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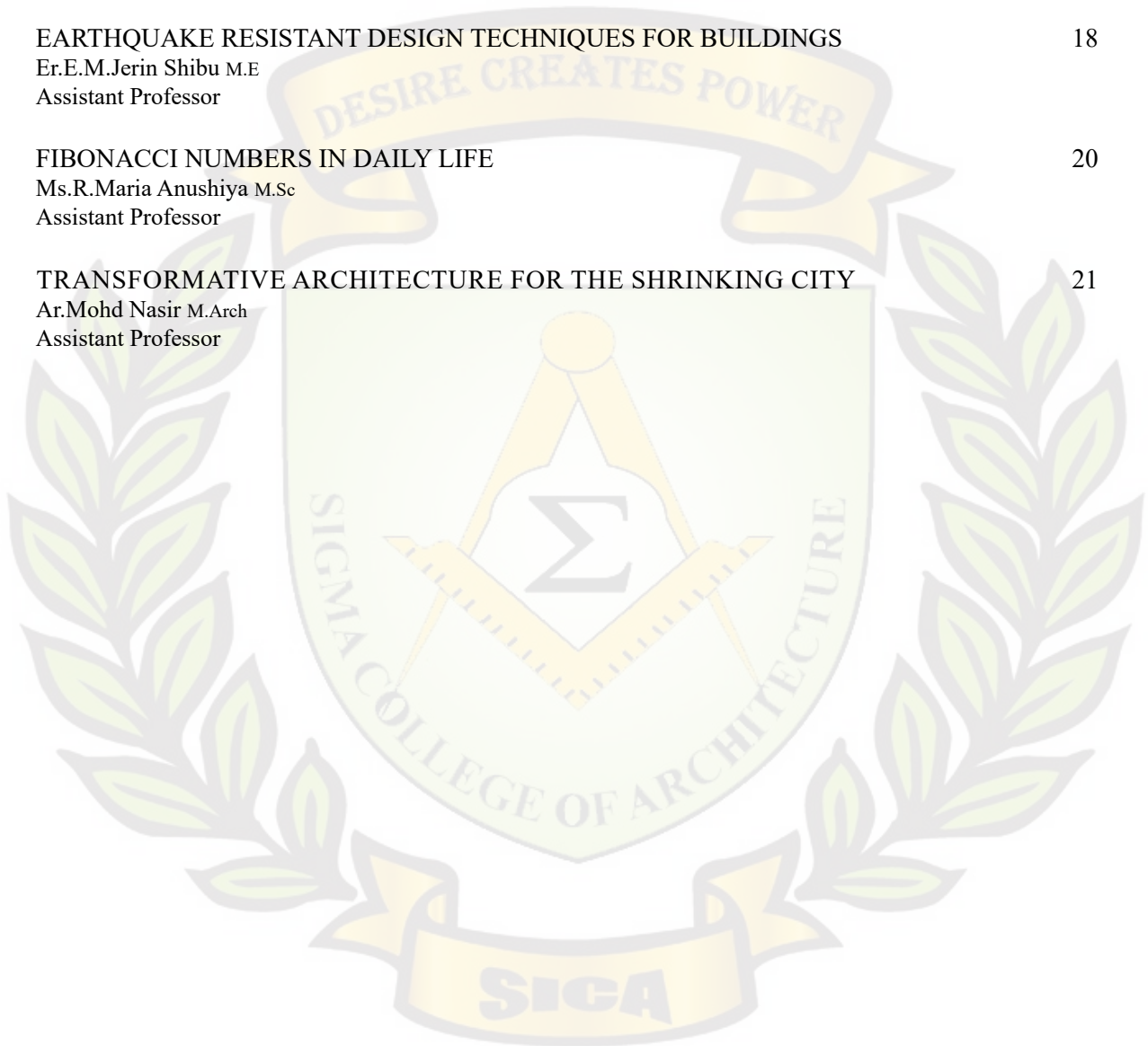


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INDEGENOUS SETTLEMENT DHARMAVARAM

