SIGMA COLLEGE OF ARCHITECTURE

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FLAVOURS OF COASTAL TOWN MACHILIPATNAM ARCHITECTURE

Ar.Indira Kolli M.Arch
Principal

The Architecture of any colonial city or town in India primarily emerges from a combination of factors like regional influences, power, material, climate and community occupations. It is true that not only of any town but also of the colonial towns which are influenced predominantly by any European settler in that particular area.


1.View of Kekini Mahal

But there are only of few towns where there are not only various strains but also a merging of these individual schools of thought takes place. This amalgamation is further enhanced by the materials available locally, traditional beliefs, construction technologies art and craft leading to the emergence of a unique form of Architecture.

Such an emergence is not a casual phenomenon but is the culmination of a complex, fatuous process that happened over centuries .the remains of such an architecture have an inherent symbolic quality. Each face representing the merging of divergent strains. Thus a town which is all the above and more should be conserved to be passed on to posterity, to make them aware of the complexity of its character and the blended form .Machilipatnam is one such town. It has been a major port town , a key trade center , a colony of significant proportions , a cultural hub, a complex social network and now the administrative headquarters of the district.


2.Street View of Kekini Mahal

Machilipatnam has seen the entry and domination of all the all the colonialist nations- the Arabic Dutch, the French and English, a rare instance of the co-existence of competitive and culturally –divergent communities.

The mixed inhabitation provided the town with a blended character, a fabric of multiple hues. The settlement patterns, the built form as well as the characteristics of specific building typologies are a study in the convergence of various architectural; styles. The town which has once been a busy trade center, and cosmopolitan city, is now it's a remains of blend character of native and colonial Architecture along with contemporary setting.

