planters can be used for indoor gardens.

Views of Central Park from the buildings around

9. By Keeping The Environment Clean

Combining architecture and nature is not only about the designing of spatial elements but also about the impact caused by architecture on the environment on a larger scale. The waste generated during the construction and after the building is built should be minimum, and the entire process should be carefully planned. What we borrow from nature, we must try to give it back in the least refined form to reduce the harmful impact on the environment.



ral heating and cooling
rces to the users of the
also creates awareness

10. Sustainable Techniques In Design

Methods like the use of solar panels, rain-water harvesting systems, natural heating and cooling systems, garbage, and sewage treatment systems, provide necessary resources to the users of the structure and also reduce the impact on the environment on a larger scale. It also creates awareness within the users of their responsibility towards nature.

CHAPTER II

COMPONENTS OF ARCHITECTURE

Components of architecture:

use & means, site & shelter, relation to nature, structure, skin, materials, services, circulation, typology, aesthetics, expression, character, symbolism, experience, etc.,

USE & MEANS

Use

- planning for use or function is concerned with **convenience of movement and rest.**
- All activities that demand architectural attention require **unique planning solutions** to facilitate them.

Means

- These solutions are found by **differentiating spaces for distinct functions**, by providing **circulation** among these spaces, and by designing them to facilitate the actions of the human body.

> **Architecture is** not just about building. It's a means of improving people's quality of life.
>
> DIÉBÉDO FRANCIS KÉRÉ

SITE & SHELTER

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Site

- Site means **the area or the land that is meant for the construction of the proposed project.**

Shelter

A shelter is a **basic architectural structure or building that provides protection from the local environment**. Having a place of shelter, of safety and, i.e. a home, is commonly considered a fundamental physiological human need, foundation from which to develop higher human motivations.

RELATION TO NATURE

- Architects need to **make buildings that are friendly to the environment and more green which can be adaptable to the surroundings**, in other words, they need to create buildings that are energy efficient, like green buildings or sustainable buildings which are designed to reduce the overall impact of the built environment.

STRUCTURE

Structure is the underlying basis of construction of the buildin g

The components of a building, their elements or form t ha ensures STABILITY & DURABILITY.

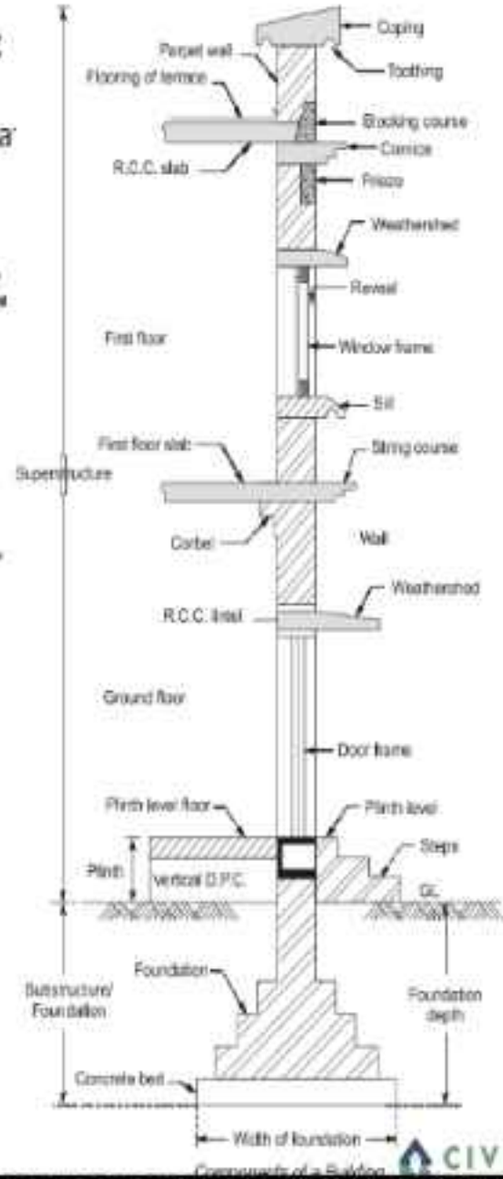
Relationship between structure and architectural space

↓

Aesthetic principles

↓

Determine Form, the structure function & expression of the space concepts



SKIN

• A lightweight and non-structural outer facing, cladding or layer for a wall or component.

• It may also be referred to as the façade of the building. Technology and innovative use of materials have made external surfaces an integral part of the building.

Skin of a building is chosen based on

- **Choice of materials**
- **Their application**
- **Aesthetic quality**
- **Technical possibility**







MATERIALS

- Building material is any material that is used for construction purposes.
- Many naturally occurring substances, such as clay, rocks, sand, and wood, even twigs and leaves, have been used to construct buildings.
- Apart from naturally occurring materials, many man-made products are in use, some more and some less synthetic.
- Materials are chosen based on
    - Aesthetic effect
    - Cost efficiency
    - Climatic control
    - Textural / cognitive effect

MATERIALS ARE CHOSEN BASED ON – AESTHETIC EFFECT

The aesthetics of a building is one of the principal aspects considered in architecture. The appeal of a building covers the combined effects of a building's shape, size, texture, colour, balance, unity, movement, emphasis, contrast, symmetry, proportion, space, alignment, pattern, decoration, culture and context.

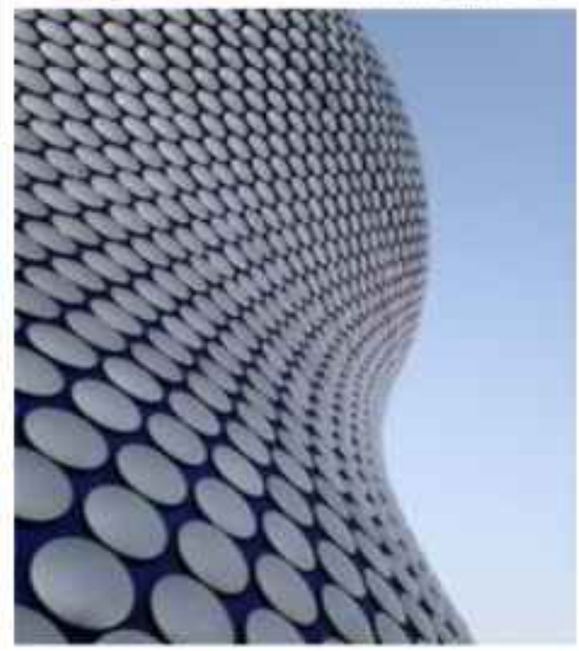
Aesthetics also play a significant role in material selection. Different materials can create different visual effects, and it is important for architects to consider how the materials they choose will contribute to the overall look and feel of a building. For example, using glass can create a sleek and modern look, while natural stone can create a more traditional and rustic feel.

MATERIALS ARE CHOSEN BASED ON - COST EFFICIENCY

- There are a number of ways to cut costs when constructing a building.
- Cost-effective does not mean substandard or poor quality structures.
- Quite the opposite, it involves strategies intended to optimise resources, technologies, material utilisation, and maximise efficiency of the structure.
- Cutting costs can be achieved in various ways without losing sight of utility or aesthetics.
- Design is one of the easiest ways to cut down on costs.
- First of all, one should know the limits of how he/she want to live.
- Look at the optimum size one can live comfortably in, i.e., reduce consumption.
- Further, make the design effective and efficient – make sure every nook and corner has been utilised.
- A good design arranges the floor plan of a house in a way that maximum use comes from minimum area.
- Look for enduring concepts and aesthetics so that the ideas represented in one's home are original for years to come.
- Also, using built-in furniture like stones for shelves or sofa can be unique and cuts costs.

MATERIALS ARE CHOSEN BASED ON TEXTURE

Texture plays a dual role in architecture: it expresses something of the quality of materials, and it gives a particular quality to light. Although one absorbs both qualities simultaneously by eye, the first has tactile, the second visual associations.



Texture plays a dual role in architecture: it expresses something of the quality of materials, and it gives a particular quality to light. Although one absorbs both qualities simultaneously by eye, the first has tactile, the second visual associations.

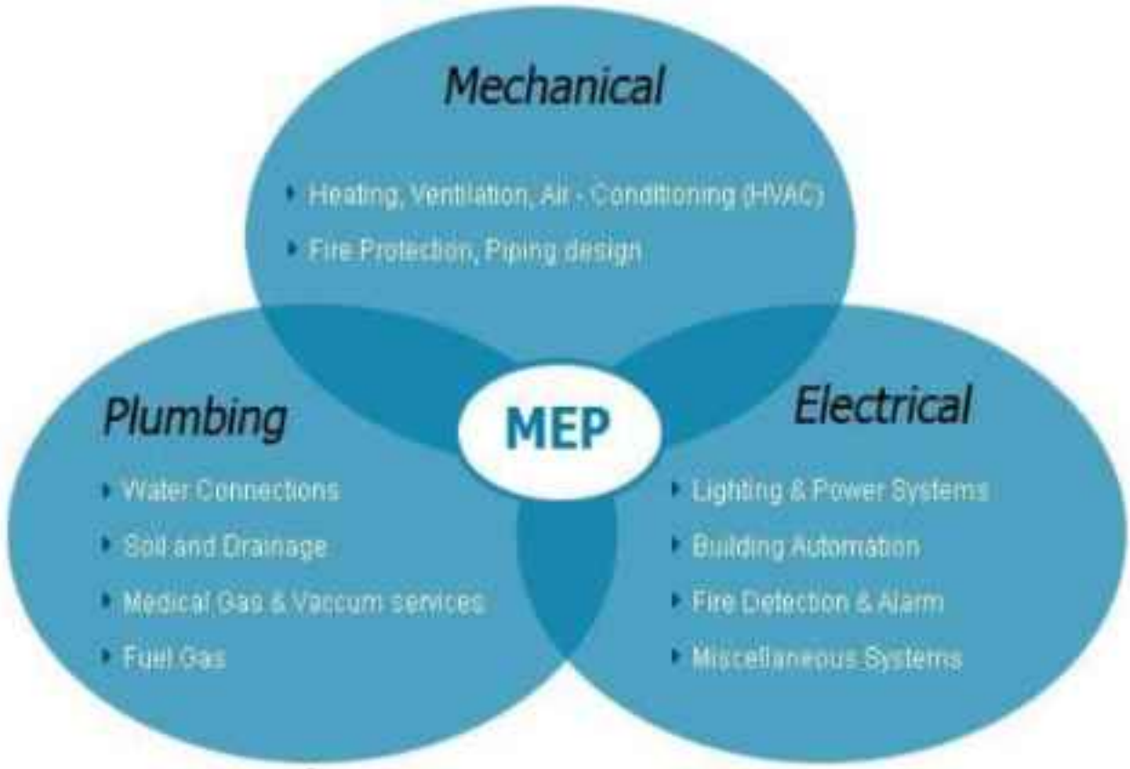
Specific tactile textures are peculiar to every material by virtue of its manufacture or natural composition, but they may be altered to produce a variety of expressive qualities. Any stone may be used in its natural, irregular state, or it may be chiselled in a rough or smooth texture or highly polished to convey a range of meanings from vigour to refinement.

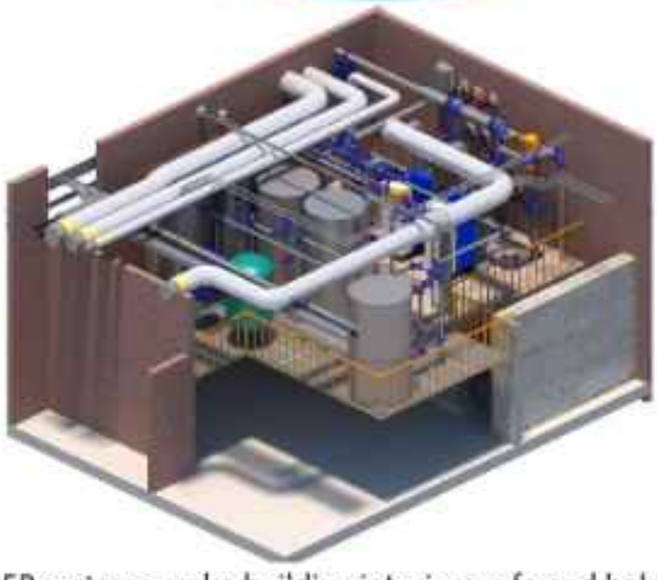
Visual textures are produced by the patterns given to the lighting of the surface both through the way the materials are worked (e.g., vertical or horizontal chiselling of stone) and through the way they are employed in building (e.g., vertical or horizontal boarding, projection and recession of courses of brick). Like all patterns, visual textures create associations of movement, giving rhythm to the surface. A single texture is rarely employed in building. The variety of materials and treatments typically produces a complex of textures that must be composed and harmonized like the forms and spaces of architecture into a consistent expressive whole.

SERVICES

Building services are **the electrical, plumbing, and mechanical systems in a building**.

For this reason, they are also called mep services, for mechanical, electrical, and plumbing. MEP, or mechanical, electrical and plumbing engineering, are the three technical disciplines that encompass the systems that allow building interiors to be suitable for human use and occupancy. MEP systems turn buildings from empty rooms into comfortable spaces that welcoming and liveable, whether it's a 50-storey building or a laboratory to work in.





MEP systems make building interiors safe and habitable. They regulate temperature and humidity, drain waste and rainwater, and power elevators and countless devices. Additionally, MEP construction must also consider factors like sustainable building, automation, energy consumption, and fire protection systems.

CIRCULATION

Circulation plays an important role in our emotions towards the building, be it comfort or security. A building is considered to have good circulation if the progress from where we've been to where we are going is subconscious and predictable. In any design process spatial organization and circulation play a crucial part.

Types of Circulation In Architecture

The circulation of space is broadly divided into two parts in both interior and exterior design:

VERTICAL

Movement of a user in space vertically with increasing difference in level.

HORIZONTAL

Movement of a user in space horizontally with increasing difference in distance.

On a functional basis, circulation can be divided into the following:

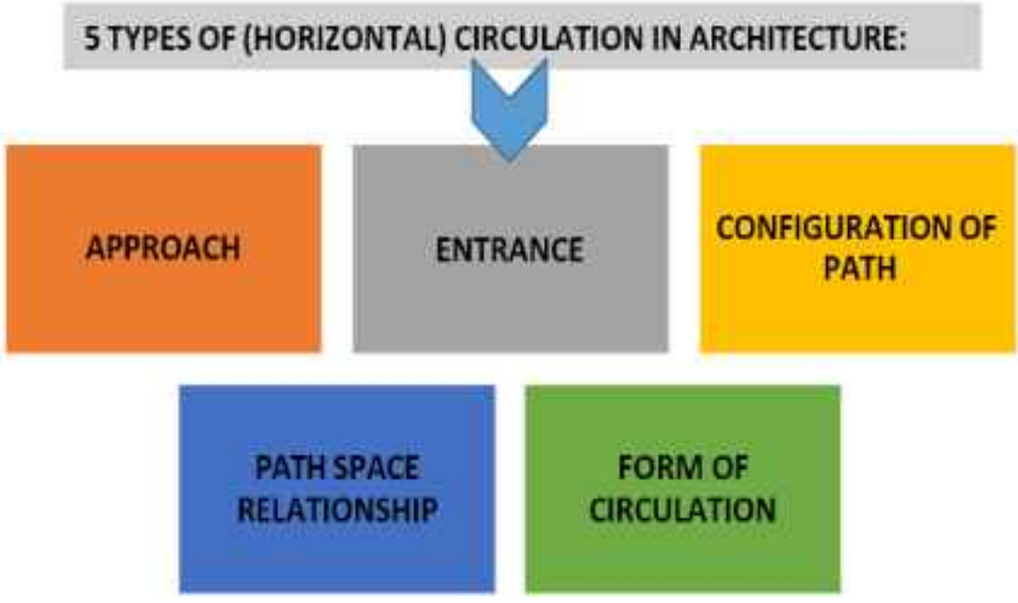
1. Approach
2. Entrance
3. Configuration of Path
4. Path-Space Relationships
5. Form of Circulation space

CIRCULATION IN SITE

The following points about circulation need to be considered:

1. Pedestrian flow and approach into or out of a building
2. Vehicular circulation inside the building
3. Accessible pathways into the site
4. The contours or topography inside that can affect the circulation in the site
5. Existing pathways or circulation in the site

https://whereisthenorth.com/types-of-circulation-in-architecture-with-examples/



1. APPROACH

It's the path you take to reach the building.

a. Frontal

A simple and straight path that directly leads to the entrance of the building.

Ex. The Mill Owners Association Building in Ahmedabad, Gujarat has a single main path that leads to the entrance right away.

b. Oblique

Prioritizes the experience of taking the path and can be redirected multiple times before reaching the building.

Ex. The glass house, designed by Philip Johnson invites the user to explore the surrounding environment before reaching the building entrance.

c. Spiral

Highlights the three dimensional form of the building by making the user go around the building before they reach the entrance.

Ex. The David and Gladys Wright House, built by Frank Lloyd Wright, makes the user go through a revolution to reach the building entrance.

2. ENTRANCE

a. Implied Plane

When you don't want the entrance to obstruct the view of the building, a symbolic representation of an entrance can be made.

Ex. The Liberty Square in Taipei is a stunning example of an implied plane where they've neither compromised the entrance design or the view of the building itself.

b. Change in Level

A change in height of the plane can establish the idea of entrance into a different space.

Ex. The simple change in level defines the entrance portico of this residence by Ramon Esteve Estudio.

c. Wall Opening

Most times, punching a hole in the wall is enough to create an entrance. By penetrating a vertical plane wall, an entrance is created.

Wall opening can be broadly divided into three types:

(i) Flush

Surface continuity of the wall is maintained by creating the door thickness equal to that of the wall.

Ex. Casa Meztitla designed by the firm EDAA highlights this stunning flush entrance that transforms and blends into the façade.

(ii) Projected

Creates a bolder statement by projecting the entrance to create a transitional space between the exterior and interior.

Ex. The Maricopa Campus of the Central Arizona College flaunts its bold geometric projected entryway.

(iii) Recessed

The exterior space is taken further into the building by creating a depression into the entrance.

Ex. Casa Arm, designed by OOIIO Architecture, an illusioned masterpiece looks like it has been cut in half.

3. CONFIGURATION OF THE PATH

a. Linear

It is primarily a straight path which then gets intersected and segmented based on the need – linear, curvilinear, segmented, branched, loop, etc.

Ex. The entrance to the Hansol Museum designed by Tadao Ando adorns a linear pathway with water on both sides.

b. Radial

A single point from which paths are branched out in different directions and lengths.

Ex. The National War Memorial in New Delhi designed by the Webe Design Lab, Chennai, has created a radial circulation path that interests the visitors everywhere they move.

c. Spiral

Originating from a single point, the spiral is a single path that revolves around the point and gradually keeps getting distant from the center.

Ex. Audemars Piguet's spiraling museum designed by Bjarke Ingels features a spiralling path on its roof.

BUILDING EXAMPLE: GUGGENHEIM MUSEUM

- The Guggenheim museum (New York) by architect FL Wright is an example of a structure defined by its circulation. The museums gallery starts at the top and the gallery spirals down where it ends at the ground floor. The users can then choose to exit. In the field of architecture, circulation refers to the way people move through and interact with a building.

- In public buildings, circulation is of high importance; for example, in buildings such as museums, it is key to have a floor plan that allows continuous movement while minimizing the necessity to retrace one's steps, allowing a visitor to see each work in a sequential, natural fashion.

- Structures such as elevators, escalators, and staircases are often referred to as circulation elements, as they are positioned and designed to optimize the flow of people through a building,

d. Grid

Two sets of paths – vertical and horizontal, intersect each other at regular intervals in a grid-like pattern.
Ex. The Topiaris Landscape Architecture firm designed this grid pathway with unique individual open spaces at the Tagus Linear Park

e. Network

Multiple points are connected with paths heading in any direction in space.
MVRDV designed a ramp network with pathways that dramatically lead the users to the building in Rotterdam.

f. Composite

A combination of the above mentioned paths in any ratio forms a composite path.

4. PATH-SPACE RELATIONSHIPS

a. Pass By Space

The path is central and the spaces are designed on either side of it.

Ex. This antique corridor space belongs to the Milan Apartment designed by Studio Peregalli. The path is central to the apartments on either sides.

b. Pass Through Space

The path physically passes through and experiences each space before heading to the next one.

Ex. The museum of Modern Art, New York takes the visitors on a journey as they pass from one exhibit to another.

c. Terminate in Space

The purpose of the path is to reach a particular space, where it ends.

Ex. The Taj Mahal in Agra, India, has a path that ends with the white marble masterpiece.

5. FORM OF CIRCULATION SPACE

a. Enclosed

The path has vertical planes such as walls, doors or windows on both sides of the path.

Ex. The Farmhouse designed by ADDA Architects in Surat, India, provides interest and is dynamic despite being enclosed on both sides.

b. One side open

The path contains an open space on one side such as balcony or gallery.

Ex. The corridor of the Gangouroubouro Primary School by LEVS architecten in South Africa has an entrance on one side and the school grounds on the other.

c. Both sides open

The path is not blocked by any vertical planar element on either side.

Ex. ADDA Architects designed a central pathway with both sides open on the interior for the same farmhouse.

This article covers a fundamental introduction to the types of circulation, as described in the book *"Form, Space and Order" by the author Francis DK Ching.*

TYPOLOGY

Building typology refers to the study and documentation of a set of buildings which have similarities in their type of function or form. In architectural discourse typological classification tends to focus on building function (use), building form, or architectural style.

A functional typology organizes buildings into groups, such as houses, hospitals, schools, and shopping centers. In formal typology, buildings are grouped according to shape, size, site arrangement, etc.

Types of buildings:

- Residential Buildings.
- Educational Buildings.
- Institutional Buildings.
- Assembly Buildings.
- Business Buildings.
- Mercantile Buildings.
- Industrial Buildings.
- Storage Buildings.

AESTHETICS

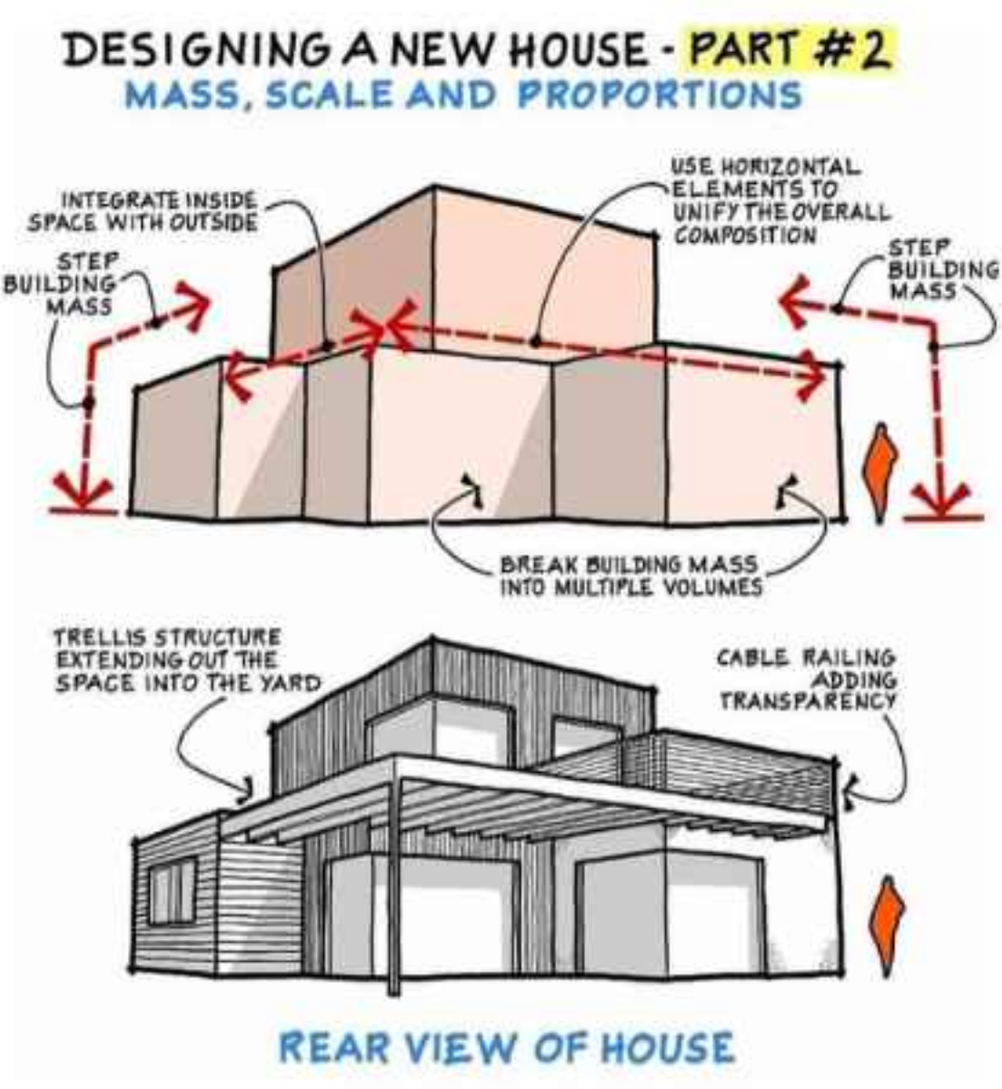
The aesthetics of a building is one of the principal aspects considered in architecture. The appeal of a building covers the combined effects of a **building's shape, size, texture, colour, balance, unity, movement, emphasis, contrast, symmetry, proportion, space, alignment, pattern, decoration, culture and context.**

The philosophy of aesthetics can be mastered by any designer if he follows these key elements listed below...

- ❑ Mass and space
- ❑ Proportion
- ❑ Symmetry
- ❑ Balance
- ❑ Contrast
- ❑ Pattern
- ❑ Decoration
- ❑ Massing

1. Mass and space

Mass, Scale and proportion play very important roles for architecture. Proportion refers to the proper and harmonious relation of one part to another or to the whole, while Mass refers to the size or physical bulk of a building, and can be understood as the actual size, or size relative to context. This is where scale comes into play in our perception of mass.

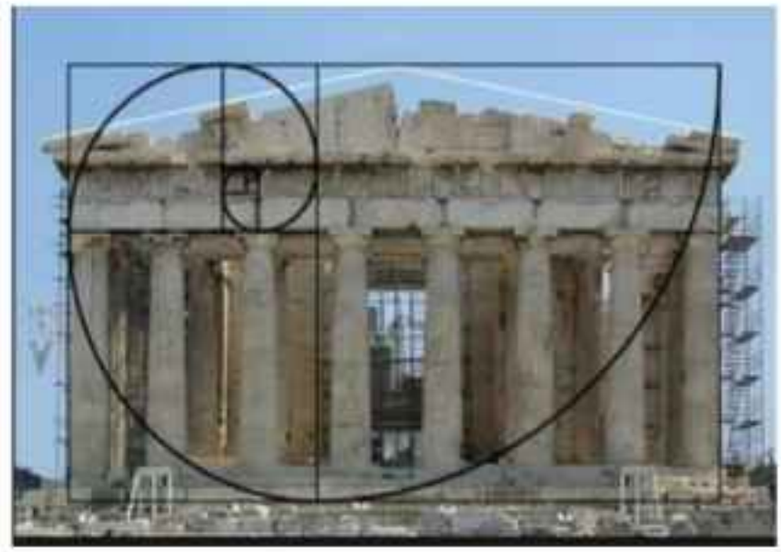


2. Proportion

https://archi-monarch.com/proportion-in-architecture/

Proportion refers to the relationship in size and scale between various elements in architecture. It is used to create balance and harmony in a design, and can be based on mathematical ratios, such as the golden ratio, or on historical precedents, such as classical orders.

Scale and proportion play very important roles for architecture. Proportion refers to the proper and harmonious relation of one part to another or to the whole, while scale refers to the size of something compared to a reference standard or to the size of something else



3. Symmetry

In architecture, symmetry is portrayed as a balanced distribution and arrangement of various components of a building, such as spaces and forms, on the two opposite sides of a central line.

14.Balance

provides stability and structure to a design by placing the elements in such a way that the visual weight, in terms of objects, colours, textures and space, is distributed, i.e. symmetry. For example, a large shape positioned close to the centre can be balanced by a small shape close to the edge

Contrast

Contrast refers to the use of opposing elements to create visual interest and enhance the overall design. Contrast can take many forms. It can be the contrast between light and dark, smooth and rough, geometric and organic, or modern and traditional

PATTERN

Pattern in architecture is the idea of capturing architectural design ideas as archetypal and reusable descriptions.

ORNAMENTATION

ornamentation, in architecture, applied embellishment in various styles that is a distinguishing characteristic of buildings, furniture, and household items. Ornamentation often occurs on entablatures, columns, and the tops of buildings and around entryways and windows, especially in the form of moldings.

•Imitative Ornament:

The symbolic expression of this ornamentation is bold enough to tell the definite meanings of the structure in the form of geometric patterns, shapes, and even the material used.

•Applied Ornament/Organic ornament:

These ornamentations turned the importance of symbolic reference to the structure to merely decorative details applied to it.

•Structural Ornament:

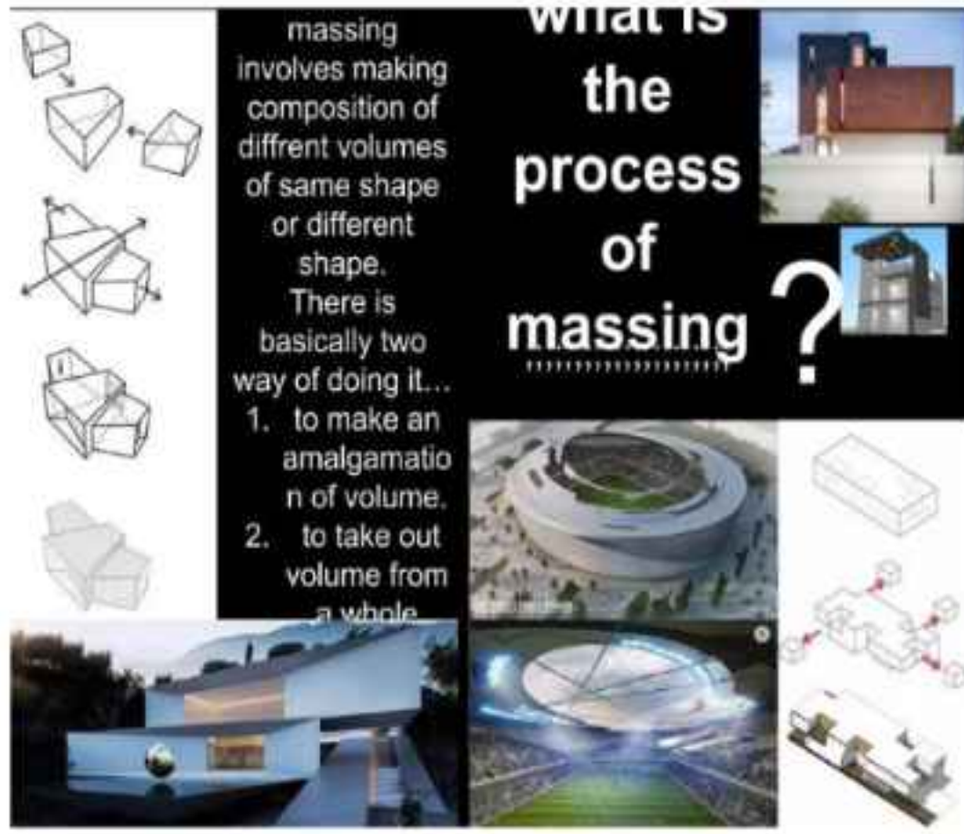
The mid-20th century formulated the concept of structural ornaments that follows an essential belief that they derive meaning from the form, nature, or the material of the building.

Furthermore, based on ornaments positioned on the building, the distinct categories are surface ornaments, edge ornaments, and junction ornaments.

Massing

Massing refers to the structure in three dimensions (form), not just its outline from a single perspective (shape). Massing influences the sense of space which the building encloses, and helps to define both the interior space and the exterior shape of the building.

Building massing refers to the overall configuration of the building. The way a building is arranged on its site is particularly important for larger buildings.

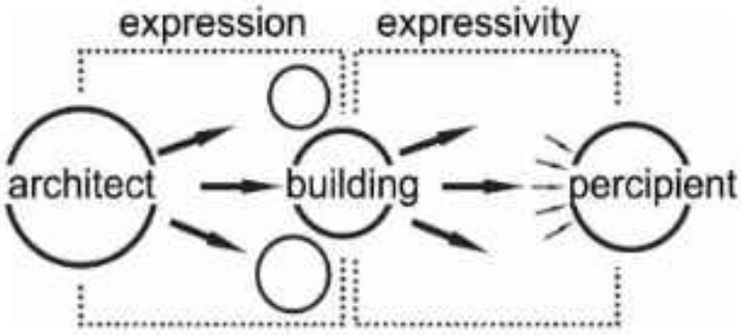


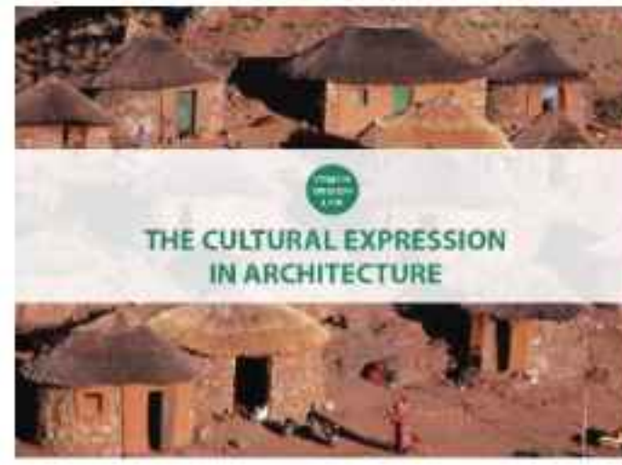
It is a crucial component of design because it is the phase where a designer defines her building's identity as well as the impact of her building upon its urban environment.

EXPRESSION

Architectural expression refers to design or the determination **of form which includes every aspect of every quality of a building,** including size, shape, materials, texture, color, ornamentation, etc. **Architectural expression communicates through suitable vocabulary the ideas that define the building and its use.**

Expressionism is the way of expressing something in and around something that you feel emotionally, from all the things that happen phenomenally





Expression (Lat. expressio) in **architecture** implies a clear and authentic displaying of the character or personality of an individual

CHARACTER

"Every building should have a character" – Le Corbusier

Character refers **to all those visual aspects and physical features that comprise the appearance of every historic building**. They can be seen as examples of specific building types, which are usually related to a building's function, such as schools, courthouses or churches.

Character of a building is classified into three main categories:

- Functional Character
- Associated Character
- Personal Character

Functional character

Every building has specific functions and is made for specific broad purpose.

The internal planning is in coordination with the external façade.

The external appearance plays an important role in determining the purpose and the function of the structure.

Examples

- Designing skylights instead of windows can indicate a museum.
- Designing a long wall having numerous windows in a particular order ,indicate a museum.
- Designing tall and wide windows suggest a library.
- Designing a symmetrical entrance to a central block having a wide entrance to express balance and rhythm indicates public buildings.

Indian Habitat Centre, New Delhi

https://www.slideshare.net/Anupamaholla1/style-and-ornamentation-in-architecture

ASSOCIATED CHARACTER

The character of some buildings is expressed through elements associated with certain influences. Such influences often go thousands of years back in history and culture.

Cultural aspects play an important role in determining the Associated Character of a particular structure....We recognize a building by its features, which we associate with a particular structural style.

- "A spire on a tower by the side of a spacious building indicates a church."
- "A gopuram depicts a Hindu Temple whereas a crescent and a white dome is the symbol of a mosque"

PERSONAL CHARACTER

Characters in architecture is comparable with the attributes of an individual.

If a building is designed in the proper spirit, personal characteristics such as grace, dignity and vitality can be expressed as an integral part of the structure.




SYMBOLISM

Symbolism in architectural form has been used since antiquity as **a way of transmitting certain sacred information in an associative way**.

The architectural plan, when used symbolically, communicates through its shape. From prehistoric times and in many cultures, the circle, with its suggestion of the planets and other manifestations of nature, gained a symbolic, mystical significance and was used in the plans of houses, tombs, and religious structures.

The Lotus Temple (also known as the Bahá'í House of Worship) is open to practitioners of all denominations. However, this gathering place does not just formally interpret the lotus flower, but symbolically, speaks as a space of unity, togetherness, and acceptance.

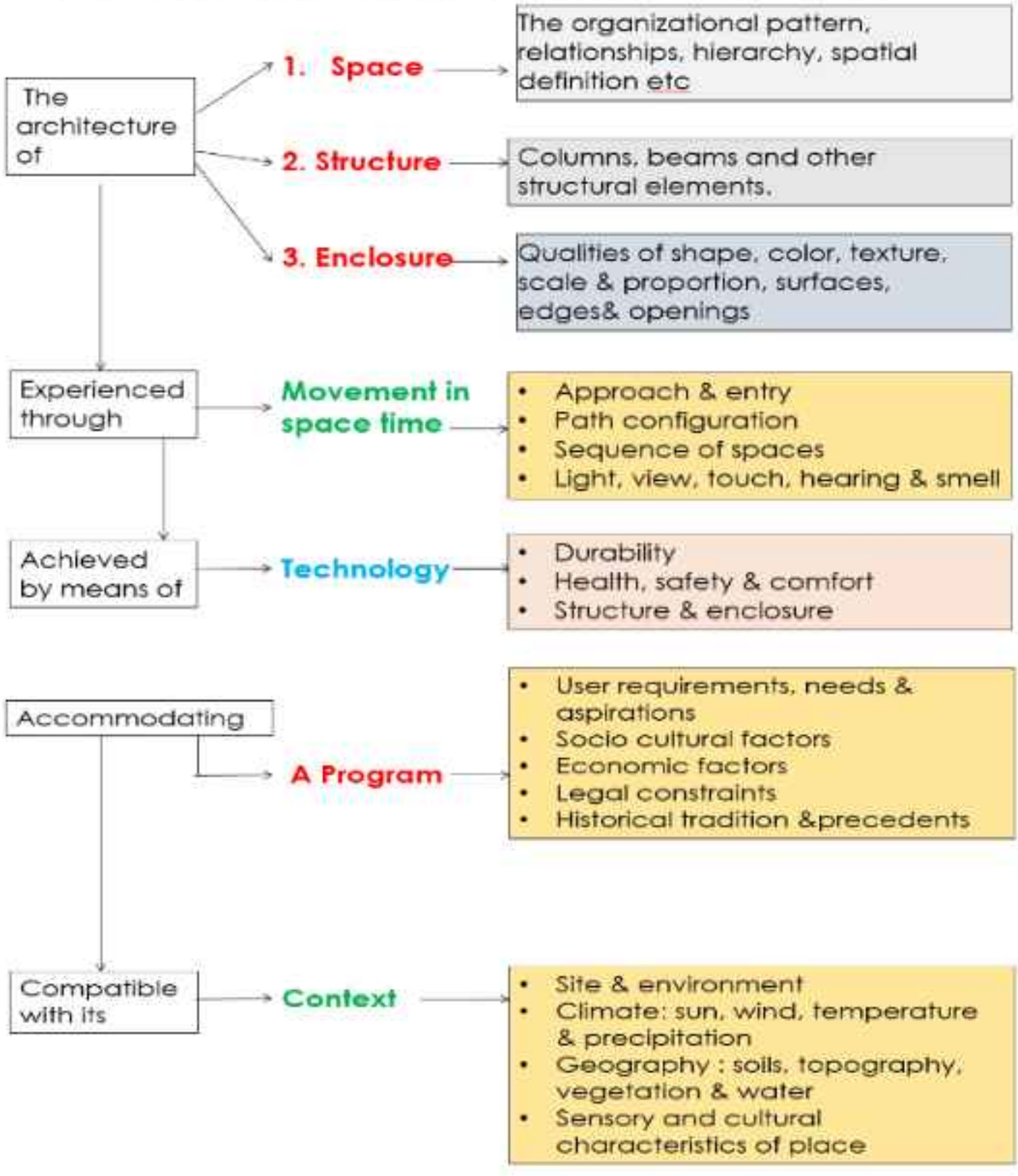
Angkor Wat – Siem Reap, Cambodia

This impressive temple complex is considered the apex of Khmer power and artistry, an empire which spanned over centuries. In its entirety, Angkor Wat also reads like a microcosm of Hinduism, in which the spatiality of elements and the bas-relief sculpture of the complex corresponds to the enshrined beliefs.

EXPERIENCE

Experiential qualities are **inference rules in classifying physical characteristics of building elements.**

For example, a private space is hidden, and a hidden space has the characteristics such as 'connected by a circuitous path', 'not open to the front door', or 'on a different floor'.