Ar.Indira Kolli M.Arch
Principal



Plan of Dharmavaram village (30 years ago)

NATIVENESS OF TRADITIONAL VILLAGE DHARMAVARAM :

Dharmavaram was a traditional village located in Visakhapatnam district Andhra Pradesh. The settlement consists of two major community farmers and weavers along with one or two families of Dhobi and few shared families. Three fourth village is occupied by farmers and one fourth occupied by weavers towards the northwest. The specialty of this village as they were following very unique traditions. They do have year wise celebrations Pongal, traditional new year, other religious ceremonies and village jathara. Temple and premises are for the village hub and they gather for all the events. Other than settlement pattern houses are very unique in construction and spatial aspects.

Most of the houses were circular and rectangular hut forms. And two to three hoses are tiled roof structures. (still existed)community bondage was very strong due to the type of occupation and communal celebrations. Currently, the village transformed totally. All old houses are changed to Rcc structures. Religious practices are very strong during the olden days.

During religious ceremonies team of people visit every house with a lamp and perform traditional bhajans. Other entertainments for village people during nights Folk dances (tappeta gullu) playing chiratas(dandiya), storytelling, etc. Currently, all vanished. Now time to realize the importance of traditional living systems and practices. At least we can introduce some of the practices in the modern context.

URBAN STUDY ON HTWOO FRONT DEVELOPMENT DISTURB BUT NOT DESTROY

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



From the prehistoric age, we have a strong connection with the waterfront area. Most of our settlement started from there and later on, a transformation of these spaces like trade, port, and commercial, recreational and public spaces. All these changes in land use made a massive impact on the ecosystem. Especially the waterfront in the urban area because of land value pressure and other encroachments. The quality of this space and natural ecosystem is completely under the threat .we cannot stop the development. But we can control it.

All sort of development definitely will disturb the nature and its system and nature will survive if it is disturbed less instead of destroying completely in the name of the development. But it's high time to realize that the development against nature will be paid back at any time. Most of the natural disasters happening in recent times because of exploiting nature to the extent. We can make guidelines and policies on how this area can be developed with environmental concerns and how to tackle the issues. Architects and Urban planners should make sure these areas developed with environmental protection. Because it is not a choice, it is an only chance for the survival of the planet. Allow nature to be in its own nature as much as possible.

PUTRA MOSQUE – AN EXAMPLE OF ISLAMIC ARCHITECTURAL STYLE IN MALAYSIA

Ar.N.Nishya M.Arch
Assistant Professor



The Putra Mosque is one of the important mosques in Malaysia, which is located in Kuala Lumpur. It belongs to the Islamic style. The Putra Mosque is the most vibrant place in the city. Unlike other mosques, all genders are allowed inside the mosque. The capacity of the mosque is 15,000 members. The material used for construction is rose granite stone in the entry to the Putra mosque there is a vast front yard with small Landscapes and geometrically patterned flooring. Around the sides of the front yard, there is a pillared veranda on both sides. Minaret of the mosque stands 116 m high with a star-shaped plan. The entry has arched openings with chijas of geometrical patterns.

The central dome stands high with two domes on its both sides. The main dome has a clearstory opening which acts as the main source of lighting to the interior. The interior of the mosque is richly ornamented with patterns of flowers. Interior is well lit naturally as they have very large openings in the walls and openings in the roof.