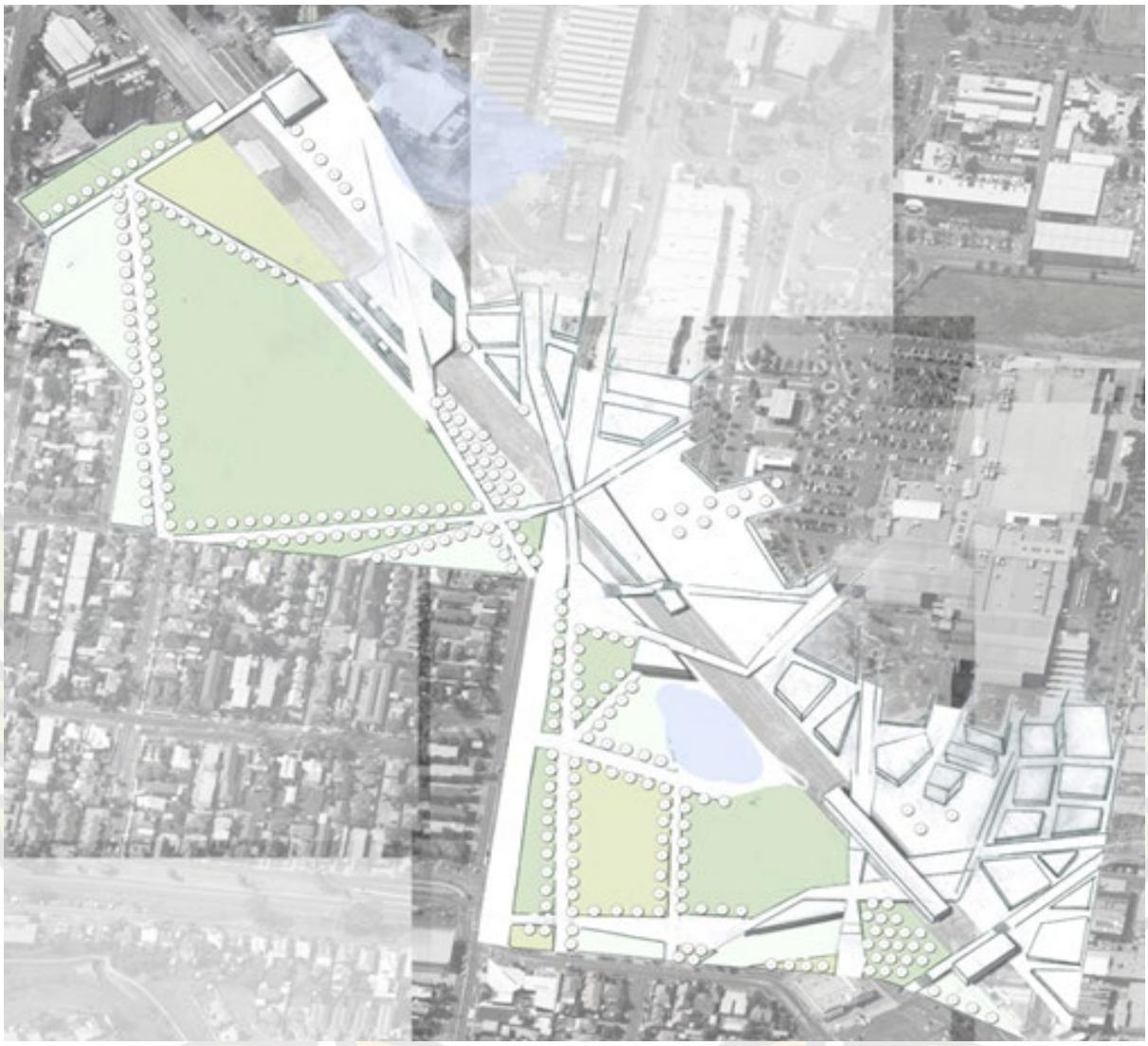

3. Residence


4. Residence


5.Sub treasury office

"URBAN STITCHING IN THE CITIES" STITCH FOR FUTURE

Ar.S.Chinnadurai M.Arch
Head of the Department



The most of the Indian cities have evolved organically. So many people contributed in shaping the cities in various timeline. But each of their contribution was gelled with previous harmony of the area. But after that drastic development happened in the mid of nineteenth century there is a huge variation and chaos in the growth and the harmony of the cities. So those development needs to be stitched again to match with the existing fabric of the city. The intervention in the nineties which made a huge collapse in the city character and the image. The development which ignore the culture, history, values, tradition it won't be consider as good and healthy development. All cities have its unique characters and tells a story for the people. All these characters need to be preserved and significance of these unique character and value need to pass to the future generation. So that when they develop the cities for the future needs they won't neglect these traditional assets.

A SUSTAINABLE BUSINESS DISTRICT

Ar.K.Ashwinprakash M.Arch
Assistant Professor

Danish architectural firm Henning Larsen Architects has won an international competition for the design of the Shenzhen Bay Headquarters City, a new district in the southern Chinese city spanning 5.5 million square meters.

Working alongside two other local firms, Henning Larsen's green and sustainable master plan will help cement Shenzhen often likened to China's Silicon Valley as the innovation center of the country.

A critical part of the Shenzhen Bay Headquarters City is reconnecting the business district with the waterfront and emphasizing the pedestrian urban realm — something that Chinese planning authorities have long overlooked in favor of vehicular traffic.

In Henning Larsen's approach, cars will be relegated to an underground network of roads and highways so that commuter cars will rarely be seen aboveground in public areas. Moreover, the master plan's central organizing axis will consist of a linear waterway that visually and physically connects the district to two larger bodies of water.

"Design aims to make Shenzhen the waterfront city it should always have been," said Claude Godefroy, partner and design director of Henning Larsen's Hong Kong Office. "To create an attractive waterfront, we brought commercial and cultural facilities meters away from the seashore, so citizens will finally be able to enjoy the atmosphere of Shenzhen Bay in an activated urban environment, like in Sydney, Singapore or Copenhagen."

The architects also want to introduce a more "porous urban fabric." Rather than create massive shopping malls that sit beneath tall buildings, architect Henning Larsen proposes siting smaller buildings between the towers and tucking retail partially underground. The city's porous nature will optimize access to sea breezes to combat the urban heat island effect. As part of its "Forest City" vision for the master plan, the firm also plans to introduce 10,000 trees, roof gardens and ground-level bioswales to help cool the environment and create habitats for birds and insects.

CONTROL STRATEGY FOR GRID INTERFACING INVERTER

Er.Z.Jenner M.E
Assistant Professor

There are different control strategies to control the Grid interfacing inverter. Hysteresis current control (HCC) is the simplest control method to control the voltage source inverter for compensating the current harmonics. The control signals for the voltage source inverter are generated from the hysteresis current controller.

The current controller is implemented with closed loop control system where an error signal is used to control the switching in a voltage source inverter. The error signal is the difference between the desired current and the current being injected by the inverter. The upper switch of the inverter arm is turned OFF when the error exceeds the upper limit of the hysteresis band. At this instant, the lower switch is turned ON. The lower switch of the inverter arm is turned OFF when the error exceeds the defined lower limit. At the same time the upper switch is turned ON.

The minimum and maximum values of the error signal are emin and emax respectively and the range of the error signal emax - emin directly controls the amount of ripple in the output current from the VSI.