Principles

(The underlying design philosophy of the Experience)

Standards

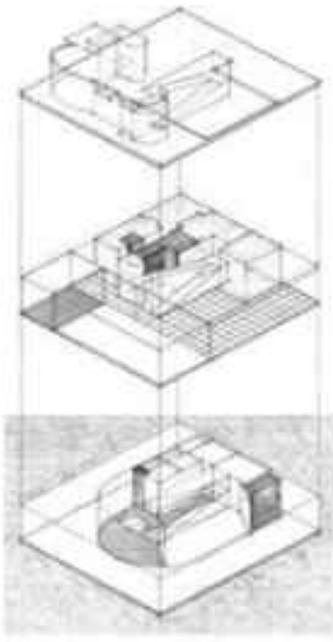
(The representation of the Experience: the design deliverables)

Qualities

(The emotive and intangible qualities of the Experience)

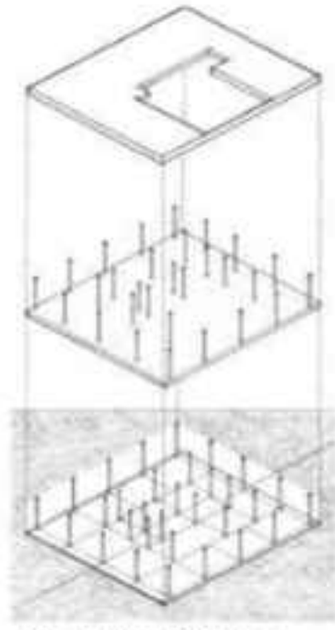
References

(The user behaviors in and models of the Experience: the research deliverables)



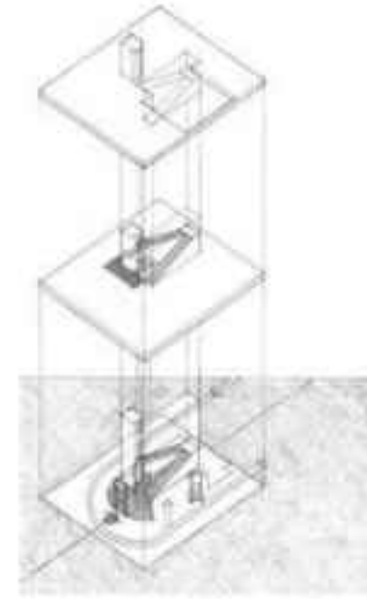
Spatial System

- 3 dimensional integration of program elements & spaces
- Accommodates multiple functions & relationships



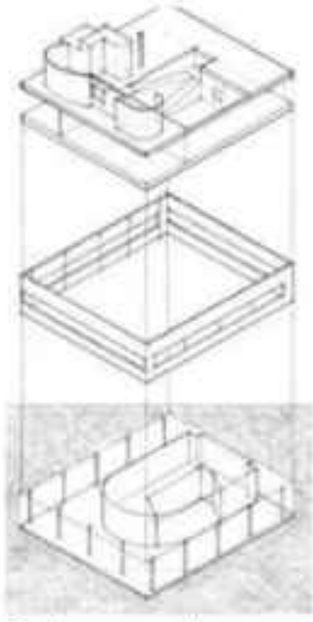
Structural System

- Grids of columns supports horizontal beams & slabs
- The cantilever shows the direction of approach along longitudinal axis



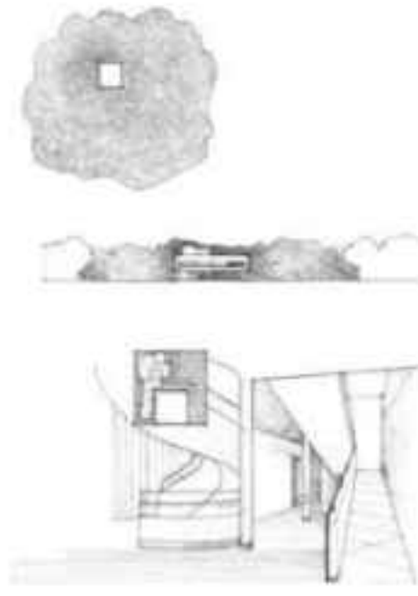
Circulation System

- Stairs & ramp penetrate and links the three level and heighten the viewers' perception of forms in space & light



Enclosure system

The exterior wall planes define a volume which contains program elements



Context

- Simple exterior form wraps around a complex interior organization
- Elevating main floor provides a better view of surroundings
- A garden terrace distributes sunlight spaces around it

UNIT I

INTRODUCTION TO ARCHITECTURE

CHAPTER III

HISTORY AND TYPES OF DESIGN IN ARCHITECTURE

History and types of design in architecture –

unself-conscious/ self-conscious design, design through craft/ design through drawing, pragmatic(sensible,reasoning)/ iconic/ canonic/ analogic design.

HISTORY AND TYPES OF DESIGN IN ARCHITECTURE

Design, be it wireframes, blueprints or software, aims to solve a problem.

The solution doesn't exist in a vacuum. Context is vital. Take an example of the human body. It is a design the evolution came up with. The cells exist and functions within the context of the organisms. And organisms within species.

What is the problem?

Here, the **definition of the problem is a *misfit* between the form and its environment**. The misfit is not resolved unless the form satisfies its environment and vice versa.

Unselfconscious Process

In the unselfconscious process, the **designer is just an agent of change**. The process is **self-organizing**. It relies on immediate feedback from the surrounding.

In the unselfconscious culture the same form is made over and over again and again; in order to learn form-making, people need only learn to repeat a single familiar physical pattern. In the self-conscious culture new purposes are occurring all the time; the people who make the forms are constantly required to deal with problems that are either entirely new or at best modifications of old problems. Under these circumstances it is not enough to copy old physical patterns. So that people will be able to make innovations and modifications as required, ideas about how and why things get their shape must be introduced. teaching must be based on explicit general principles of function, rather than unmentioned and specific principles of shape.

In the culture unselfconscious if it's form-making is learned informally, though imitation and correction. And I shall call a culture self-conscious if its form-making is taught academically, according to explicit rules.

Many designers are still operating under an unselfconscious system, and this type of habit can be damaging to the future of those who use it.

An unselfconscious designer does things because they have always done things that way. They repeat habits and patterns and process without questioning their reasons in each individual application. They tend to do things the same way over and over. They do not apply measurement, science or other academic principles to their work. This makes them dangerously inflexible.

Consider the unselfconscious house builders of Polynesia. The building of a house within that culture is a ritual – everything is done in a traditional way, from the choice of location and the placing of supports to the application of covering materials.

Priests and elders are present at every house building, making sure that the process is being carried out according to those traditions. Things are carried out this way 'because they always have been' and any attempt to deviate from this ritual is met with serious opposition within the culture.

This process of house building has obviously been very successful – the slow, measured evolution of the form of the houses has meant that no single individual is able to make a design mistake or instigate a dangerous fashion in building. It also functions well in a pre-literate community. The techniques of building are passed on by observation and copying, without the need for detailed plans. This inflexibility can, however also cause problems. If, in a theoretical Polynesia, a sudden change occurred in the climate, the unselfconscious system would not be able to keep up. Heavy rains or snowstorm would not be able to be dealt with by the ritual, as it frowns upon experimentation and the understanding of the specific reasons for the design.

Many developers show a similar inflexibility in process, and it leads to the same potential for danger. The 'high priests' and 'elders' observe the development process, and ensure the ritual takes place as they have always done it. Any deviation from the tradition is met by scorn, and most of the time the games produced show a marked similarity to previous products which have used that traditional process. Academic, scientific and analytical techniques are not allowed, as they could call into question the origins of the ritual – the search for true knowledge is withheld and the high priests and elders maintain power.

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It is only by the rejection of this unselfconscious process, the constant evaluation and re-evaluation of techniques, the application of academic and scientific measurement and technique that any designer (be it a house builder, telecommunications designer or videogame developer) can make sure they don't become as much a historical footnote as the straw house builders of Polynesia.

IN ANOTHER PERSPECTIVE.....

Simple-Unselfconscious Design refers to designing from the users' psychological comfort perspective, focuses on creating positive experiences for the users. It is aiming to bring up users' simpleness and innocence from their busy lives, dip in the true freedom both physically and mentally. Self-consciousness in one way, is shaping a person in a positive way by reinforcing and encouraging people to become more productive and effective by constantly reminding us who we are; but on the other hand, it has become limits and boundaries for us individuals to live our lives freely and happily. We live in this world, not only as intelligent achievers, but also emotional human beings who need relaxations and freedoms.

Case Study 1 – Germany's Uncharted Green Citadel

Germany's Uncharted Green Citadel is the last design of the late Austrian "alternative architect" Friedensreich Hundertwasser, he called his big pink project an "oasis for humanity and nature in a sea of rational houses." Located in the central city of Magdeburg, the Green Citadel consists a combination of shops, cafes, a hotel and a preschool. It has a natural, green garden roof which has a great contrast with the bright pink building body. Each details has been designed differently, no two doors are the same, which is an expression of individual uniqueness.

It looks like a big palace, just as those from a story book back in the childhood. This architecture is a call for freedom, nature, connection, and childhood simple happiness.

Case Study 2 – Japan's Innocence Graphic

The Innocence Graphic is a design company in Japan, its products include websites, apps, logos, journals and books. Although it covers a wide range of publication formats, all of their designs share a really similar style – clear, simple and refreshing. The images they use in their designs are mainly from the nature, and the colours they use are mainly not vibrate but able to create a contrast and really make the subject stand out from the page. All the designs create a feeling of consistency and freedom, providing this really comfortable experience to the viewers or the users. The company believes that "simplicity is the ultimate sophistication", they keep their designs simple, but the results turns out really approaching.

Conclusion

Simple-Unselfconscious Design allows not only the users, but also the designers to express themselves freely. It focuses on building up positive attitudes and making active changes to how people view the world through building up connections between people, nature, also back to their personal experiences. Simple-Unselfconscious designs ought to be meaningful either personal or to wider society. It shifts the designers attention from functionality to the implications and connotations. Aims to design for delightful user experiences.

HISTORY AND TYPES OF DESIGN IN ARCHITECTURE

1. SELF-CONSCIOUS DESIGN

Self-conscious Process:

It is not guided by the immediate feedback from the environment. It is the process of intellectualization.

Conscious design and architecture is a design and consulting firm and educational polygon that is. committed to transforming buildings into a sustainable and spiritual environment that enhances the. quality of people's life.

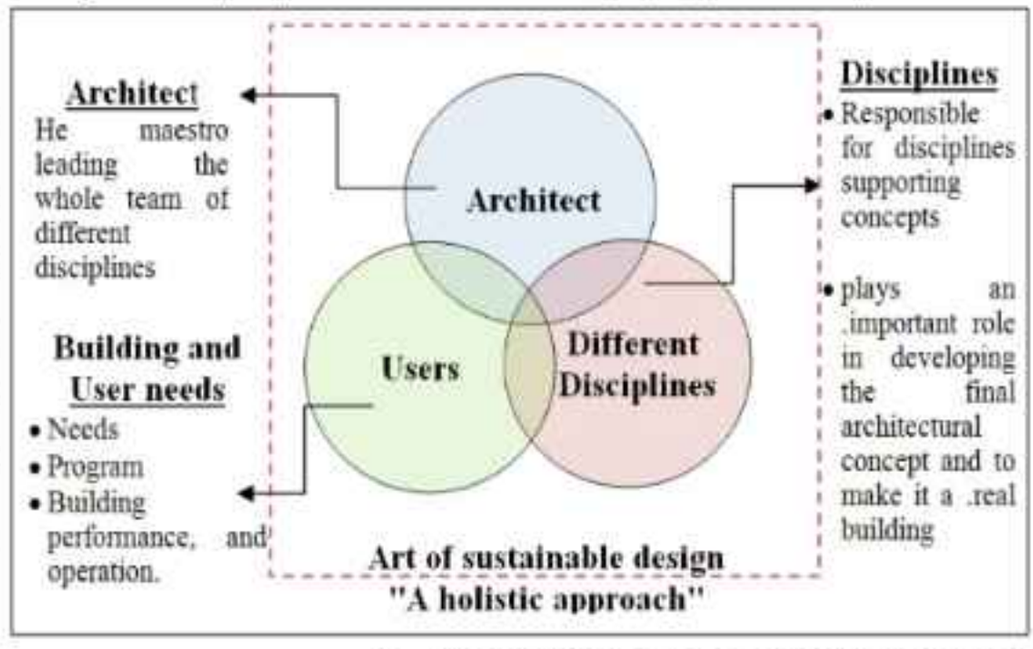
Example: Designing a kettle.

You start by gathering the requirements. Quantitive or qualitative. For example, its capacity, the temperature it heats to, how much it costs, and how should it look etc. A subtle point about requirements: you will only notice when it is not satisfied. Each requirement is an invariant of the problem. It defines the context. The more invariants, the lower the chance of satisfying all of them at once. For a high number of requirements, the likelihood of meeting all of them at once will be extremely low. This makes it challenging to produce forms that work. The designer, when working in the selfconscious paradigm, must rely on rigorous formal methods.

Conscious Design is an alternative to the complexity of today's sustainability certifications, encompassing wider issues such as social sustainability and the value of fine craftsmanship.

Through a holistic awareness mindset we call Design Consciousness. For example, the conscious use of technology today helps designers analyze performance and make early decisions through an analytical process in virtual building. This may help balance the needs of people, planet and profit.

Conscious Design - an alternative to the complexity of today's sustainability certifications, encompassing wider issues like social sustainability and value of fine craftsmanship.

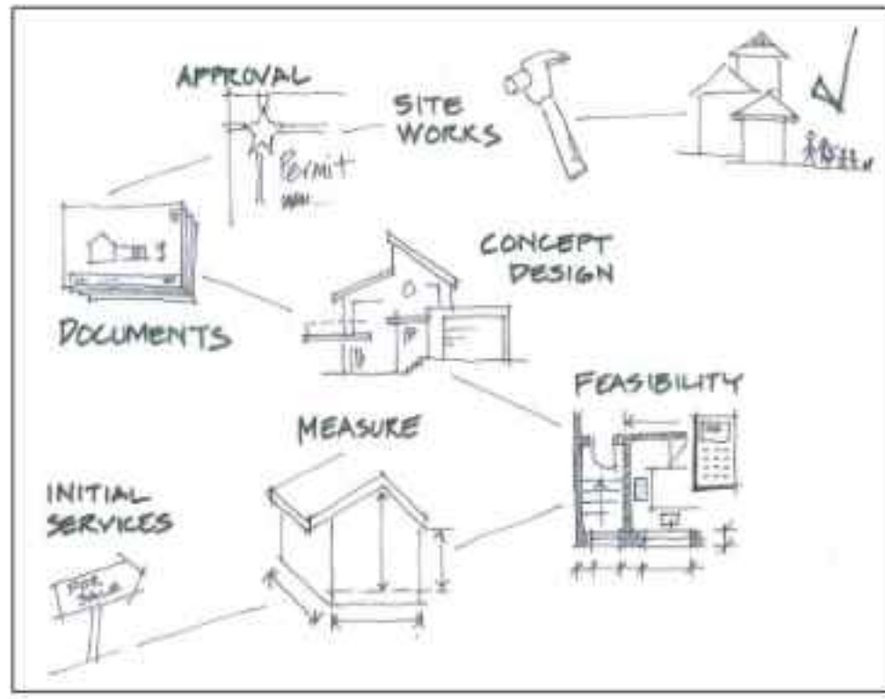


UNSELFCONSCIOUS VS SELF-CONSCIOUS DESIGN IN ARCHITECTURE

DESIGN OF AN IGLOO

- Consider how an Eskimo builds an Igloo. If it's too warm inside (a misfit!) the designer just digs a hole. He did not do elaborate planning before digging a hole.

SKYSCRAPER



https://www.aaarchitect.com.au/architects-staged-process.html

- Contrast this with a Skyscraper. A large team of engineers and architects put a significant effort to deliver a project of such magnificence. We plan it to perfection. In a top-down fashion. And if a fault is detected in the building, we need an expert to deal with it. A layperson has no role here.

- Pre-existing knowledge and directness of action are essential properties of the unselfconscious process. The Eskimo intuitively knew that he needs to dig a hole. The unselfconscious process of design, unlike architecture or engineering, is not taught academically. The skill is specific to the context. And perhaps, it is passed down as a tradition. Trial and error play an important role here. Repeated trial and error leads to a position of a fit between the artefact and its context. It may take a long time to reach this equilibrium between the environment and the form.

- In the unselfconscious culture, change for the sake of change is discouraged. Once the system starts to work, it is left untouched. Until something changes in the context, causing a misfit. A complex system built this way is naturally divided into subsystems such that when one subsystem is modified, there is no cascading effect on others. This localizes the error and as a result, make the system, as a whole, more robust.

DESIGN THROUGH CRAFT

- Craft, the physical manifestation of design, is an indispensable part of architecture.
- There is a deep and rich tradition of craft in the history of architecture.
- It is an indispensable part of the work of many great architects, past and present, notably Frank Lloyd Wright, Alvar Alto, Carlo Scarpa, William Morris, and Charles and Ray Eames. And while there may be a preconception of crafted works being identified with older buildings, many contemporary architects wholeheartedly embrace this approach as well.

Frank Lloyd Wright Models.....

A scale model of the Wright-designed house exists in the Smathers Library special collections archive

Falling water

Winslow House Model

Wooden Model

DESIGN THROUGH CRAFT

It is the integration of this added layer of "craft"—of touch, texture, art, and detail—that adds so much to how a building lives and is experienced. "It can add an entirely new dimension"

- Any concord around words such as skill or handmade quickly prompts us with the word 'craft'. But the true definition of craft lies simply in understanding things that are in the **process of making, the making of any objects, things, artifacts, cities, and understanding the true meaning behind its creation, the process, the story, the belonging of a place.**
- Thus, **the craft is the manifestation of the physical realm of design using both theory and skills**. A relationship of a building to its place or context and with its constitutional elements that lies like connections to a building or spaces internally and externally. These connections can be integrated physically, temporarily, or even spiritually.

Craft contains **critical thinking** that could unpack the current state of architecture. Let us consider for a moment architecture itself to be a craft that has intangible components of volume, form, light, surface, place, and tools of presentation. With skilled craftspeople, architects can collaborate, model materials like wood, steel, stone, and glass into their desired creations. Such an attitude might help nourish a deeper connection with the crafts and enhance the identity and character of the building. Craft is at the core of architecture, craft in architecture and craft of architecture. Architectural history has vouchsafed with stories about craft, ones that shed light on both disciplines.

MODEL MAKING AS CRAFT EXPLORATION IN DESIGN

- Model making in architecture is as **an integral as sketches when creating a project**, and the type of models made vary depending on the stage of the design process. Conceptual model making often accompanies the initial sketches and creative brainstorming in the beginning stages of the project.
- When a designer is putting together a model, it gives them a chance to see their vision in miniature and give them space to consider what could be improved in real-time. A model may allow **an architect to discover previously unseen flaws**, or inspire them to take their design to newer and bolder limits.
- Discussion around design models allows everyone to engage with the design of spaces and contribute to the creative process. Models help us **make design issues visible in the most concrete manner** to all those involved

3 Types of Architectural Design Models

There are three different types of architectural design models:

Concept design model.

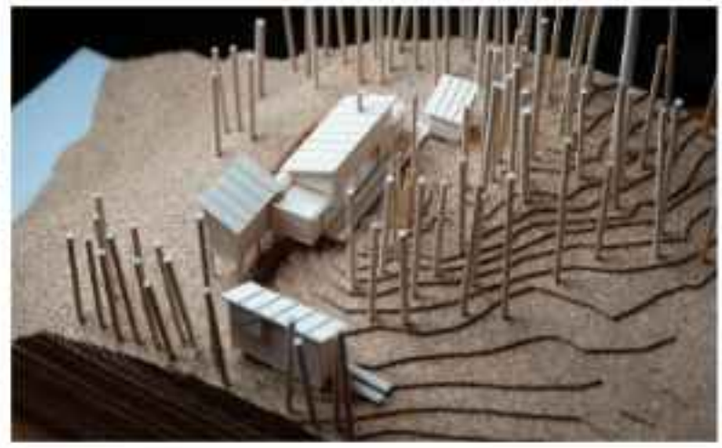
During the initial stage of your design ideas, it can be helpful to see the beginning form and shape. While a 2D sketch is how most designers start the first phase of design, a basic model can offer a different perspective in the design process. Conceptual models are often made out of inexpensive materials like balsa wood or foam and quickly put together.






Working design model.

Once you develop a fuller idea of what you're creating, you can turn it into a working design model. If you've encountered any flaws or issues with your initial design, building the design model can help you address them, and possibly shed light on new, innovative ideas you can implement. Model makers commonly use sturdier materials like wood, concrete, and metal to create a working design model. The working design model is a more sophisticated means of displaying a design. It involves the use of advanced materials for its creation.



Presentation model.

A presentation model has a higher level of detail than your initial physical model that better reflects your finished product's materials and scale. Concept presentation models are for when you're ready to present your ideas to your client or the public. Model makers use high-quality materials like resin or even a 3D printer to create a presentation model.

DESIGN THROUGH DRAWING

- **Drawing is a tool for thought, for creativity, for invention.** It is a method for problem solving – exploring and documenting the evolution of an idea. Drawing can capture time and record a memory. It is visual communication: a medium for expression.
- In the profession of architecture, **drawing is essential to the process of design**. From diagrammatical to highly technical, hand drawing brings value to every architectural project by allowing us to quickly explore ideas and convey intent. The development of a parti, the analysis of a site, the organization of spaces, even the exploration of construction details is all efficiently produced in the line work of a sketch.

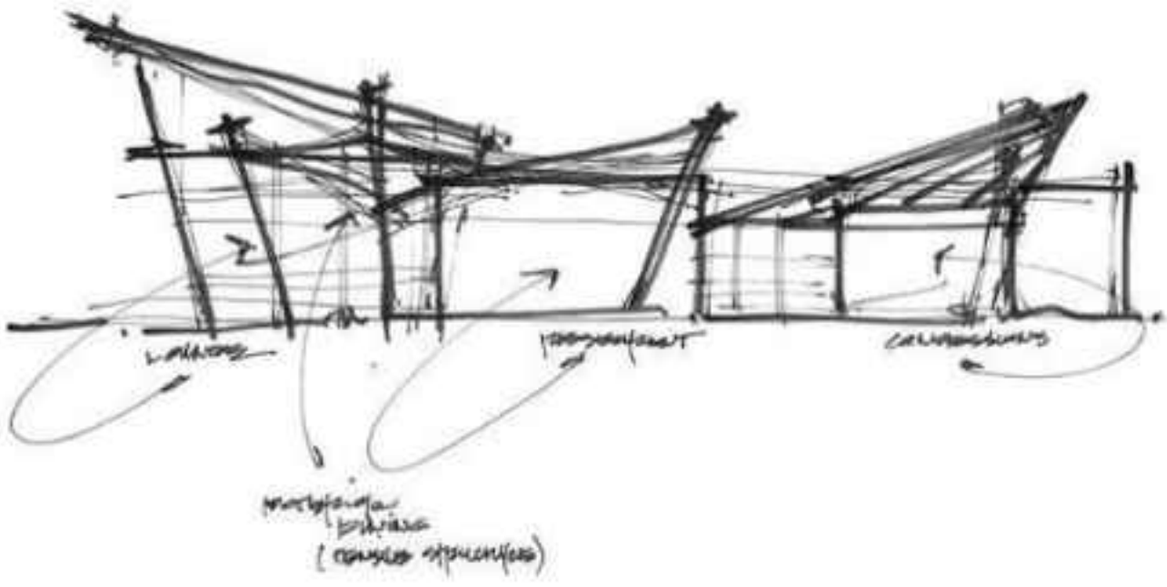
Sketches:

- Sketch design is also called preliminary design or concept design. It is the time to define your goals and aspirations, analyze the design constraints and review design options. It is an interactive process, requiring a lot of discussion, thought and feedback by both parties.
- Used as a method for problem solving, a hand sketch can explore numerous possibilities quickly. The development of a

parti, the analysis of a site, the organization of spaces within a building, even the exploration of construction details is all efficiently produced in the line work of a sketch.

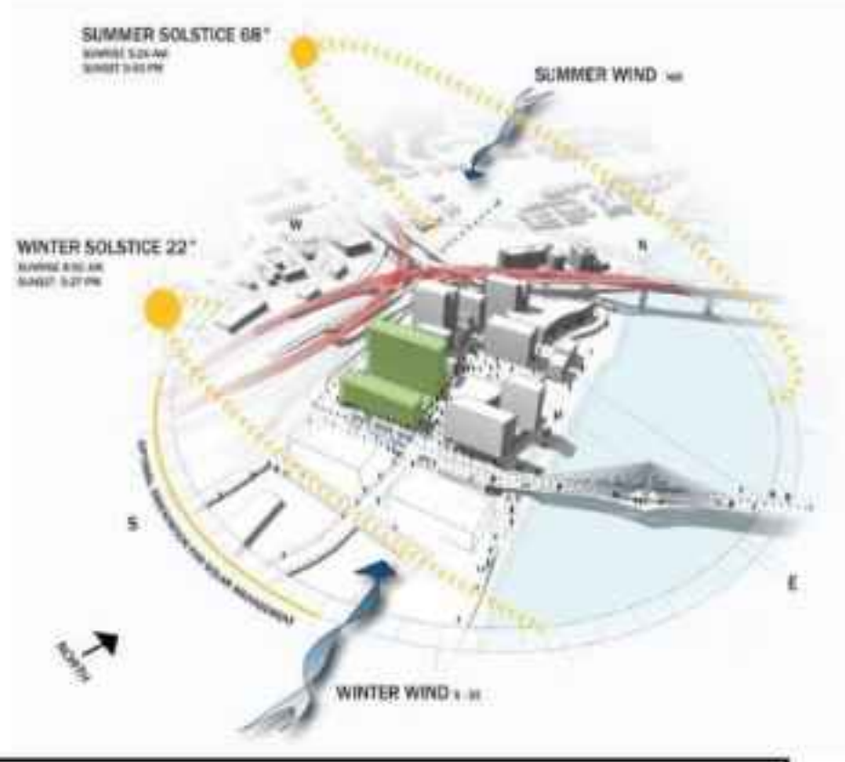
Project Parti

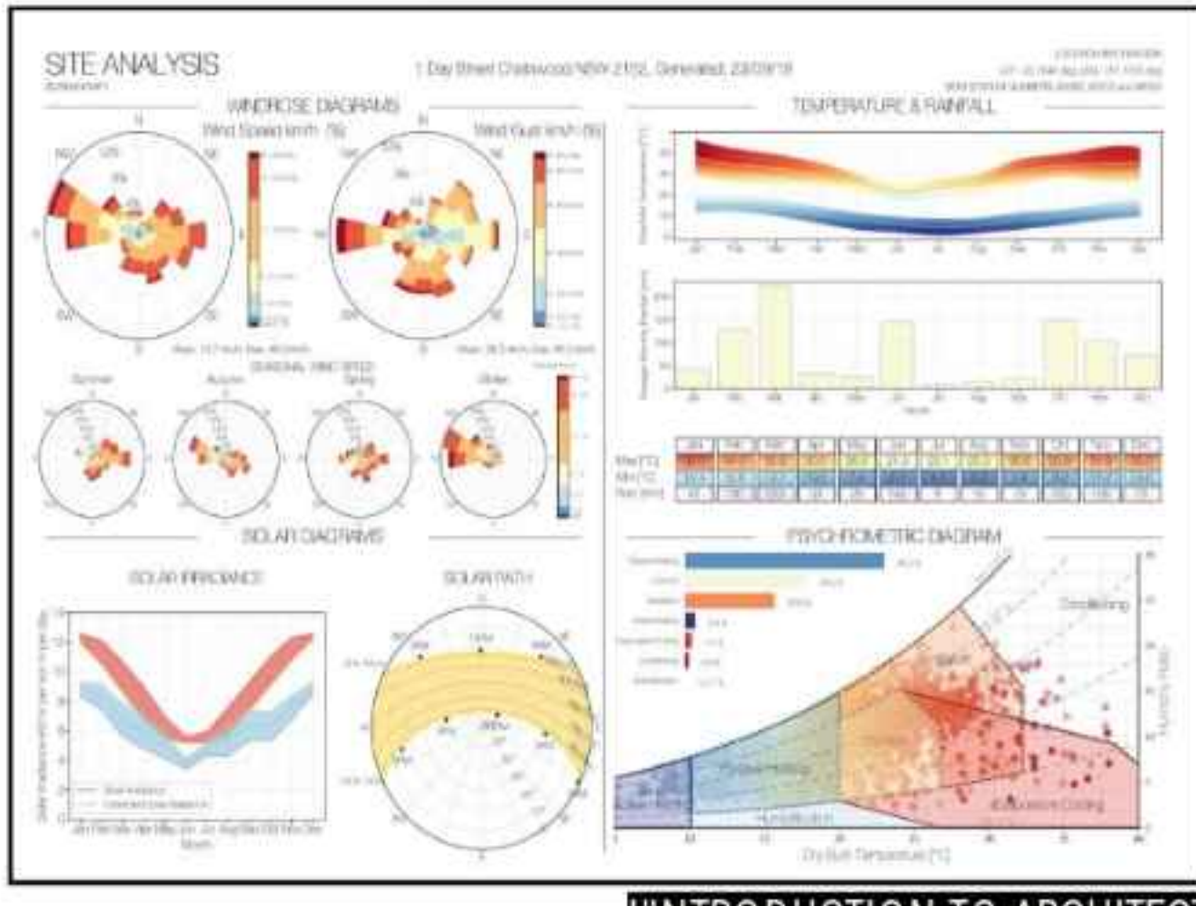
The development of a parti – the concept of an architectural design – is often obtained through numerous diagrams that analyze form, space, orientation, context, and more. Typically, loose in style, these drawings initiate an often-complex design with an abstract suggestion.



Site Analysis & Planning

The analysis of a project's site is often documented with overlaid diagram sketches illustrating wind directions, solar paths, topography and terrain, vegetation and landscape, infrastructure, contextual relationships, directional views and more. This visual information begins to define a buildable area and orientation for building placement. Site planning sketches follow this exercise and quickly explore various development concepts within the defined area.





Space Planning

Programmatic diagrams and space planning exercises are studied with loose bubble sketches that represent spacial relationships and hierarchies, exiting and circulation patterns, and vertical stacking. This method allows a designer to illustrate a project's program in 2-dimensional schemes, quickly calling attention to successful solutions. These bubble sketches develop early suggestions of a floor plan.

Building Design

Conceptual building sections are explored with sketches that consider floor-to-floor heights, structural depths, vertical circulation, and potential daylighting strategies. Building elevation sketches record initial ideas of style, proportion, exterior materials, and color. In combination, these illustrations provide useful analysis for consideration in the design of the building's mass, roof design, exterior fenestration and more.

Details

Hand sketches are efficient for problem solving construction details. A number of illustrations can be produced quickly, incorporating varying ideas that reach a single solution. The evolution of the process provides documented analyses which can then be compared to identify the best solution.

DESIGN THINKING

Broadbent (1973) tries to develop a design method for architects and, in doing so, discusses what are really four tactics forgenerating design form which he calls pragmatic, iconic, analogical and canonic. These approaches are identified by Broadbent from a study of the history of architecture throughout which they can be shown to have been used at various times. Whilst none of these seem now to provide a universally appropriate design method, taken together they are a useful addition to the designer's tool kit of tactics to be employed as and when appropriate.

Pragmatic Design

Pragmatic design is simply the use of available materials and methods, generally without innovation as if selecting from a catalogue. For pragmatic design to be useful the designer must be well versed in established techniques, and understand their strengths and weaknesses. Such an approach to the selection of building materials, constructional techniques or structural systems may be seen as essentially conservative and unlikely to lead to any dramatic failure. It could, for example, lead us to select almost from a pattern book. Whilst this alone may not be able to generate great design, it may prove a valuable tactic in identifying a range of possible forms for part or all of the design.

Pragmatism urges us to look to the consequences of what we do, which the discipline of architecture, infused with an idealistic focus on intentions, frequently resists.

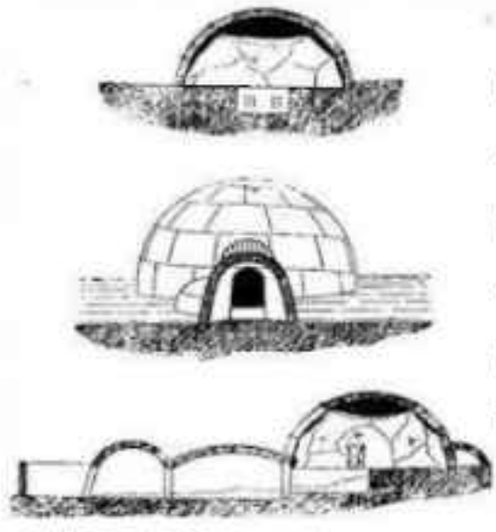
The pragmatic design is based on things that are tangible and it is built according to the needs. Even in school, we are taught to use the pragmatic approach in our studio project. The pragmatic approach helps us to justify our design decisions but along the way, we are too focusing in finding justification for our design decision that we neglected the intangible aspect of the design, which is the user experience. The user experience in a space should not be neglected; it is a one of the key aspect in contributing to the sense of place.

This method consists of 5 stages. This process should be repeated multiple times, since it is an iterative approach. Every iteration acts like an improvement of the previous.

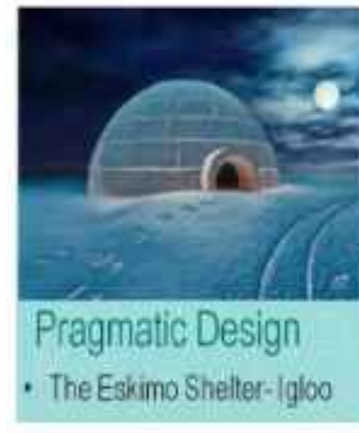
5 stages of Design Thinking

- **Empathize:** Try to empathize with your user first. Get to their level, learn how to think like your user, learn how to behave like your user, learn about their needs. Do this by interviewing, observing etc.
- **Define:** The problem needs to be redefined again, and again. By better understanding the playing field and users you can better understand the real problem that needs to be faced.
- **Ideate:** The stage were creativity comes in. By using previous learnings try to come up with new solutions for the problem.
- **Prototype:** Make a minimal version of your solution you can test with your users. The later iteration you are, the more fidelity a prototype will have.
- **Test:** test your prototype with your users. Use these learnings to start the new iteration.

Case Example: Igloo



Distinctiveness plays a key role in configuring their surroundings. And their impact ripples could extend to cover the whole city as related to the typology of buildings themselves.



Pragmatic design in architecture is the process of discovering realities through interaction with the built environment. It insists on understanding the intentions of the place and its users and responding to those intentions. What makes pragmatic architecture is the recontextualization of pre-specified data and guidelines to a specific project, with the socio-cultural impact of the buildings in mind.

Iconic Design

Buildings and the environment are indistinguishably linked. The buildings become part of the physical environment, stirring the city image, living conditions, social wellbeing and economic profile. Iconic buildings are good examples for this mutual relationship. Their distinctiveness plays a key role in configuring their surroundings. And their impact ripples could extend to cover the whole city as related to the typology of buildings themselves.

In architecture, an iconic design is usually a design that is 'ground breaking' and one that sets new standards in its field. It is a design that other designers and manufacturers follow, as it becomes a bench mark for other similar products. Furthermore, an iconic design is one that stands up to the test of time, remaining a good design, despite the passing of years, decades and even centuries.

Modern Architecture: The Glass House

Philip Johnson's Glass House was another iconic modernist work of the International Style. This home located in a green suburb of Illinois, emphasises the isolation of the individual from an urban society. It stands out for its minimalist structure, and elements of geometry, proportion and transparency.

DAVID S. INGALLS SKATING RINK IN NEW HAVEN (EERO SAARINEN, CONNECTICUT, USA)

The building is also known as 'Yale Whale,' referring to Yale University, from which Eero Saarinen has graduated. The creative design holds the distinct architectural signature of Saarinen, who often used catenary arches. The hockey arena has an undulating cantilevered roof supported by a 90-meter-high reinforced concrete arch.

*"**Architecture** should **speak** of its **time and place**, but **yearn** for **timelessness**."*

Modern Architecture: Villa Savoye

Designed by Swiss-French architect Le Corbusier, Villa Savoye is a modernist response to the industrial machine age of the 1900s. This home is located in Poissy, a small town in France just outside the city of Paris. Based on the architects' iconic Five points of Architecture, this home is an adaptation of the principles of mechanised design. This stunning structure is a simulation of minimalist aesthetics, and spatial efficiency.

Modern Architecture: The Guggenheim Museum provides a significant contrast with its surrounding buildings due to its spiral form, emphasised by the fusion between triangles, ovals, arches, circles and squares which correspond to the concept of organic architecture used by Frank Lloyd Wright in his designs.

The term "Modern architecture" describes architecture designed and built within the social, artistic, and cultural attitude known as Modernism. It put an emphasis on experimentation, the rejection of predetermined "rules," and freedom of expression in art, literature, architecture, and music.

THE FALLINGWATER HOUSE / FRANK LLOYD WRIGHT, MILL RUN, PENNSYLVANIA, USA, 1935

The design of the iconic house was inspired by Japanese architecture, which is famous for using cantilevers. Ideally incorporated into the natural landscape, the house was created as a weekend getaway for the Kaufmann family.

CANONIC DESIGN

Canonic design is the use of rules such as planning grids, proportional systems and the like. The classical architectural styles and their renaissance successors offered opportunities for such an approach. Le Corbusier's modulor could be seen as a more recent attempt to introduce canonic rules albeit in a more iconoclastic manner. More recently system building has provided generally rather dull results using this method. Some of the Post Modern architects appear to have begun to develop their own canons involving the use of almost iconic elements from earlier architectural styles.

Case Example : The Parthenon, Athens

The **Parthenon is a masterpiece of symmetry and proportion**. This temple to the Goddess Athena was built with pure white marble and was erected without mortar or cement, the stones being carved to great accuracy and locked together by iron clamps. The building and sculptures were completed in just 15 years, between 447 and 432 BC.

The Parthenon shows how brilliantly the Greeks had **mastered geometric principles**. They saw mathematics as a means to understand the Divine. They achieved global perfection through deliberate departure from local precision. Minor geometric irregularities were incorporated by the architects to enhance the beauty of the building. It is paradoxical that these modifications create the impression of great geometric perfection, even though they involve deliberate departures from strict regularity.

ANALOGIC DESIGN

"Analogous design"—a theory that involves breaking down images into abstract elements, analyzing them, and then conceptually reassembling them in another form as a sort of parallel composition.

Analogical thought is fundamental to creativity. The use of analogy can help to solve problems, make connections between disciplines, and use those relations to form original solutions.

Almost all work in design and architecture is the result of analogical thinking, with respect to systems derived from nature, technical and scientific models, artistic experiences, and above all past models of architecture or objects.

Principal models designers have utilized as their reference from the beginning to our own day:

- **Primary analogies**, that is to say the human body, nature, and the abstract universe of signs;
- **Disciplinary analogies**, taken from already existing examples of architecture and design;

- **Analogies from outside the field**, such as from music, literature, and the visual arts.

The components are very different, but they maintain a similarrelationship to each other.

Case example: Milwaukee Art Museum

An example of the use of visual analogy in design by Santiago Calatrava. The winglike brise-soleil of the Quadracci Pavilion at the Milwaukee Art Museum in Wisconsin has become the most iconic part of the museum's identity since it was completed in 2001. The "wings" close over the structure at night or during inclement weather, shielding patrons as well as the vast collection of artwork below.

UNIT 2 – FORM IN NATURE AND MANMADE ENVIRONMENT

- **Understanding form** in all its attributes as the basis of creating architecture. Characteristics of form and its relationship with use/function/evolution as manifested in first hand examples from nature and everyday manmade environment including artefacts, objects, buildings, cityscapes.
- **Human body and sensory environment.** Tactile, auditory, olfactory senses and human environment.
- **Cognitive experience of form-** ideas of Gestalt, visual perception, proxemics.

1. UNDERSTANDING FORM

1.1 What is form?

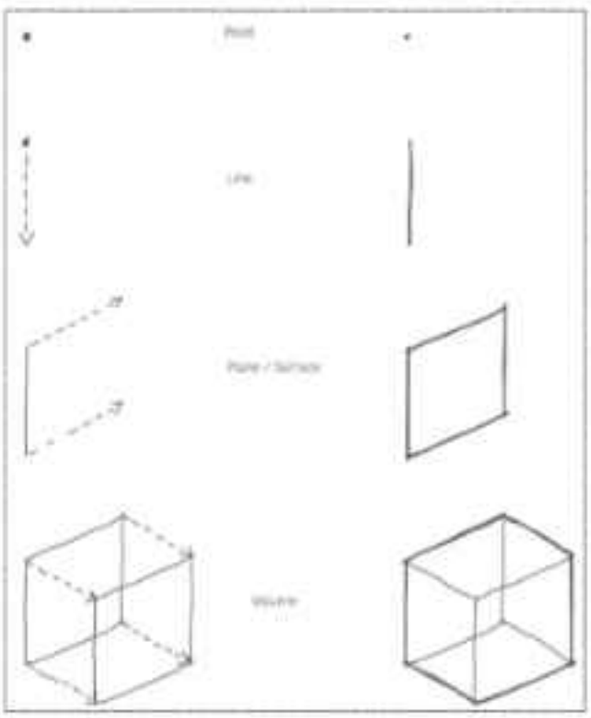
- Form can be described as a reference to both the internal structure and external outline, often in the shape of a three dimensional mass or volume.

1.2 Characteristics of form include:

- **Shape** – the outline of the form
- **Size** – the dimensions of the form, proportions and scale
- **Colour** – the colour of the form will affect its visual weight
- **Texture** – the texture of a form will affect how light is reflected or absorbed
- **Position** – where the form is located in relation to its environment
- **Orientation** – the position of the form in relation to the ground, compass points or the person viewing the form.

1.3 Primary Elements

The primary elements of form are **points, lines, planes and volumes** – each one growing from the other.
A **point** is a position in space,
A **line** is the extension of a point.
A **plane**, is the extension of a line.
A **volume** is a plane extended.

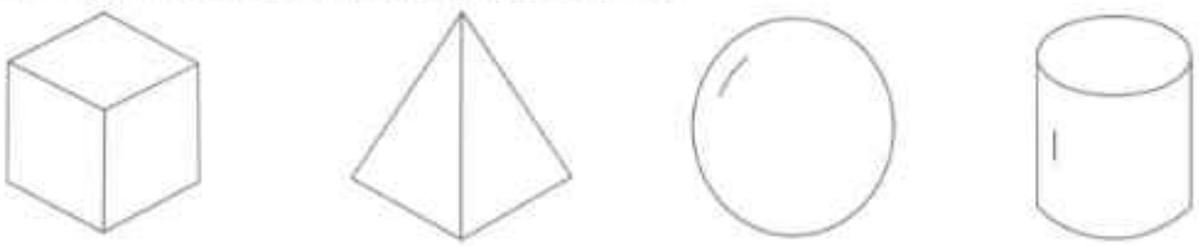


1.4 Primary Shapes

- The most significant primary shapes are the circle, triangle and square.