THE AFTERMATH OF THE MONUMENT BURNED DOWN IN AN INFERNO A RELIEF EFFORT BY SHIGERU BAN ARCHITECTS

Ar.M.Raghavendran M.Arch
Assistant Professor



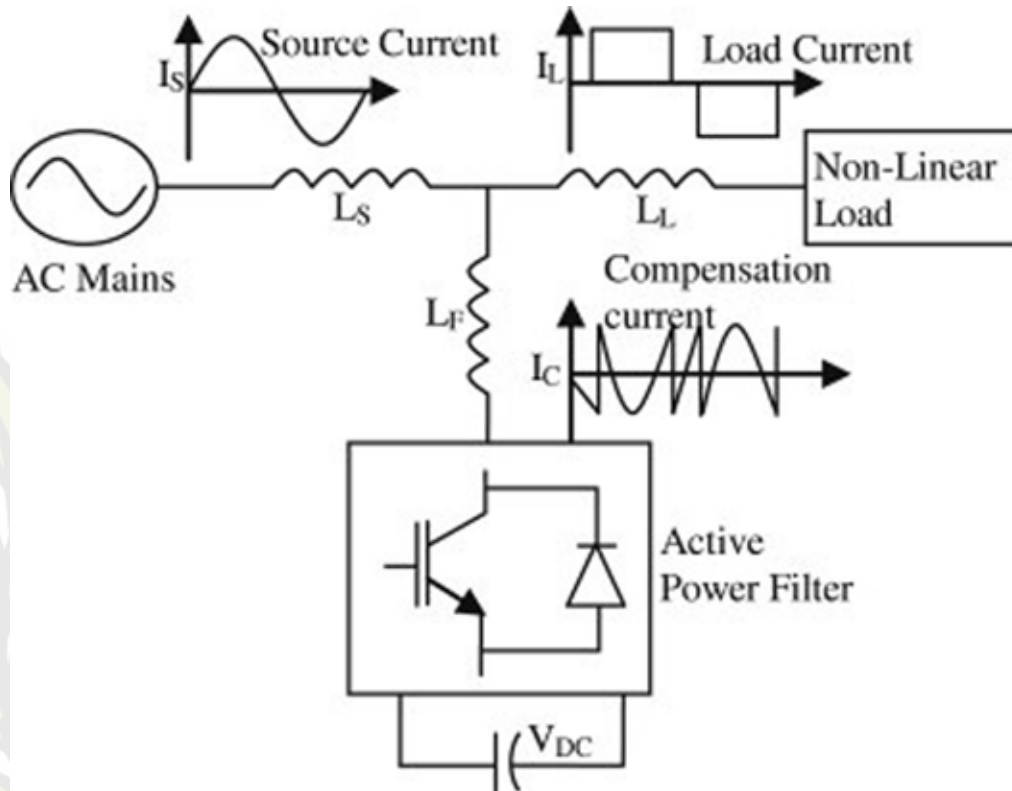
“The world weeps for the wound at the heart of Paris”, was the headline that shook the entire human race on earth this year. The Notre Dame is a medieval catholic cathedral in Paris which is one of the finest examples of French Gothic architecture. Extensive use of ribbed vaults, rose windows (stained glass), sculptural decorations and the flying buttress makes the Notre dame cathedral to stand out as an architectural marvel of gothic style. On 15 April 2019, the cathedral suffered an inferno. While undergoing renovation and restoration, the fire broke out beneath the roof of the cathedral that lasted for about 15 hours causing serious damage to the spire over the crossing and most of the roof covering the vaulted ceiling was destroyed.

The French President Emmanuel Macron launched a fundraising the campaign in order to restore the cathedral completely from the destruction which may take twenty years of time (as per the assumptions of the historians, architects and engineers). An Architectural competition has been announced worldwide for the restoration of the cathedral and many reputed architects, architectural firms have participated as it's a prestigious project in their lifetime.

Meanwhile, Shigeru Ban Architects (Japanese architectural firm) has designed a temporary structure to hold visitors and religious events at the site of Notre Dame Cathedral. The structure is intended to be built at pace using second-hand shipping containers, paper tube columns and a standard membrane roof. To create the structure, shipping containers are stacked in a checker pattern to allow an easy flow of movement at ground level and to reduce the total number of containers. Lower containers are used as shops, chapels, and offices, while upper levels are used for storages and to tie down the membrane roof. A viewing platform is imagined at the east end allowing visitors to oversee repair work to the cathedral. This has been a major architectural tragedy and a warning call to safeguard, protect and preserve our built heritage from such destruction in near future.