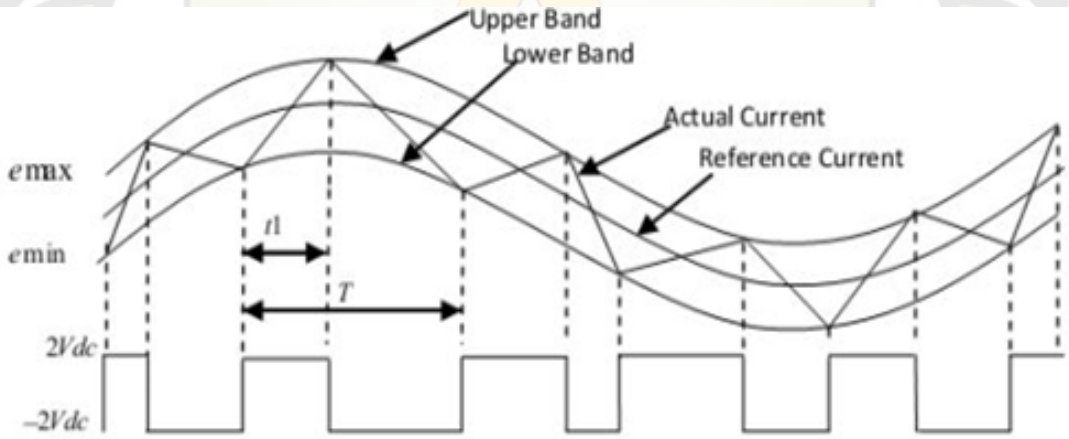


Figure: Waveform for hysteresis current controller

EARTHQUAKE RESISTANT CONSTRUCTION

Er.E.M.Jerin Shibu M.E
Assistant Professor

Earthquake resistant construction, the fabrication of a building or structure that is able to withstand the sudden ground shaking that is characteristic of earthquakes, thereby minimizing structural damage and human deaths and injuries. Suitable construction methods are required to ensure that proper design objectives for earthquake resistance are met. Building failures during earthquakes often are due to poor construction methods or inadequate materials. So buildings are thus extremely susceptible to failure under seismic loading.

Figure 1: Earthquake resistant techniqes

Under normal conditions, a building's walls, columns, and beams primarily experience only vertical loads of compression. However, during an earthquake, lateral and shear loading occurs, which results in tensile and torsional forces on structural elements. Those forces result in high stresses at the building's corners and throughout various joints.

Strong construction joints are critical in building a structure that will withstand the shear loading of an earthquake. Since stress is concentrated at the joints between the walls, it is important that all the joints be properly prepared and reinforced shown in figure 1. Concrete joints must also be properly compacted and anchored in order to achieve optimum strength. In the case of unreinforced masonry joints, the anchoring between adjacent walls is especially important. When all the joints are tied together well, the building will act as a single integrated unit, enabling the forces of an earthquake to be transferred from one section to the next without catastrophic failure.

Earthquake resistant construction requires that the building be properly grounded and connected through its foundation to the earth. Building on loose sands or clays is to be avoided, since those surfaces can cause excessive movement and nonuniform stresses to develop during an earthquake. Furthermore, if the foundation is too shallow, it will deteriorate, and the structure will be less able to withstand shaking. The foundation should therefore be constructed on firm soil to maintain a structure that settles uniformly under vertical loading.

STUDY AND DEVELOPMENT OF VILLAGE AS SMART VILLAGE

Ar.T.Josephine Sabena B.Arch
Assistant Professor

Need for Smart Village

The village or rural communities are having nearly everything that they want within themselves, and almost independent of any foreign relations. At present, growing population and rapid urbanization is one of the major challenges in India. This urban growth to certain extent is unavoidable, as the economic pursuits as well as aspirations of the population do change and evolve. This need to be a reversed and suitably managed through a balance between rural and urban quality of life. The concept of "smart village" will be the multiple challenges faced for sustainable development of rural India.



Aims of Smart Village

Safe drinking water and regular power homes with access to toilet. A smart village knows all information about its citizens, applicable services, available resources and schemes. Every household has diversified livelihood opportunities and micro enterprise and have to maintain its identity, culture and heritage. Plans for development based on people, assets and service centric information and tracks its progress for the development. It works towards revenue generation and has functional solid/liquid waste management system.



End all preventable maternal deaths and infant deaths which means providing good basic health facilities in health care centre and should have awareness on new technologies like drip irrigation, solar panel lightings that can be implemented in villages, farms and nearby places. Interacts with government, NGO's, social entrepreneurs experts for its needs.

ROLE OF ARCHITECT IN SOCIETY

Ar.R.Anand Godson M.Arch (IA)
Assistant Professor

Apart from early days, at present society requires skilled architects who are educated and trained to be in architectural profession. The increase in meeting the complexities of society's desires is the sole reasons for change in the added requirement to call some as architects. Architects are very important in our society.Architects are not just involved in the design of a building.

Architects are involved in setting the design guidelines and building codes that are followed by cities, states and nations. The codes set the standards for safety features, relating to fire safety, evacuation plans, site development, roads, parking etc all fall on the architect. Architects are also required to work together with lighting and HVAC (heating and cooling) and the structural engineer to ensure that the design intent is followed and the building looks and feels a certain way. The bottom line of an architect's role in society is to respond with the surrounds environment in a positive manner while rendering their or client's needs.