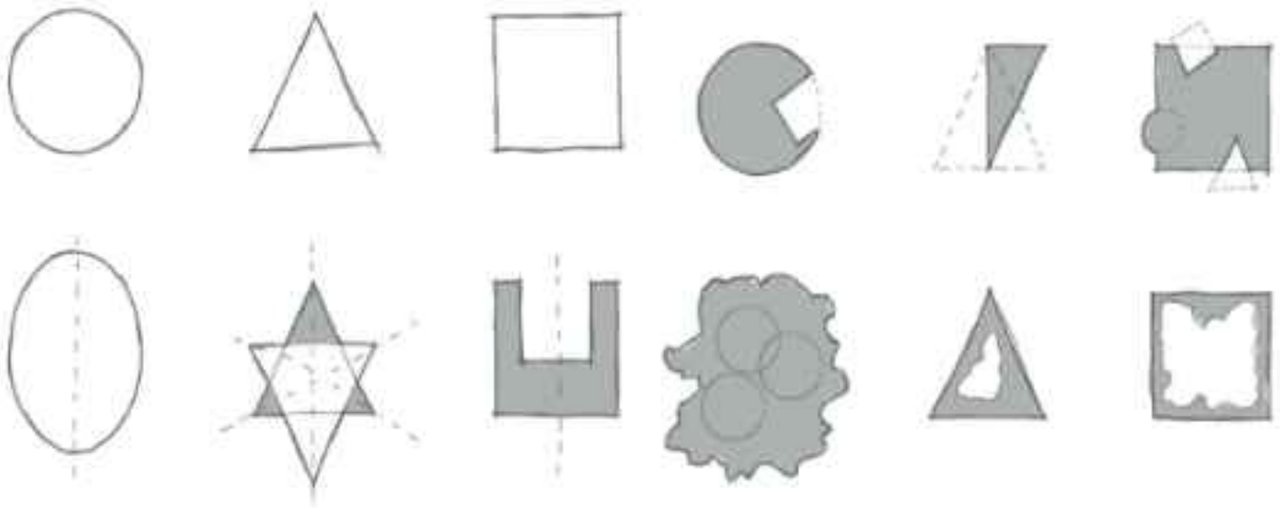
1.5 Primary Solids

- The primary solids are the sphere, cylinder, cone, pyramid and cube.



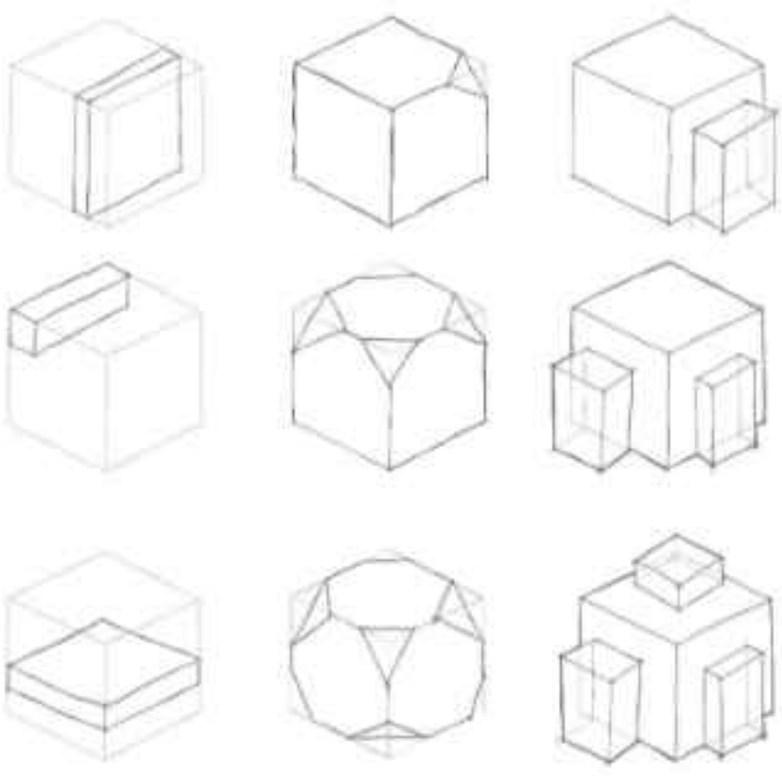
1.6 Regular and irregular forms

- **A regular form** is considered to be a form that is **consistent and orderly**. They are generally symmetrical about one or more axes. The sphere, cylinder, cone and cube are examples of regular forms. These forms can be changed by the addition or subtraction of elements, but can still remain regular.
- **An irregular form** is one whose parts are **dissimilar and generally inconsistent and asymmetrical.** A regular form can be contained within an irregular form.



1.7 Transformation of form

- Many variations of a form can be generated from the primary solids, by manipulating dimensions of the solids, or adding or subtracting elements.
- Examples of how a cube can be transformed by altering its dimensions
- Examples of how a cube can be transformed by subtracting portions of its volume.
- Example of how a cube can be transformed with the addition of elements to its volume.
- **Subtractive forms** will have portions removed from its volume, but they often retain their identity until the profile is drastically altered.
- **Additive forms** are produced by relating or attaching one or more subordinate forms to its volume. This can be broken down into different types of contact.

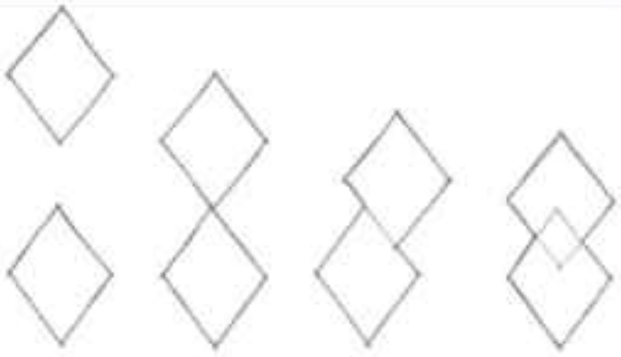


Additive Forms

Additive forms are produced by relating or attaching one or more subordinate forms to its volume. This can be broken down into different types of contact.

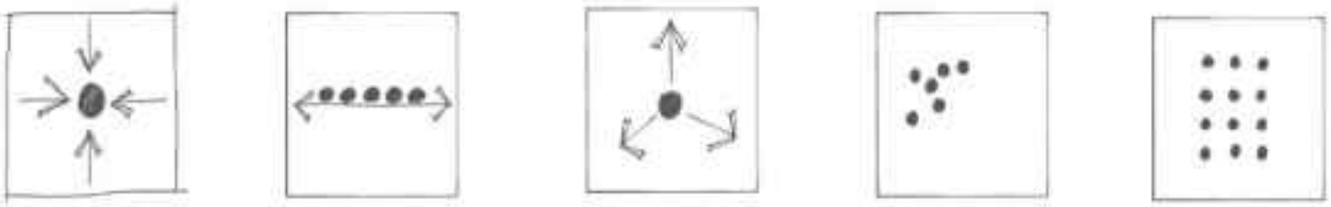
- **Spatial tension** – where the forms are within close proximity to one another

- **Edge to Edge** – where the forms are sharing a common edge
- **Face to Face** – where the forms have corresponding surfaces which are parallel to one another
- **Interlocking** – where the forms are inter connected to one another



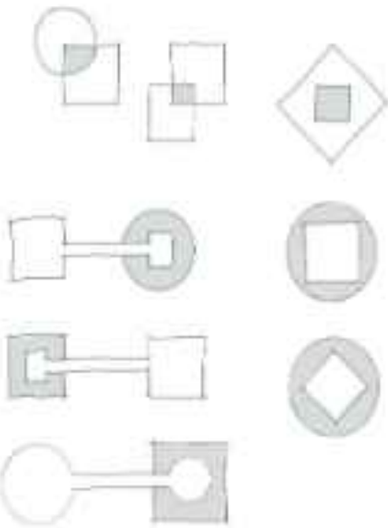
Additive forms often grow and merge with other forms, creating relationships that can be categorised as below:

- **Centralised forms** are often freestanding, and isolated within their context.
- A **linear form** is often a response to a topography or site context. They tend to demonstrate a selection of forms along a line.
- A **radial form** features a centrally located core with linear forms extending outwards from the centre. Radial forms can create a network of centres linked by the linear forms.
- A **clustered form** tends to be a collection of varying forms. They are often based on a more functional requirement, and tend not to be regular or formal. A clustered form can be interlocking, face to face, or edge to edge amongst others.
- A **grid form** demonstrates a form that is focused on a grid layout. These forms tend to be considered in third dimension and are of a modular framework.



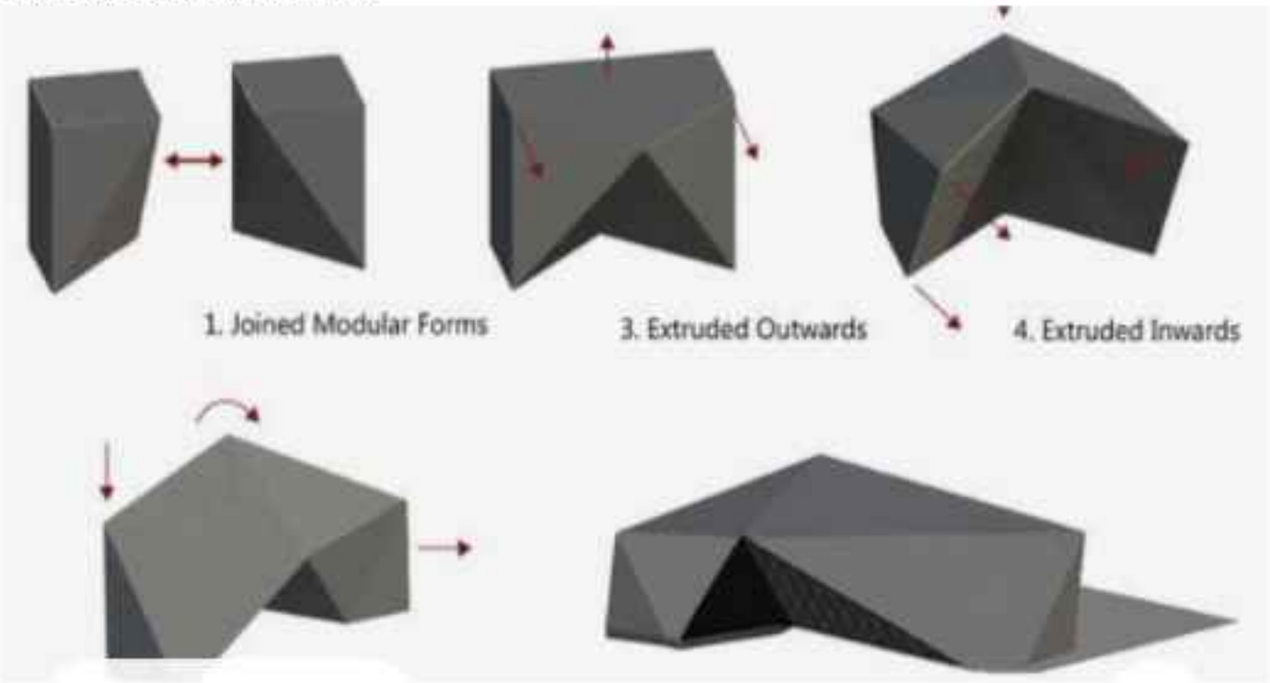
1.8 Collisions of geometry

There are often occasions where two geometries will collide to create a new composite form. This may occur in many circumstances:

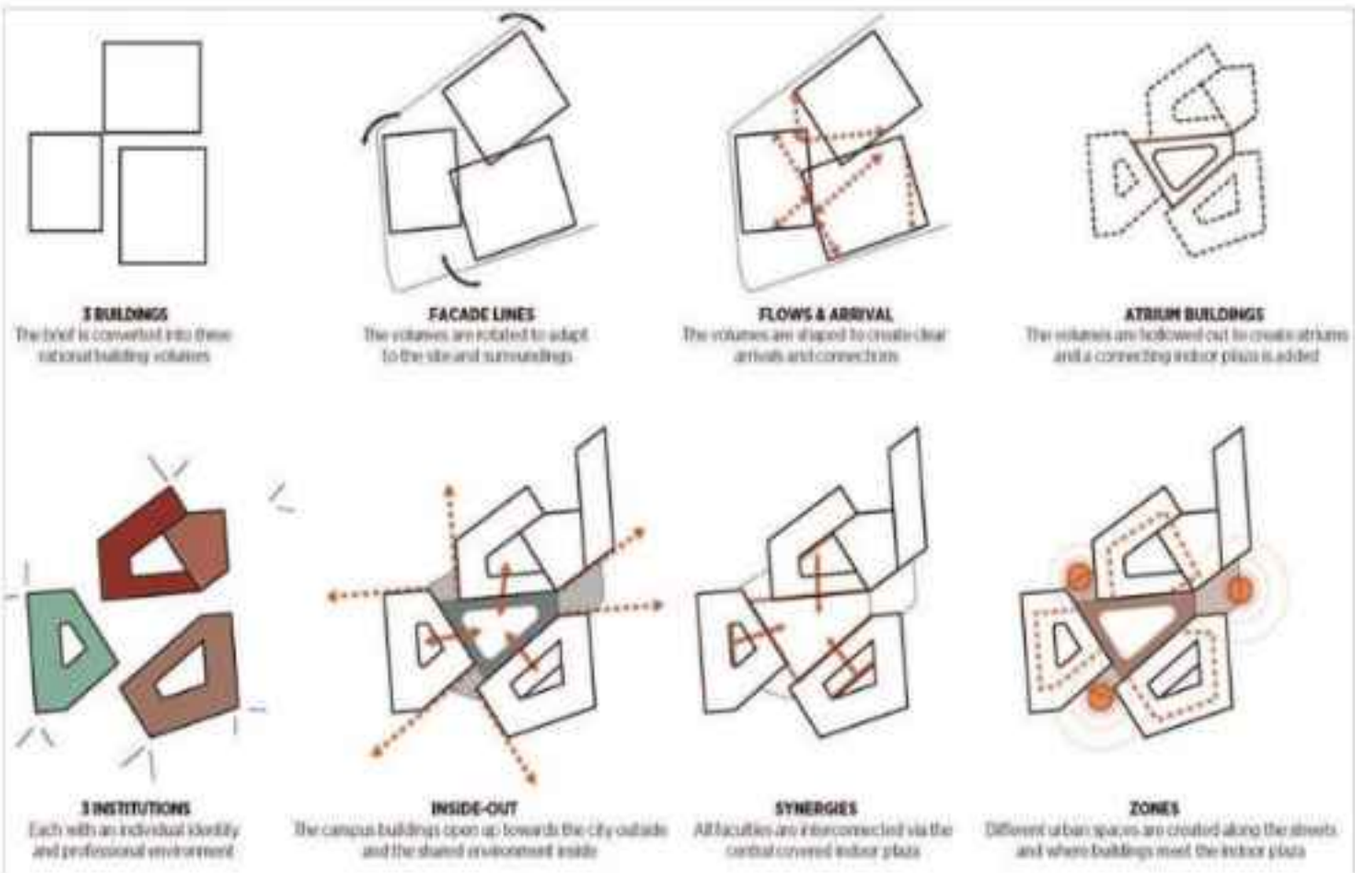


- To suit the **functional requirements** of the internal space
- To display a **symbolic importance**
- To **direct a space** toward or away from a specific site context feature
- To **create a volume of space** within an existing form
- To **demonstrate the nature** of the structure
- To **create a symmetry** in the building
- To **respond to site** context or topography
- To **respond to an existing path** or movement through the site

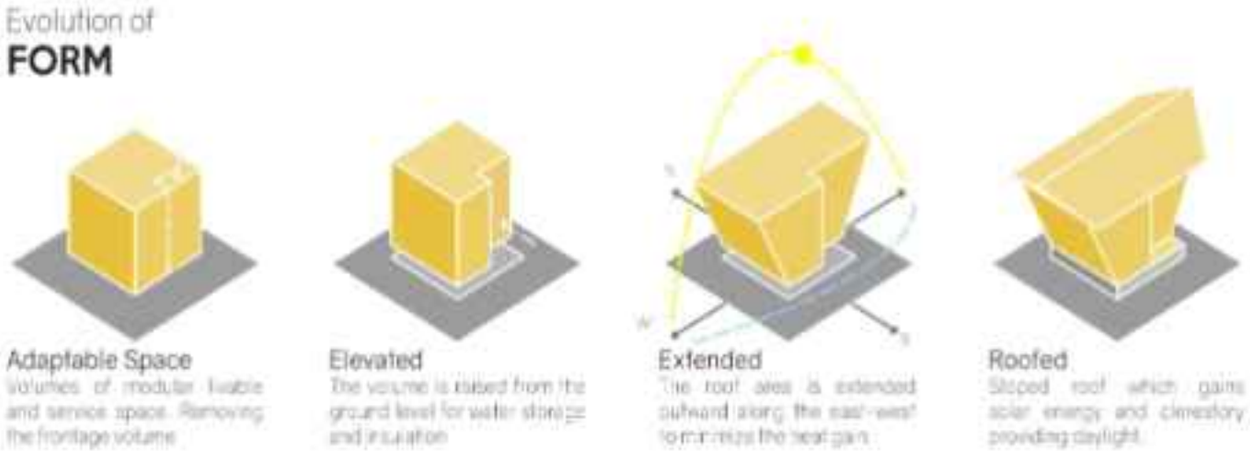
FORM EXPLORATION EXAMPLES



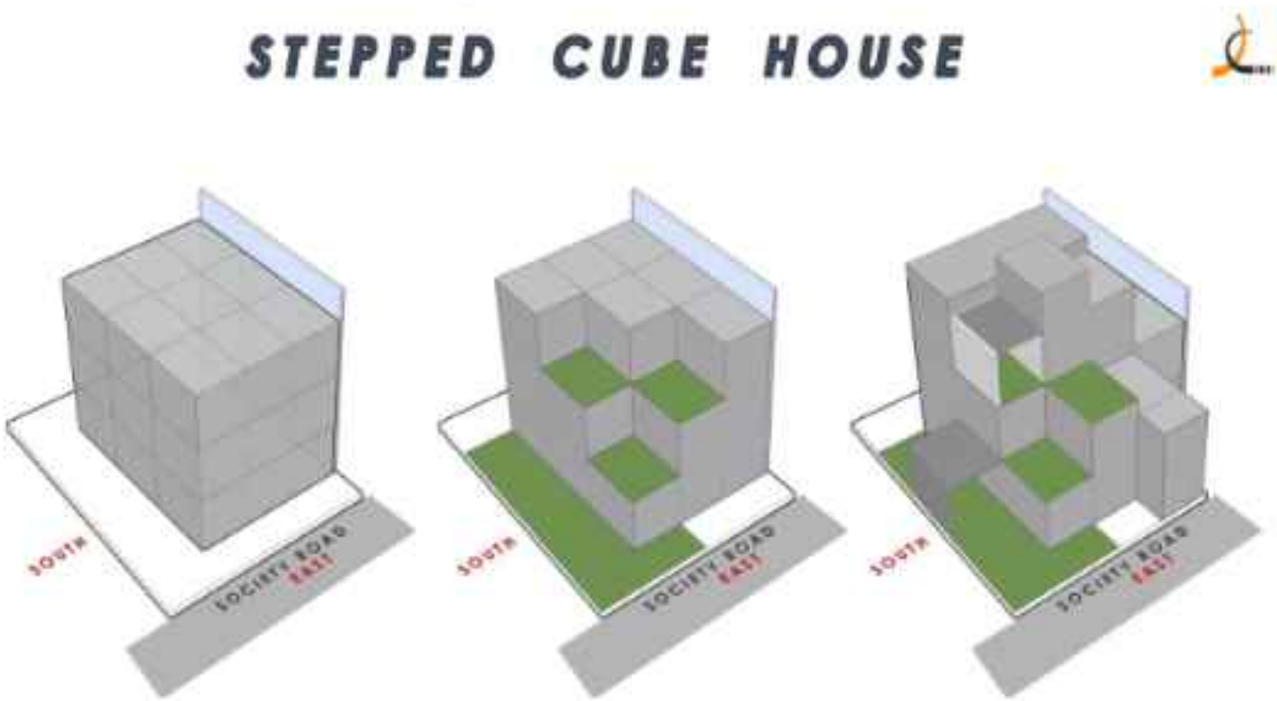
Example 1: Additive and Subtractive Collisions of Form



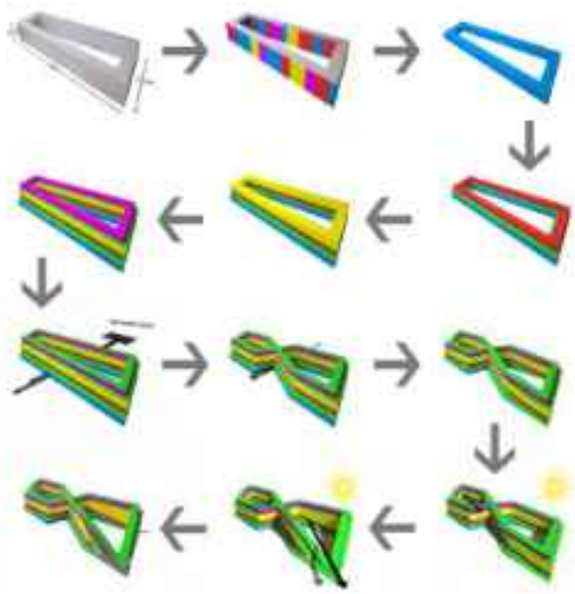
Example 2: Architectural transformation of form in planning



Example 3: Architectural transformation of building form



Example 4: Architectural transformation of building form



8 House, also known as Big House, is a large mixed-use development built in the shape of a figure 8 on the southern perimeter of the new suburb of Ørestad in Copenhagen, Denmark.

Example 5: Architectural Case Study: 8 house, BIG Architects

2. HUMAN BODY AND SENSORY ENVIRONMENT

2.1 Nature - its five basic elements

Earth
- Material
- Site
- Vegetation

WATER
- Rain
- Humidity

FIRE
- Light
- Temperature
- Vegetation

WIND
- Ventilation

SKY
- Space

FIVE BASIC SENSES:

VISION (Light, color, views).

HEARING (Sound, noise, silence).

TACTILITY (Texture, thermal, physical feeling).*FUNCTIONAL, AESTHETIC, PSYCHOLOGICAL.*

SMELL .

SPIRITUAL.

2.2 VISION (Light, color, views)

LIGHT AND ARCHITECTURE

- **The perception of space** is directly connected to the way light integrates with it.
- What we see, what we experience and how we interpret the elements is affected by
- how light interacts with us and with the environment.
- The dynamic daylight and artificial lighting are able to instigate and **provoke different visual experiences and moods.**
- Due to the light, it is possible to perceive **different atmospheres in the same**
- physical environment.

RELATIONSHIP BETWEEN LIGHT, SPACE AND HUMAN:

- Light is fundamental for space, it is the success of any building.
- Light quality affects human behaviour, health, comfort and mood.
- Space and light and order. Those are the things that men need just as much as they need bread or a place to sleep"
  -Le Corbusier, August27, 1965
- Light, space and human they effect and work with each other.
- Space needs light to illuminate; light needs space to receive it, light within the space change human experience.
- Most of the architectures like to amplify use of natural light.
- Natural light makes architectural more harmony between exterior,
- interior, nature and human.
- Light work with some element like colours, can make space more dynamic and beautifier and it is a major natural element in architecture design.
- More than that, light can be employed through design to evoke an emotional response to increased sensibilities.

Light in bars

Light in conference hall

NATURAL LIGHT AND ARCHITECTURE:

•Natural light keeps changing through times.

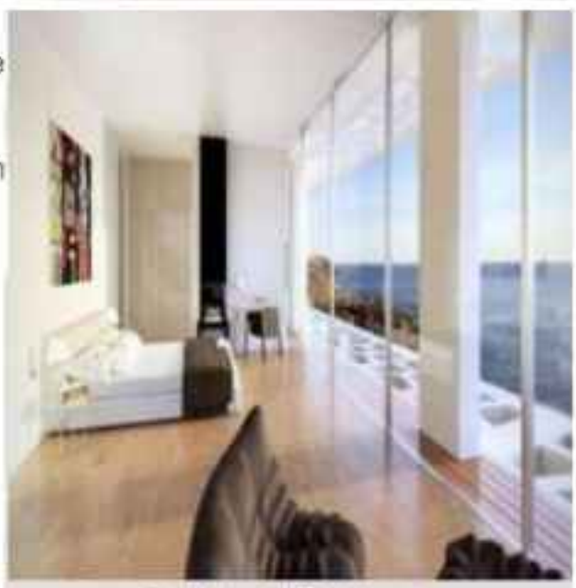
•However, architects cannot control natural light, which from morning to night, day after day changes.

•Its existence gives life to space, modeling the spatial sensibility.

•Natural light for the space, like the air for life, these two have symbiotic relationship.

•Natural light into interior design have many positive effects, including the considerable financial savingsin energy.

•Natural light is considered a beneficial design for many reasons: human health, comfort and satisfaction, energy conservation, view.



Lighting At Residence

LIGHT INFLUENCE MOOD:

•The psychological factors should not be overlooked.
•People need to change perspective in order torelax
the eyes and mood.
•Lack of natural light makes people feel depressed and tensed.

LIGHT CREATE ATMOSPHERE:

•Light creates atmosphere.
•Many factors affect the building atmosphere.

•Natural light is one of the most important factors.
•Architect needs to use light to create a different order and rhythm
change the spatial effect gives different atmosphere.

LIGHTING:
Naturally - by daylight received from the sky.
Artificially - by electric lamps or other artificial light sources.

Natural Lighting-
•Lighting or illumination is the deliberate use of light to achieve a practical or aesthetic effect.
•Daylight as two distinct sources of light: **Sunlight and Skylight.**
•Sunlight and skylight may therefore be considered as the direct and diffuse components of daylight.

The quantity of Daylight obtained within a room will be dependent upon:

•Orientation, geometry and space planning of the spaces to be lit.

•The location and surface properties of any internal partitions which may reflect and distribute the daylight.

•The location, form and dimensions of any shading devices which will provide protection from too much light and glare.

LIGHTWELL:

- In architecture a light well or air shaft is an unroofed space provided within the volume of a large building to allow light and air to reach what would otherwise be a dark or unventilated area.

- Lightwells may be lined with glazed bricks to increase the reflection of sunlight within the space.

- Lightwells serve add a central space within the building, and provide an internal open space for windows to give an illusion of having a view outside.

ARTIFICIAL LIGHTING:

•It is made by human. It is very useful when there is lack of natural light.

Types of Artificial lighting

•**General** or Ambient lighting
•Accent or Directional lighting
•Traditional or Decorative lighting
•Task lighting

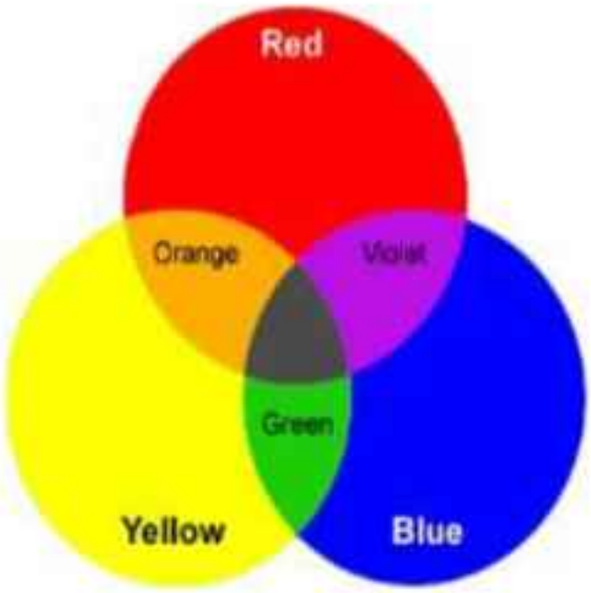
COLOUR AND ARCHITECTURE

Color wheel shows the principal colors divided in two major segments

- WARM AND
- COOL COLORS.

- The area made up of red, red-orange and yellow-orange is said to consist of warm colors.
- yellow-green, green, blue-green, blue and blue-violet is said to consist of cool colors.

- The **primary colors are red, yellow and blue.**
- **Other (secondary** and tertiary) colors are get from their combination.



THERE ARE SOME IMPORTANT TERMS ABOUT COLOR:

Hue means the same as color. It is described with the words we normally think of as describing color: red, purple, blue, etc.

- **Value (also called brightness or luminosity) is a description of how light or dark a coloris. By**
- adding a relative amount of white or black in a hue can be achieved a variety of values.
- **Chroma (also called as saturation) is defined as the strength or dominance of the hue. It** shows how pure (unmixed) the color is, compared to a color diluted with white, darkened by black or grey. High saturation colors look rich and full. Low saturation colors look dull and grayish.
- **Tint** is formed by the addition of white to a hue. This results in lighter values of the hue. Pink is a tint of red. Tinted colors are commonly called as pastel colors.
- **Tone** is formed by the addition of gray to a hue.
- **Shade** is formed by the addition of black to a hue. It appears when the hue is produced by mixing an original hue with black or gray. The result is a darker value of the original hue and this is called as the shade of that original hue. For example, burgundy is a shade of red.
- **Monochromatic colors:** A color scheme involving the use of only one hue that can vary in value or intensity.
- **Achromatic colors** (neutral colors): Designates color perceived to have zero hue, such as neutral grays, white, or black.
- **Complementary colors: are pairs of colors that are of "opposite" hue in color wheel. In color** theory, two colors are called ***complementary if, when mixed in the proper proportion, they*** produce a neutral color (grey, white, or black). For example:

  red and green
  blue and orange
  yellow and violet

Red-

color of energy,
it's bold,
powerful and vibrant.

It has the longest wavelength.

Negative impacts can be aggression, visual disturbance and strain.

Yellow-

very emotional color: confidence and optimism.

After red, yellow has the longest wave length, appearing to be strong from a distance.

Contrary to
this it also communicates few **negative values like depression, hatred and anxiety.**

Blue-

color of intelligence, vastness, royalty, serenity, coolness and tranquility.

Sky appears blue and gives calm effect, water appears blue and gives peace of mind.

Blue appears
to be the favorite color of most of the people but on the other hand it is **also a color of coldness and unfriendliness.**

Green-

most refreshing, natural and cool color.

As for its negative traits, it is the color of boredom and stagnation.

Orange-

gives warmth, comfort, security, passion, and fun.

Due to the mixture of red and

yellow it gives

stimulation.

Pink- color of

femininity, love and tranquility.

It gives comfort and suggests grace and **elegance.**

Grey-

neutral color, not giving a direct psychological effect.

It may represent emptiness

and dullness.

Violet-

color of truth, luxury.

shortest

wavelength

Black. Black is graceful, efficient and serious.

Too much black creates heaviness and scary

White-

pure, clean, hygienic, innocent and simple.

enhances the perception of space.

Brown-

color of earth. It looks serious, ancient

seriousness as black but in a warmer way.

COLORS IN ARCHITECTURE

- Color has been effectively used in architecture since ancient times, as the ancient Neolithic cave paintings.
- Early Christian churches (around 450-500 AD) were very plain outside but they were covered with colored mosaics inside that showed biblical figures.
- Gothic churches were also alive with color, by way of paintings and stained glass windows.
- Renaissance architects (15th century) were not much interested in colors, since they were more
- interested in the composition of forms and volumes.
- But in Baroque (17 century) and Rococo periods (early 18 th century) we see the rise of color again.
- The color scheme of International Modernist architecture, formed by the designers of Bauhaus, Germany in 1920's, was inspired by De Stijl architects.
  De Stijl architects used saturated primary colors (red, blue, yellow) for painting the walls of the space, and used black for the structural elements such as columns or beams

Color in Cave Paintings vs Modern movements



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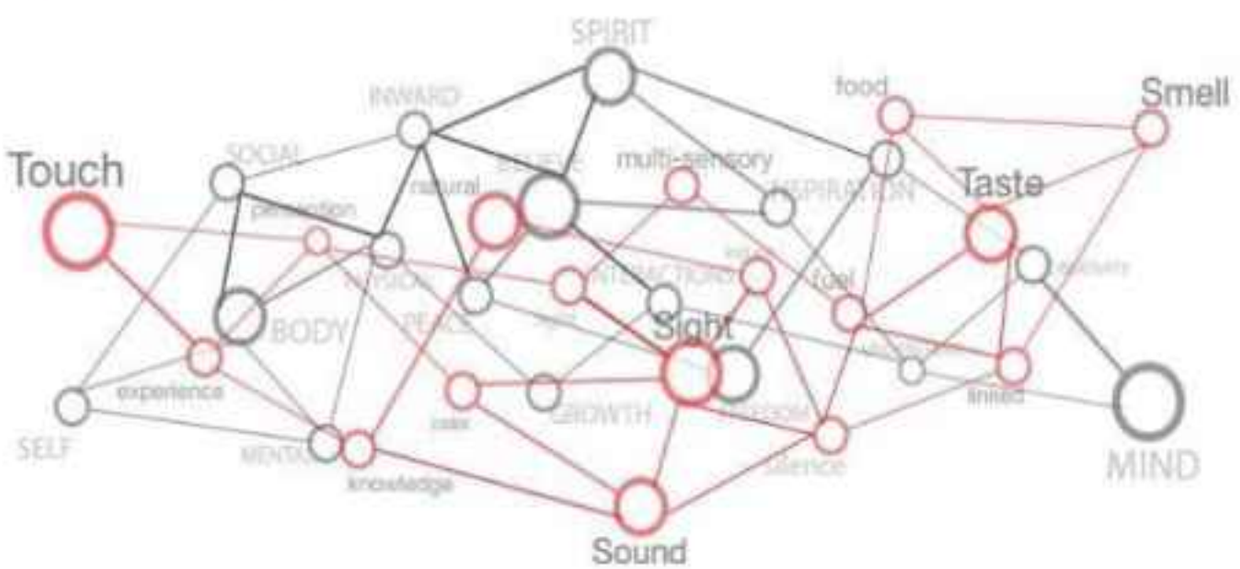
HUMAN SENSES & ARCHITECTURE-



VISION

SPIRITUAL - Ex : Church of light (light, colour, silence, view/ focal point).

TEXTURE - Ex: Guggenheim Museum, bilbao, spain.

HEARING -

WHAT IS TEXTURE :

"The sensations caused by the external surface of objects received through the sense of touch." Basically, how things feel".

Textures create visual interest and add those touches of detail that were previously missing.

Textures in design can be of two different kinds-

- Tactile.
- visual.

TACTILE: Actual alterations in a plane which may be felt when touched are tactile textures . 1.Metal.

- Stone.
- Concrete.
- Glass.
- Wood.
- Fabric.

VISUAL TEXTURE : Appeals to our perception, what a texture might feel like. With a texture you may be aware of the repeating motif but you are more aware of the surface.

HEARING:

Example: *WATER*

Visual Impact

Water can function as a focal point within a space or as a means of creating and maintaining a sense of continuity.

A water display can strongly temper the character of a space. A sense of calm and serenity is created by a quiet stream or pool, while excitement and drama can be achieved by swiftly moving, densely massed, or strong vertical displays.

The level of formality will be influenced by the forms of the pools and displays, and the mood further defined or reinforced by appropriate lighting.

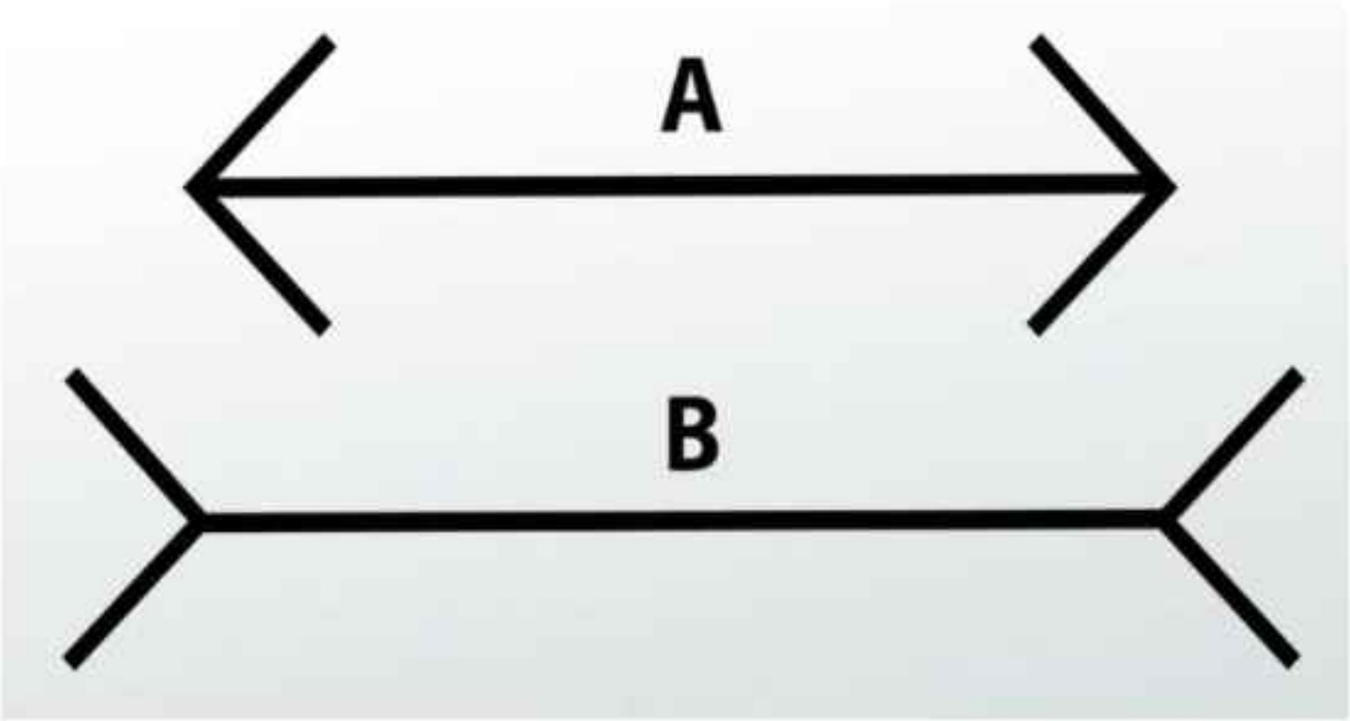
Auditory Impact

The intensity and frequency of the sound generated by a water display can be used to convey a sense of calm or excitement, and can also mask unpleasant or distracting ambient noise.

3. COGNITIVE EXPERIENCE OF FORM

3.1 VISUAL PERCEPTION

Visual perception is **the ability to perceive our surroundings through the light that enters our eyes**. The visual perception of colors, patterns, and structures has been of particular interest in relation to graphical user interfaces (GUIs) because these are perceived exclusively through vision.

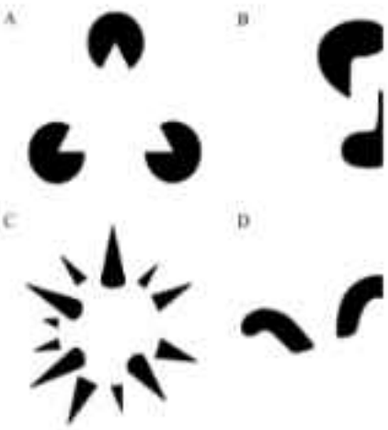


3.2 IDEAS OF GESTALT

- The word **"Gestalt" literally means "form"** in German, and this is fitting because the theory describes how the mind transforms apparent randomness into reliable forms.
- Designers are able to emphasize visual relationships and communicate more effectively when they understand how viewers interpret visual information.
- **The Gestalt principles form a psychological framework for how the human mind perceives and organizes visual information.**
- The theory behind them was founded over the **1910s and '20s by German psychologists Max Wertheimer, Wolfgang Köhler and Kurt Koffka.** Since then, it has found acceptance in disciplines ranging from therapy to cybernetics to design.

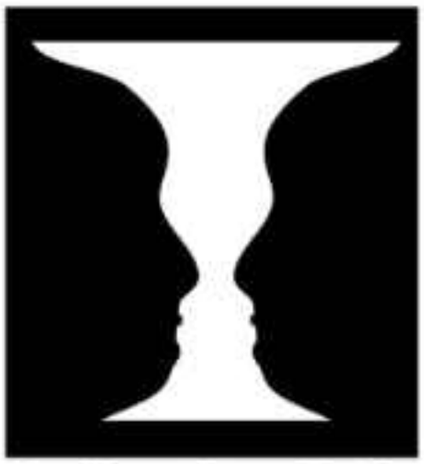
CONCEPTS OF GESTALT

Emergence means that we see the whole shape before the small details. Image via Wikimedia



Reification means that we see the shapes that aren't there. Image via Wikimedia Commons

Invariance means that we recognize the same shape in spite of distortions. Image via



Multistability means that we see all possible interpretations of an ambiguous image simultaneously. Image via Wikimedia Commons

Figure-ground organization means that we separate image subjects into foreground and background even when the image does not appear three dimensional. Image via

Past experience means that we can interpret this image as a picnic table even though we could see an abstract triangle. Image via Wikimedia Commons

GESTALT PRINCIPLES

There are six individual principles commonly associated with gestalt theory:

- **similarity**,
- **continuation**,
- **closure**,
- **proximity**,
- **figure/ground**, and
- **symmetry & order**

Similarity

- It's human nature to group like things together.
- In gestalt, similar elements are visually grouped, regardless of their proximity to each other.
- They can be grouped by color, shape, or size.
- Similarity can be used to tie together elements that might not be right next to each other in a design.

Continuation

The law of continuity posits that the human eye will follow the smoothest path when viewing lines, regardless of how the lines were actually drawn.

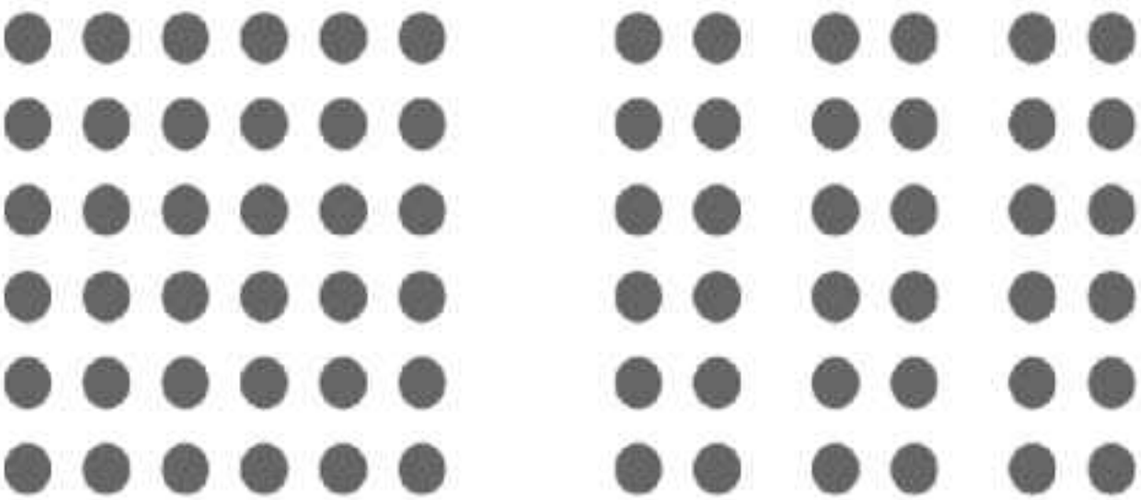
Closure

It's the idea that your brain will fill in the missing parts of a design or image to create a whole.