GRID INTERCONNECTION OF RENEWABLE ENERGY SOURCES USING INVERTER WITH SHUNT ACTIVE POWER FILTER OPERATION

Er.Z.Jenner M.E
Assistant Professor



As the energy demand is increasing day by day the fossil fuels is depleted at a faster rate. In order to meet the future demand for electricity, renewable energy resources are given much importance. The power produced from this renewable energy sources are connected to the grid using grid interfacing inverters. This inverter can be used to inject the power from renewable energy sources to the grid as well as it can be used as a shunt active power filter since a large number of nonlinear loads is connected at the point of common coupling which affects the power quality. The inverter is controlled using hysteresis current controller. So by using this control strategy the power quality can be improved in transmission lines.

ARCHITECTURE

Ar.Teby K Kurian M.Arch
Associate Professor



Architecture is a science of design buildings. In other words, art through science is architecture. In architecture, the term science defines the lighting and ventilation, efficiency in planning, function and so on. Both art and science have to mix together in a proper way to get a better design. Lacking art or science which leads to a half-baked cake. If we discuss residential planning, especially apartments, then each room have its own requirement and the spatial planning must be done properly. In the case of apartments, then one dwelling unit's privacy must not be disturbed by the other unit. The common area includes the staircase, lift, corridors and other spaces must not be more than 25%. Ideally, it is below 20%. A chute room is preferably for dumping waste that is required on every floor in apartments. Travel distance must not be more than 30 meters from any point to the staircase. The distance from dead corridors to the staircase must be less than 6 meters.

Fire hydrants, Wet risers and other fire types of equipment have to provide as the fire norms. Any project having land area more than 10,000 sqm has to provide an open space reservation of 10% of land specifically reserved for recreation (as per CMDA building rules and it will vary as per building rules of each state). A township project must-have commercial space, schools, public spaces, recreation spaces such as parks, clubhouse, etc. All the necessities of the individual have to satisfy in a township project. Each space must define its characteristics. A hospital building must-have look and feel of the hospital. Similarly, a cinema theatre must have a look and feel of a cinema theatre and so on. An architect must design a timeless building. The beauty of the building must be there even after decades.

ARCHIPRENEURSHIP AS A KEY FOR THE YEAR 2020

Ar.K.H.Karthikeyan M.Arch
Assistant Professor



Architect + Entrepreneurship = Archipreneurship. As we are moving towards the revolutionary year 2020, where our country will be having a huge group of young graduates coming out. We will be holding the second largest group of young professionals with China in the first place. This scenario will get changed within a decade as per UN projection and study on the world demographics, India will be in the first place. As we are going to have a huge lot of young professional graduates across the country, catering to them with a good job will be a task. If we take the scenario of Architects, we will be seeing 6 to 10 times of young & ignited minds in the market than the current number. To cater to them with suitable jobs will be a huge task for the country across various professions. So, it is seen or speculated to have a lot of new start-ups or entrepreneurs popping up everywhere.

As most of us know that architects are creative people and architecture is more of a creative job than labour-oriented. All the schools starting from top to lowermost ranking in the nation make sure that they sow the seed of creativity in all the young minds and there is no doubt about it. Now, it is high time to lit the light of being a successful business person in these inventive minds to be successful when they jump out of their alma mater. So, the idea of promoting or encouraging a lot of Archipreneurship in the market will be a better idea.

I would like to highlight the opportunities and financial support which we can avail in our country. In the recent union budget 19-20, Finance Minister Mrs. Nirmala Sitharaman has brought the attention that under the project "Start-up India" has planning to invest more than 300 Cr for promoting skilled and innovative business modules. On the other hand, as our cities are developing/ getting promoted as SMART cities. There will be a need for more fresh minds to work towards the goal of making our cities better. Nation will be in need of more young minds to achieve the goal of making India as Smart Nation at the earliest. So, the nation is looking forward to entrepreneurially-minded architects.

BUILDING INTEGRATED FORESTS

Ar.Simran M.Arch
Assistant Professor



As we know that the environment is polluted day by day and to keep the air clean is not an easy task in cities. To clean the environment plants are a natural way to filter out the air. To plant trees we require land and to plant trees to clean the environment we need thousands of tree and us don't have an area to plant a lot of trees. We cannot plant trees horizontally so we started thinking about another way to plant trees so we came with the idea of terrace gardens etc.