Present day trend one who designs is different from the one who builds and the one who is going to use the building. It has become a different job for an architect to satisfy the needs of everyone along with keeping the place/space intact with the environment. An architect needs to have proper idea of what could be the potential of the space in the near feature, and educate client about it.. It is the duty of the architect to educate the society/people about it, through some public lectures of writings etc. This will make an architect's job easier when the client approaches for getting any of their work to be done.

Another important role of an architect is that it's their duty to train architects for future. They should educate and guide the young and upcoming architects about their role in society as an architect, and also should take part in teaching architecture students who are going to become the future generation architects.

APPLICATION OF POISSON DISTRIBUTION IN REAL LIFE

Mr.P.S.Stem Edilber M.Sc, M.Phil
Assistant Professor

In probability theory and statistics the poisson distribution named after a French mathematician Simeon Denis Poisson is a discrete probability distribution that expresses the probability of a given number of events occurring in a fixed interval of time or space if these event occur with a known constant rate and independently of the time since the last event. The poisson distribution can also be used for the number of events in other specified interval such as distance, area or volume.

The poisson process is given by

$$P(X=x)=(\lambda^x e^{-\lambda})/x!$$

where,

$x = 0,1,2,3,\ldots$
λ = mean number of occurrences in the interval
e = Euler's constant ≈ 2.718

Example:

Poisson distribution is applied in situation where as there are large number of independent Bernoulli trails with a very small probability of success in any trail say P.

We can find the number of patients in a hospital and the number of beds occupied in a large hospital using poisson distribution.

METROPOL PARASOL - REDEVELOPMENT OF PLAZA DE LA ENCARNACION

Ar.K.Keerthana B.Arch
Assistant Professor

Architects - J Mayer H have completed a large reticulated timber cover as a part of their renovation of the Plaza de la Encarnacion in Spain.

Gigantic alien-looking buildings that bring to mind melted guitars, mushroom-like parasols that's how the structures that fit into the style known as Blob Architecture, or Blobitecture have been described. This project become the new landmark and an area of identification as one of the world´s most famous cultural destinations.

A extremely developed infrastructure helps to activate the urban square creating it a horny destination for tourists and locals alike. The "Metropol Parasol" theme with its spectacular timber structures offers associate archaeological museum, a farmers market, associate elevated plaza, multiple bars and restaurants beneath and within the parasols, as well as a panorama terrace. The biggest and most innovative secure timber-constructions with a polyurethane coating, the parasols grow out of the archaeological excavation, defining a unique relationship between the historical and also the contemporary city. This developed infrastructure aids in triggering the movement at the square, thus transforming it into a hive of activity – a social and cultural hub wherever each residents, guests and tourists will gather underneath the architecturally motivating 'crown- like waffle'.

LANDSCAPE SOLUTIONS FOR POLLUTION ARISING IN TEXTILE INDUSTRY

Ar.M.Priyadarshini M.Arch
Assistant Professor

AIM:

To study about the source and impact of industrial pollution and to find landscape solutions for such problem.

SOLUTIONS:

Bio-swales: A bio-swale is a landscaping feature that acts as a filtration system for surface run-off water. Bio-swales are environmentally friendly alternatives to storm water sewer systems that drain unfiltered runoff water into the rivers and streams. Mostly found near parking areas and roadsides, they filter pollutants and silt such as trash, bacteria and harmful chemicals.

Land Reclamation: Land reclamation also known as land fill, is the process of creating new land from ocean beds, riverbeds, or lake beds. The land reclaimed is known as reclamation ground or land fill.

Topsoil: –Reconstruction: To remove the lifeless topsoil and fill with the nutrient filled soil to enhance soil fertility

Revegetation: Revegetation is the process of replanting and rebuilding the soil of disturbed land. This may be a natural process produced by plant colonization and succession, manmade rewilding projects, accelerated process designed to repair damage to a landscape due to wildfire, mining, flood, or other cause.

Bio remediation: Treat contaminated media, which includes water, soil and subsurface material, by slightly altering environmental conditions to stimulate growth of microorganisms and degrade the target pollutants. Biological treatment is a similar approach used to treat wastes including solid waste, industrial waste and wastewater.

Constructed wetlands: Artificial wetland to treat municipal or industrial wastewater, greywater or stormwater runoff. It can also be designed for land reclamation after mining, or as a mitigation step for natural areas lost to land development

Phyto-irrigation and reduce footprint: To increase the land irrigation capacity by increasing the green open space. Terrace garden and other green footprint.

Wastewater Stabilization Ponds: Maintaining a balance between desired algae growth for

1. Nutrient removal and oxygen production.
2. Prevent light and energy penetration to the lower depths of the water column.
3. Limiting excessive algae growth, which can lead to increases in pH.
4. Limit the effectiveness of aerobic oxidation by bacteria.