The gestalt principle of closure is illustrated beautifully in the world wildlife fund's panda logo. The brain completes the white shapes, even though they're not actually there!

Proximity

Proximity refers to how close elements are to one another. The strongest proximity relationships are those between overlapping subjects, but just grouping objects into a single area can also have a strong proximity effect.



The only thing differentiating the group on the left from those on the right is the proximity of the lines. And yet your brain interprets the image on the right as three distinct groups.

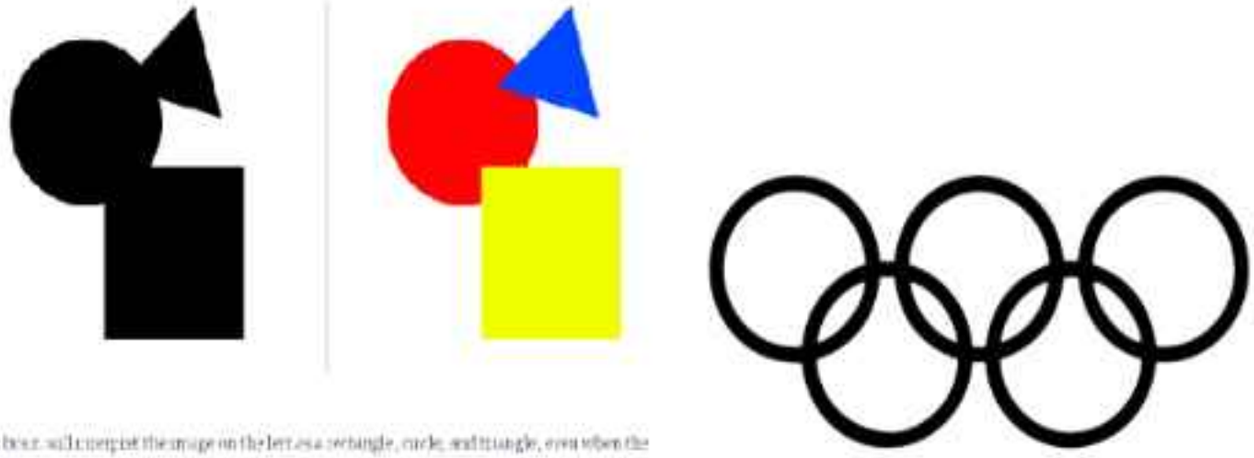
Figure/Ground

The figure/ground principle is similar to the closure principle in that it takes advantage of the way the brain processes negative space.

Some people will immediately see the tree and birds when viewing the logo for the Pittsburgh Zoo & PPG Aquarium, while others will see the gorilla and lion staring at each other.

Symmetry and Order

The law of symmetry and order is also known as *prägnanz*, the German word for "good figure." What this principle says is that your brain will perceive ambiguous shapes in as simple a manner as possible. For example, a monochrome version of the Olympic logo is seen as a series of overlapping circles rather than a collection of curved lines.

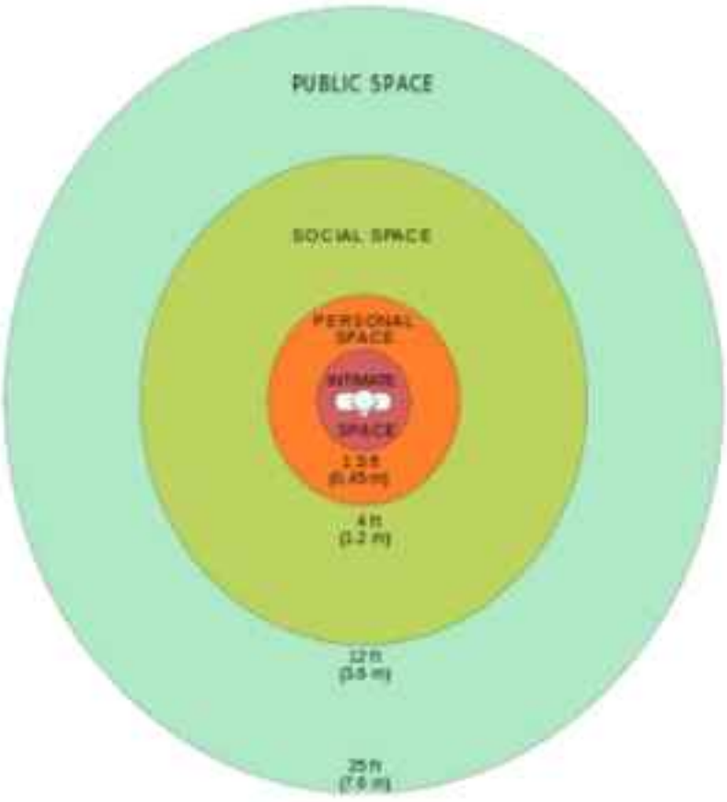


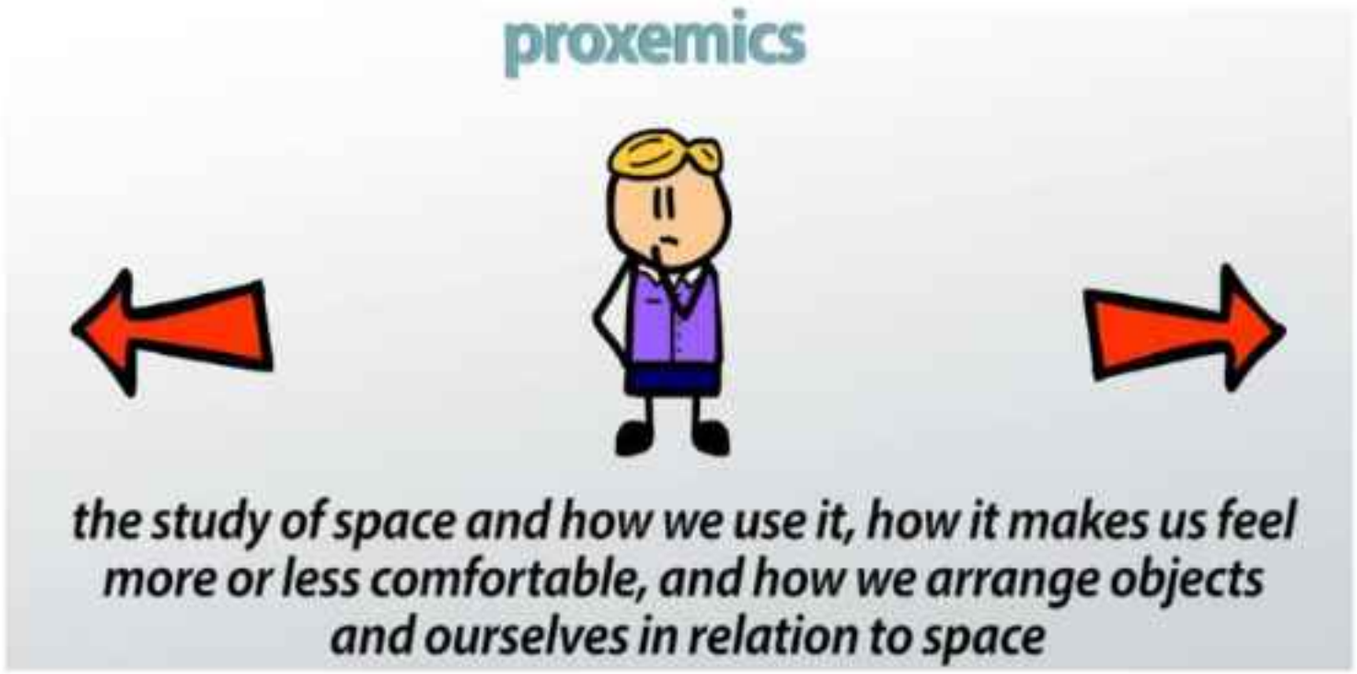
your brain will interpret the image on the left as a rectangle, circle, and triangle, even when the outlines of each are incomplete because those are simpler shapes than the overall image.

3.3 PROXEMICS

Proxemics

Proxemics is the study and application of personal space zones-how close we like to be to other people. This differs depending on our relationship to other people and our culture. (For example Americans like 4 to 12 feet between someone they know socially, but not personally.) If we don't have this amount of space, we become uncomfortable and even anxious. So designers need to allow this amount of space between chairs in public places and understand cultural differences that affect this phenomenon.





Proxemics is the study of space and how we use it, how it makes us feel more or less comfortable, and how we arrange objects and ourselves in relation to space. The term was coined by the anthropologist Edward Hall. Hall was interested in understanding how humans use space in communication.

Personal Territory

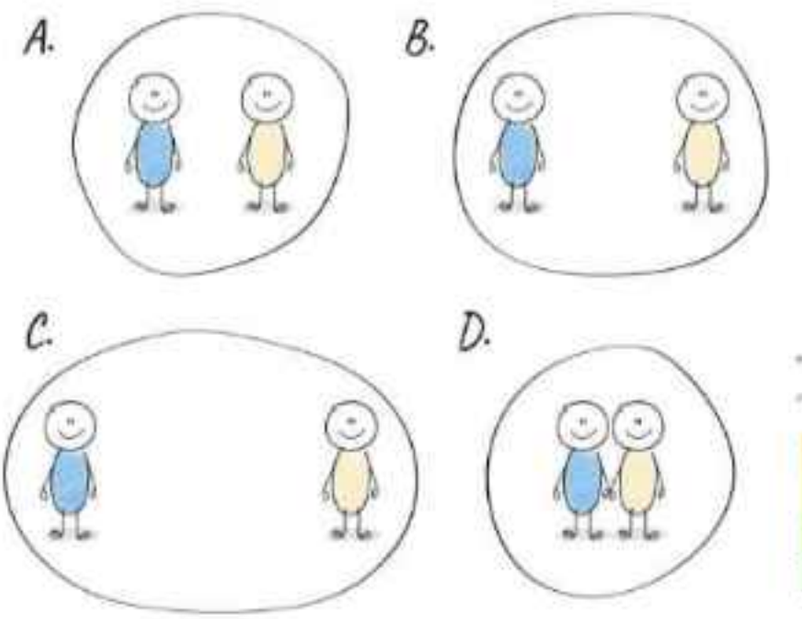
In order to understand more about proxemics, we need to discuss different kinds of spaces. There are four kinds of distance that people generally use in communication. This can vary by place, and different cultures have different standards. These are known as realms of personal territory.

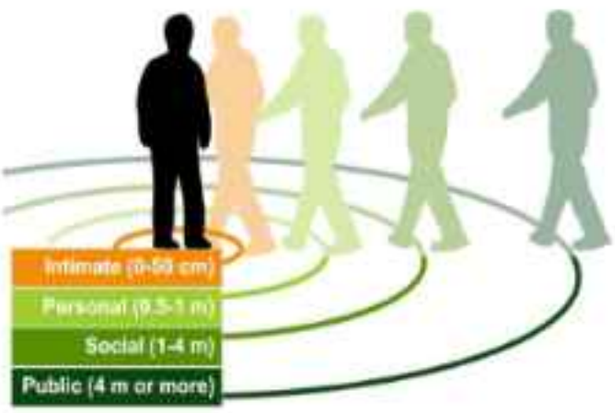
- **Public space** is the space that characterizes how close we sit or stand to someone, like a public figure or public speaker. So, if you are at an event listening to a professor give a lecture, you are probably about 12 - 25 feet away.

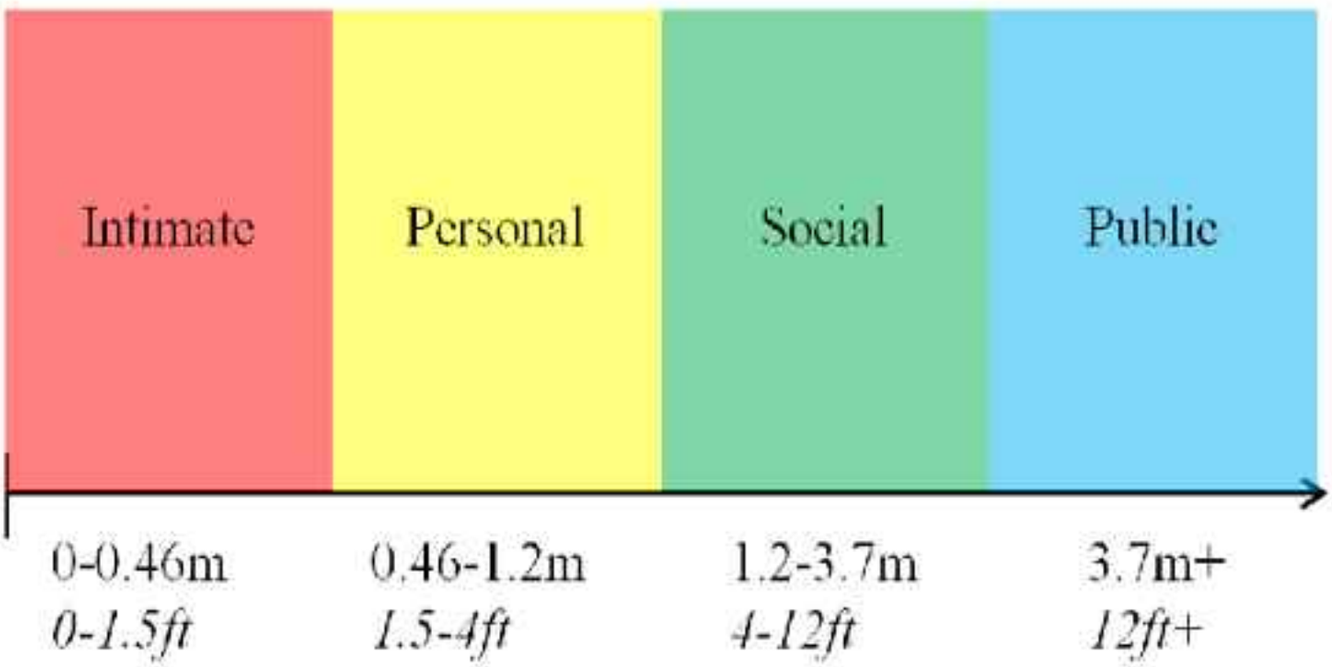
- **Social space** means we're getting a little closer, about 4 - 12 feet away. This is the kind of space you're probably in if you're talking to a colleague or a customer at work.

- **Personal space** is even closer. In this case, you're probably about 1 - 4 feet away from someone. This is reserved for talking to friends or family.

- **Intimate space** is for people who you are very close to. In this case, you're probably less than a foot away and you might even be touching the other person. This is the space you're in with a romantic partner, for example.







UNIT 3 – FORM AS GEOMETRIC ELEMENTS AND THEIR EFFECTS

- **Form as embodied in and/or constituted by geometric elements** such as point, line, plane, volumes.
- **Attributes**, generation and interrelationships among elements.
- **Perceptual effects** and use of specific manifestations of the elements- planes as shapes and volumes as geometric forms/space such as sphere, cube, pyramid, cylinder, cone and their sections/ derivatives. Architectural use of elements.
- **Exercises and architectural case studies.**

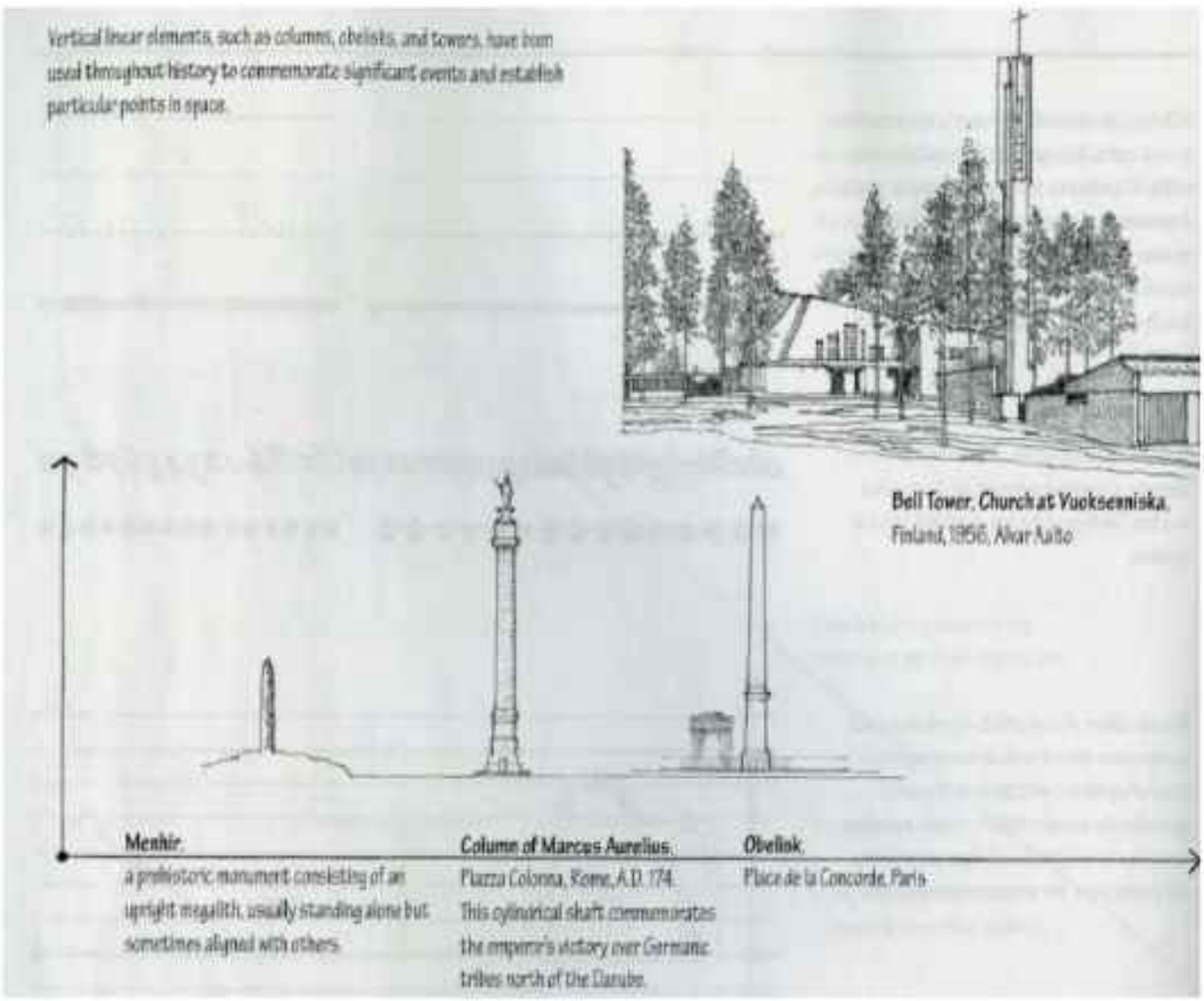
FORM AS GEOMETRIC ELEMENTS AND THEIR EFFECTS FORM AS EMBODIED IN AND/OR CONSTITUTED BY GEOMETRIC ELEMENTS SUCH AS POINT, LINE, PLANE, VOLUMES.

POINT

Marks a position in space

- Conceptually, it has no length, width or depth
- It is static, centralized and directionless
- As the prime element in the vocabulary of form, it serves to mark:
    - The two ends of a line
    - The intersection of two lines
    - The meeting of lines at the corner of a plane or volume the center of a field

To mark a position in space or on the ground plane, a point must be projected vertically into a linear form.



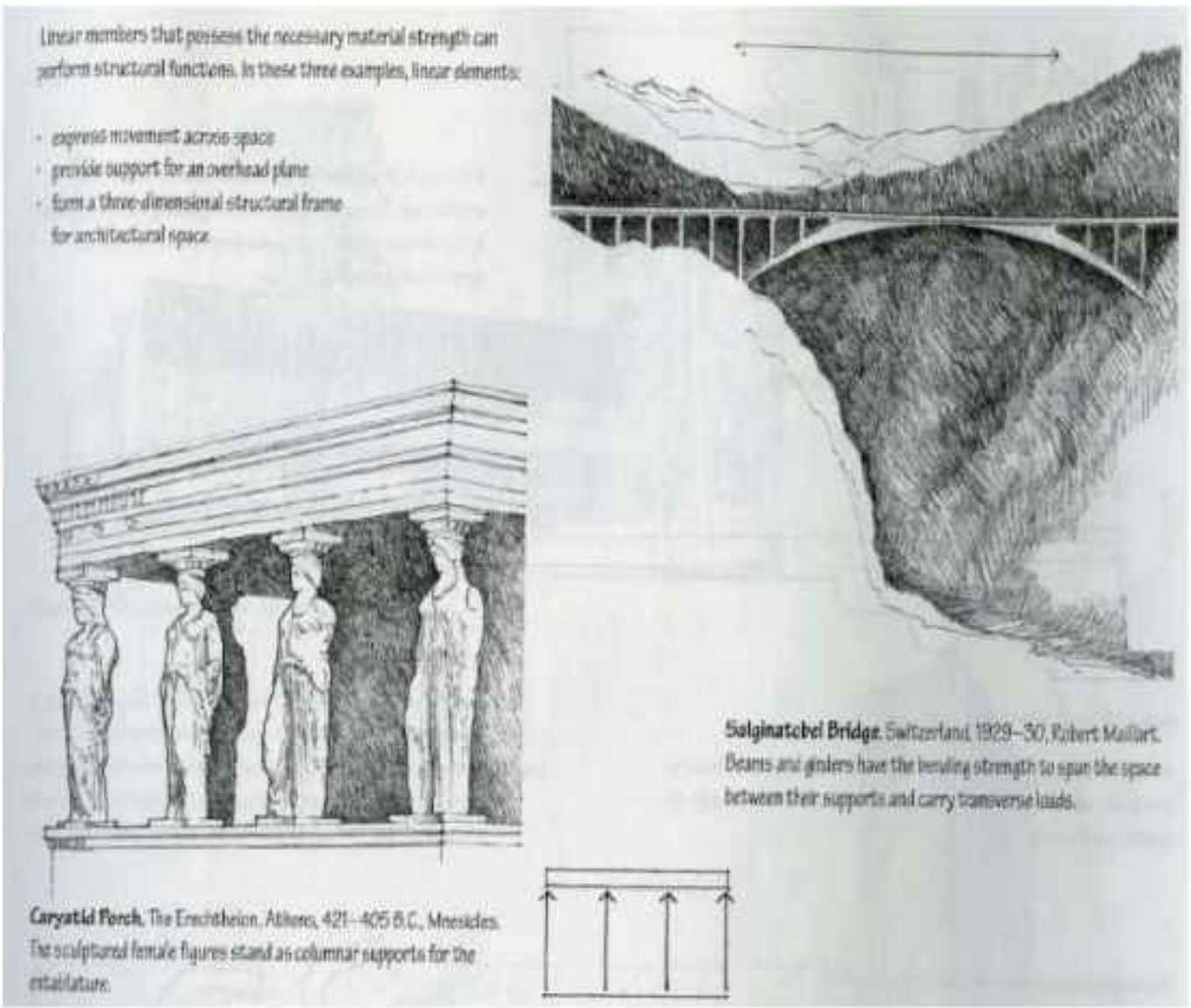
LINE

A point extended

- A line is a critical element in the formation of any visual construction
- It can serve to:

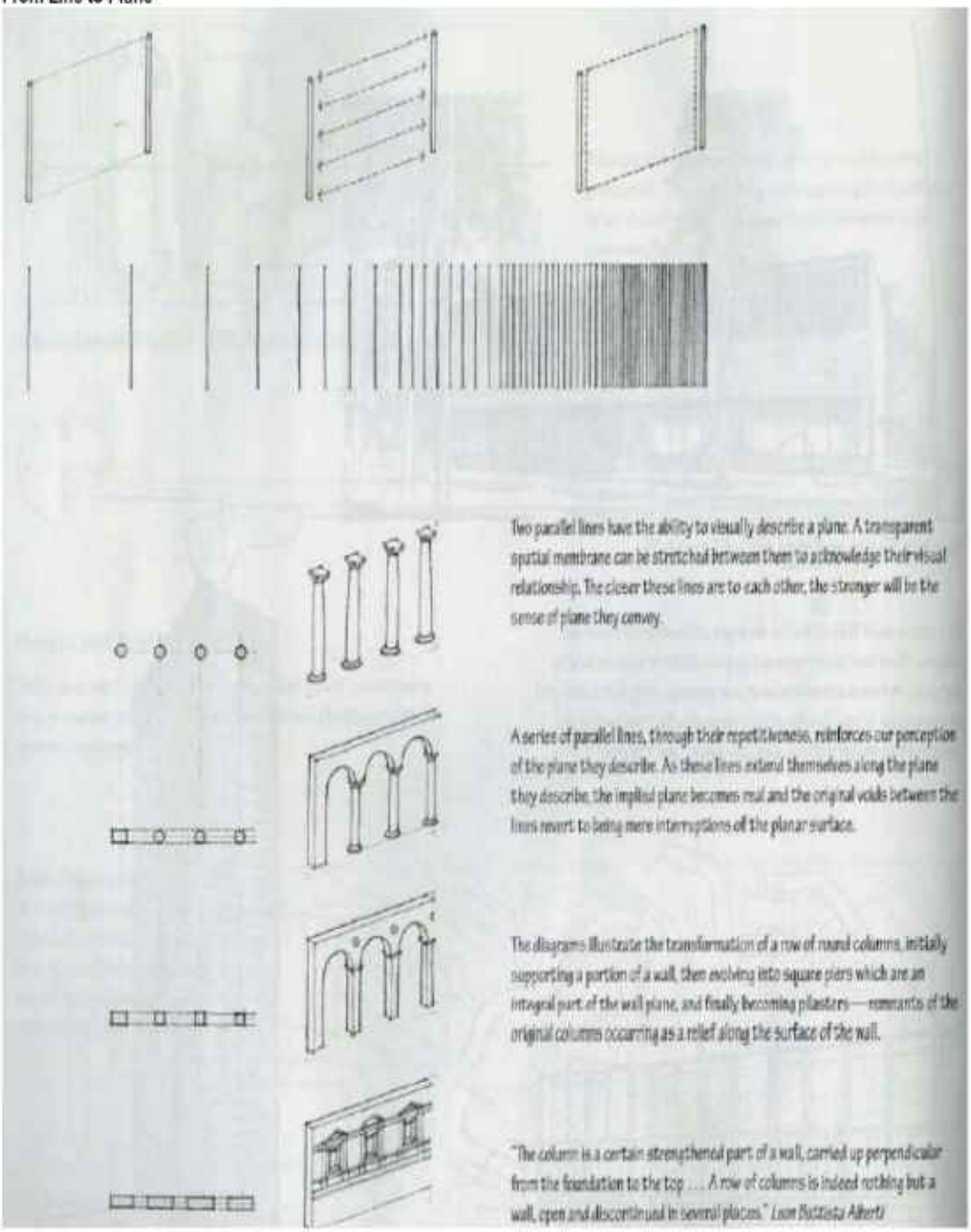
The orientation of a line affects its role in a visual construction:

- •A vertical line can express a state of equilibrium with the force of gravity, symbolize the human condition, or mark a position in space
- •A horizontal line can represent stability, the ground plane, the horizon, or a body at rest
- •An oblique line may be seen as a vertical line falling or a horizontal line rising
- Vertical elements have been used throughout history to commemorate significant events and establish particular points in space.
- Vertical linear elements can also define a transparent volume of space, as in the example above, the four minarets outline a spatial field which the dome of Hagia Sophia rises in splendor.



PLANE

From Line to Plane



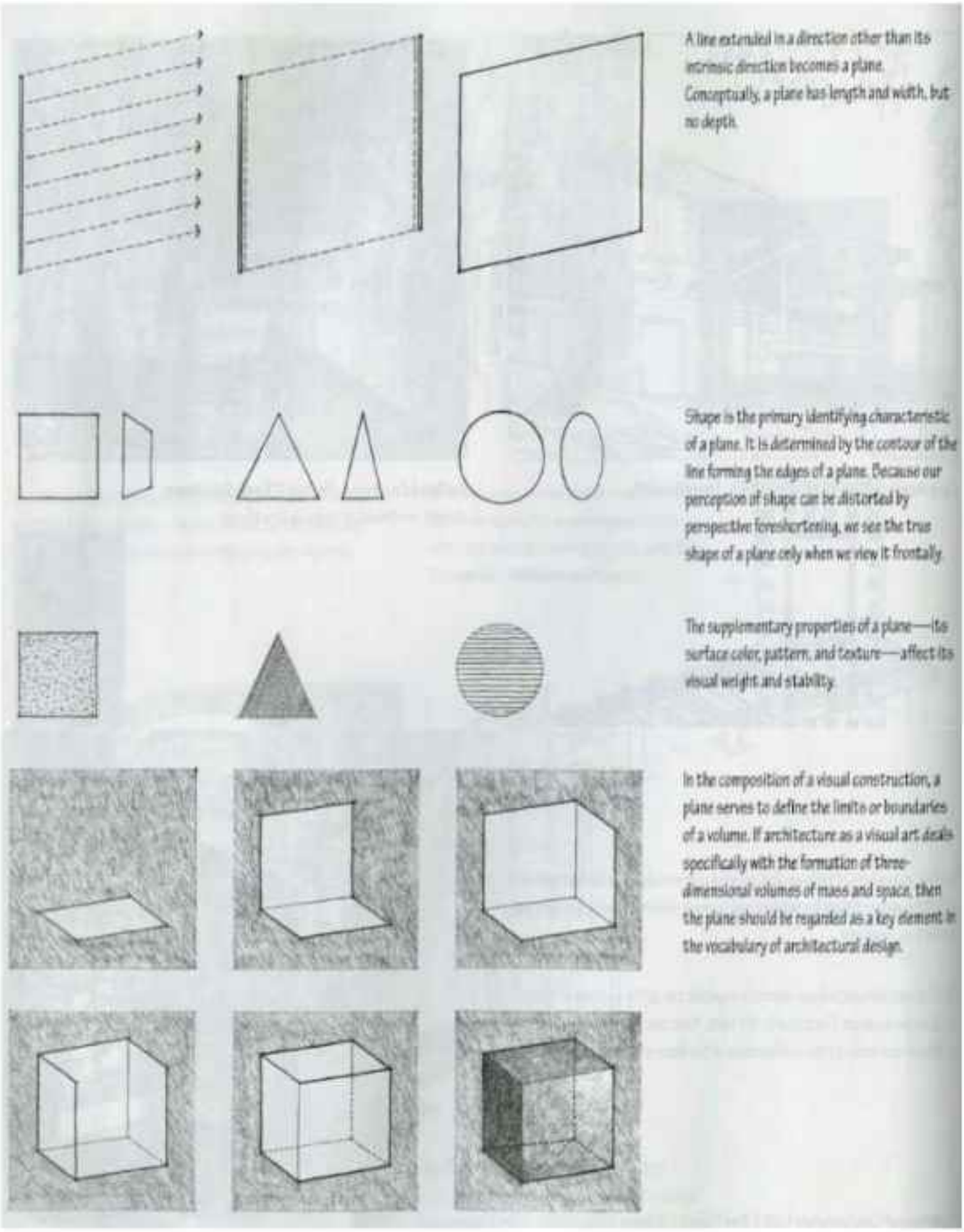
Two parallel lines have the ability to visually describe a plane. A transparent spatial membrane can be stretched between them to acknowledge their visual relationship. The closer these lines are to each other, the stronger will be the sense of plane they convey.

A series of parallel lines, through their repetitiveness, reinforces our perception of the plane they describe. As these lines extend themselves along the plane they describe, the implied plane becomes real and the original voids between the lines revert to being mere interruptions of the planar surface.

The diagrams illustrate the transformation of a row of round columns, initially supporting a portion of a wall, then evolving into square piers which are an integral part of the wall plane, and finally becoming pilasters—remnants of the original columns occurring as a relief along the surface of the wall.

"The column is a certain strengthened part of a wall, carried up perpendicular from the foundation to the top .... A row of columns is indeed nothing but a wall, open and discontinual in several places." *Leon Battista Alberti*

Plane



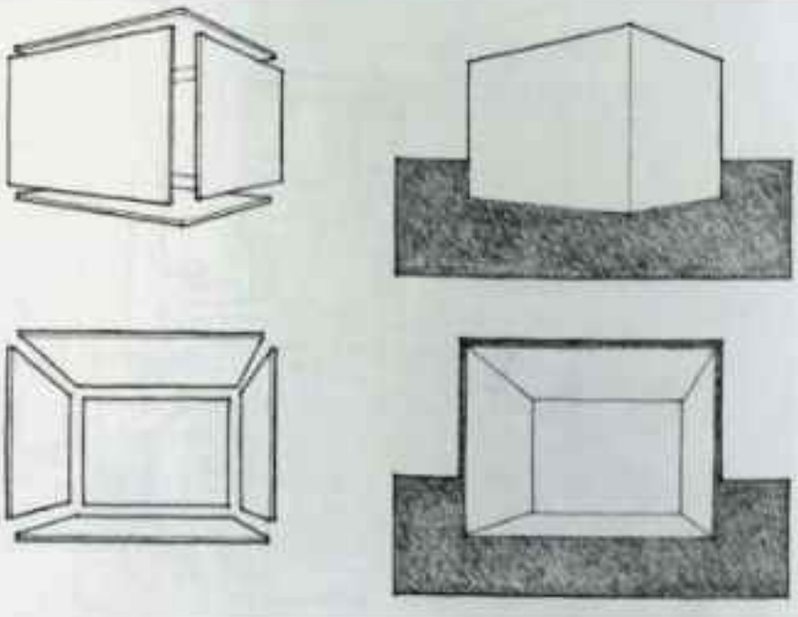
A line extended in a direction other than its intrinsic direction becomes a plane. Conceptually, a plane has length and width, but no depth.

Shape is the primary identifying characteristic of a plane. It is determined by the contour of the line forming the edges of a plane. Because our perception of shape can be distorted by perspective foreshortening, we see the true shape of a plane only when we view it frontally.

The supplementary properties of a plane—its surface color, pattern, and texture—affect its visual weight and stability.

In the composition of a visual construction, a plane serves to define the limits or boundaries of a volume. If architecture as a visual art deals specifically with the formation of three-dimensional volumes of mass and space, then the plane should be regarded as a key element in the vocabulary of architectural design.

Planes in architecture define three-dimensional volumes of mass and space. The properties of each plane—size, shape, color, texture —as well as their spatial relationship to one another ultimately determine the visual attributes of the form they define and the qualities of the space they enclose.



In architectural design, we manipulate three generic types of planes:

Overhead Plane

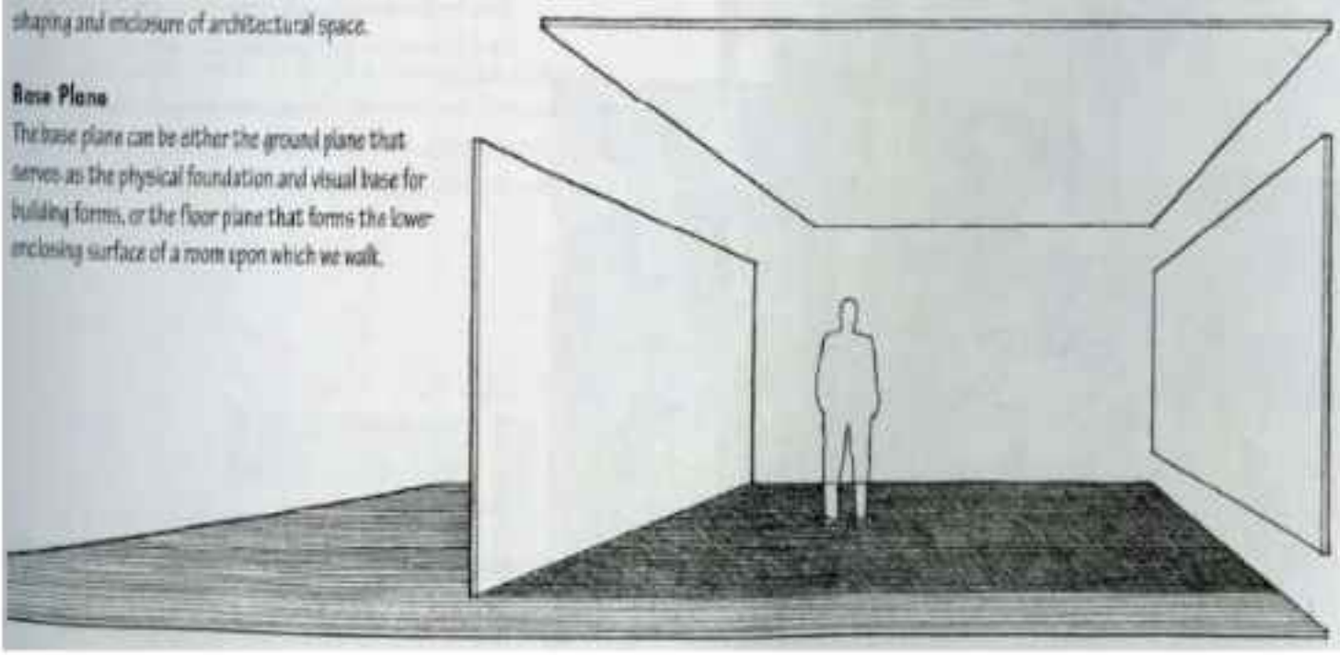
The overhead plane can be either the roof plane that shelters the interior spaces of a building from the climatic elements, or the ceiling plane that forms the upper enclosing surface of a room.

Wall Plane

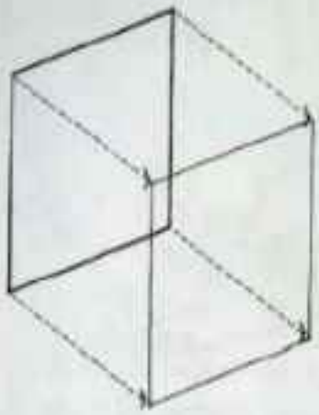
The wall plane, because of its vertical orientation, is active in our normal field of vision and vital to the shaping and enclosure of architectural space.

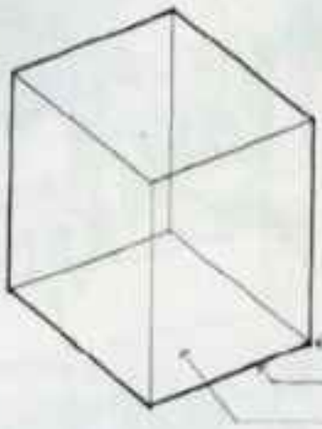
Base Plane

The base plane can be either the ground plane that serves as the physical foundation and visual base for building forms, or the floor plane that forms the lower enclosing surface of a room upon which we walk.



VOLUME

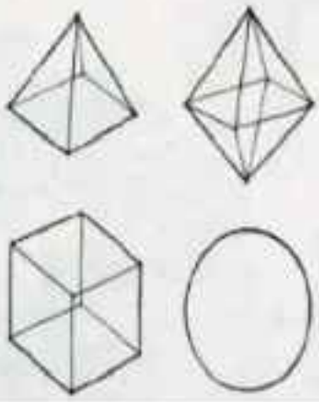




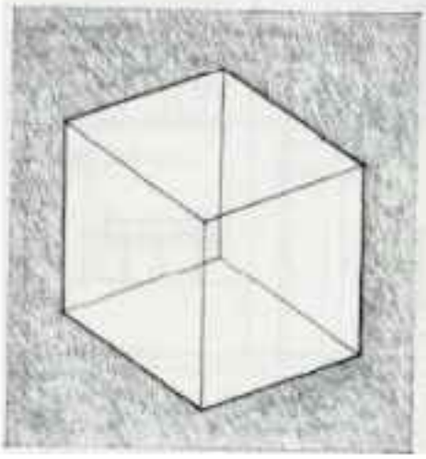
A plane extended in a direction other than its intrinsic direction becomes a volume. Conceptually, a volume has three dimensions: length, width, and depth.

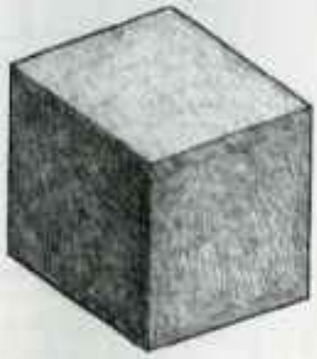
All volumes can be analyzed and understood to consist of:

- points or vertices where several planes come together
- lines or edges where two planes meet
- planes or surfaces which define the limits or boundaries of a volume



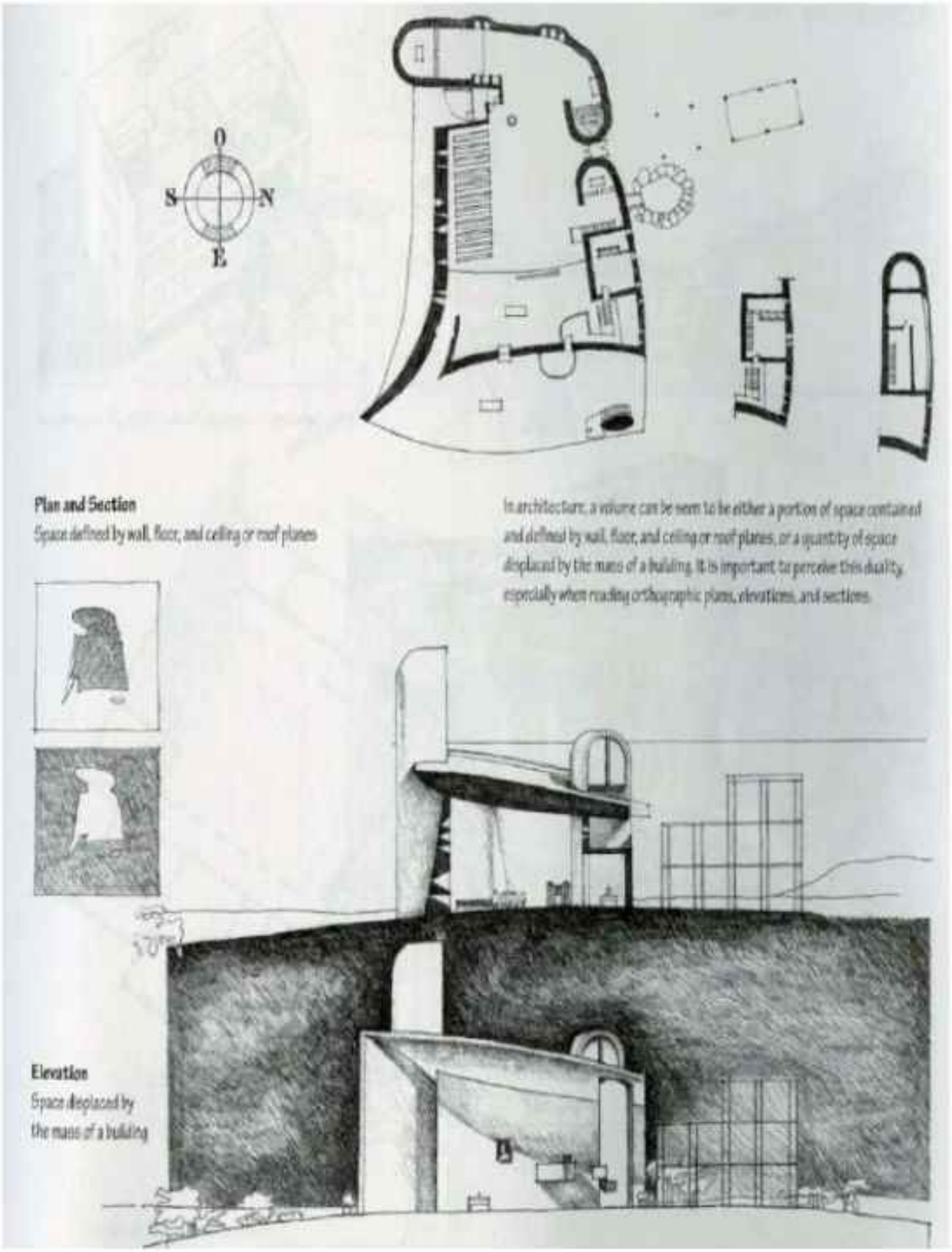
Form is the primary identifying characteristic of a volume. It is established by the shapes and interrelationships of the planes that describe the boundaries of the volume.