In the World, China is the third country that built such a structure. This cleared the concept of vertical farming by the planning of 2 buildings of vertical farming. The building will be constructed in Nanjing, China and the construction will complete in the year 2020 and feature around 1100 trees and 2500 shrubs and plants which will produce approx. 130 pounds of clean oxygen and absorb 25 tons of carbon dioxide per year which helps a lot in cleaning the environment. The building is not just a vertical forest but one building among two will serve as a hotel and another one has a museum, offices and an architectural school.

Later on, someone came up with the idea of vertical garden/forest which can build on a patch of land and help to overcome pollutions impact.

THE FOREST CITY

Ar.K.Ashwinprakash M.Arch
Assistant Professor



Laboratory for Visionary Architecture (LAVA) answered that question with a spectacular design for the Forest City, a proposed master plan for a new city in Malaysia. This 20-square-kilometer green smart city would be built around a central rainforest and mimic the forest's ecosystem by adopting a closed-loop system that reuses all its resources and controls out-flow.

The Forest City was created for a 24-hectare site and judged on its efficiency of land use, sensitivity to the environment, and inclusion of a landmark building that embodied the notion of a forest city. "Skylines across the world look the same—usually a couple of iconic towers in the center surrounded by lots of lesser quality buildings, which all resemble each other," -Chris Bosse, director of LAVA. "Here they have designed an inverse city skyline where the icon of the city is a public space, not an object/building. The central space is a Rainforest Valley and demonstrates the equation: PEOPLE = CITY. From an object to a place."

The city is organized around a central public space, the Rainforest Valley, which is surrounded by a waterfall and serves as a visual reminder of the city as a three-dimensional ecosystem.

STUDY OF GLASS FIBRE REINFORCED CONCRETE

Er.C.Jenil Kumar M.E
Assistant Professor



Plain concrete possess very low tensile strength, limited ductility and little resistance to cracking. Internal micro cracks are inherently present in concrete and its poor tensile strength is due to propagation of such micro cracks. Fibers when added in certain percentage in the concrete improve the strain properties well as crack resistance, ductility, as flexure strength and toughness. Mainly the studies and research in fiber reinforced concrete has been devoted to steel fibers. In recent times, glass fibers have also become available, which are free from corrosion problem associated with steel fibers.

The present paper outlines the experimental investigation conducts on the use of glass fibers with structural concrete. CEM-FILL anti crack, high dispersion, alkali resistance glass fiber of diameter 14 micron, having an aspect ratio 857 was employed in percentages , varying from 0.33 to 1 percentage by weight in concrete and the properties of this FRC (fiber reinforced concrete) like compressive strength, flexure strength, toughness, modulus of elasticity were studied.

Fibre Reinforced Concrete

Fibre reinforced concrete is a concrete reinforced with fibres i.e. fibres are embedded during the mix of concrete. Properties such as compressive strength, flexural strength, and various other properties are improved. Fibre reinforced concrete (FRC) is a concrete made primarily of hydraulic cements, aggregates and discrete reinforcing fibres. FRC is a relatively new material. This is a composite material consisting of a matrix containing a random distribution or dispersion of small fibres, either natural or artificial, having a high tensile strength. Due to the presence of these uniformly dispersed fibres, the cracking strength of concrete is increased and the fibres acting as crack arresters.

WAY FORWARDING CARBON NEUTRAL IN INDIA

Ar.R.Reghu M.Arch
Assistant Professor



So why is going carbon-neutral in India subsequently important?

For starters, such cities will avoid the impacts of hazardous climate change, including more usual and storms, drought, high-temperature waves, and floods.

They are also affordable to live in, as people pay minimum money on energy for transport, HVAC, “Invest in building efficiency, civic transport and small-scale renewable energy can produce innovative and enhanced jobs. Low-carbon cities are also safer, as they decrease the amount of vehicle on the public road and provide high eminence pedestrians, cycle lanes and public transport.