THE BUDDHA – LAVENDER PLANTED HILL

Ar.Dinesh M.Arch
Assistant Professor

Pritzker Prize- award winner Tadao Ando has designed a monumental lavender-covered temple close a large sculpture of Buddha at the Makomanai Takino land site within the northern Japanese town of urban center.

Before the temple was completed, the 44-foot-tall Buddha sculpture stood alone during a field for fifteen years. Soon after its completion, the client realized the stone structure was out of scale on its own, giving visitors an uneasy sensation. For that reason, they decided to hire Ando to create a more serene architectural procession for the site.

The resulting temple envelops the statue, leaving only the top of its head visible from outside the hill, planted with 150,000 lavenders that allow the landscape to change from green in spring to purple in summer to white with snow in winter. Visitors currently approach Gautama Buddha through a 130-foot-long passageway into the circular area close the sculpture.

“The aim of this project was to create a prayer hall that may enhance the attractiveness of a stone Buddha graven fifteen years ago,” explained Ando in an essay for DOMUS magazine.

“Our plan was to hide Gautama Buddha below the pinnacle with a hill of lavender plants.
We called the idea the ‘head-out Buddha’. Embedded underneath hill area unit a 40-metre approach tunnel and a rotunda clench the sculpture.”

“The design intention was to make a vivid abstraction sequence, starting with the long approach through the tunnel so as to heighten anticipation of the sculpture that is invisible from the outside. When the hall is reached, visitors look up at the Buddha, whose head is encircled by a halo of sky at the end of the tunnel.”

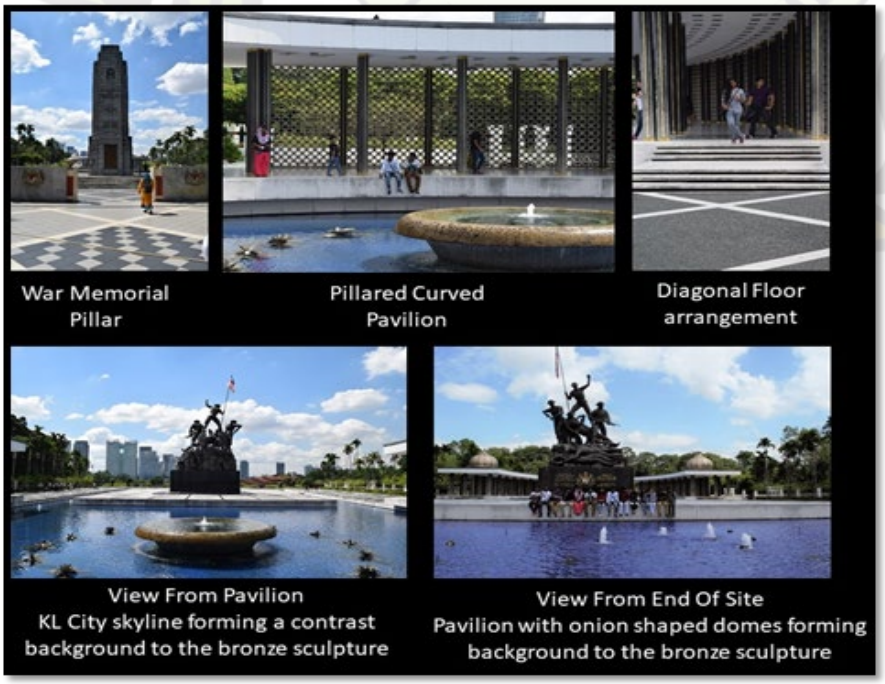
MEMORIAL DESIGN – CASE STUDY OF NATIONAL MONUMENT MALAYSIA

Ar.N.Nishya M.Arch
Assistant Professor

Monuments are predominantly designed as a free standing sculpture to remember any historically important event. The national monument is not only a war memorial sculpture, it has additional site features with varying skylines. This memorial is dedicated to the soldiers who died in the Malaysia's freedom struggle against Japanese during World War II. It is the world's tallest bronze free standing sculpture. Architectural styled followed in this the Islamic architectural style. Few Islamic architectural features in his wall memorial are onion shaped domes, pillared pavilion and chaijas. Apart From the Architectural style the design of the monument shows various skyline difference depending upon the functional hierarchy.

Site features

The national monument has a War memorial pillar and sculpture surrounded by water and are axially arranged in the site. To the entry site, diagonal tile arrangement leads to the war memorial pillar, which is surrounded by water. Walking towards the diagonal tile arrangement, leads to a high plinth pillared curved pavilion.



Pavilion has three onion shaped domes. Pavilion From ground level pavilion is connected through stairs, ramp provision is not provided. Curved pavilion leads to a large waterbody, at the centre of waterbody world's tallest bronze sculpture stands as a free standing sculpture. The city skyline form a contrast background to the bronze sculpture.