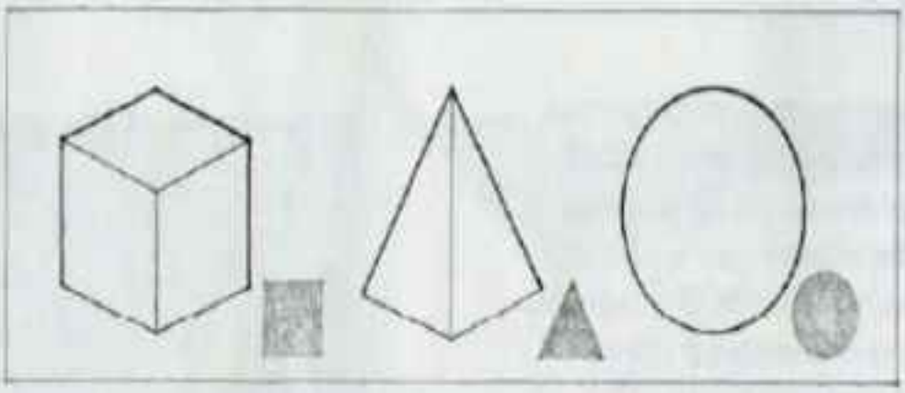


As the three-dimensional element in the vocabulary of architectural design, a volume can be either a solid—space displaced by mass—or a void—space contained or enclosed by planes.

ARCHITECTURAL EXAMPLE:

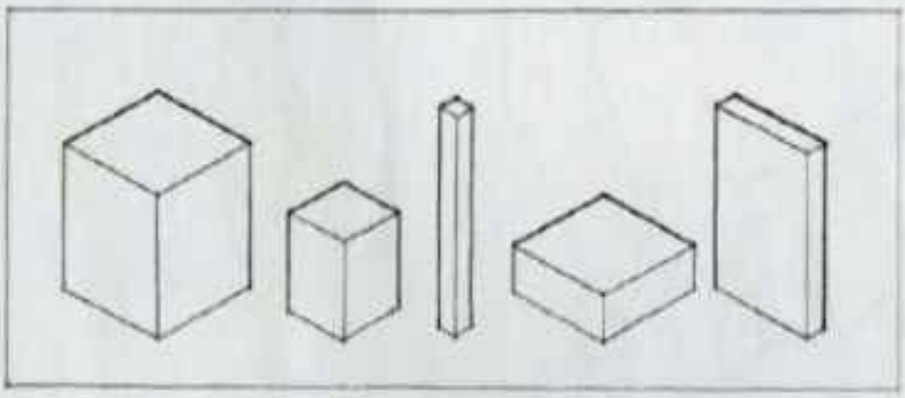


FORM

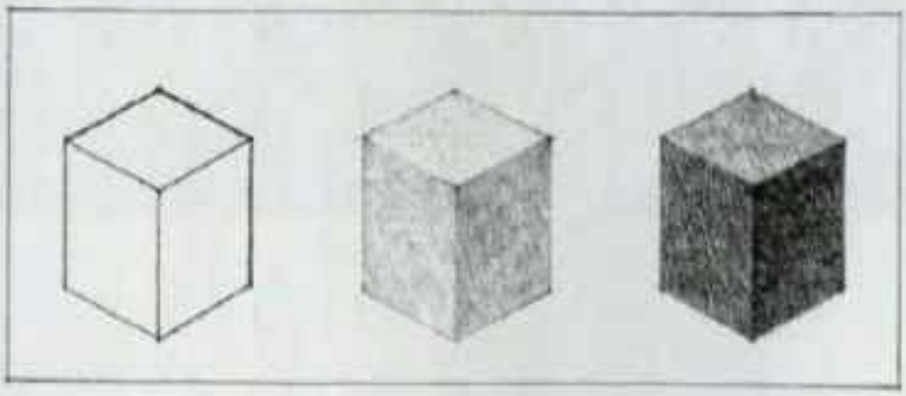


Shape The characteristic outline or surface configuration of a particular form. Shape is the principal aspect by which we identify and categorize forms.

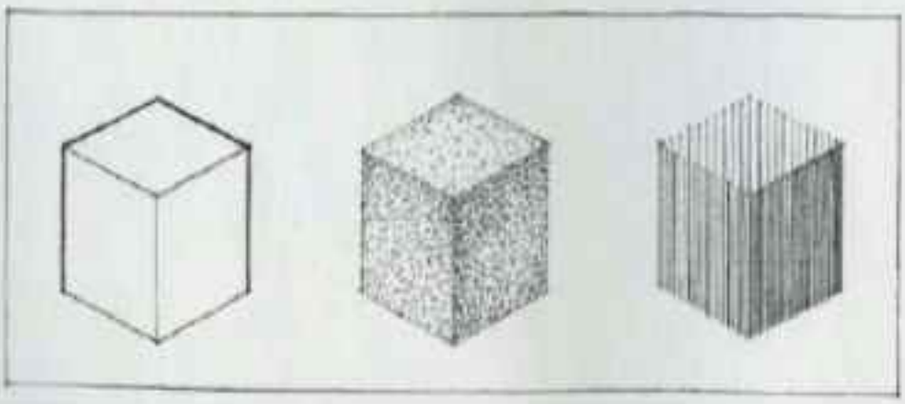
In addition to shape, forms have visual properties of:



Size The physical dimensions of length, width, and depth of a form. While these dimensions determine the proportions of a form, its scale is determined by its size relative to other forms in its context.



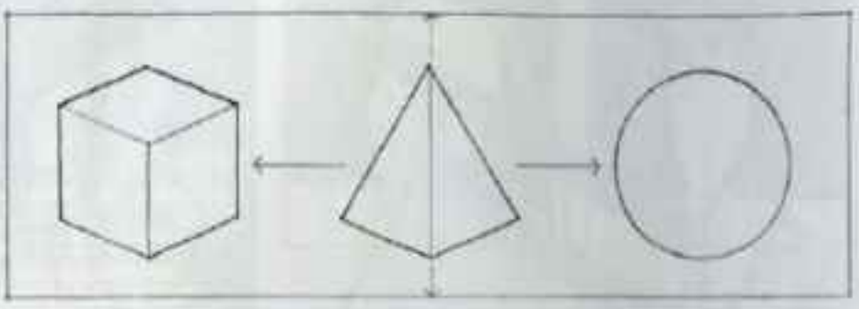
Color A phenomenon of light and visual perception that may be described in terms of an individual's perception of hue, saturation, and tonal value. Color is the attribute that most clearly distinguishes a form from its environment. It also affects the visual weight of a form.



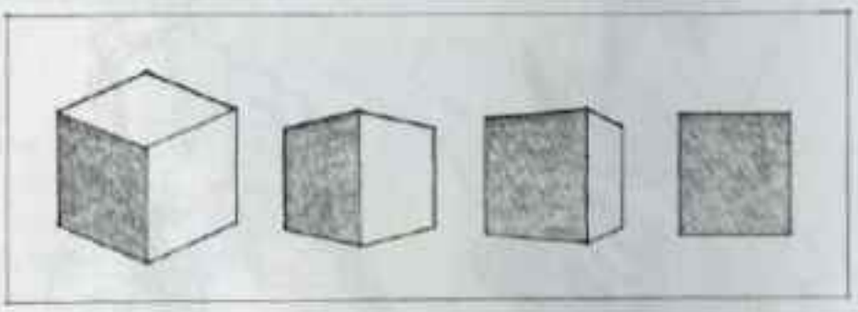
Texture The visual and especially tactile quality given to a surface by the size, shape, arrangement, and proportions of the parts. Texture also determines the degree to which the surfaces of a form reflect or absorb incident light.

Forms also have relational properties which govern the pattern and composition of elements.

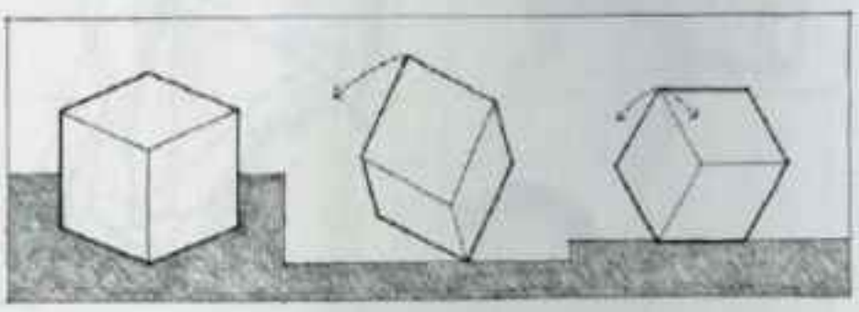
Position The location of a form relative to its environment or the visual field within which it is seen.



Orientation The direction of a form relative to the ground plane, the compass points, other forms, or to the person viewing the form.



Visual Inertia The degree of concentration and stability of a form. The visual inertia of a form depends on its geometry as well as its orientation relative to the ground plane, the pull of gravity, and our line of sight.



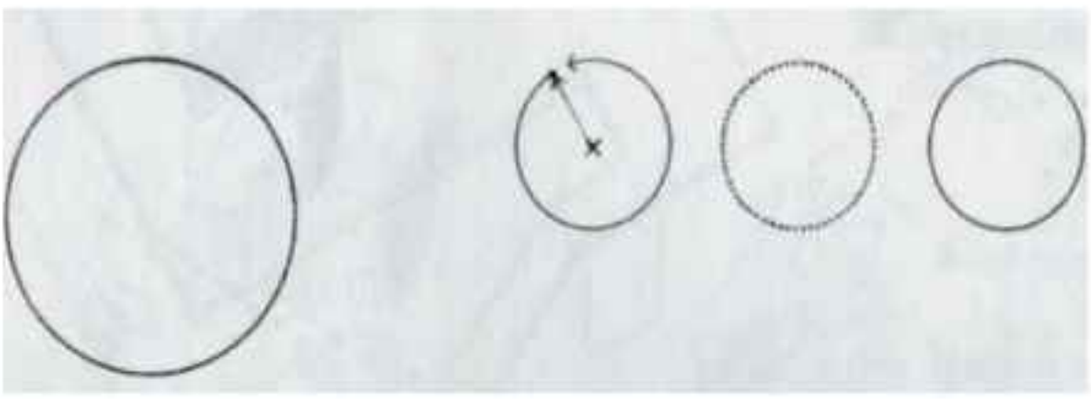
All of these properties of form are in reality affected by the conditions under which we view them.

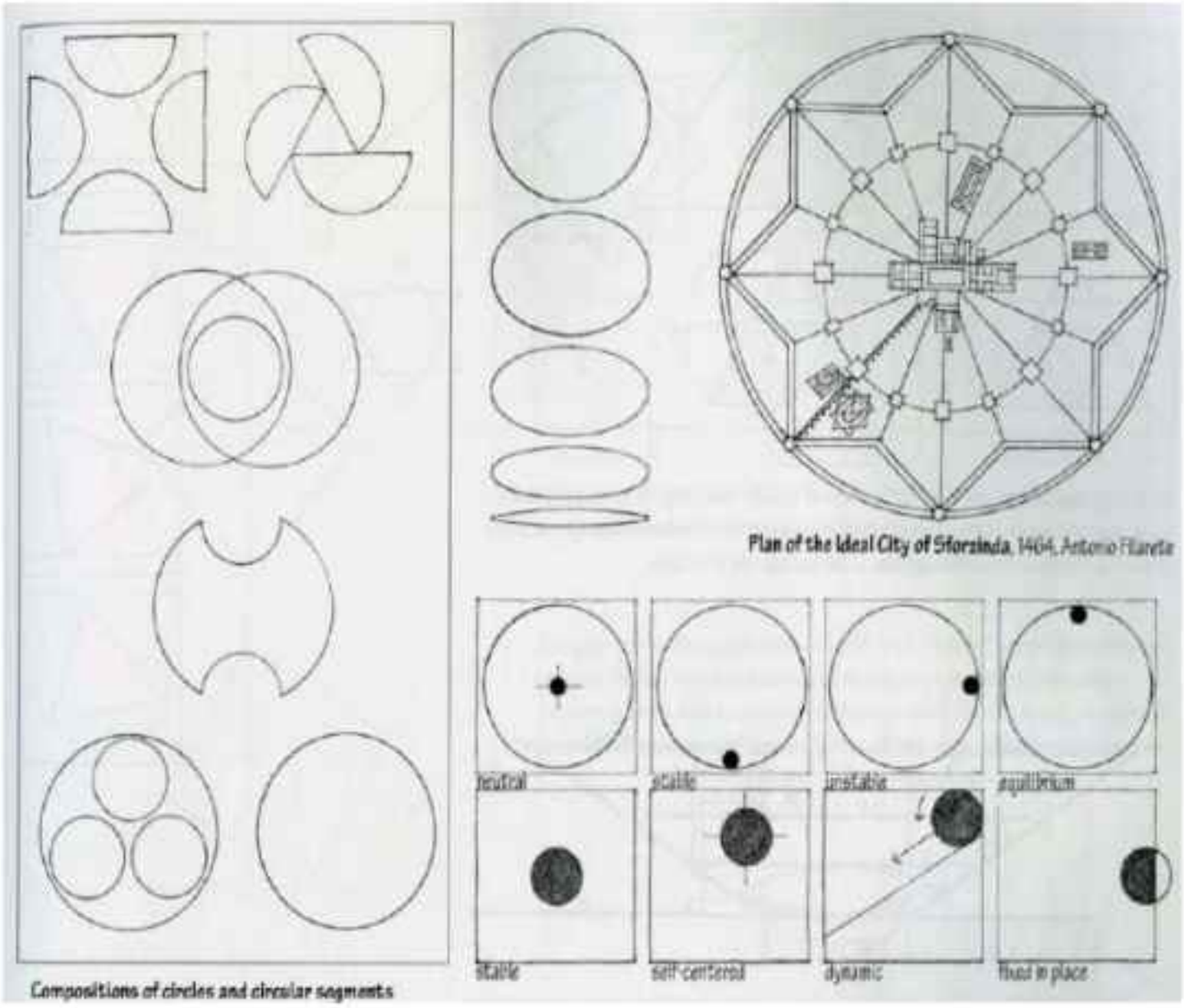
- A changing perspective or angle of view presents different shapes or aspects of a form to our eyes.
- Our distance from a form determines its apparent size.
- The lighting conditions under which we view a form affects the clarity of its shape and structure.
- The visual fields surrounding a form influences our ability to read and identify it.

ATTRIBUTES AND PERCEPTUAL EFFECTS

CIRCLE

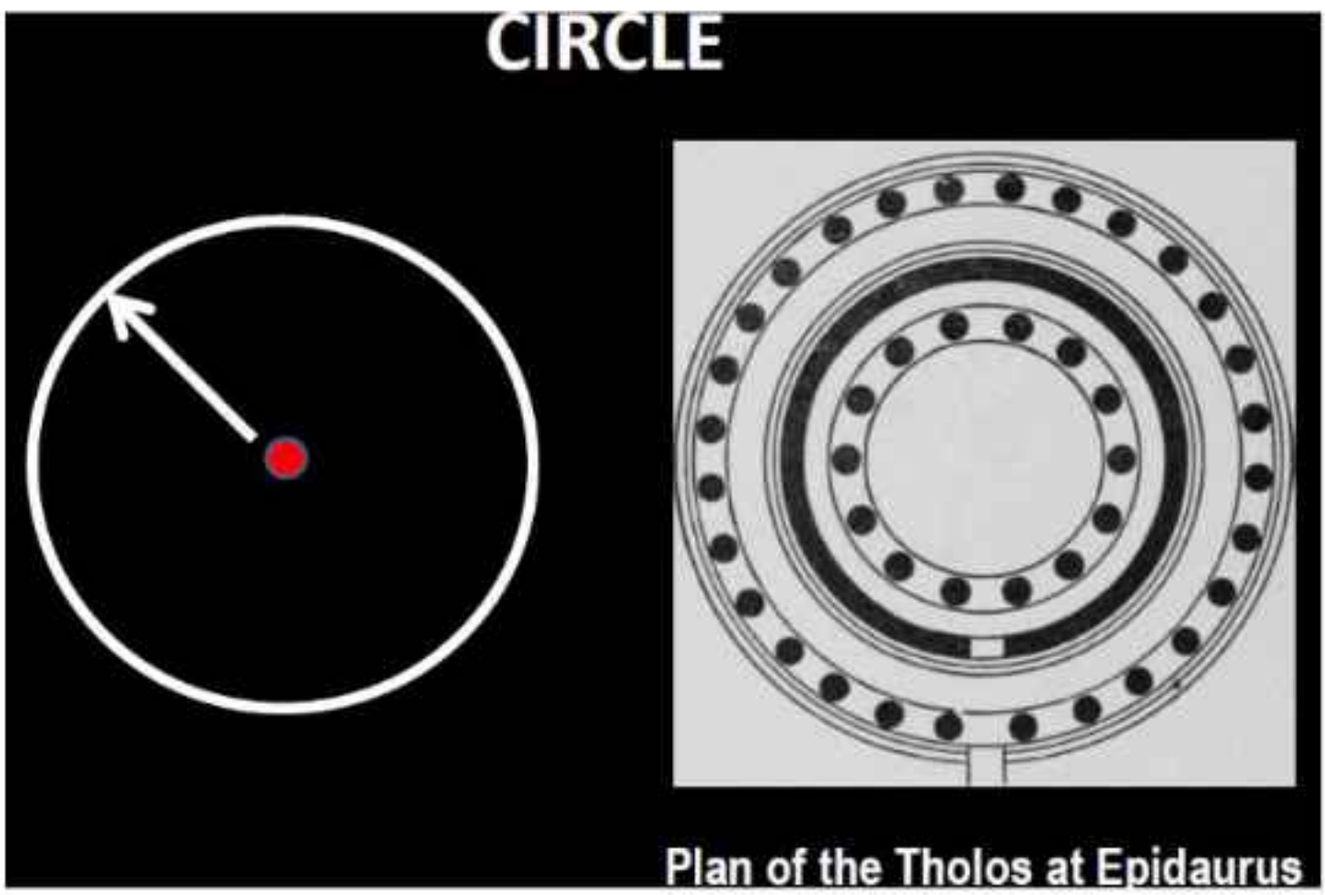
A plane curve every point of which is equidistant from a fixed point within the curve.





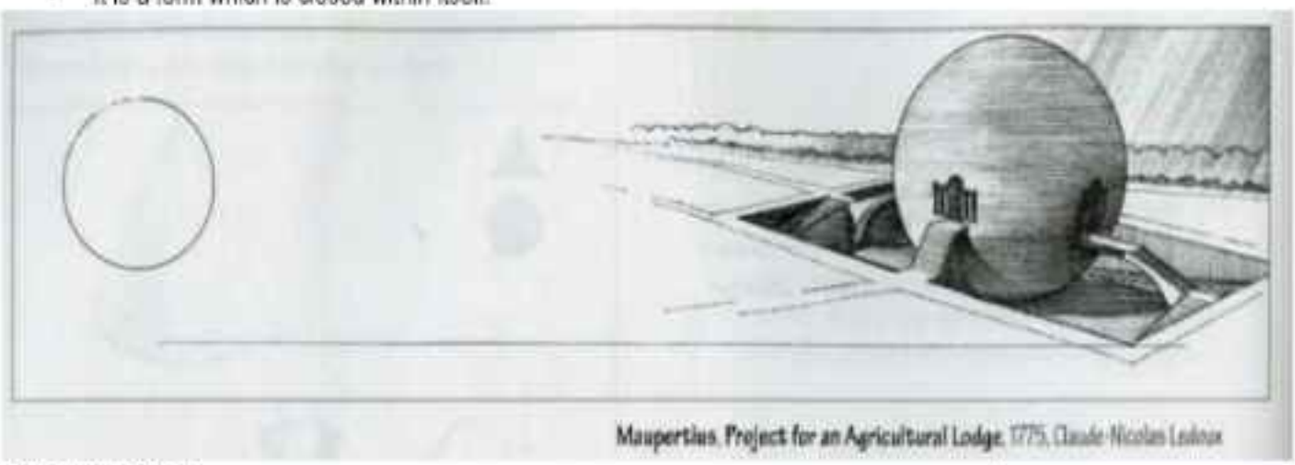
Plan of the Ideal City of Sforzinda, 1464, Antonio Filarete

Compositions of circles and circular segments



1. **SPHERE**

- Sphere is body that consists of regular , continuous surface.
- It has no lines , edges or corners
- Neither horizontal or vertical emphasis
- It is a form which is closed within itself.



Maupertius. Project for an Agricultural Lodge. 1775. Claude-Nicolas Ledoux

Perceptual Effects

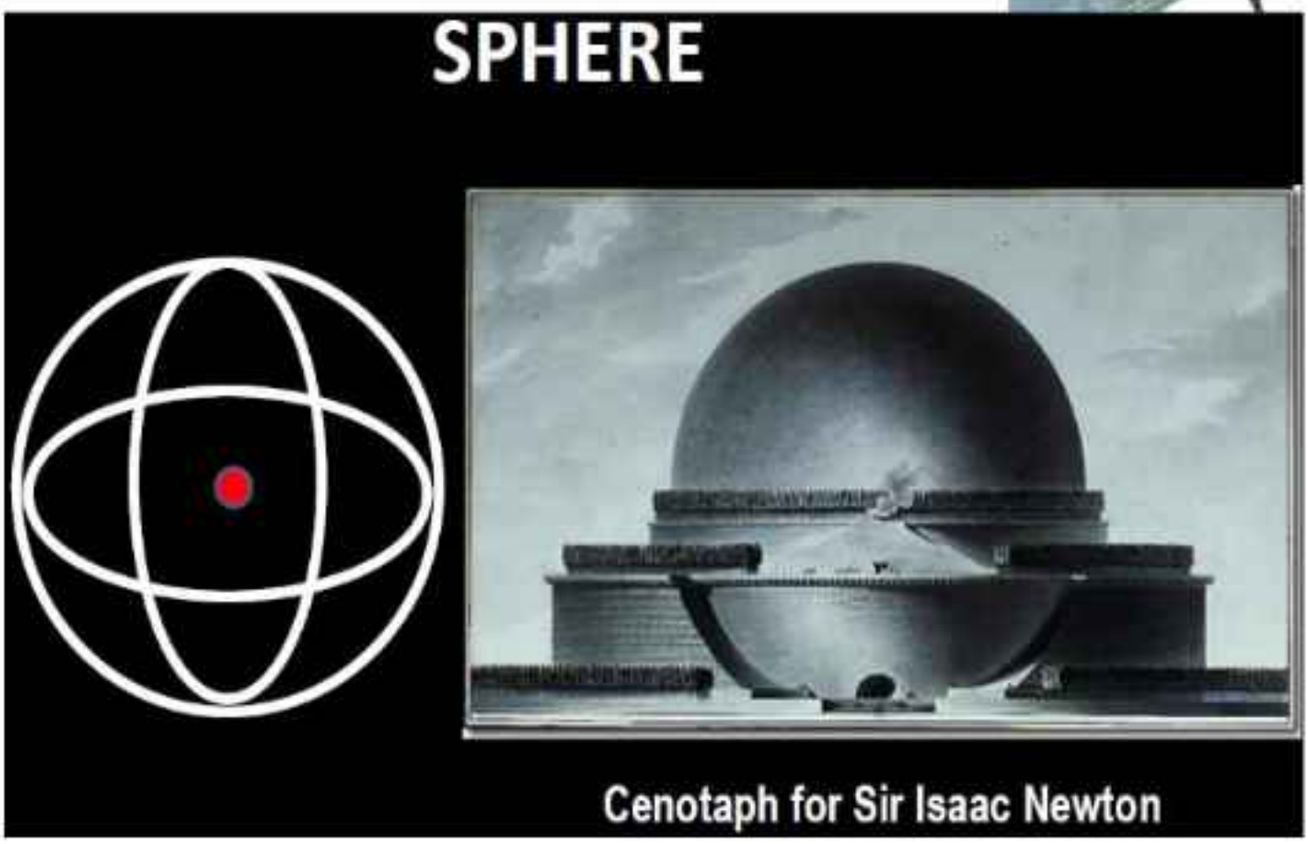
Visual effect

- Pure convex form externally
- Presents impenetratable , uninviting appearance.
- It displays visual quality of repulsion .
- Has no points of interest to focus
- Defined by vague outline of circle , whole mass appears as immense dot.

SPHERE BUILDING , SHANGHAI

Emotional effect

- Lack of concentration
- Restleness
- Diffuseness
- This diffuseness also characteristics the external space surrounding the sphere.
- Total effect on observer. Is lack of sense of orientation

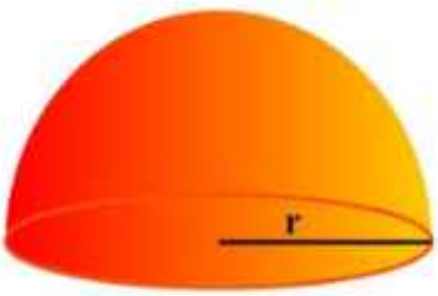


Inside the sphere

- There is a dramatic change inside.
- The bounding surface is continually concave.
- It opens to the observer.
- Invites attention.
- Attraction is from all sides
- This results in equilibrium of forces.
- Center of this equilibrium is center of sphere, the center is imaginary.

Derivatives of sphere – Hemisphere

- Cut horizontally in half.
- Cut portion forms an edge , circular in plan.
- The dome and the edge portion give the visual character



Hemisphere

Hemisphere

- A sphere cut horizontally in half.
- The cut portion forms an edge , circular in plan.
- The dome and edge portion gives the visual character.

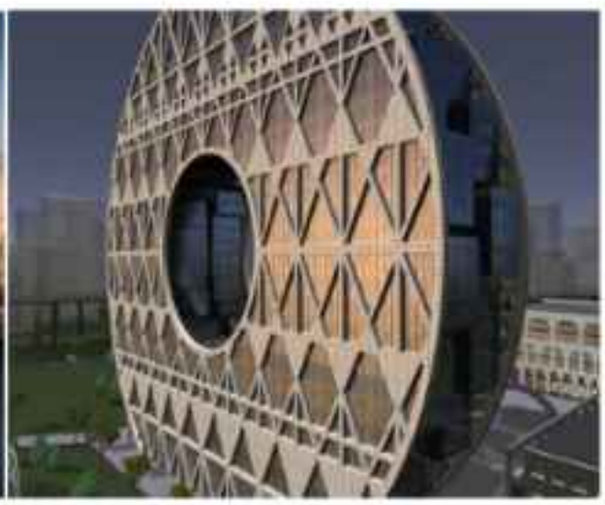
Visual effect

- Diffuse quality in the sphere , but continuity is terminated at rim.

Emotional effect

- A sense of circular movement set up by the rim.
- While sphere leads to disorientation hemisphere leads to circular movement.

Architectural Examples:

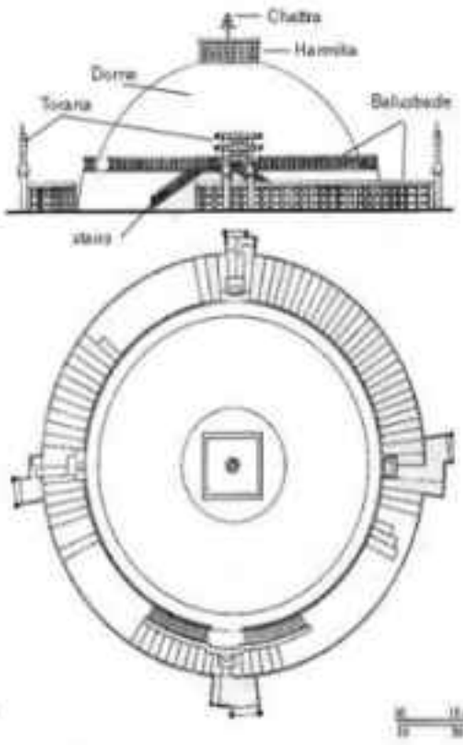


GUANGZHOU CIRCLE — The world's most unusual structure - a cylindrical coin-shaped building that is currently being constructed on the banks of the Pearl River.

Al Dar Headquarters | MZ Architects

the circular shape in architecture:

The Circle symbolizes unity, stability, rationality. It is also the symbol of infinity, without beginning or end, perfection, the ultimate geometric symbol. It represents a completeness which encompasses all space and Time.



•Location: Sanchi, Madhya Pradesh
Founded By: Maurya Emperor Ashoka
Founded In: 3rd century BC
Status: UNESCO World Heritage Site

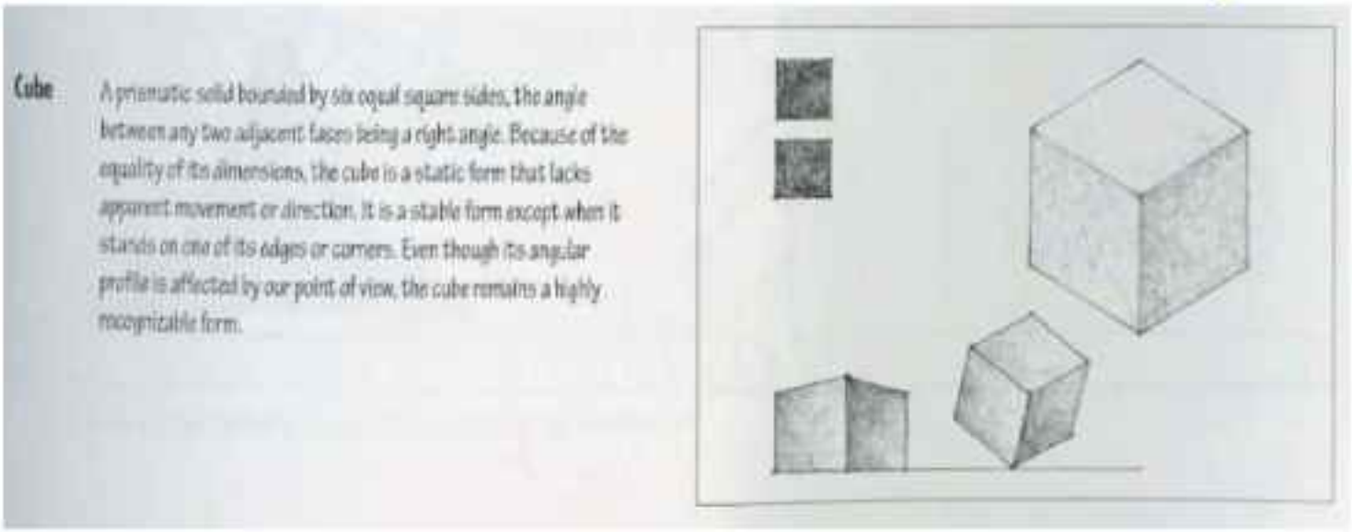
• It is a simple hemispherical brick structure, which has been built over the relics of Lord Buddha. Surrounding the main Sanchi Stupa is a path, used for circumambulation.

OPENINGS

- Interrupt continuity of the domical surface.
- Decrease the visual impact
- Weakens rim.
- Separation of internal and external spaces is less.
- Center of interior visible form outside draws observers to the interior.
- From the interior , outside catches the attention.
- Hence the attention constantly fluctuates between inside and outside leading to mild visual excitement.

2. CUBE

- Six equal square sides
- Angle between any two adjacent faces being right angle
- Cube is static form .
- It is very stable unless it stands in corners.
- The cube remains a highly recognizable form.

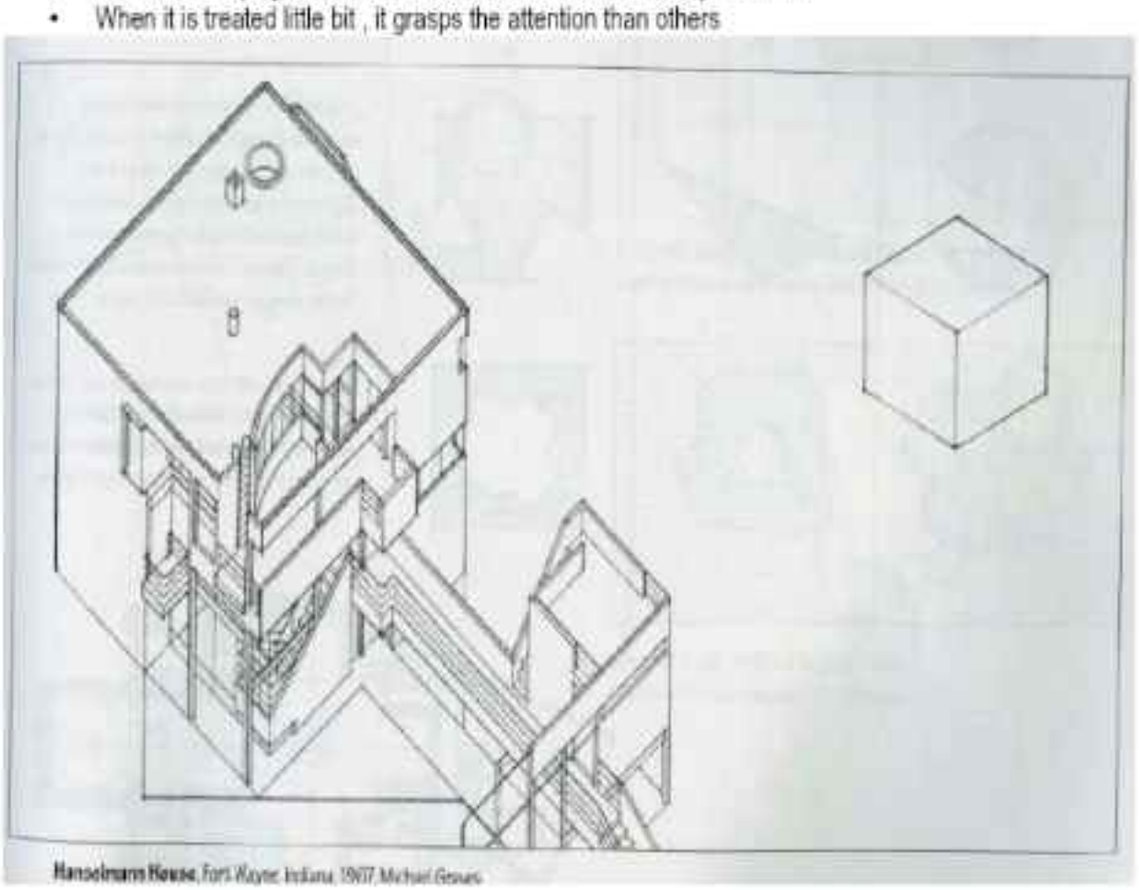


ATTRIBUTES - VISUAL EFFECT

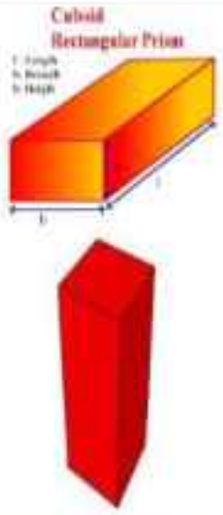
- The vertical blank square neither invites nor repulses .visually and physically impenetrable , uninviting appearance.
- Because the directions are equally emphasized , the mass as a whole has no directional quality and neutral.
- Visual force is given by edges.

INSIDE CUBE

- Space inside cube is bounded in plane surface , lines and corners.
- Corners wont project towards the observer but recede away from him.
- When it is treated little bit , it grasps the attention than others


Hansolmann House, Fort Wayne Indiana 1967 Michael Graves

3. CUBOID



- Altering the equal sides of the cube, cuboid is obtained.
- The volume is spread in particular direction either horizontal or vertical , irrespective of the surface.
- Each mass has a longer side and Shorter side.
- Surface lines are emphasized than corners.

Types:

- Horizontality – urban street.
  (because of the continuity one hesitates to stop unless opening is created)
- Verticality – high rise building
  (both physical and visual tension makes it dominating visual entity)

Street in Dublin

Apartment building in las vegas

- The horizontal internal space stimulates a horizontal movement , which is greater with increasing horizontality. So space becomes transformed into a passage , a corridor and an internal street.
- Vertical space stimulates vertical movement when filled with stair case, lift or ramp.

Architectural Examples:

Water Cube, also known as
The National Aquatics Center

The Water Cube's design was a Team Masterpiece: the Chinese partners felt a square was more symbolic to Chinese culture and its relationship to the Bird's Nest stadium, while the Sydney based partners came up with the idea of covering the 'cube' with bubbles, symbolizing water.

It should be noted that contextually the cube symbolizes earth whilst the circle (represented by the stadium) represents heaven.

The Zollverein School , Germany

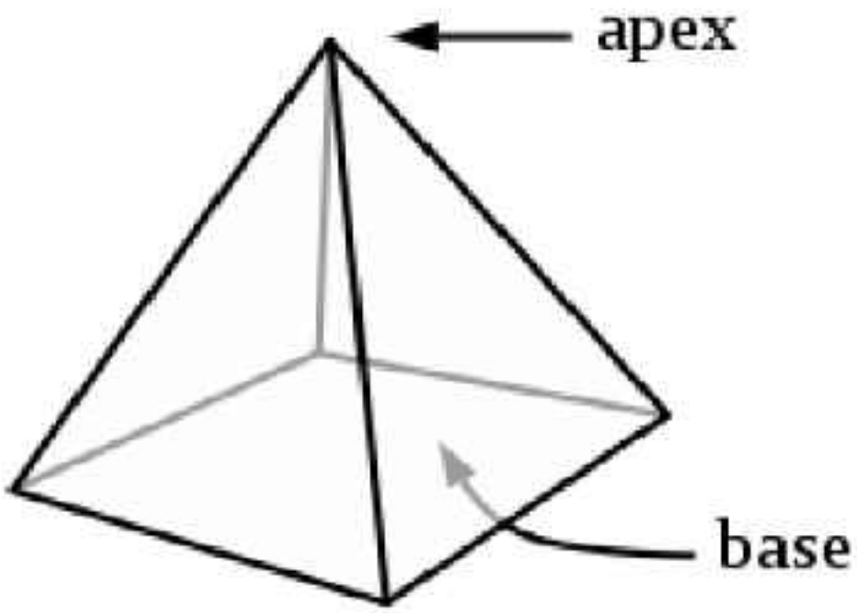
- Organization of the openings, windows in three different sizes, create an unusual interaction with the surroundings and the interior.
- The building has four floors with ceilings of varying height as well as a roof garden. The idea of stacking open floor plans was developed in compliance with the demands made by the various functions.

The Cube Condo Hotel , DUBAI

It's located in Dubai Sports City, has 27 floors and 561 luxury condos that will satisfy even the pickiest tourists.

4. PYRAMID

- Made up of tapering and inclined surface and gather together to form an apex , a corner where the whole mass culminates.
- Eye wil travel towards the corner.
- The directional quality is stronger than that of a rectilinear tower.
- Pyramidal form shows the devotional character.