What India needs

Our cities are growing at a brisk pace and the urban inhabitant is likely to increase by 420 million people between 2020 and 2050. Given the nation's quick rise in urbanization, we face several challenges: from creating a solid urban planning strategy and mixed-use proposals to improved transportation and strict policy for ecological concerns like waste-management.

Best practices

Where an enormous number of inhabitants walk, Bi-cycle or use the well-organized public transport. Put into practice integrated garbage-collectors into the waste management systems, Develop a vibrant recycling trade-in plastic bottles, aluminum cans, and glass bottles. Improve brisk development in small-scale solar power plants; provide households consistent and reasonable electrical energy.

Conclusion

Implement a transit-oriented development, for easy access to all the zones in the city. Develop in mass rapid transport system (MRTS) for regular public bus services, pooled mobility system such as autos, cars and cycle-sharing infrastructure.

GLOBAL WARMING IS A MYTH

Ar.Shamiudeen M.Arch
Assistant Professor



We have a single mission to protect and handover the planet safely to our next generation.

Kary Mullis: A Nobel Prize Winner Says “Global warmers predict that global warming is occurring, and our emissions are to blame. They do that to keep us worried about our role in the whole thing. If we aren't worried and guilty, we might not pay their salaries. It's that simple.”

Global warming! Global warming! Global warming!

What is this Global warming? It is the rise in temperature of Earth's near-surface air and oceans since the mid-20th century and it's rising day by day. But my question is when we started recording all these things. Is it from the day when Earth existed? No, not at all. The most detailed information of global temperature record exists since 1850, when methodical thermometer-based records began. It shows the fluctuations of the temperature of the atmosphere and the oceans through various spans of time. Now my next question is: What the actual age of earth is? The answer is 4.5 billion years. Then, how can we be blamed for the 150 years of change?

The truth is, global warming doesn't just mean the earth is supposed to turn into an all-out fireball. To the skeptics, however, the persistent weather and climate changes are dismissed as pure coincidence. Is global warming even real?

I would like to explain few global warming myths and their corresponding facts to separate science from the conspiracy. If you only look at one side of the coin without investigate, you're left to your individual preference of what you think is real.

Myth no 1: Global warming causes droughts

But, the Fact is scientific research shows conflicting reports. If global warming and greenhouse effect really occur, there should be more moisture in the air, not less.

Myth no 2: Global warming will eventually make the earth uninhabitable

But the Fact is while no one can predict future events, and species have become extinct over time, the fact that the world will cook us to death renders no evidence or support from scientific facts.

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



Each year thousands of tons of waste materials are disposed of on the valuable land which results in the occupation and degradation of valuable land. Currently, waste handling is a big problem. Therefore, many investigations are carried out in order to utilize industrial, constructional and domestic waste for concrete mix. Manufactured sand is an alternative for river sand. Due to the fast-growing construction industry, the demand for sand has increased tremendously, causing deficiency of suitable river sand in most part of the world. Another reason for the use of M-Sand is its availability and transportation cost. Marble is industrially processed by being cut, polished, and used for decorative purposes, and thus, economically valuable. During the cutting process, 20-30% of a marble block becomes waste marble powder. The use of alternative aggregate like silica sand is a natural step in solving part of the depletion of natural aggregates such as river sand.

In this project, Marble powder and Silica sand had been used as a replacement of cement and fine aggregate by different percentages for making concrete. The percentage replacement of marble powder will be 0%, 10%, 20% & 30% and silica sand will be 0%, 25%, 50% & 75% with M Sand. The higher compressive strength and split tensile strength obtained by adding 20% marble powder with cement and 75% of silica sand with M – sand. HCL and Na₂SO₄ are used to determine the durability properties. The mix of 20% of marble powder and 75% silica sand shows a better durability property. The strength is reduced by 2.2% while using HCL and 1.6% while using Na₂SO₄ which is less as compared with another mix

PSYCHOLOGY EFFECTS OF COLOURS

Ar.R.Anand Godson M.Arch
Assistant professor



Colour plays a vital role in means if shaping any spaces. Color shows emotional feeling and they are part of everything from nature and manmade items. Colour helps to comprehensive the character, the mood and spatial hierarchies of architecture and can be used to optimize spaces. Color psychology is been widely used for marking, advertisements and promoting business. Marketers see color as an important factor to seel products and to make a profit out of it.