THE CULTURE – ARCHITECT'S PERSPECTIVE

Ar.M.Raghavendran M.Arch
Assistant Professor

Culture is a collection of values of human life. It is the pattern of thoughts and behavior of people. Cultural differences are seen throughout the globe. In fact, culture is the soul of nation as it determines the nation's identity. Culture of a place can be perceived through its material aspects such as Art, Architecture, instruments & technology, materials & consumer goods and non-material aspects such as norms & values, beliefs & myths, rituals & religion, language & philosophy. Through all these aspects one can experience the prosperity of a nation's past & present. Culture of a place influences its architecture in terms of material usage, local construction techniques, craftsmanship, ornamentation and detailing, etc. The cultural influence can be evidently seen in religious structures of a region which in turn makes it very unique and identical among others.

STRENGTH AND DURABILITY PROPERTIES OF CONCRETE MADE WITH THE PARTIAL REPLACEMENT OF CEMENT BY MARBLE POWDER AND M-SAND BY SILICA SAND

Er.R.Relin Geo M.E
Assistant Professor

In this project the cement is replaced by marble powder and sand is replaced by silica sand with 10%, 20% & 30% and 25%, 50% & 75% respectively. The mix design has been calculated and the mix ratio is 1 : 2.28 : 3.19 : 0.40 and the mix proportion is given in table 1.

Table 1: Mix Proportion

Mix	Replacement of marble powder (%)	Replacement of silica sand (%)
M1	0	0
M2	10	25
M3	20	50
M4	30	75
M5	20	75

The casted specimens were tested for compressive strength test The optimum compressive strength is reached at M5 at 56 day curing of 49.1 N/mm2 which is 15.8% more than M1 at 56 days. The compressive strength increased upto the mix M3. By adding marble powder more than 20% decrease the compressive strength. The optimum amount of marble powder is 20%. By maintaining 20% of marble powder and increasing the amount of silica sand will gradually increases the strength. The variation in compressive strength are shown in fig 1.

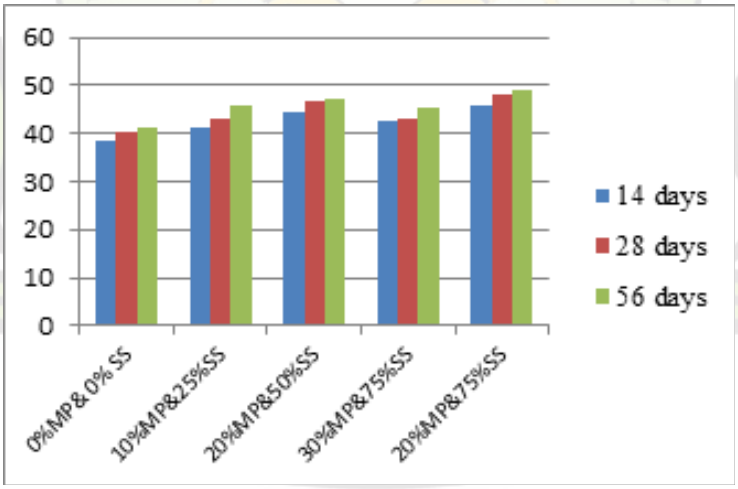


Fig 1: Compressive strength results

GLOBAL WARMING IS A MYTH

Ar.Shamiudeen M.Arch, AIIA
Assistant Professor

Myth no 3: Seasons are getting shorter
But actually, Seasons like spring are crucial in planting venues around the world. According to most recent almanac, summer, spring, winter, and fall are still inward on time as they have in the past.

Myth no 4: Due to weather change Coral reefs are vanishing.
But the fact behind it was not only due to global warming, Oceanographers and Biologists conclude that coral reef ruin due to pollution and other factors.

Myth no 5: Too much carbon dioxide is bad for crops and vegetation.
But the fact is examine has been conducted to go both ways on this topic. It depends on who you choose to consider. Canadian Government has added CO2 is most toxic gas in the list. Other studies show better growth and crop cultivation using extended CO2.

Myth no 6: When the ozone layer holes shrinks, it seems to get reduced in global warming.
But the reality is entirely different. There are no co-relations between ozone holes and global warming

Myth no 7: Seawater levels are rising.
The actual Fact is while some seawater levels are rising. This doesn't mean that all seawater levels are rising. Present research suggests that only 0.2% of seawater level increase in recent years.

Myth no 8: Glaciers are melting at an exceptionally fast rate-the Arctic will dissolve entirely in a few centuries

The fact we see glaciers are melting; it does not mean that whole continent of Antarctica is ruined to end up in the deep-sea one day. It is expected that the glaciers in Antarctica's melting ratio is 2% higher than it has been in the past 1,000 years.