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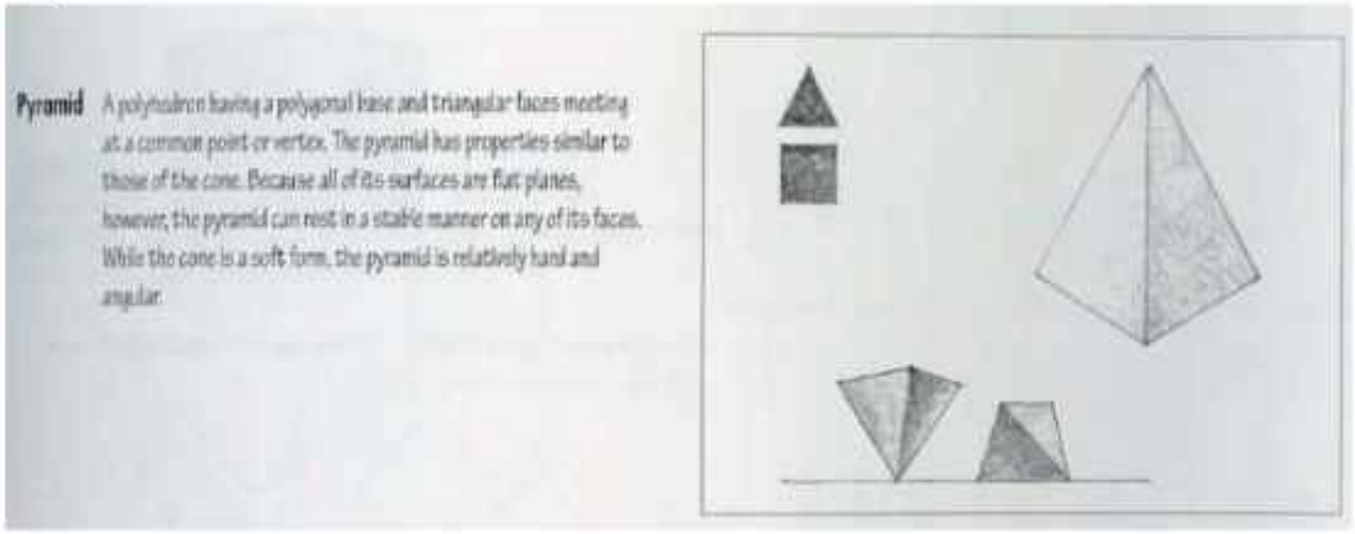
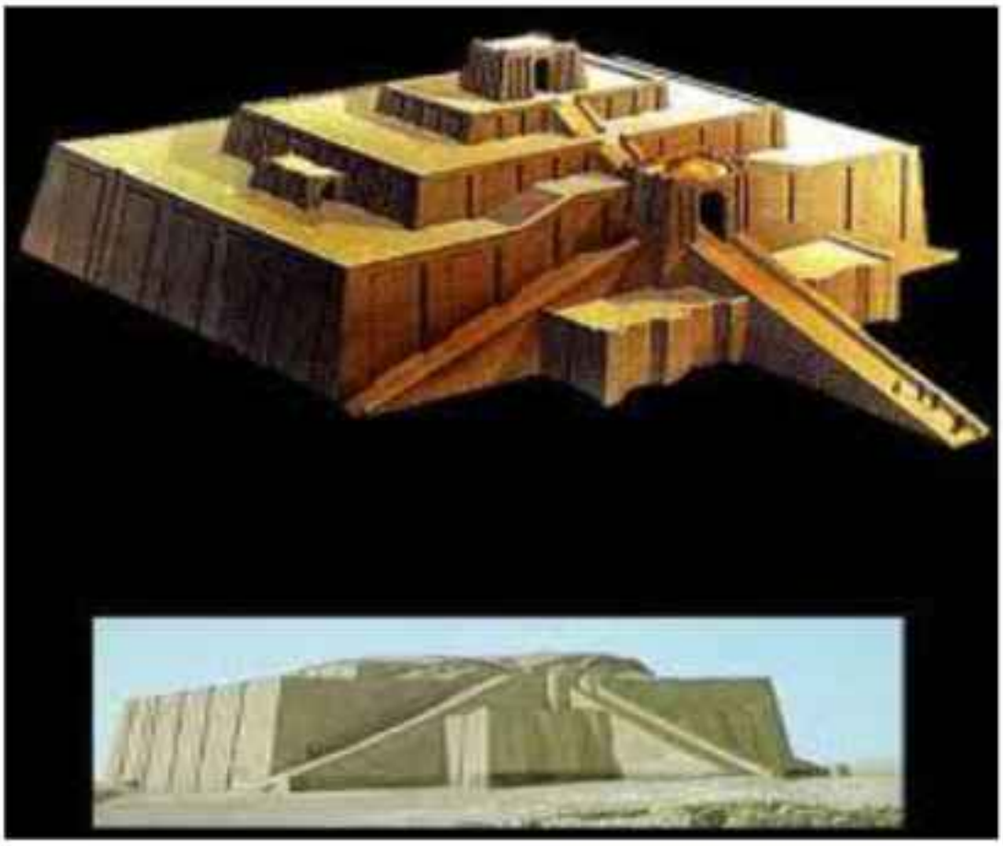


Pyramids of Cheops, Chephren, and Mykerinos at Giza, Egypt, c. 2500 B.C.

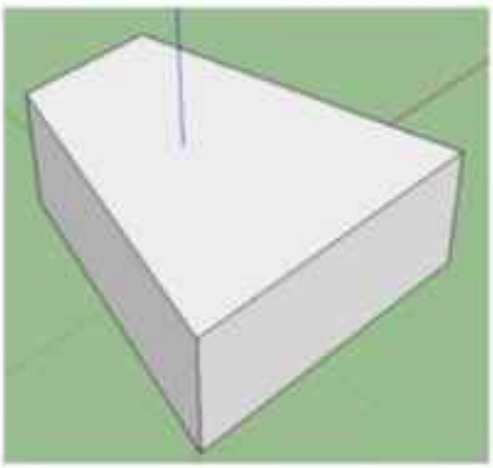
SECTION OF THE PYRAMID

- Flat topped pyramid , reminiscent of Sumerians and Mayan forms.
- Accumulation of force at the upper edge ,which encloses the square plateau above and hold it in a kind of visual field force.
- Any major activity taking place upon it will appear to posses a heightened importance to those below and strongly attract their attention.

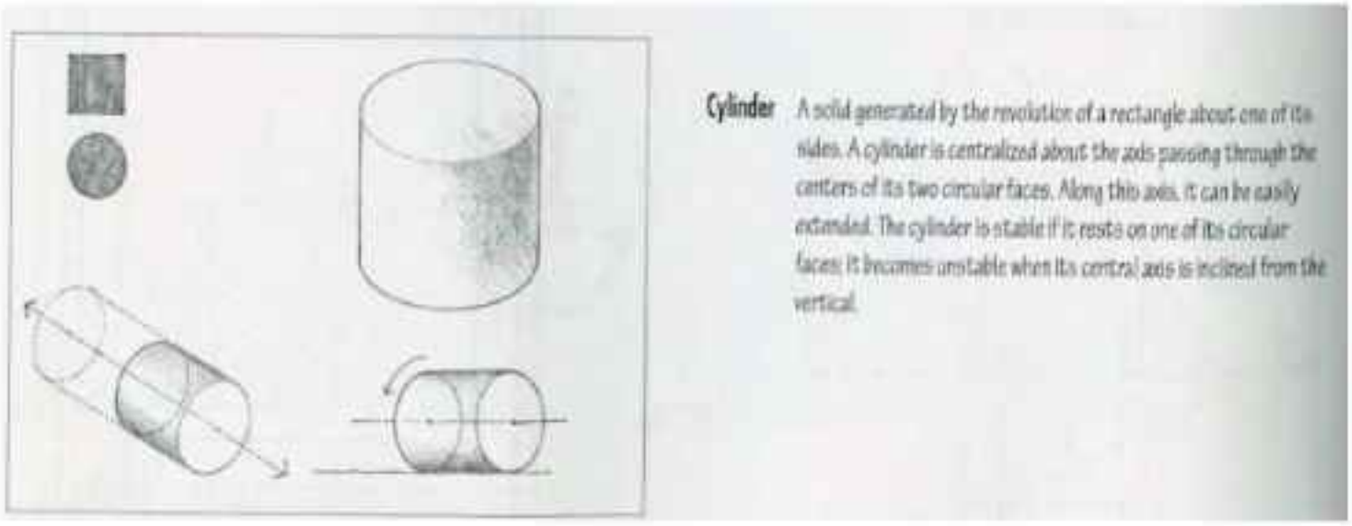


Derivatives of pyramid

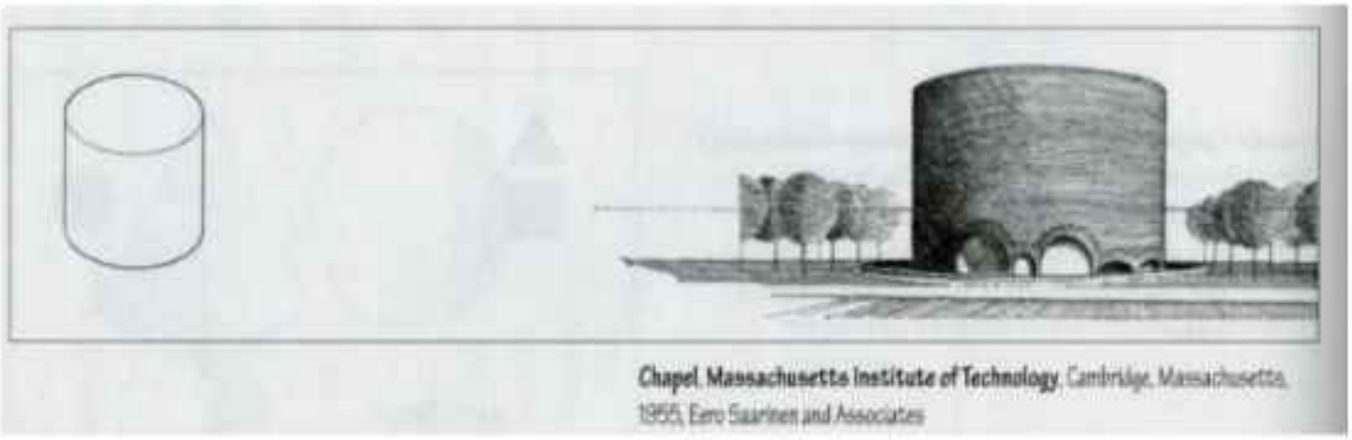
- Fan shape helps of audi and cinema theater . One end helps for natural screen and expanded side for viewers.
- Acoustically good and helps for good viewing angle.
- Pitched roof for dwellings to throw of rain water



5. CYLINDER

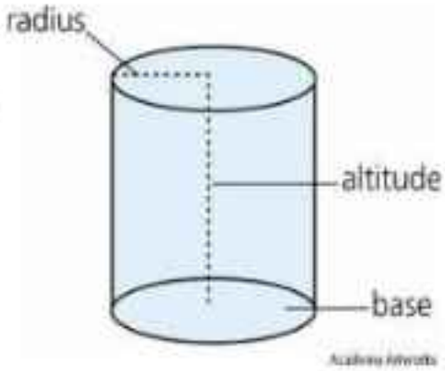


Cylinder A solid generated by the revolution of a rectangle about one of its sides. A cylinder is centralized about the axis passing through the centers of its two circular faces. Along this axis, it can be easily extended. The cylinder is stable if it rests on one of its circular faces; it becomes unstable when its central axis is inclined from the vertical.



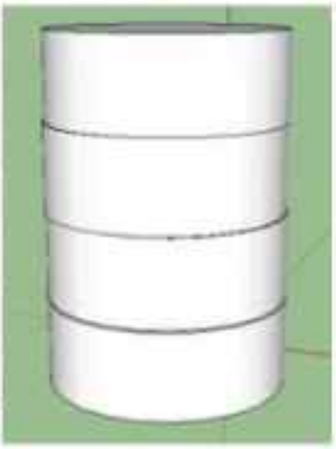
Chapel, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1955, Eero Saarinen and Associates

- Rounded surface. In far distance it appears in outline as rectilinear and nearer it appear more like circular.
- Curvature and circular movement continue alongside a strong vertical movement. the resultant is spiral. spiral ramp and spiral stairs suits a space.

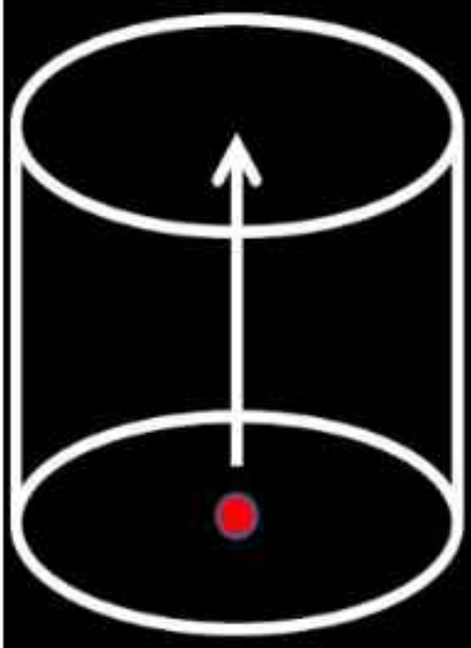


Architectural Examples:

Solomon R. Guggenheim Museum, New York.



CYLINDER



Baptistery at Pisa, Italy

Nehru Centre , Mumbai

BMW Headquarters , Munich

UNIT 4 – ATTRIBUTES AND PRINCIPLES OF FORM

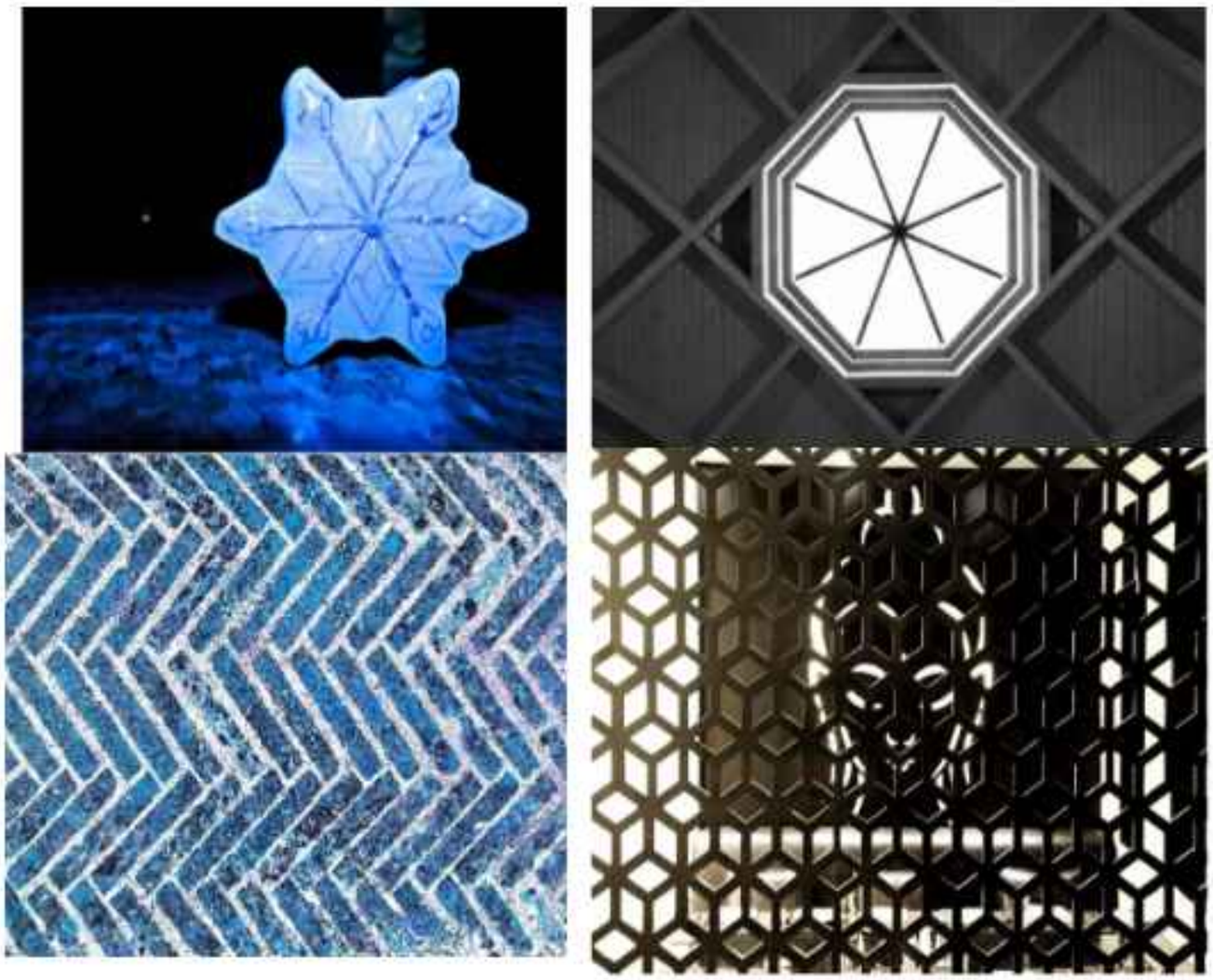
- Form as manifesting attributes such as **pattern, light, colour, surface, texture**. Effects of these attributes.
- Form in its basic state, in combinations, composite organisations and configurations as manifesting characteristics such as **proportion, scale, balance, symmetry, asymmetry, rhythm, axis, hierarchy, datum, unity, harmony, dominance, climax, focus.** Characteristics acting as principles to generate architectural design.
- **Exercises and architectural**

FORM AS MANIFESTING ATTRIBUTES

PATTERN

Pattern is the repetition of more than one design element. While repetition focuses on a single element being repeated, pattern refers to multiple elements repeated throughout a design (e.g. wallpapers and backgrounds).

A seamless pattern is a repeated set of elements that flows without a flaw to create a unit.



Patterns examples in architecture

Types of pattern usage in architecture

Applied Pattern	Building Façade Image					
	Building Name	Frog Queen	Victorial University Online Training Center	Polygreen House	Wach's Event Cat-tering Center	Eberswalde Technical School Library
Perfo-rated Pattern	Building Façade Image					
	Building Name	Sfera Building	Pachinko Tiger Kagitori	De Young Museum	San Telmo Museum	The Orange Cube
Layered Pattern	Building Façade Image					
	Building Name	Airspace Tokyo	John Lewis Department Store	Louis Vuitton Hilton Plaza	Dior Ginza	Urbanus Architec-ture & Design
Cast Pattern	Building Façade Image					
	Building Name	Living Madrid	Facade Refurbishment	Saint Lucas art Academy	Chokkura Plaza	Business & Fitness Center
Tiled Pattern	Building Façade Image					
	Building Name	Spanish Pavilion	Beijing National Aquatic Center	Liberal arts and Sciences College	290 Mulberry Street	House in Aggstall

COLOUR

Red
Excitement
Strength
Love
Energy

Orange
Confidence
Success
Bravery
Sociability

Yellow
Creativity
Happiness
Warmth
Cheer

Green
Nature
Healing
Freshness
Quality

Blue
Trust
Peace
Loyalty
Competence

Pink
Compassion
Sincerity
Sophistication
Sweet

Purple
Royalty
Luxury
Spirituality
Ambition

Brown
Dependable
Rugged
Trustworthy
Simple

Black
Formality
Dramatic
Sophistication
Security

White
Clean
Simplicity
Innocence
Honest

	EMOTION	INDUSTRY	USED TO
RED	EXCITEMENT ENERGY PASSION COURAGE ATTENTION	ENTERTAINMENT FOOD SPORT FIRE PROTECTION CHILDREN PRODUCTS	STIMULATE CREATE URGENCY DRAW ATTENTION CAUTION ENCOURAGE
ORANGE	OPTIMISTIC INDEPENDENT ACHIEVEMENT CREATIVITY FUN	ART ENTERTAINMENT FOOD SPORTS TRANSPORTATION	STIMULATE COMMUNICATE FUN DRAW ATTENTION EXPRESS FREEDOM PROMOTE
YELLOW	[illegible]	FOOD SPORTS TRANSPORTATION PRESS LEISURE	STIMULATE ENCOURAGE RELAXATION [illegible] CAUTION ATTRACTION
LIME GREEN	GROWTH HARMONY FERTILITY FRESHNESS OPPORTUNITY	ENVIRONMENT LEISURE ALTERNATIVE ENERGY ENTERTAINMENT EDUCATION	RESTORE ENERGY PROMOTE GROWTH NATURE FRESHNESS
KELLY GREEN	SAFETY HARMONY STABILITY RELIABILITY BALANCE	ENVIRONMENT BANKING REAL ESTATE FARMING NON PROFIT	RELAX BALANCE REVITALIZE ENCOURAGE POSSESS
SKY BLUE	FREEDOM SELF EXPRESSION TRUSTWORTHY WISDOM JOY	ENTERTAINMENT COMMUNICATION CHILDREN PRODUCTS TECHNOLOGY AEROSPACE	DRAW ATTENTION INSPIRE BLUE SUGGEST FREEDOM COMMUNICATE CONSCIOUSNESS STIMULATE PRODUCTIVITY
ROYAL BLUE	TRUST RESPONSIBILITY HONESTY LOYALTY INNER SECURITY	SECURITY FINANCE TECHNOLOGY HEALTH CARE ACCOUNTING	REDUCE STRESS CREATE CALMNESS RELAX SECURE CREATE ORDER
VIOLET	IMAGINATION SPIRITUALITY COMPASSION SENSITIVITY MYSTERY	HUMANITARIAN PSYCHIC RELIGION	ENCOURAGE CREATIVITY INSPIRE COMBINE PASSION AND POWER CREATE IMPRESSION OF LUXURY INTUITION
PINK	COMPASSION JOY NURTURE PLAYFUL ADMIRATION	CHILDREN PRODUCTS WOMANS PRODUCTS BEAUTY PASSION	COMMUNICATE ENERGY ACTIVATE PULSE MOTIVATE ACTION ENERGIZE ENCOURAGES CREATIVITY
BROWN	RELIABILITY STABILITY HONESTY COMFORT NATURAL	AGRICULTURE CONSTRUCTION TRANSPORTATION LEGAL FOOD	STIMULATE IMPLY COMMON SENSE SUPPRESS EMOTIONS CREATE WARMTH
GRAY	NEUTRAL PRACTICAL CONSERVATIVE FORMAL QUIET	ALL INDUSTRIES *MOSTLY USED IN COMBINATION WITH OTHER COLORS	CREATE SENSE OF COMPOSURE SUPPRESS ENERGY ASSOCIATE TIMELESS COMBINE WITH MATURATION
BLACK	POWER CONTROL AUTHORITY DISCIPLINE ELEGANCE	ALL INDUSTRIES *MOSTLY USED IN COMBINATION WITH OTHER COLORS	PROVE FEELINGS INTIMIDATE RADIATE AUTHORITY CREATE POWER ASSOCIATE WITH MYSTERY

INFLUENCE

COLOR IS THE FIRST THING PEOPLE WILL NOTICE ABOUT YOUR WORK OR PRODUCT.

STUDIES HAVE SHOWN THAT

90%

OF THE SNAP JUDGMENTS ARE INFLUENCED BY THE COLOR ALONE.

FACTS

FIRST COLOR THAT WE DISTINGUISH AFTER BIRTH IS COLOR RED. HOWEVER, COLOR BLUE IS THE FAVORITE ONE AMONG HUMANS WORLDWIDE.

PEOPLE WHO ARE COLD PREFER WARM COLORS LIKE RED AND YELLOW WHILE PEOPLE WHO ARE HOT PREFER COOL COLORS LIKE BLUE AND GREEN.

THE LOWER THE BRAIN SATURATION OF SUBJECT, THE MORE COMFORT IS FELT WHEN BEING AROUND IT.

PROPERTIES

COLOR

COLOR IS PROPERTY POSSESSED BY ANY OBJECT. EACH OBJECT REFLECTS OR EMITS LIGHT AND IS PRODUCING DIFFERENT SENSATIONS ON THE EYE. OBJECTS REFLECT LIGHT IN DIFFERENT WAVELENGTHS WHICH WE RECOGNIZE AS COLORS.

COLOR	WAVELENGTH
RED	700 - 635 nm
ORANGE	635 - 590 nm
YELLOW	590 - 560 nm
GREEN	560 - 520 nm
CYAN	520 - 490 nm
BLUE	490 - 450 nm
VIOLET	450 - 400 nm

COLOR PROPERTIES

COLOR PROPERTIES ALLOW US TO DISTINGUISH AND DEFINE COLORS.

HUE IS ACTUAL COLOR OR COMBINATION OF COLORS (RED, YELLOW, ORANGE)

VALUE IS HOW LIGHT OR DARK IS IT (TINTS AND SHADES)

CHROMA POINTS TO IT IS COLOR'S INTENSITY OR SATURATION

Regarding the "psychology" of the main colors, the following ideas have been developed:

Blue: Transmits the feeling of positivity, confidence, and security. It is often used in commercial and **business spaces, such as banking agencies, offices and companies.**

Yellow: Portrays optimism, curiosity, joviality and a bright atmosphere. It is frequently used in **commercial spaces or restaurants** to gain the attention of pedestrians.

Red: This color shows energy, excitement, impulse. Therefore, it is regularly used in **commercial spaces, such as stores or fast food outlets**, as it portrays a certain compulsivity and consumer desire.

Green: Evokes calm, tranquility, serenity and well-being. It is regularly used in spaces associated with health and well-being, such as **hospitals and relaxation centers.**

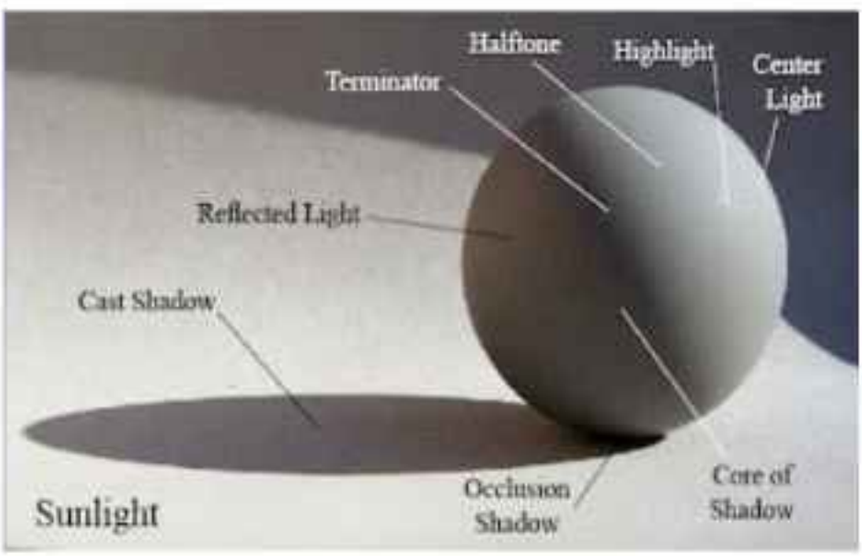
Orange: The result of the combination of yellow and red, orange projects an idea of intensity, creativity, euphoria, and enthusiasm. It is often used in creative environments, such as **offices, studios, and schools**. If used together with blue, it conveys the idea of impulsivity and trust, and so is adopted by banking agencies and offices.

Violet: It transmits well-being, calmness, and softness.

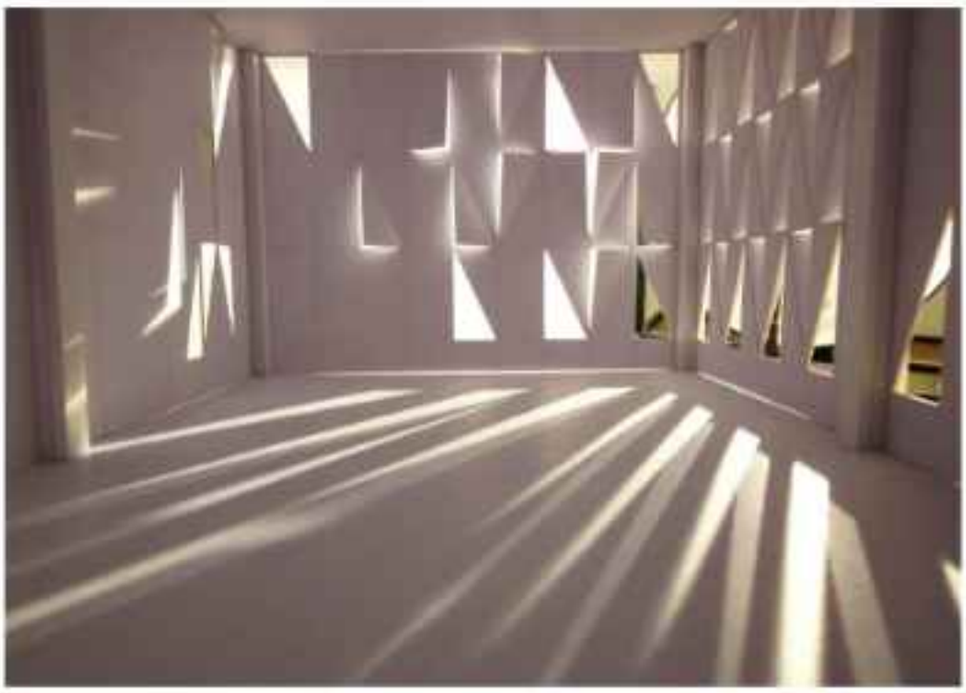
LIGHT

Light striking a geometric solid such as a sphere or a cube creates an orderly and predictable series of tones. Learning to identify these tones and to place them in their proper relationship is one of the keys to achieving a look of solidity.

The form principle is the analysis of nature in terms of geometrical solids, which can be rendered according to laws of tonal contrast.



- Form is perceived differently depending on the light conditions within which the building is viewed. The prominent modern architect Le Corbusier emphasized the important relationship between light and form in his famous statement,
- **"Architecture is the masterly, correct, and magnificent play of masses brought together in light. Our eyes are made to see forms in light; light and shade reveal these forms."** (Le Corbusier)



Architectural example:

Jewish Museum, Berlin | Natural Light in Architecture

The strips of windows on the exterior walls of creates unique lighting to the interior. When Libeskind designed them, he drew lines on a plan of the city of Berlin to link the locations of real or imaginary representative figures of Judaism. Then he projected his drawing onto the walls to create these unsymmetrical strips of windows. From the interior, light penetrates from various directions, forming a dynamic and artistic picture on the wall.

SURFACE & TEXTURE

- Both texture and color are inherently linked to materials, and can be used to alter the perception of any given form. Consider how the shift from a light to dark paint color can radically reduce the apparent size of a room, or how a smooth stucco or rough brick finish can alter the size and visual weight of a house.
- Texture & pattern give the surfaces of the world around us their visual and tactile variety. A skillful use of these two concepts is essential to creating an architectural environment with emotional power.
- Every surface has a texture, whether it be smooth or rough, hard, ragged, fuzzy, wet, or any other tactile experience. It is the quality of the object's surface that we sense by touch, and having once had that feeling, we can evoke it again just by seeing it. Having run my hand across the jagged edges of broken concrete, for example, I know what the hammered concrete ribs on the wall at left will feel like without having to lean against it, and I can recall the aggressive, brutalist associations that come with those feelings.

FORM IN ITS BASIC STATE, IN COMBINATIONS, COMPOSITE ORGANISATIONS AND CONFIGURATIONS AS MANIFESTING CHARACTERISTICS

There are twelve basic principles of design: contrast, balance, emphasis, proportion, hierarchy, repetition, rhythm, pattern, white space, movement, variety, and unity. These principles work together to create visually appealing and functional designs that make sense to users.

Purpose: The principles of design influence the way users view and interact with a design. When implemented purposefully, they can be used to create an emotional impact on the user, as well as enhance the overall user experience.

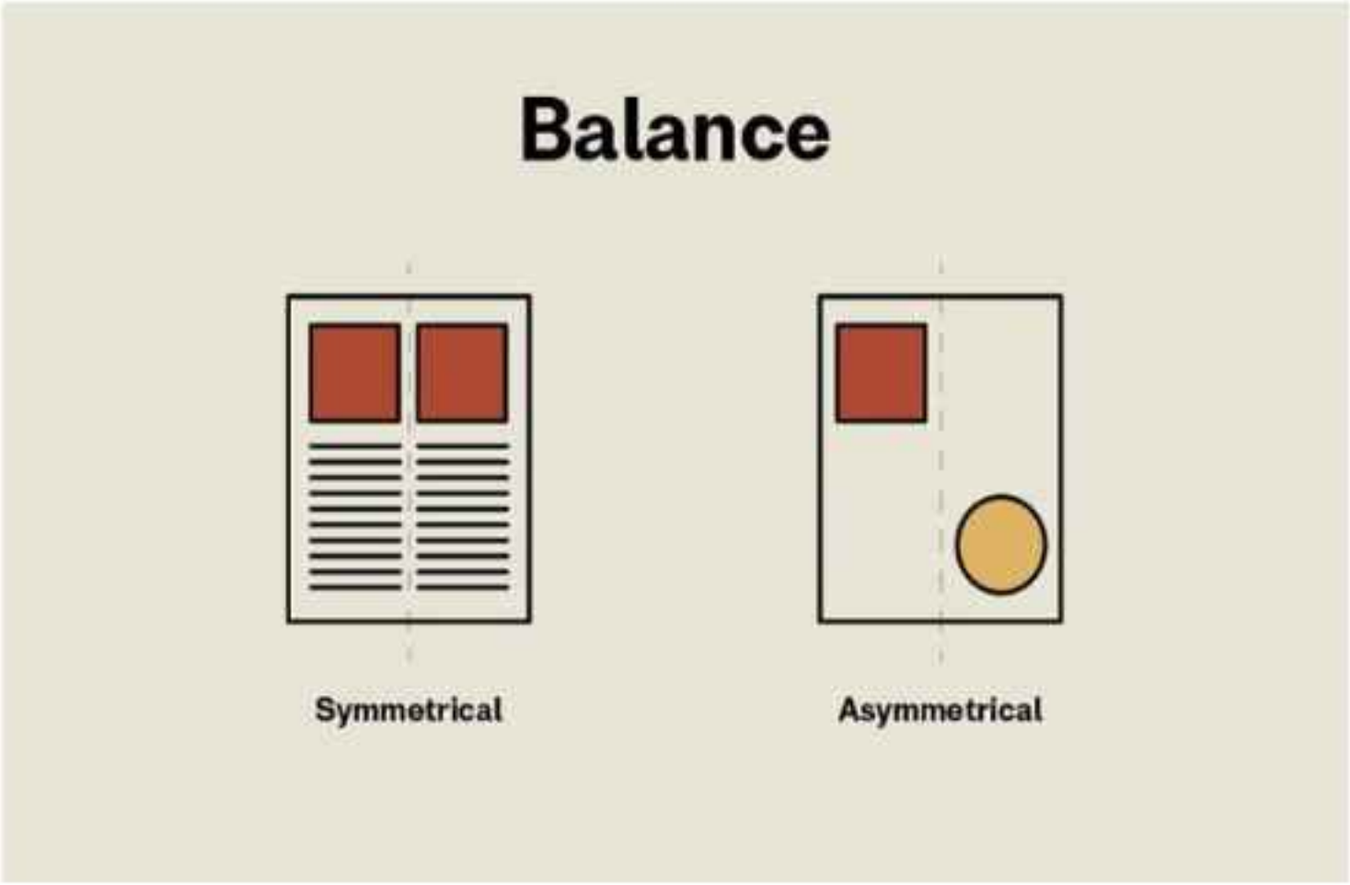
PRINCIPLES OF DESIGN

The principles of design are a set of rules that designers can follow when creating a composition to create visually pleasing work. The purpose of these rules is to deliver a message in the most organized and functional way.

Here's a list of the main design principles:

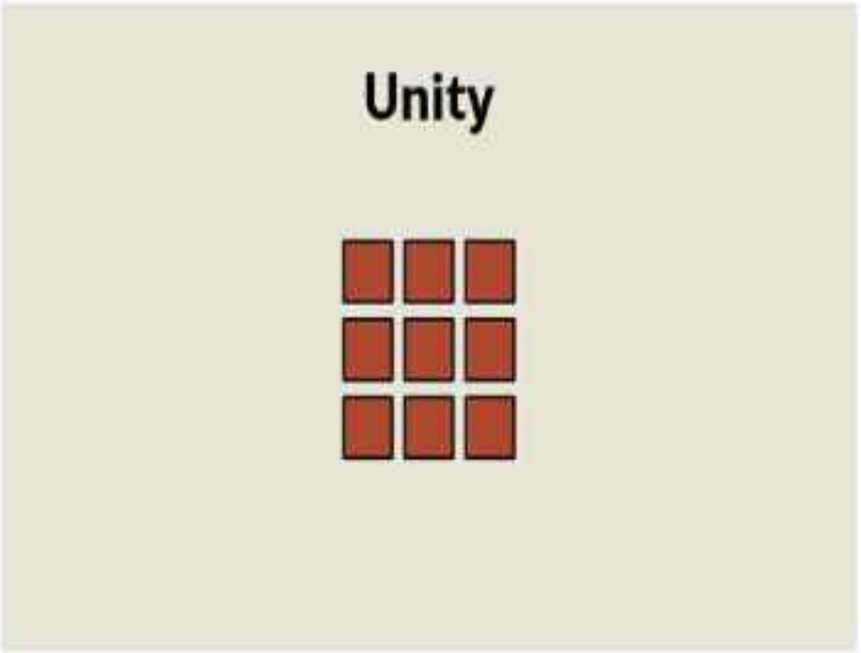
- Balance
- Unity
- Contrast
- Emphasis
- Repetition
- Pattern
- Rhythm
- Movement
- Proportion
- Variety
- Harmony

Balance



Any element placed on a page carries a visual weight. It can range from form to size, color, and texture. In order to make a design feel stable or have balance, the elements need to have a certain scale.

For instance, in a symmetrical design, the elements on the right side have the same visual weight as the elements on the left side. Symmetrical designs are easier to balance but can also come across as boring. Asymmetrical designs have different sides but equal visual weight. Being able to achieve balance in asymmetry can result in a visually interesting design that has movement.

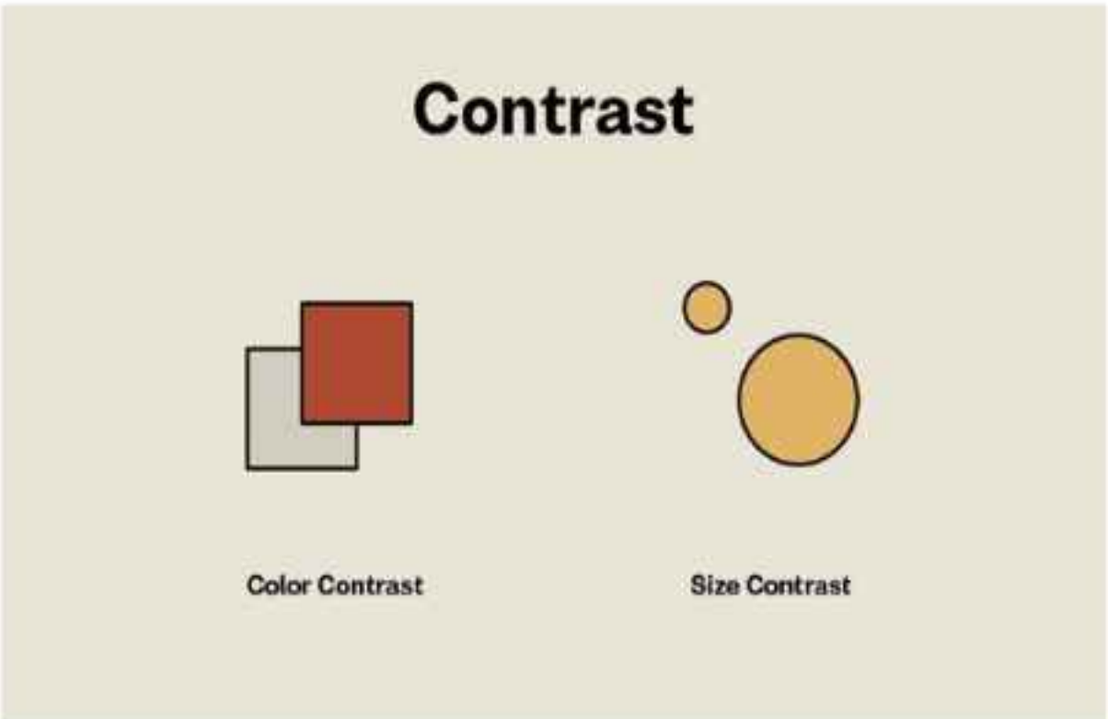


Unity

Unity is the harmony produced by all the elements in a design piece. For instance, using similar colors that match and integrate elements organically makes it appear as if they belong together and are not just put on a page.

You can achieve unity by making clear relationships between visual elements. You can find unity wherever you find clear organization and order, and the elements of the page won't be fighting for attention. Instead, they'll work together to make the message stronger. Too much unity can result in a sterile design with a lack of personality. That's when you can start incorporating other elements to add movement.

Contrast



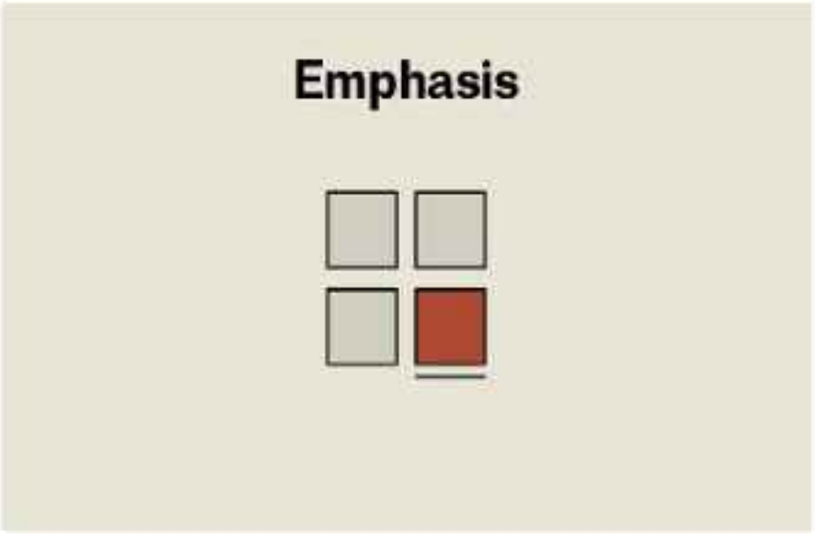
Contrast refers to the level of difference between design elements in order to create visual hierarchies. The variation makes certain elements stand out more than others. You can apply contrast by using colors, textures, sizes, and shapes.

In a layout, contrast is applied to create hierarchy between the font sizes. Larger text tends to be read before any smaller text. Contrast is important when it comes to pairing fonts. For instance, in the example below, we have a font duo that includes a script font and a sans serif font. The script font adds movement to the static sans serif.

Contrast can create a focal point to certain elements that can draw the viewer's eyes. Contrast can also be used to create balance and harmony by making sure items are distributed nicely on a page. Lack of contrast can make a design look dull, and viewers can

overlook the important message. Contrast is important especially when designing accessible documents. For instance, black type on a white background will be easier to read than black on a brown background.

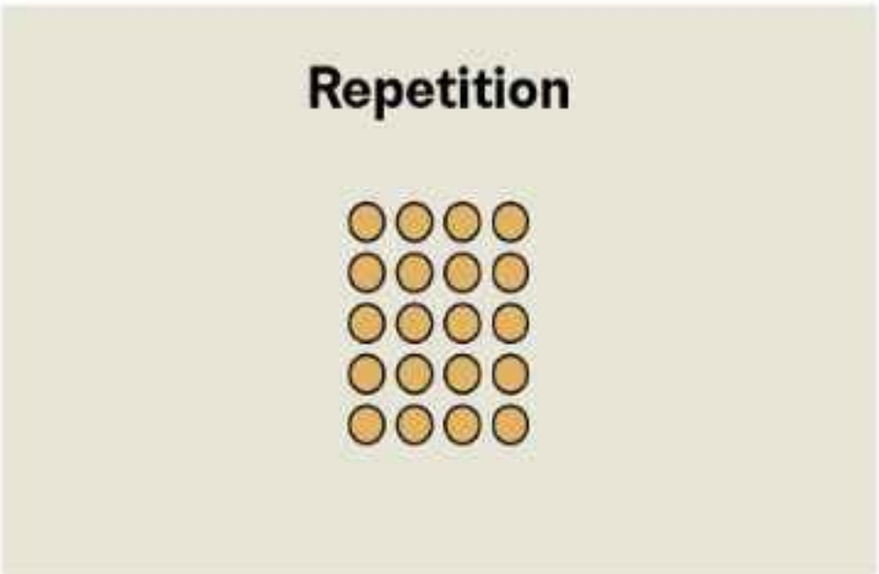
Emphasis



Emphasis is a strategy to get the viewer's attention to a specific design element. This can be in any form: a button, a website, or an image. The purpose is to create something that will stand out from the rest of the page. You can use different elements to highlight a specific part of your design, like lines, color, positive/negative relationships, and many more. As long as you can create contrast, either with elements or color, you'll be creating emphasis.