"Global warming is part of natural cycle and there's nothing we can actually do to stop these cycles. The world is now facing and spending a vast amount of money in tax to try to solve a problem that doesn't actually exist."-David Bellamy

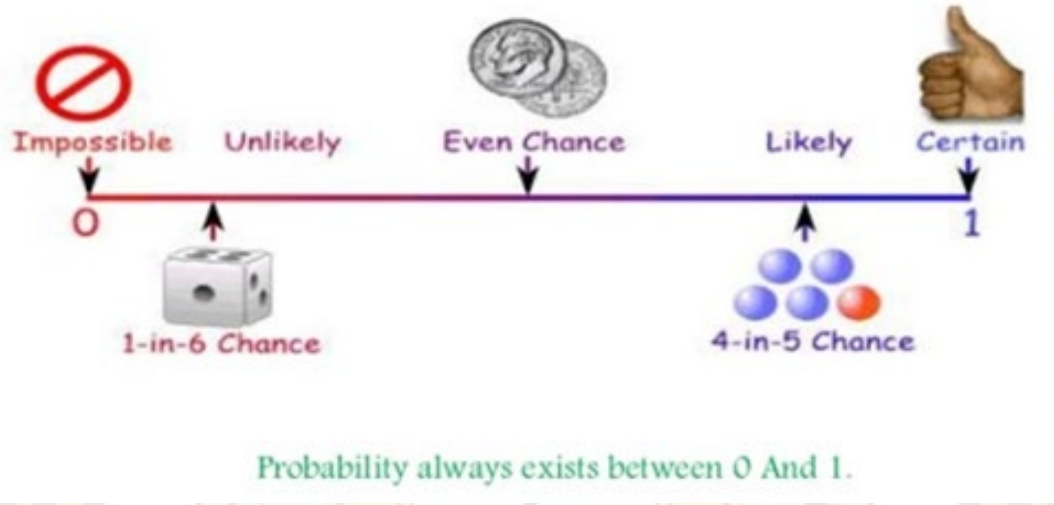
Now I like to conclude by telling that the concept of global warming is exaggerated. Argument based on global warming was the output of rich nations which forms a stress on the developing countries. It's just a matter of deviation and not a fact. At the same time our mother earth is the place to dwell and not to destroy.

PROBABILITY IN REAL LIFE

Ms.R.Maria Anushiya M.Sc
Assistant Professor

Probability is a branch of mathematics that deals with calculating the likelihood of a given events occurrence, which is expressed as a number between 0 and 1.Here 0 is an impossible event and 1 is a sure event. Probability has something to do with a chance. It is the study of things that might happen or might not.

PROBABILITY LINE



The outcome of random event cannot be determined before it occurs, but it may be any one of several possible outcomes. The outcome is considered to be determined by chance.

For example,

If a batsman had scored 40 runs out of 100 from boundaries in the previous match. Then there is a chance that he would score 40% of this runs in the next match from boundaries.

PRESERVATION OF SOILS AND DRAINAGE WAYS

Ar.R.Reghu M.Arch (RED)
Assistant Professor

Preservation of Soils and Drainage Ways

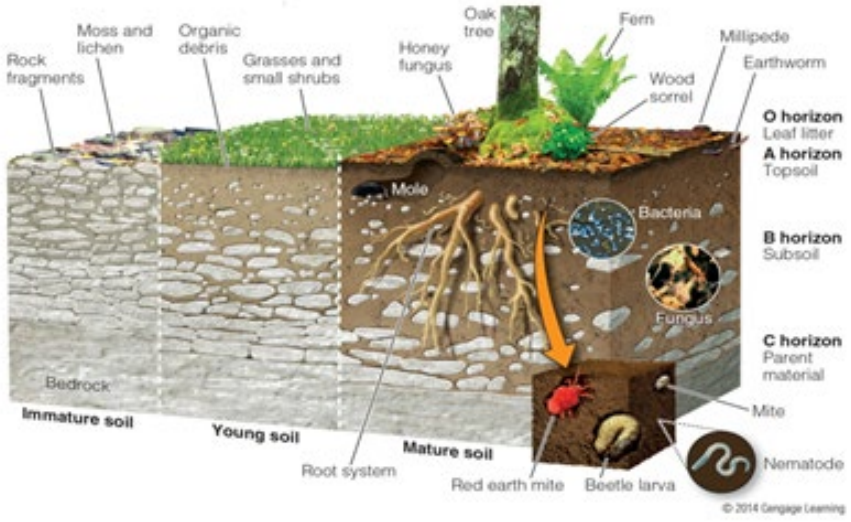
Give attention to protect full-grown vegetated soils and lowland areas. These natural systems make the watershed work by allowing rainwater and runoff to infiltrate the soil. In lowland areas, groundwater discharges into surface drainage ways, streams, and wetlands. constant Trees and plants around drainage paths and surplus water ways, prevents erosion, and creates habitats for functioning aquatic ecosystems. Siting construction and earthwork away from drainage courses preserves vegetated buffers and protects stream quality.

Minimize pavement area. Minimizing pavement affords some preservation of mature native soils. Also, preserving existing vegetation generates less runoff.

Good practices include:
– Concentrate and cluster development to reduce road paving.
– Double-load parking lots to share traveling and turning lanes.
– Minimize widths of road pavements.

Install silt fences to hold sediment on-site during construction. mud fences should be installed before project begins and should be take care until construction is over and all soil surfaces are vegetated.

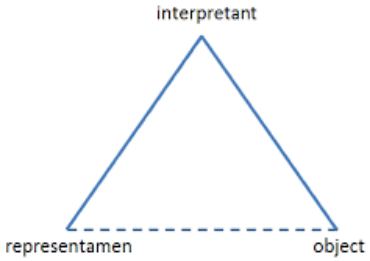
Minimize use of landscape irrigation, herbicides, pesticides, and fertilizers. In concerned landscaped zones, grass lawn and landscape protection can generate a high absorption of pesticides, nutrients, and other pollutants.



SEMIOTICS

Ar.Dhenuka Nandhu M.Arch
Assistant Professor

Saussure's model



Peirce's Model

Semiotics is a world view that emerged in the late 60's and 70's. It is called the sign theory. It makes you believe that everything is a sign of something else. For example a door is a sign of entry. Semiotics is a popular theory in advertising and software development. It is also important to architecture.it actually emerged in the field of linguistics with two linguists Ferdinand De Saussure from Europe and Charles Sanders Peirce from America wrote about it simultaneously. Saussure's model of semiotics is twofold whereas Peirce's model is threefold. Saussure argued that there are two elements the signified and signifier whereas Piece's model has got an object, a representamen and an interpretant. Let us look at each model separately. In Saussure's model, there is a subject which signifies something and there is an object that is the signified of what the signifier expresses. The signifier in the outer world is represented by the signified internally in the mind as a memory association. For example a picture of a dog is the signifier and the image of the dog in the mind is the signified.

In Peirce's Model, there is an object in the outer world this is represented by an interpretant in the memory which is further represented by the representamen which is physically the expression of the object in the mind. For example the dog is the object and its image is the interpretant and the image of the interpretant in the mind is the representamen.

Semiotics is useful to represent culture according to Greimas in France who has the third model to his credit. Semiotics and structuralism go hand in hand in many compositions. Semiotics is useful to decode art. But how is it useful for Architecture? There are examples of semiotics of architecture in the modern world. Like one building that might represent another building in form or color or composition with façade elements or the entire building by itself representing another building or work of art or music or mathematical concepts. Semiotics is used to encode as well as decode all of this. There are examples of architects playing with shadows and shade of objects in the built environment. Let us assume we are in a public building trying to find our way inside for navigation. The sign system of the building is directly given by semiotic studies. If we see the shadow of stair cases we might conclude there is an upper floor. If there are multiple doors we may want to follow the signage to find out where to go. Thus semiotics plays a major role in way finding in the interior as well as the exterior of the buildings. There is also urban semiotics when we see a traffic jam in any route we may understand that there may have been an accident or a road blockage in the future. Thus semiotics in the urban level addresses bigger issues. In the newsletters to come further we shall be able to discuss semiotics of architecture and urban semiotics in detail.

BIOPHILIC DESIGN: PLANTLIFE IN ARCHITECTURE

Ar.Gokila Vijayalakshmi B.Arch, M.Plan
Assistant Professor

Biophilic Design, a flourishing trend, is the introduction and incorporation of plants and natural elements into architectural design.

Biophilic Design can certainly play a part when designing an environmentally sustainable building. However, when it comes to designing healthy environments, it can have a larger impact. Plants do of course improve air quality, but as a design strategy, Biophilic Design allows a building's occupants to live "beyond toxicity", as Howard Frumkin put it. In his study, Frumkin found that introducing plants into our daily lives improves our health and well-being both indoors and outdoors, with our cognitive performance in particular being boosted by the presence of plants. In other studies from the CBRE and Interface, a surplus of statistics show that plants can help people feel happier, more energised and healthier, with increased productivity and all round better well-being. In a recent study from the Harvard Center for Health and the Global Environment, office workers in particular were found to be more productive when working in greener buildings, and achieved a 101% higher cognitive score in enhanced green buildings. Another study from the University of Washington found that encounters with nature can help restore the mind and alleviate mental fatigue, which is particularly noteworthy when incorporating planted outdoor spaces for both offices and residences.

As such, while Biophilic Design can be one of many strategies that help to make a building environmentally sustainable, it is a very strong pillar in designing for social sustainability: designing spaces and places that people will want to live and work in, places that people will want to come back to, and places that improve our wellbeing.

Prof. Dr. T. James Wilson

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