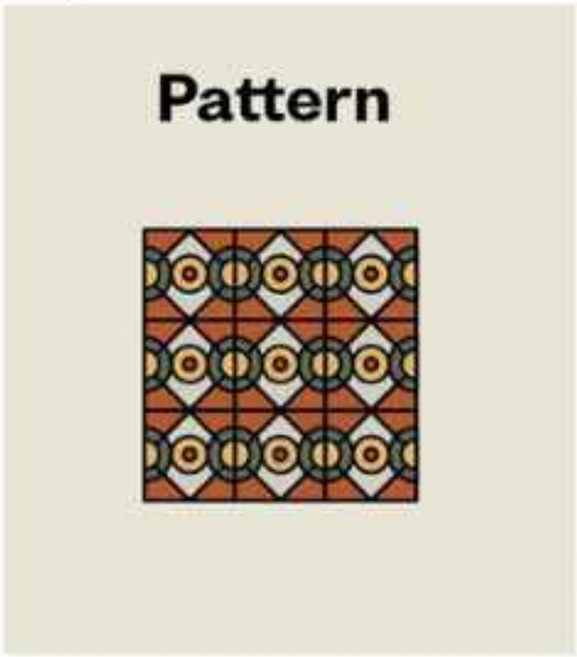
- **Lines** create direction on a page by pointing to specific elements that help the viewer's eyes know where to go.
- **Shapes** can also draw attention. Using a group of similar shapes and breaking the group with a different shape will create tension and draw the eyes.
- **Color** can create an emphasis in any design. Buttons on a website tend to contrast with the background to create a sense of urgency and attention.
- **Texture** can be seen in materials to enhance tactile features. For instance, a business card can have an emboss or relief on a logo to emphasize it. Digitally, texture can be applied as a drop shadow on a button to appear three-dimensional.
- **Space** is also an option to emphasize certain elements in your design. Enough white space around an object can prioritize the focus on a single element. For instance, Apple has a clean and direct idea of emphasizing products.

Repetition



Using repeated elements on a layout can be pleasing to the viewer. Repetition is repeating a single element through the design. We can call a grid a repetition of lines because it creates a certain consistency. In layout design, repetition is shown through the folio placement to help viewers find their way in a book or magazine. The same folio placement creates continuity in the repetition.

Pattern



Pattern is the repetition of more than one design element. While repetition focuses on a single element being repeated, pattern refers to multiple elements repeated throughout a design (e.g. wallpapers and backgrounds).

A seamless pattern is a repeated set of elements that flows without a flaw to create a unit. You can see seamless patterns predominantly in interior design when using tiles. The use of patterns can enhance the viewer's experience and the look of a final design.

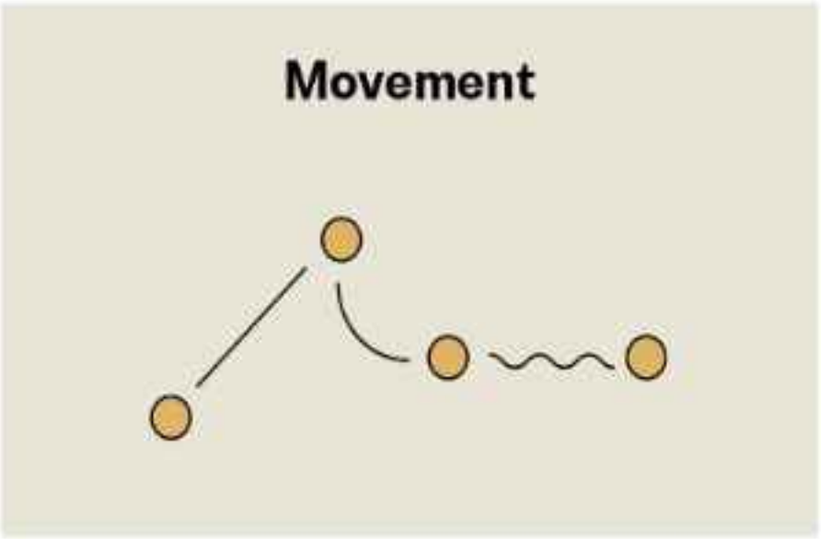
In the example above, the pattern repeats itself from edge to edge without any disruptions. The pattern is composed of multiple elements with varying sizes and depths.

Rhythm

Rhythm has more complexity than the previous principles of repetition and pattern. Repetition and pattern are applied to the same element throughout a design. Rhythm is the visual tempo of a combination of elements when used repeatedly, and with variation, it gives the feeling of organized movement.

Rhythm is usually hidden in works of art and is not as obvious as the design principles of repetition and pattern. In the example below, the diagonal lines aren't arranged in a specific pattern. Instead, there's a repetition of the elements with variations.

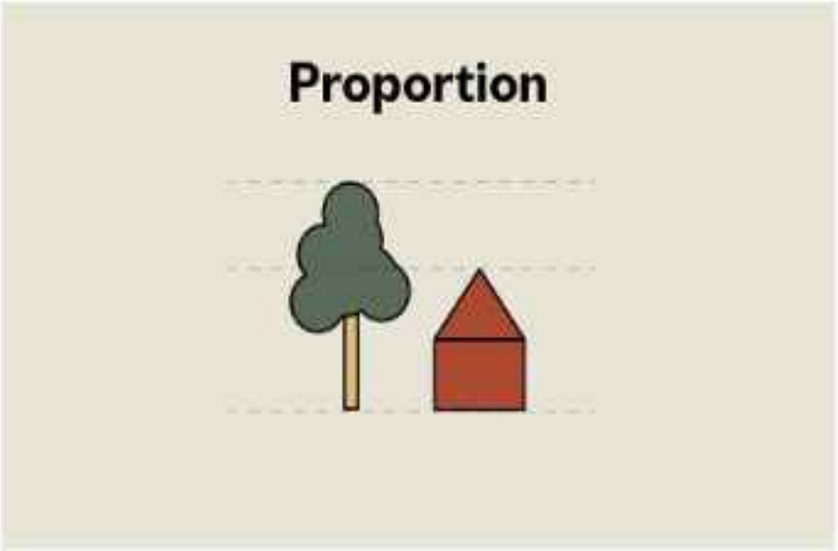
Movement



Movement refers to the path the viewer's eye takes through a composition. In an image, every element can affect how the eyes move. Important elements will lead to secondary elements and so on. Movement in a composition creates interest and dynamism that keeps the viewer engaged.

Movement can be created with rhythm when using a variation of an element repeatedly. Using curved lines and diagonal lines creates more movement compared to straight lines. Use lines to trace the path to the focal point. Color can help enhance the feeling of movement, juxtaposing high and low key colors to create energy. A literal way of showing movement is by using an image that includes motion, like a dancer or hair in the wind. Some artists use illusions like optical art, in which the repetition and contrast make our brains want to organize the information.

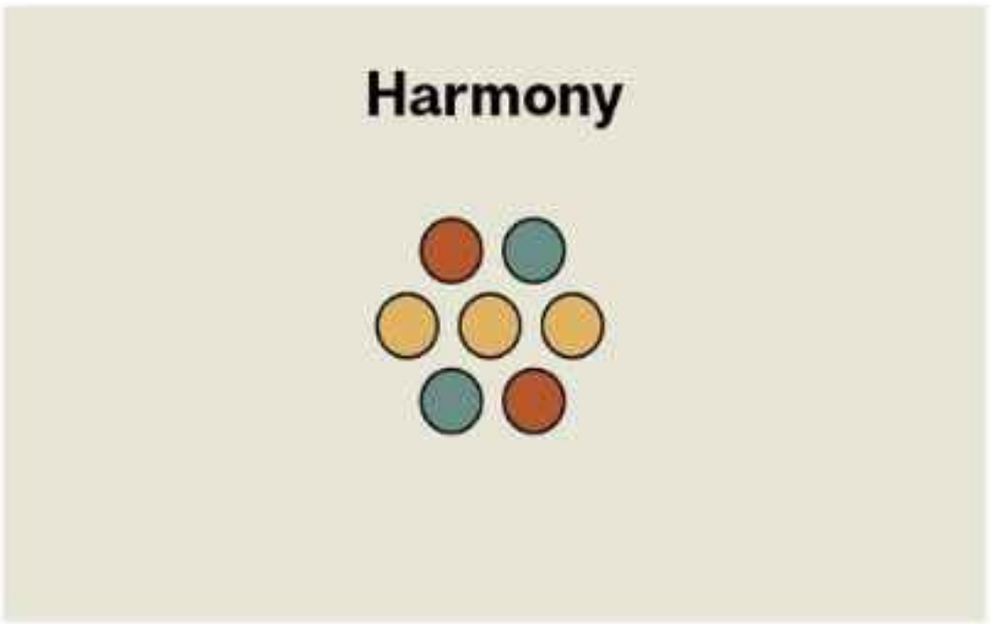
Proportion



Proportion is the sense of unity created when all the elements in a composition relate well with each other. Proportion is mostly about scale and size when two elements are compared. For instance, in art and drawing, proportion is important for the elements to look realistic. Proportion doesn't necessarily refer to the size of one element but to the relationship of two or more elements.

In layout hierarchy, the proportion of the headline compared to the photo caption needs to be larger as the headline is the most important element. Smaller elements have less importance. When you achieve a good sense of proportion in a composition, it can add harmony and balance.

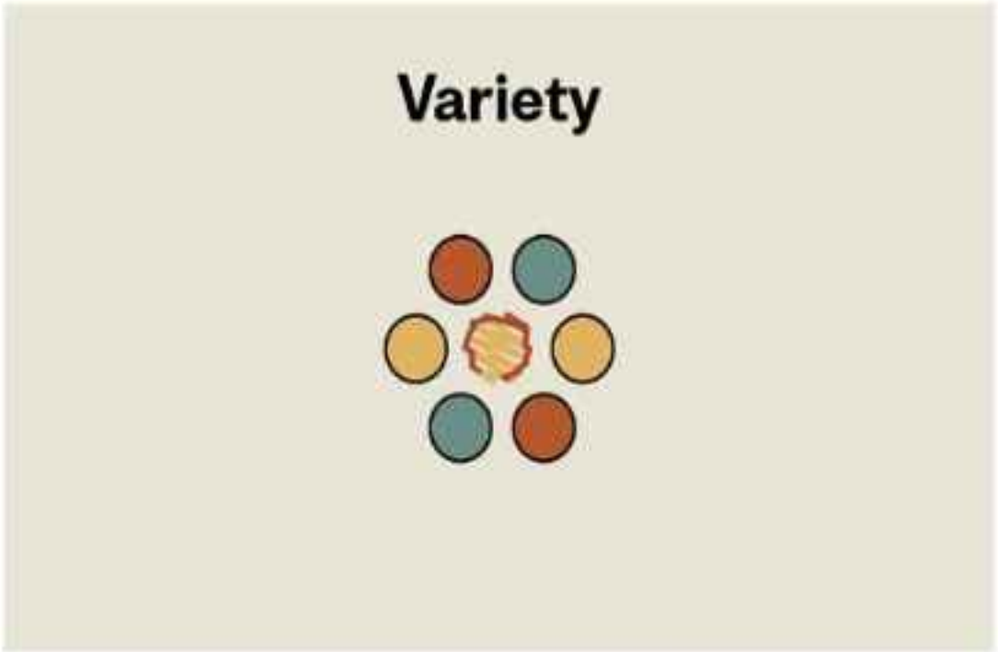
Harmony



Harmony is the sense of cohesiveness between the elements in a composition. The elements shouldn't be exactly the same or completely different but related in some way. Color palettes or similar textures can create a sense of unity between different components. Using similarly shaped items will create harmony because they will seem related.

Not enough or too much harmony can make a design dull; there needs to be some kind of variety for it to be visually interesting.

Variety

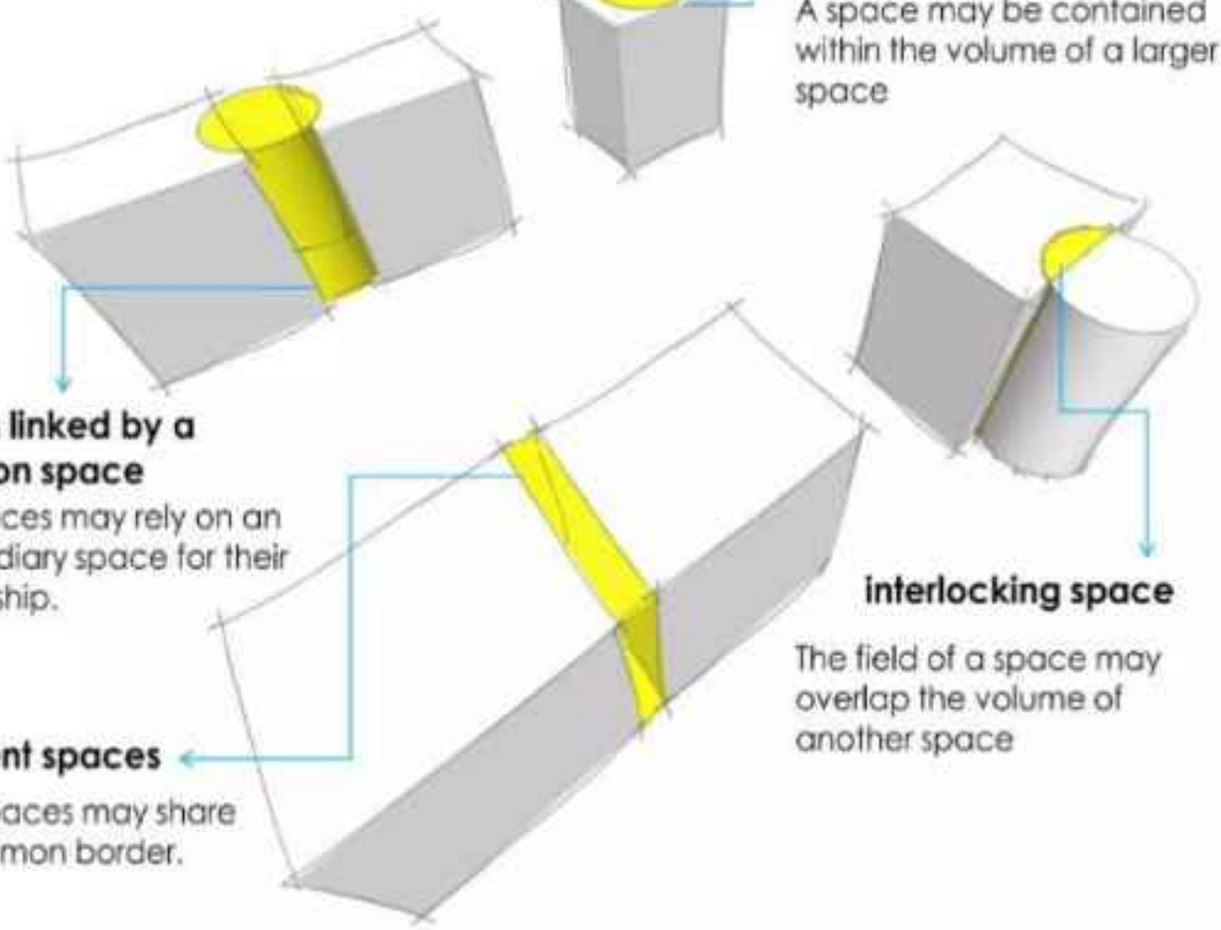


Creating visual interest will keep viewers engaged with your design. Holding their attention and guiding them through the composition will create a powerful user experience. Variety adds something interesting to the composition to create contrast and tension. For instance, mixing organic shapes with geometric shapes adds variety. This concept should reinforce the message you are trying to communicate in your design—otherwise, it can look pointless.

Note: Refer assignments for architectural case studies and examples.

UNIT V

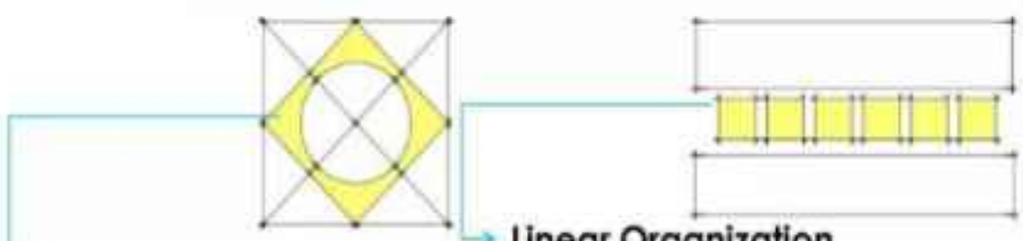
space within a space
A space may be contained within the volume of a larger space



spaces linked by a common space
Two spaces may rely on an intermediary space for their relationship.

interlocking space
The field of a space may overlap the volume of another space

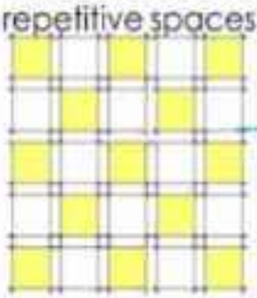
adjacent spaces
Two spaces may share a common border.



Centralized Organization
A linear sequence of repetitive spaces

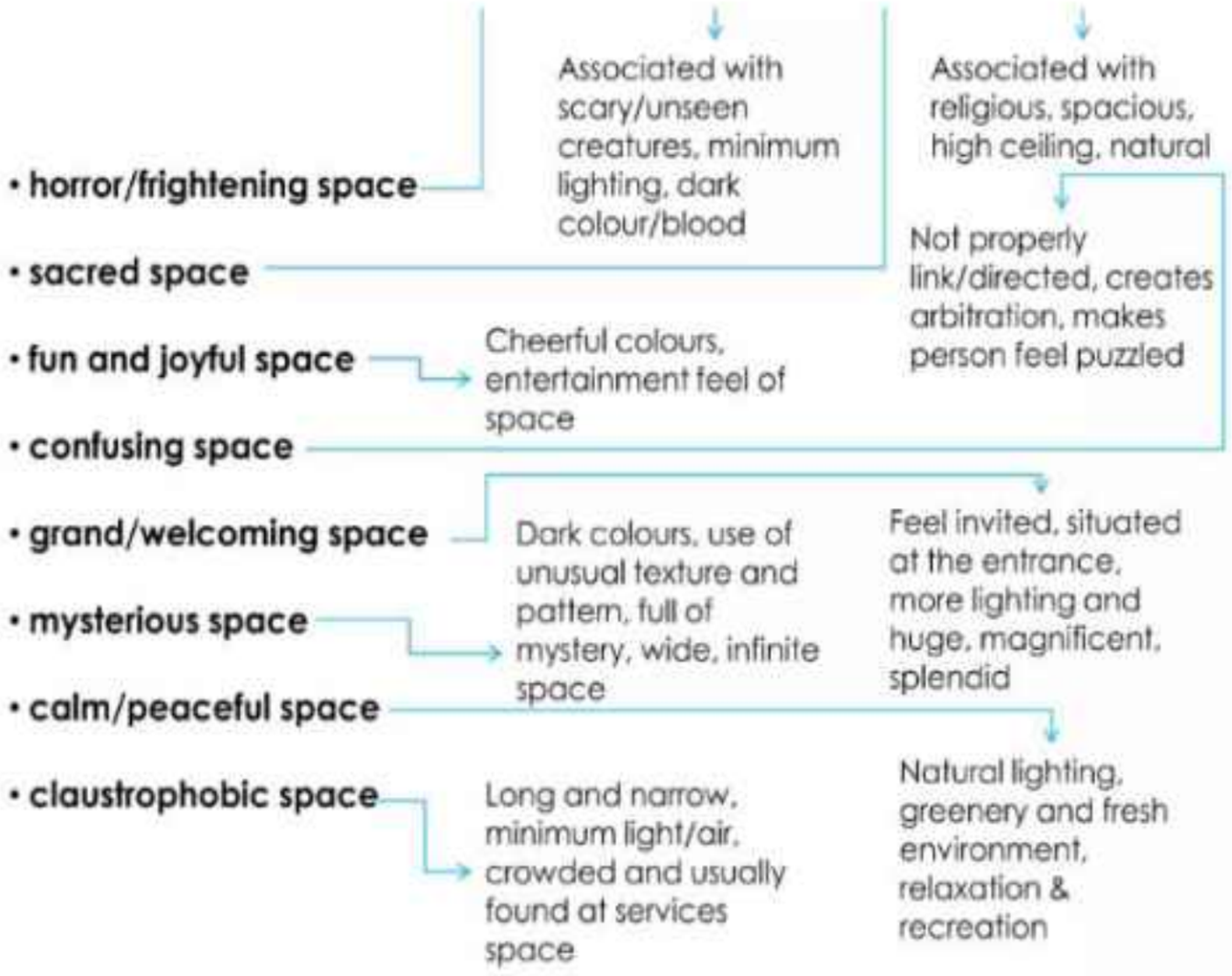
Linear Organization
A linear sequence of repetitive spaces

Grid Organization
Spaces organized within the field of a structural grid or other 3D framework



Radial Organization
A central space from which linear organizations of space extend in a radial manner

Clustered Organization
Spaces grouped by proximity or the sharing of a common visual trait or relationship



SPATIAL ORGANIZATION

- Organization of space in Architecture is fundamental to creation of composition.
- It brings together different forms and shapes and provides a cohesive structure to the design.
- Spaces in Building can be organized into patterns so that they relate to one another in a specific way.
- Spatial relationships between forms help define their interaction.

COMMON SPATIAL RELATIONSHIPS IN ARCHITECTURE

- Space Within a space
- Interlocking space
- Adjacent space
- Spaces linked by common space

SPACE WITHIN SPACE

- This is when a large space contain a smaller space within its volume.
- The larger space help to define the spatial boundary for the smaller space inside it.
- While continuity between the two spaces can be easily understood, the smaller space depends on the larger space for its relationship with the exterior environment.

space within a space

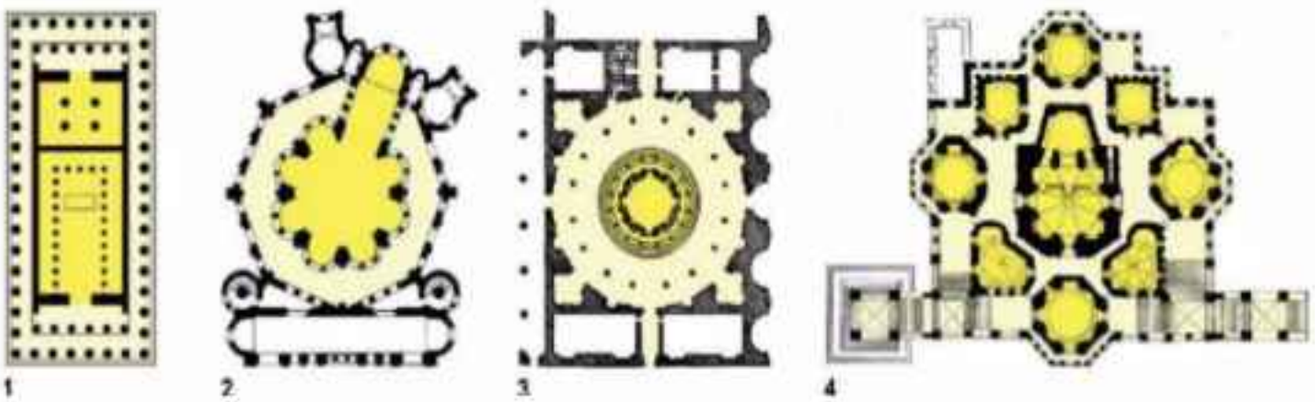
- In order for this spatial relationship to be understood, a clear distinction in size is needed between the two spaces.
- It the contained space were to increase in size, the larger space would begin to lose its impact as

- In order to standout from the larger form, the smaller space could share the same shape of the envelope but be oriented differently.
- Similarly, it can also standout as a free standing volume if the smaller space differ in form from the enveloping space.
- This contrast in form indicate either a functional difference between the two spaces or symbolic importance of the contained space.

SPACE WITHIN SPACE

Space within
the Space

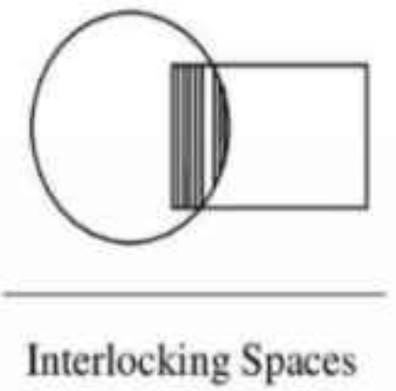
SPACE WITHIN SPACE



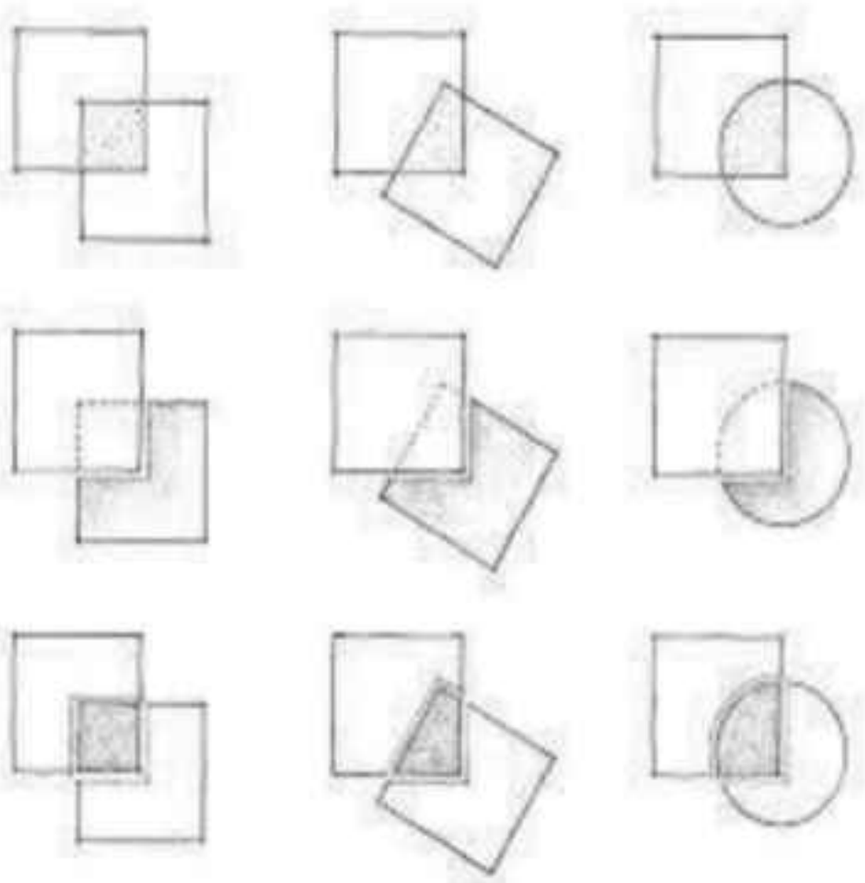
INTERLOCKING SPACES

- An interlocking spatial relationship results from the overlapping of two volumes and the resultant area of shared space.
- When two spaces interlock their volumes in this way, each space maintains its identity as a space.
- The interlocking area of the two spaces can equally be shared by each space.

- It can also develop its own identity as a space that serves to link the two original spaces.



Interlocking Spaces

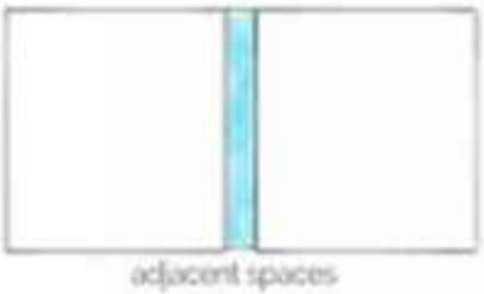


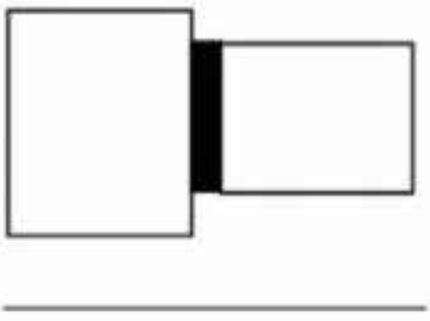
ADJACENT SPACES

- Adjacency allows each space to be clearly defined and to respond to specific functional or symbolic requirement.
- The amount of continuity that takes place between the two spaces depends on the characteristics of the plane that separate and brings them together at the same time.

- It may also reinforce the individuality of each space and help differentiate them.
- It can either appear as a freestanding plane in a volume of space or it can be defined with a raw of columns.
- Unlike solid planes, columns allow a greater degree of visual continuity between the two spaces.

ADJACENT SPACES





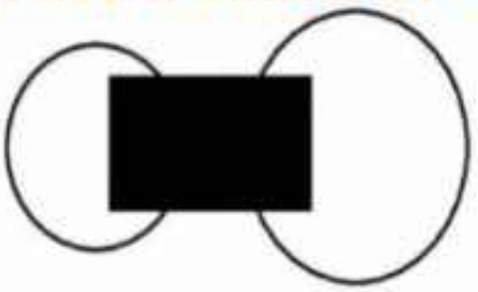
Adjacent space

SPACES LINKED WITH A COMMON SPACE

- Two separate spaces can linked to each other by a third, intermediate space.
- The spatial relationship between the two spaces depends on the qualities of the third space which they share.
- The intermediate space can differ in shape and orientation from the two spaces.

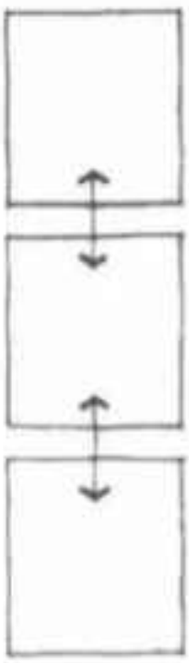
SPACES LINKED WITH A COMMON SPACE

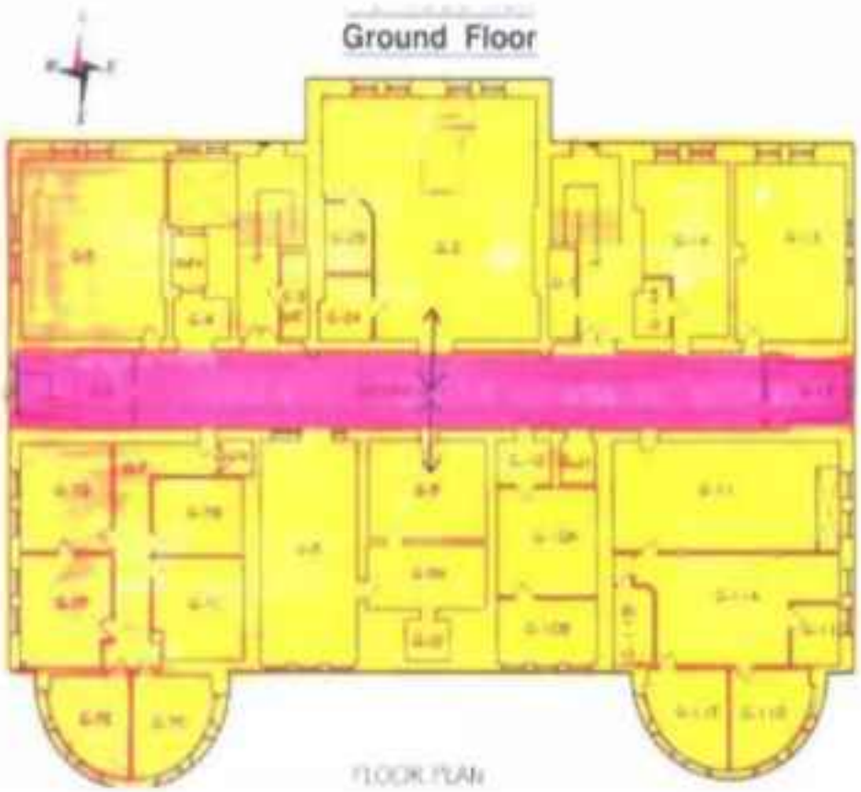
spaces linked by a common space



space linked by a common space

SPACES LINKED WITH A COMMON SPACE



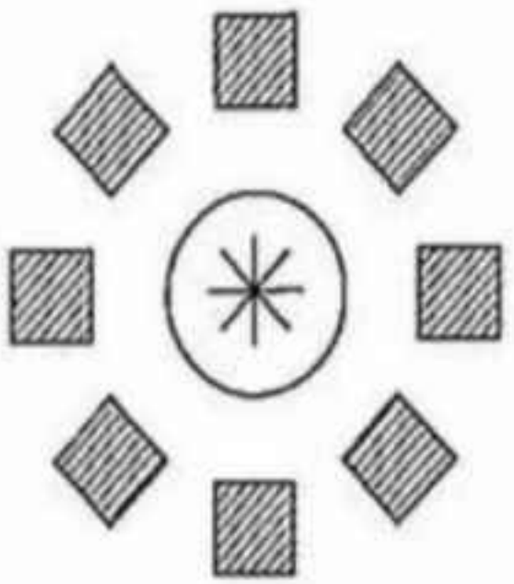


CENTRALIZED ORGANIZATION

- A centralized organization is composed of a dominant central space with secondary spaces grouped around it.
- As a composition, this arrangement is concentrated and stable.
- The central space is usually regular in form and large enough to gather smaller spaces about its perimeter.
- The secondary spaces may be equal in size and shape in order to create a more balanced composition around the central space.

- Alternatively, they may be different from one another in form or size in order to emphasize their unique function and hierarchy.
- The circulation pattern within a centralized organization can be spiral, radial, or loop in form.
- In virtually all circumstances, the movement pattern will end around a central space.

CENTRALIZED ORGANIZATION



(d) central

CENTRALIZED ORGANIZATION

Centralized Organizations

Secondary spaces are grouped around a central, dominant space.

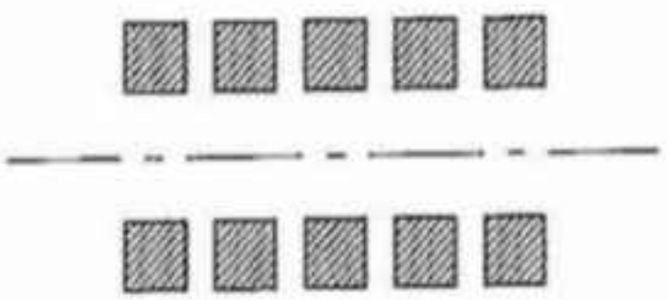
National Assembly Building, Louis Kahn

Bangladesh

LINEAR ORGANIZATION

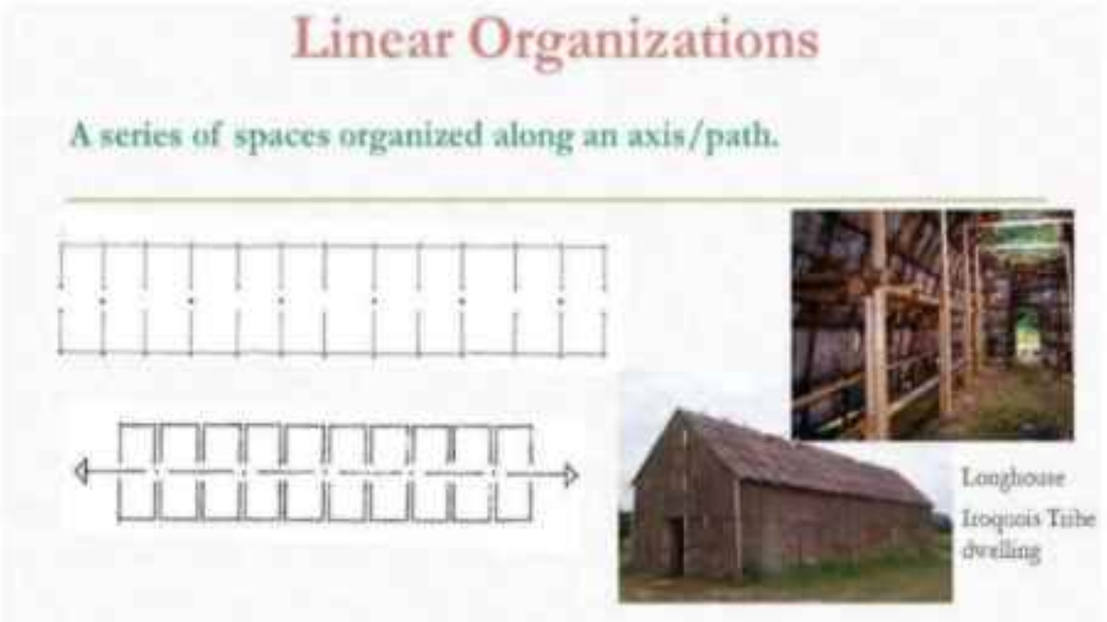
- A Linear organization is composed of a single unifying element about which different objects are arranged.
- These objects may be different in scale, program and shape.
- Alternatively, a linear organization can also be composed of elements that are uniform and similar in scale, program and shape.
- They are linear due to their arrangement in a singular axis rather than as a result of a dominant unifying

LINEAR ORGANIZATION



(a) linear

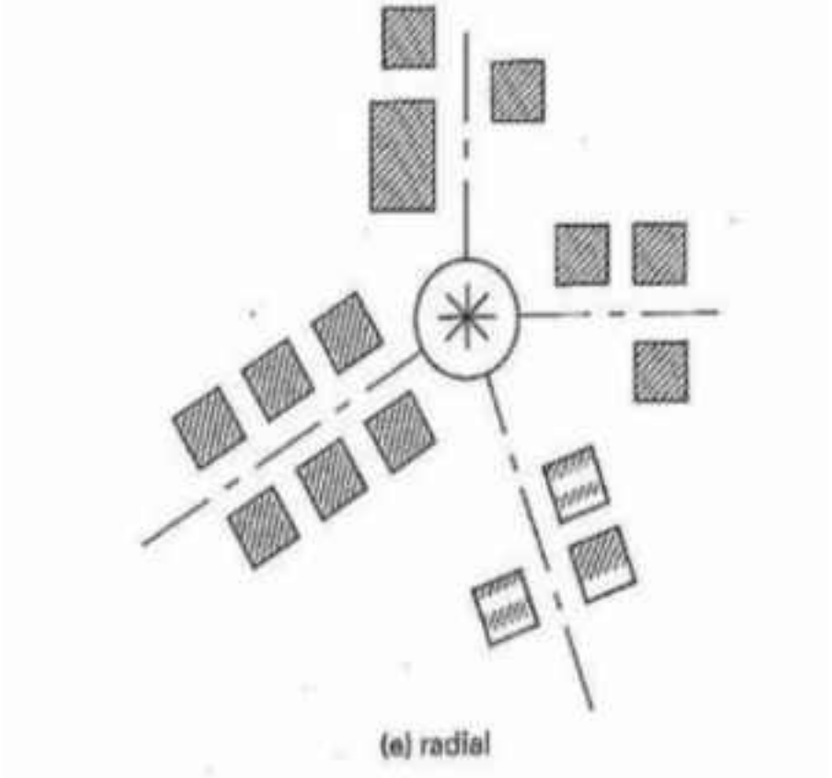
LINEAR ORGANIZATION



RADIAL ORGANIZATION

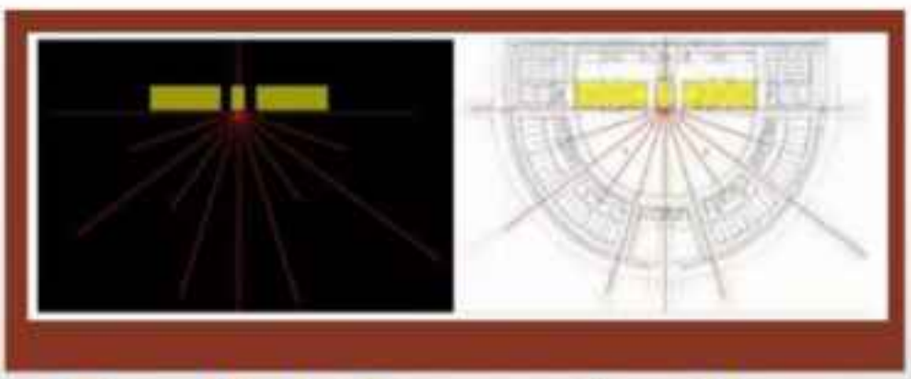
- Radial organizations are effectively a combination of linear and centralized organizations.
- Unlike in centralized organization where the focus is inward towards the center, the radial organization expand out toward their surrounding.
- The linear forms may be equal in size and form, where they differ in length and shape, this may be a result of programmatic requirement or a design decision.

RADIAL ORGANIZATION



(e) radial

RADIAL ORGANIZATION



Radial Organization

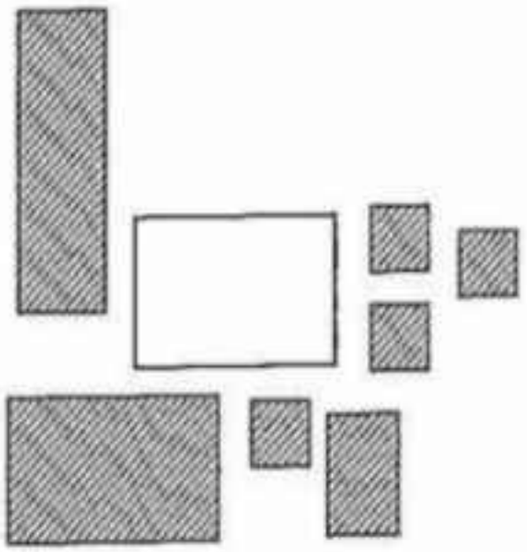
A radial organization consists of a central space from which a number of linear organizations extend in a radial manner. A radial organization is an extroverted plan that reaches out to its context.

CLUSTERED ORGANIZATION

- Clustered organization rely on proximity to relate spaces with one another.
- Often it consist of repetitive cellular space that have certain visual qualities in common.
- However, it is not necessarily because of the form that make up the clustered organization to be regular in size or shape.

- A clustered organization can have central focal point or a uniting central form but it lack the regularity and symmetry of a centralized organization.
- Clustered organization can have a linear element that organizes the clustered forms.
- This create a greater sense of unity and helps articulate certain portion of the composition.

CLUSTERED ORGANIZATION

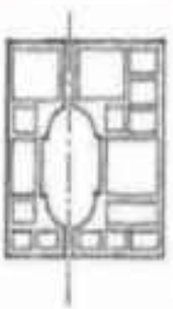


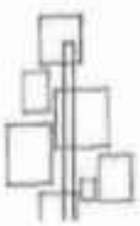
(f) clustered

CLUSTERED ORGANIZATION

Rely on physical proximity to relate its spaces together.

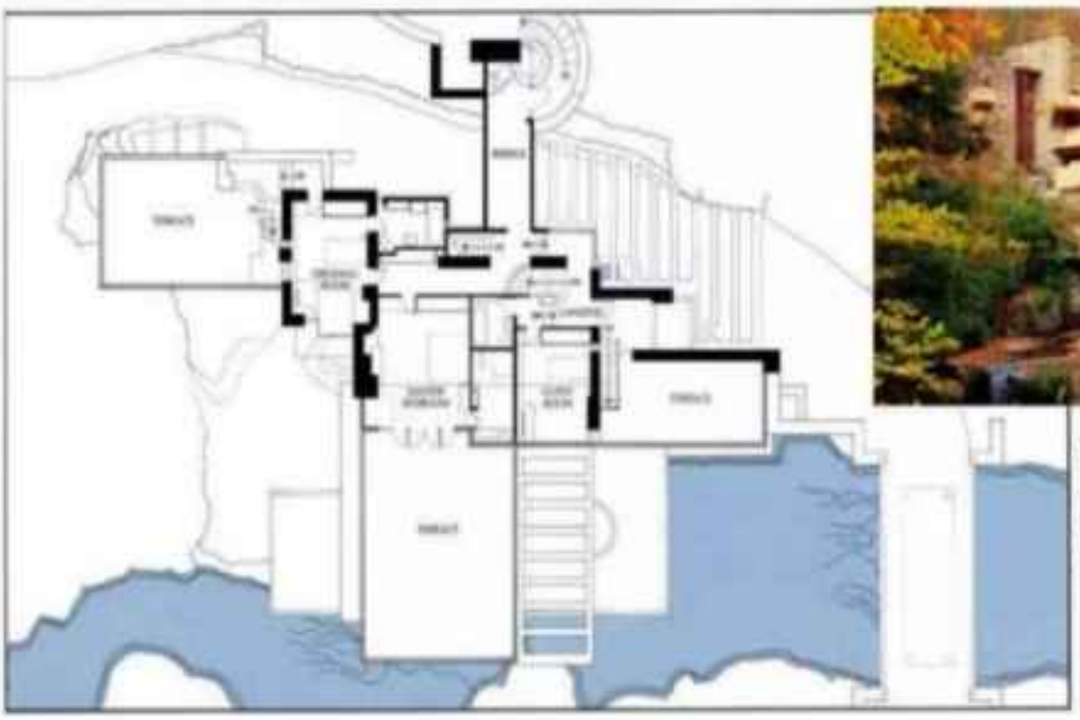
They often include repetitive spaces that may or may not be similar in function, shape, or orientation.





These spaces may be related by axis and symmetry. They may also be grouped around an entry point or along a path.

Clustered Organizations

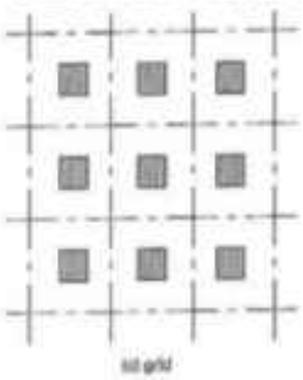


Falling Water
Frank Lloyd Wright
Mill Run, Pennsylvania

GRID ORGANIZATION

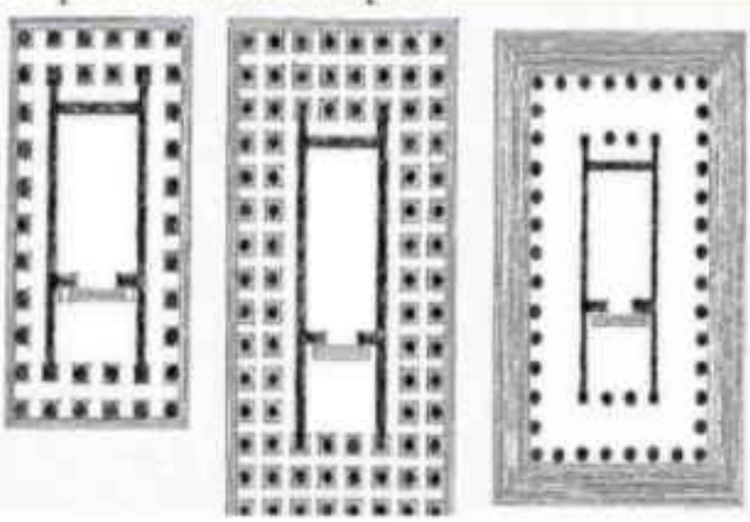
- A Grid organization is composed of 3-Dimensional composition of linear reference points usually perpendicular to one another.
- The continuity and regularity created by the grid gives the composition a strong sense of stability and organization.
- It help unite forms of dissimilar shape and scale.

- This include the regular layout of columns and beams.
- Grid patterns can also be interrupted at specific locations n order to create hierarchy.
- This allows for portions of the composition where the grid is interrupted [illegible] giving them a greater sens ce.



Grid Organizations

A grid can be made irregular in one or two directions to articulate zones for circulation and service or to accommodate dimensional requirements of its spaces.

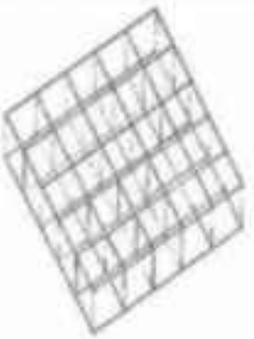


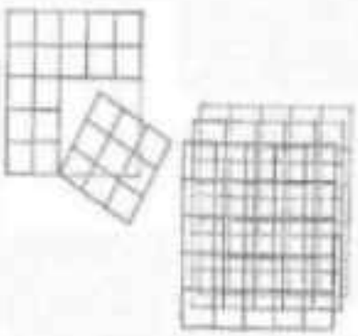
Grid patterns may be interrupted to define a major space.

Grid Organizations

Spaces organized within the field of a structural grid or other three-dimensional framework.

Grids create regularity and establish a stable set or field of reference points.





Grids may be transformed (adding, subtracting, layering). A portion of a grid may also be dislocated and rotated about a point.

GRID ORGANIZATION

ARTICULATION

Articulation, in art and architecture, is a method of styling the joints in the formal elements of architectural design. Through degrees of articulation, each part is united with the whole work by means of a joint.

In highly articulated works, each part is defined precisely and stands out clearly. The articulation of a building reveals how the parts fit into the whole by emphasizing each part separately.

ARTICULATION OF FORM

1. Differentiating adjoining planes with a change in material, colour, texture or pattern.

2. Developing corners as distinct linear elements independent of the abutting planes.

3. Removing corners to physically separate neighbouring planes.

4. Lighting the form to create sharp contrasts in tonal value along edges and corners.

CORNER ARTICULATION

Since the articulation of a form depends to a great degree on how its surfaces meet each other at corners, how these edge conditions are resolved is critical to the definition and clarity of a form.

1. For a corner to be formally active, there must be more than a slight deviation in the angle between the adjoining planes. Since we constantly search for regularity and continuity within our field of vision, we tend to regularize or smooth out slight irregularities in the forms we see. For example, a wall plane that is bent only slightly will appear to be a single flat plane, perhaps with a surface imperfection. A corner would not be perceived.

2. Corners define the meeting of two planes. If the two planes simply touch and the corner remains unadorned, the presence of the corner will depend on the visual treatment of the adjoining surfaces. This corner condition emphasizes the volume of a form.

3. A corner condition can be visually reinforced by introducing a separate and distinct element that is independent of the surfaces it joins. This element articulates the corner as a linear condition, defines the edges of the adjoining planes, and becomes a positive feature of the form.

4. While a corner can be articulated by simply contrasting the surface qualities of the adjoining planes, or obscured by layering their joining with an optical pattern, our perception of its existence is also affected by the laws of perspective and the quality of light that illuminates the form.

5. Rounding off the corner emphasizes the continuity of the bounding surfaces of a form, the compactness of its volume and softness of its contour. The scale of the radius of curvature is important. If too small, it becomes visually insignificant; if too large, it affects the interior space it encloses and the exterior form it describes.

6. If neither plane is extended to define the corner, a volume of space is created to replace the corner. This corner condition deteriorates the volume of the form, allows the interior space to leak outward and clearly reveals the surfaces as planes in space.

7. If an opening is introduced to one side of the corner, one of the planes will appear to bypass the other. The opening diminishes the corner condition, weakens the definition of the volume within the form, and emphasizes the planar qualities of the neighbouring surfaces.

SURFACE

ARTICULATION

Our perception of the shape, size scale, proportion and visual weight of a plane is influenced by its surface properties as well as its visual context.

1. A distinct contrast between the surface colour of a plane and that of the surrounding field can clarify its shape, while modifying its tonal value can either increase or decrease its visual weight.

2. A frontal view reveals the true shape of a plane. Oblique views distort it.

3. Elements of known size within the visual context of a plane can aid our perception of its size and scale.

4. Texture and colour together affect the visual weight and scale of a plane and the degree to which it absorbs or reflects light and sound.

5. Directional or oversized optical patterns can distort the shape or exaggerate the proportions of a plane.

Elements of form defining space

Overhead Plane

Vertical Plane

Wall Plane

L-Shaped Plane

Base Plane

Parallel Plane

Elevated Plane

U-Shaped Plane

Depressed Plane

Plane Closure

Horizontal Plane

Base Plane

- Seems to be figured out when there is a perceptible change in colour, texture.
- With edge definition.
- With surface articulation ex, lawn, carpet, paving, etc.

Elevated Base Plane

- Elevating creates a specific domain.
- If surface characteristics continue up across the elevated plane, then the elevated one will appear part of surrounding plane.
- If edge conditions are articulated by a change in form, colour, texture, then the field will become a distinct plateau that is separated from surroundings.

Depressed Base

- Vertical surface of depression establishes boundaries.
- It remains an integral part.
- The space is distinct.
- Used for separation.

Overhead Plane

- It is similar to the trees as gives the sense of enclosure.
- Defines a filed space between itself and ground plane.
- Edges define the boundary of the field.
- Offers protection.
- Defines overall form.

Roof Plane

- Can be hidden from view by wall.
- Can be single or many.
- Can extend outwards as overhang.
- Can be elevated to allow breeze to pass through.

Ceiling Plane

- Can reflect the form of structural system.
- Can be detached from roof plane, suspended, underside of an overhead.
- Can be manipulated to define and articulate spaces.
- Form can be manipulated to control the quality of light or sound within a space.

Vertical Plane

- It has frontal qualities.
- They can differ in form, colour or texture to articulate different spatial conditions.
- Provides little or no sense of enclosure.
- It defines the edges of spatial fields.
- Allows visual continuity.
- Separates one space from another.
- The height of the vertical plane relative to our body height and eye level is the critical factor that effects the ability of the plane to visually describe spaces.

L-Shaped Plane

Generates a volume of space from its centre outward as a diagonal.

U-Shaped Plane

Defines the volume that is primarily oriented towards the open end.

Parallel Plane

Defines the volume of space in between that is oriented axially towards open end.

Plane Enclosure

Vertical plane on all sides establish boundaries of an introverted and influence the field of space around enclosure.

Circulation Of Architectural

- In architecture, circulation means the pathways through a floor plan. These pathways are how we experience architecture; the design of these pathways has an enormous effect on the success or failure of a plan. Circulation spaces ought to be as interesting as any other part of a building. There are always unique opportunities to make circulation interesting.

Circulation Of Architectural

- Obvious pathways include hallways (horizontal circulation) and stairs (vertical circulation). But every space we are able to occupy is part of the circulation system of a building. Halls can be expanded to become spacious areas like vestibules, foyers, galleries, arcades, and colonnades. Vertical circulation can include elevators and escalators. Less obvious pathways are the spaces between and around furniture: the spaces in rooms where people are likely to walk. All of these variations on circulation are important aspects of architecture because it is through movement that we enjoy architecture as a three-dimensional experience. Without movement, architecture is merely a stage set: entertaining to look at, perhaps, but with no direct relationship to the user.

Circulation Of Architectural

- Good circulation is essential to successful architecture. Like the flow of blood in a body, circulation works best when the route is clear and unobstructed. After all, how can you appreciate beautiful spaces if you don't know where to go or you're constantly bumping into obstacles? When we confront people with an obstacle course, their eyes are on the obstacles, not the architecture.

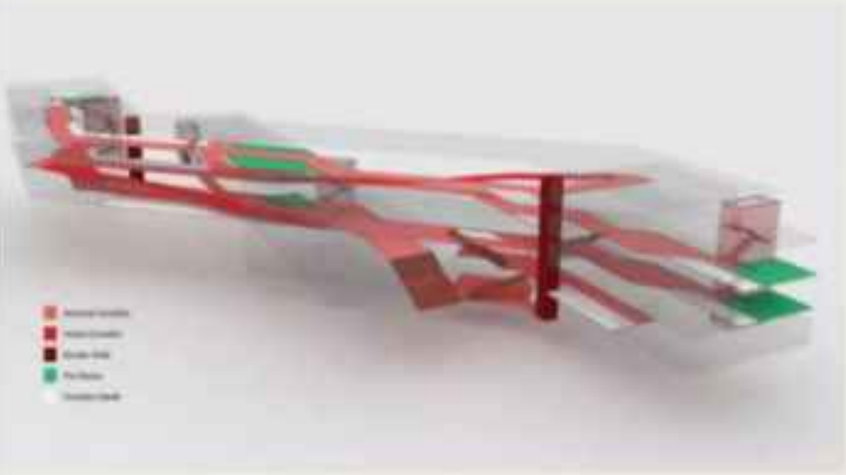
WHAT IS CIRCULATION?

- The word circulation meant the movement of blood around the human body when it comes to science
- In architecture, the concept of circulation isn't so different - it refers to the way people, the blood of our buildings, move through space.
- In particular, circulation routes are the pathways people take through and around buildings or urban places. Circulation is often thought of as the 'space between the spaces', having a connective function, but it can be much more than that. It is the concept that captures the experience of moving our bodies around a building, three-dimensionally and through time.

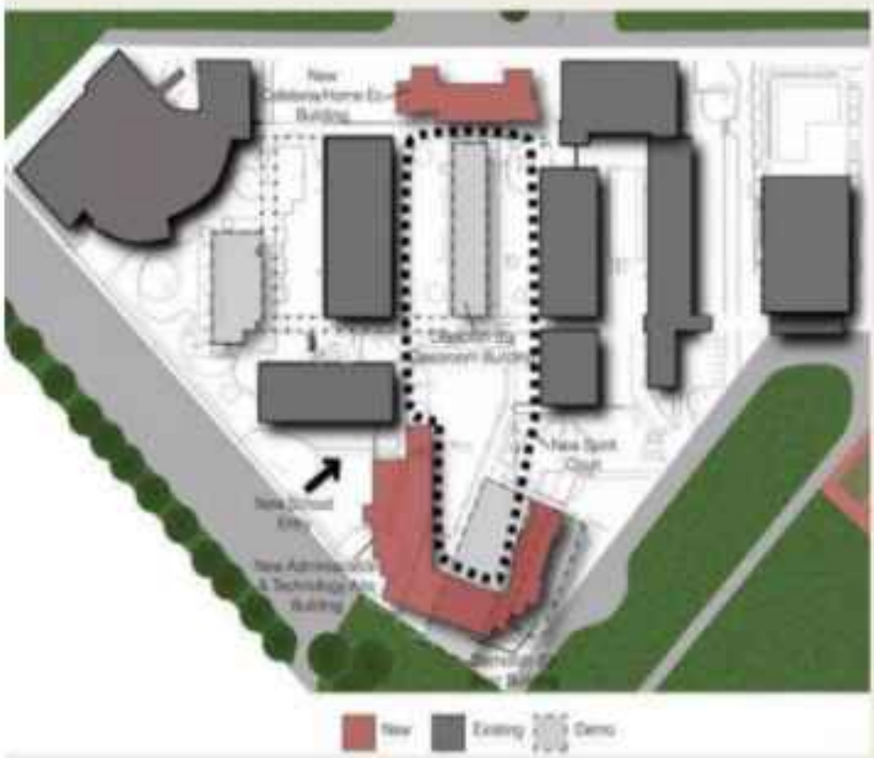
Circulation Of Architectural

- It is the perceptive thread that links or assembles a set of interior and/or exterior spaces.
- The tours are always linear, have a point of item, from which it removes us across a series of spatial sequences up to coming to the destination or finally. The contour of tour changes in agreement to the way of used in transport, the pedestrian adapts to any tour, the vehicles are limited for it radio of draft. In the tour always there are crossings or intersection, and the routes have broad different according to hierarchy and flows.

Circulation Of Architectural



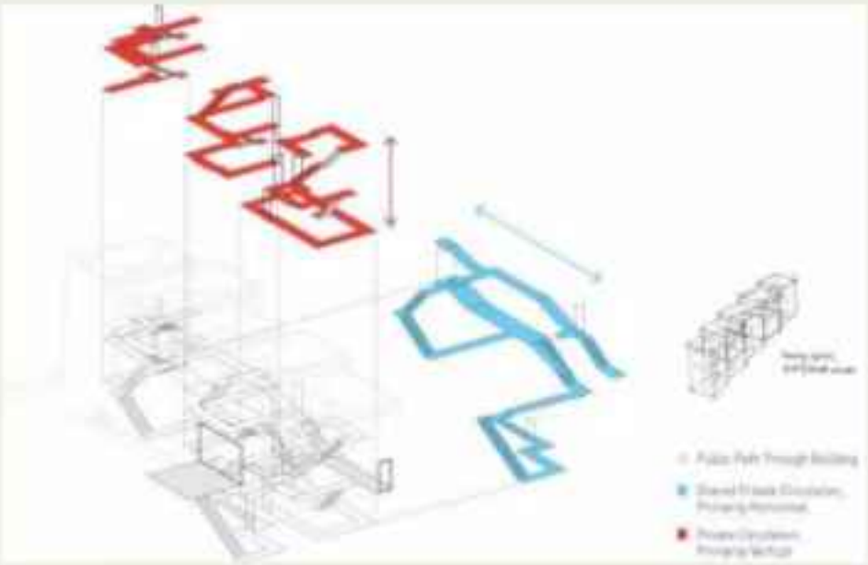
- Circulation in architecture refers to how the space or buildings is designed to facilitate the human flow in the building. Circulation in buildings commonly move both vertically and horizontally with the use of staircases and lifts. Circulation in building plays a major role in how the circulation is designed.



Architecture is not a static experience

- In the field of architecture, circulation refers to
- The way to enter, go through and go around a building.
- They help people to understand the architecture as they move through a building and its spaces.

Circulation Of Architectural



- The function of architectural circulation, as predominated by human movements and programmatic functions, dictates the organization of spaces which includes the idea of
- Linearity
- Vertical

Components Of Circulation

- Although every space a person could access or occupy forms part of the circulation system of a building, when we talk about circulation, we typically don't try to account for where every person might go. Instead, we often approximate the main routes of the majority of users.
- To simplify further, architects typically divide their thinking according to different types of circulation, which overlay with one another and the overall planning. The type and extent of these divisions will be project dependant, but might include:
- **direction of movement:** horizontal or vertical;
- **type of use:** public or private, front of house or back of house;
- **frequency of use:** common or emergency; and
- **time of use:** morning, day, evening, continuous.
- Each of these types of circulation will require different architectural consideration. The movement might be fast or slow, mechanical or manual, undertaken in the dark or fully lit, crowded or individual. The pathways might be leisurely and winding, or narrow and direct.
- Of these types of circulation, **direction** and **use** are often critical to a building layout.

DIRECTION

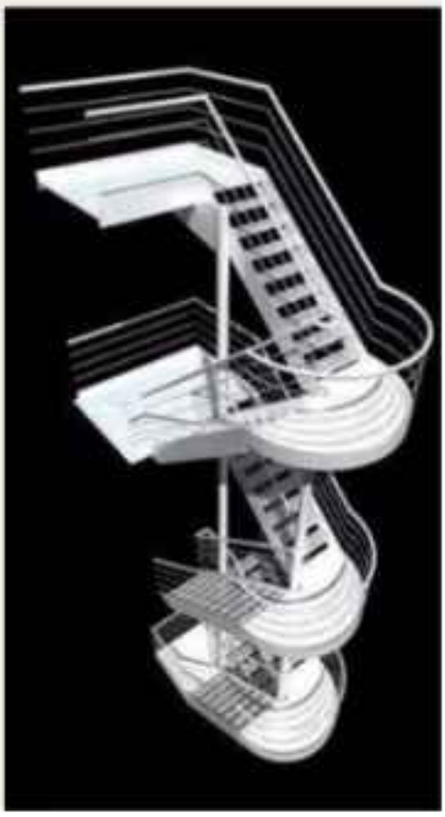
- **Horizontal circulation** might include hallways, atria, paths, entries and exits. It is also affected by the furniture layout, or other objects in the space such as columns, trees, or topographic changes. This is why architects usually furniture as part of a concept design, because it is critically linked to the flow, function and feeling of the space.

CIRCULATION : HORIZONTAL

DIRECTION

- **Vertical circulation** is how people move up and down within the building, so includes things like stairs, lifts, ramps, ladders and escalators which allow us to move from one level to another.

CIRCULATION: VERTICAL



CIRCULATION: VERTICAL

USE

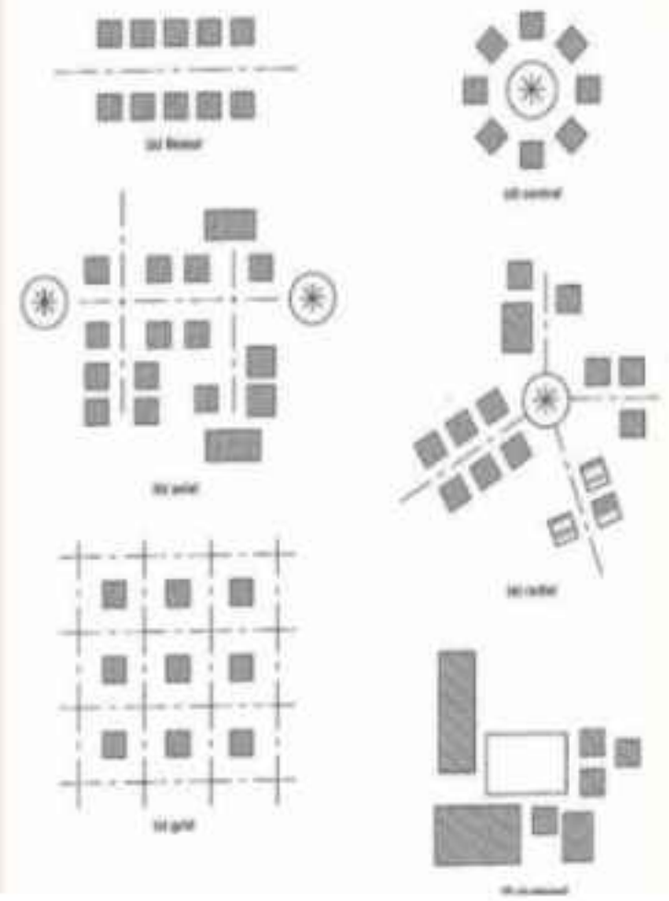
- **Public circulation** is the areas of the building which are most widely and easily accessible. In this guise, circulation is often overlapped with other functions, such as a lobby, atrium, or gallery, and is enhanced to a high level of architectural quality. Issues of visibility, how crowds move, and clear escape paths are key.
- **Private circulation** accounts for the more intimate movements within the building, or the more ugly ones which require a degree of privacy. In a house this might be the back door, in a large building the back of house, staff offices or storage zones.

A circulation Space may be:

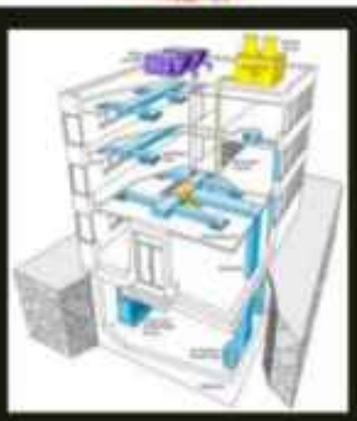
- **ENCLOSED** : forming a public walk-through space or private corridor that relates to the spaces it links, through entrances in a wall plane

- **OPEN ON ONE SIDE:** Forming a balcony or gallery that provides visual and spatial continuity with the space it links

OPEN ON BOTH SIDES: Forming a colonnaded passageway that becomes a physical extension of the space it passes through



Organizational Patterns Of Architecture



Building of a Building

- Just like our body organs and spinal cord
- Architecture buildings also have their own "organs" and "spinal cord" in order for it to be complete

Urban distribution, Orderly distribution

- Just like the human body, architecture also demands a "circulatory system"
- Different city have different grids. In order to distribute and circulate human traffic and human condition.

The Grid Iron city

- It is composed of straight streets crossing at right angles to create many regular city blocks.
- This form is typical of cities built after the industrial revolution – because only then did cities place such importance on economic activity.
- A city grid iron plan facilitates the movement of people and product throughout the city.

Advantages	Disadvantages
• High accessibility, • minimum disruption of flow, • expansion flexibility, • excellent psychological orientation, adaptability to level or moderately rolling terrain.	• Requires flow hierarchies, • limited in its adaptability to the terrain, • potentially monotonous

Grid Cities: Grid Iron Pattern

- CHANDIGARH
- The primary module of city's design is a Sector, a neighbourhood unit of size 800 m X1200 m.
- It is a self-sufficient unit having shops, school, health centres and places of recreations .
- The population of a sector varies between 3000-20000 depending upon sizes of plots and topography of the area.
- The shopping street of each sector is linked to the adjoining sectors thus forming one long, continuous ribbon .
- The central green of each Sector also stretches to the green of the next sector

Grid Cities: Grid Iron Pattern

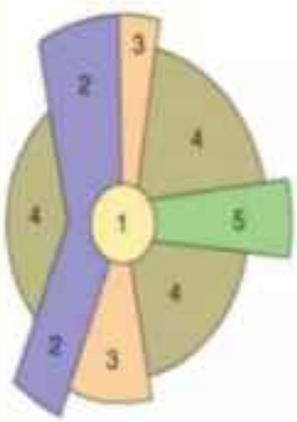
•San Francisco was designed to accommodate outrageous number of people that came to the city during the Gold Rush.

•It was laid out in a grid pattern imposed on a city of hills built on the end of a peninsula.

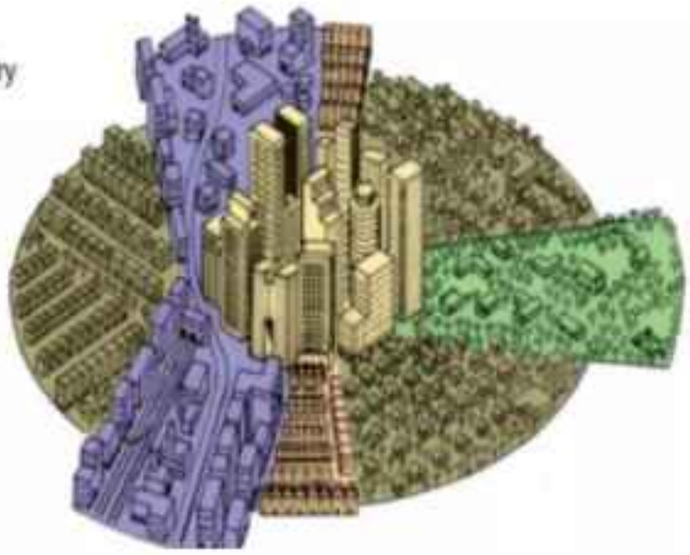
•Both grids and irregular forms can be seen in San Francisco.

- Downtown San Francisco is extremely dense. The planning commission split downtown into four separate zones with different purposes.
  - Office District
  - Retail District
  - General Commercial District
  - Support District

Sector Model



1. Central business district
2. Transportation and industry
3. Low-class residential
4. Middle-class residential
5. High-class residential



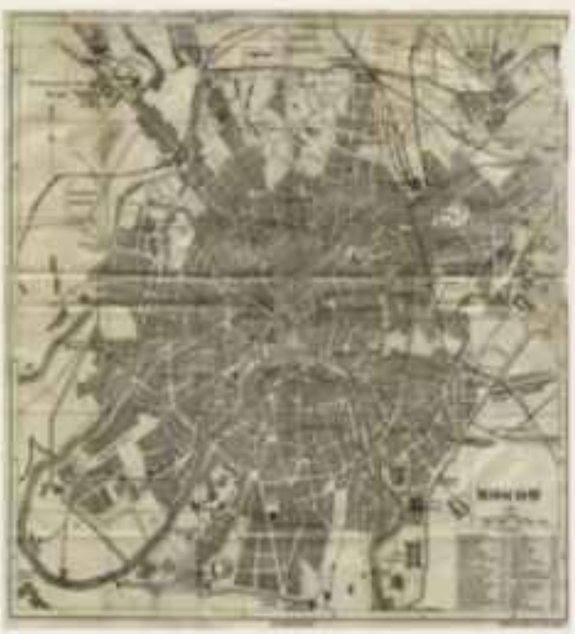
The Radiocentric city

- Geographical possibilities of spreading in all directions.
- Radio centric - Radiate outward from a common centre.
- Inner Outer ring roads linked by radiating roads.
- Core has business area.
- Industrial area interspersed within the residential.
- Periphery has green belts.
- Example : Washington DC, Pre-industrial Baghdad in Iraq.

Advantages-	Disadvantages-
• A direct line of travel for centrally directed flows. • economics of a single– centralised terminal or origin point.	• Central congestion , • local flow problems , • difficult building sites

Radial Cities: The Radiocentric city

- Moscow, the world biggest Megapolis (Russian Moskva) is the capital of Russia.
- The city grew in a pattern of rings and radials that marked Moscow's growth from ancient time to modern layout.
- The center of all rings is ***Moscow Kremlin*** and famous ***Red Square.***

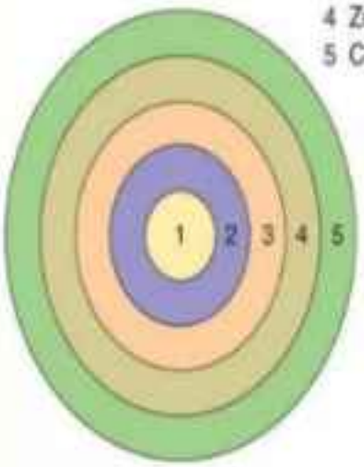


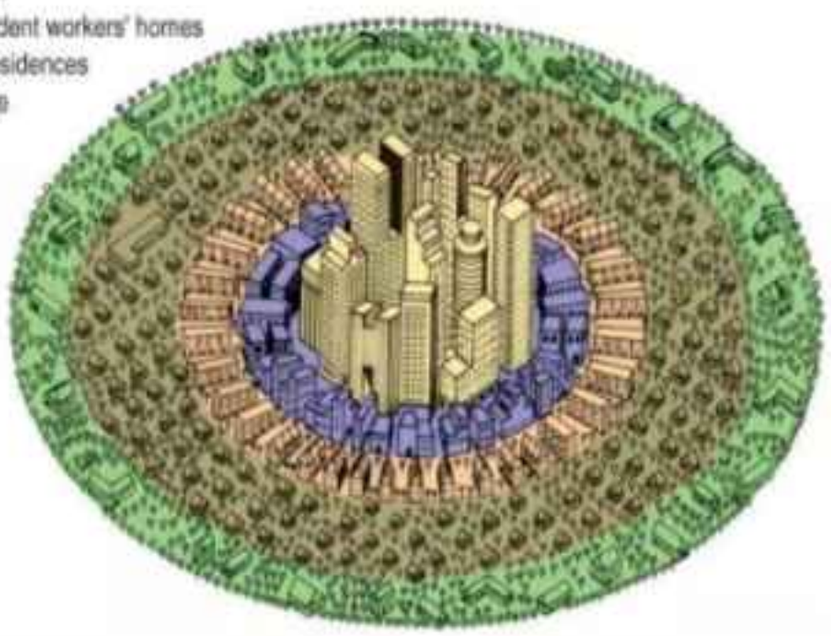
The Radial city: Moscow

- Successive epochs of development are traced by the
  - The Boulevard Ring and
  - The Garden Ring,
  - The Moscow Little Ring Railway,
  - And the Moscow Ring Road.

Concentric zone model

1 Central business district
2 Zone of transition
3 Zone of independent workers' homes
4 Zone of better residences
5 Commuter's zone





The Linear city

- Initially proposed by Soria Y Mata.
- Expand the city along the spine of transport
- The Linear City concept is a Conscious Form Of Urban Development with Housing And Industry Growing Along The Highway Between existing cities and contained by the continuous open space of the rural countryside.

Advantages	Disadvantages
• High accessibility • adaptability to linear growth • useful along the limited edge.	• Very sensitive to blockage requires control of growth • lacks focus, • The choice of connection or of direction of movement are much less.

NAVI MUMBAI

Alternative to Mumbai

The Linear City: Navi Mumbai

- The growth of Mumbai city is constrained by sea at south, east and west. As a result total land area available for development of Mumbai is limited.
- The cost of real estate and housing in Navi Mumbai is much less than costs in Mumbai and sub-urban areas.
- Many government and corporate offices have been shifted from Mumbai to Navi Mumbai .
- the Taloja and Thane Belapur Industrial Belt of Navi Mumbai offer job opportunities of every conceivable kind – from engineers to mechanics to clerks to peons. As a result a large population of service class and middle class population shifted to Navi Mumbai.

City planning evolved from different culture and different ways of looking at the city. For example ,Mexico is about compression, being clustered together. While Algeria is about long and flowing avenues

Radial - Centrifugal & Centripetal

- A **centripetal force** (from Latin centrum, "center" and petere, "to seek"[1]) is a force that makes a body follow a curved path. Its direction is always orthogonal to the motion of the body and towards the fixed point of the instantaneous center of curvature of the path. Isaac Newton described it as "a force by which bodies are drawn or impelled, or in any way tend, towards a point as to a centre".[2] In Newtonian mechanics, gravity provides the centripetal force responsible for astronomical orbits

- In Newtonian mechanics, the **centrifugal force** is an inertial force (also called a 'fictitious' or 'pseudo' force) directed away from the axis of rotation that appears to act on all objects when viewed in a rotating reference frame.The concept of the centrifugal force can be applied in rotating devices such as centrifuges, centrifugal pumps, centrifugal governors, centrifugal clutches, etc., as well as in centrifugal railways, planetary orbits, banked curves, etc. when they are analyzed in a rotating coordinate system

Radial - Centrifugal

- The distinction between the two spatial types is best expressed by considering the role of the column as a spatial generator.
- A single column in space can define a space around it, the size of which depends upon the height of the column but the definition of which depends upon the interaction of the column and the observer
- Therefore, a column defines a space around it in a radial fashion; this is centrifugal space

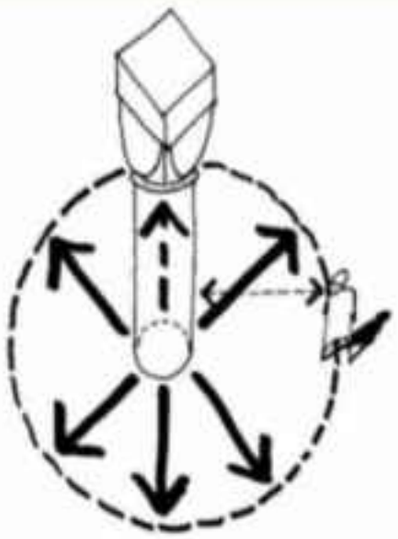
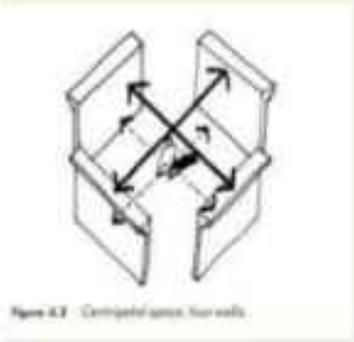


Figure 6.1 Centrifugal space: single column.

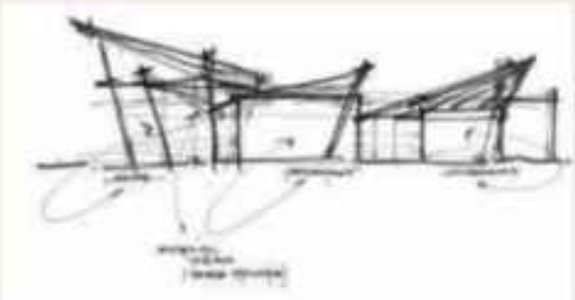
Radial - Centripetal



- However four columns positioned in some proximity with each other to form a "square: will interact and induce a space enclosure. A centripetal order is established to define a space which even at this most basic level approximates to "architecture without a roof" this is centripetal space.
- If four walls are used to define this space as compare to four columns, then the sense of enclosure is enhanced, but the corners are less well defined and space tends to "leak" from the voids thus created

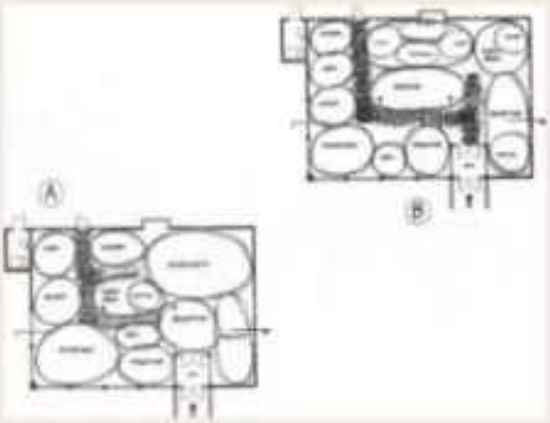
Parti [pahr-**tee**, **pahr**-tee]

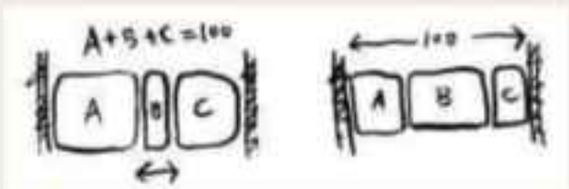
- A parti or parti pris comes from the French prendre parti meaning "to make a decision". Often referred to as the big idea, it is the chief organizing thought or decision behind an architect's design presented in the form of a basic diagram and / or a simple statement The development of the parti frequently, but not always, precedes the development of plan, section, and elevation diagrams. [5]In a figurative way parti pris is used when a researcher starts with a preconceived opinion to prove that this opinion is true.



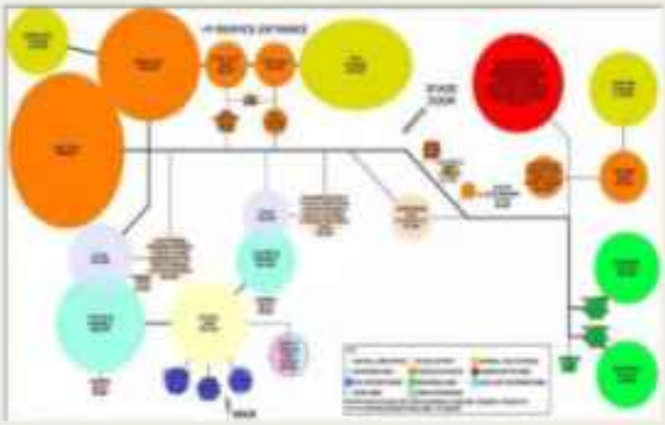
Caja de Granada by Alberto Campo Baeza

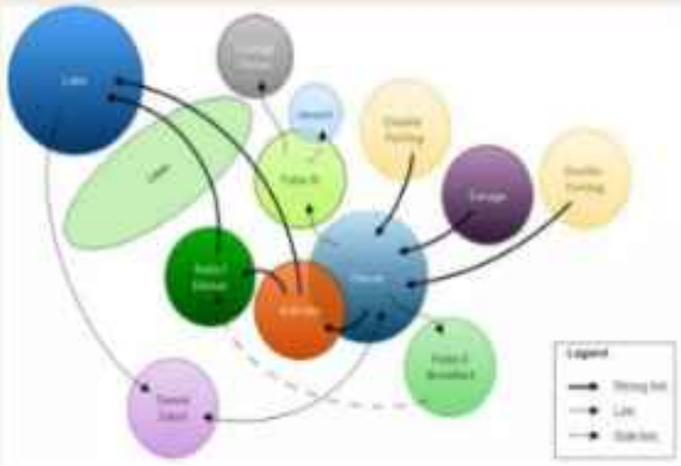
BUBBLE DIAGRAMMING





Architects use these 'bubble' diagrams to explore relationships among the sizes, adjacencies,
and approximate shapes of the spaces needed for various activities. The architect sometimes draws arrows or lines between functions that must communicate, or small tics to indicate an adjacency requirement between two functions, as distinct from pairs of functions that simply happen to be adjacent in the drawing.
A bubble helps the architect consider possible changes to the design. Each bubble represents the space needed to carry out a function (living, dining, sleeping, etc.) For example, were the architect to enlarge one space, the diagram reveals how the adjacent spaces would need to be correspondingly adjusted to remain adjacent and stay within their own size constraints. On the other hand, the architect can see when squeezing the diagram would make the dimension of a space too small for its intended function. In short, a bubble diagram helps the architect understand the constraints of a floor plan and the consequences of proposed changes to the design. The diagram makes adjacencies, overlaps, and relative dimensions available by inspection.





Criteria Matrix In Architecture

Diagrams such as bubble diagram and matrix diagram are used to help both the designer and client illustrate, understand and arrange a space or building design more efficiently. Schematic or box diagrams are also used to illustrate when a building has multiple function and levels.