This article will discuss the psychological effects of colors.

RED

1. Most vibrant colors show speed, power, joy and danger.
2. Red color attracts immediate attention and brings object or images to the foreground.
3. It is the strongest among warm colors

BLUE

1. Blue is the symbol of Loyalty and faith
2. Best liked colors and are recognized as cold -unemotional and unfriendly.
3. Blur can make space appear larger.

YELLOW

1. Psychologically yellow is the happiest color in the color spectrum.
2. Bright yellow shows the integrity focal point in an interior scheme against the background of natural color.

ORANGE

1. Orange is very blankent and vulgar. It makes you immediately start having feelings.
2. It tends people to either love it's or hate it.

WHITE

1. Suggest goodness purity and innocence.
2. The individual who choose white as a favorite color seek excellence and enlightenment in all Philosophies.
3. The negative effect of white on warm color is to make them look and feel garish.

BLACK

1. Black is a real sensation even if it is produced by the entire absence of light.
2. Black represents mystery, unhappiness power, and boldness.
3. Too much black can cause abasements and mood swings and create an adverse environment.

EARTHQUAKE RESISTANT DESIGN TECHNIQUES FOR BUILDINGS

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

Earthquake resistant design of buildings depends upon providing the building with strength, stiffness and inelastic deformation capacity which are great enough to withstand a given level of earthquake generated force.



The most important advanced techniques of earthquake resistant design and construction are:

- Base Isolation Method
- Damping Devices and Bracing Systems

Base Isolation Method

A base isolated structure is supported by a series of bearing pads which are placed between the building and the building's foundation shown in Figure 1. A variety of different types of base isolation bearing pads have now been developed. The bearing is very stiff and strong in the vertical direction, but flexible in the horizontal direction.

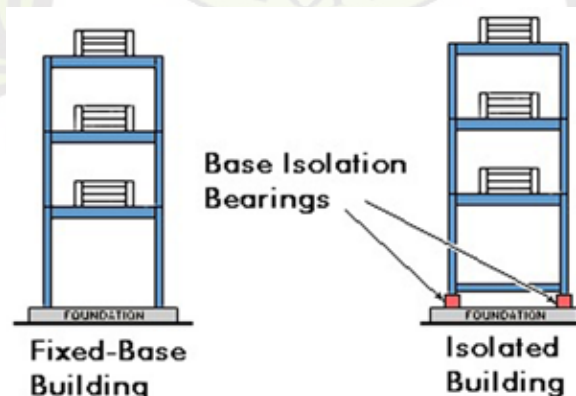


Figure 1: Base-Isolated and Fixed-Base Buildings

To get a basic idea of how base isolation works, examine Figure 2. This shows earthquake acting on both a base isolated building and a conventional fixed-base building. As a result of an earthquake, the ground beneath each building begins to move.

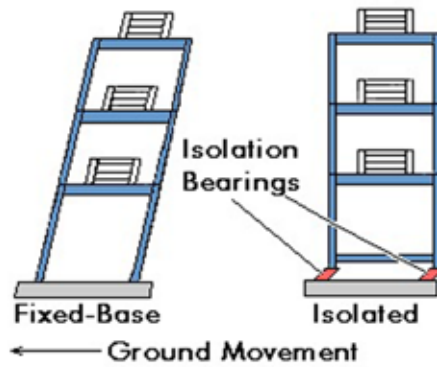


Figure 2: Base-Isolated, Fixed-Base Buildings

Each building responds with movement which tends to move toward the right. The building undergoes displacement towards the right. By contrast, even though it too is displacing, the base-isolated building retains its original, rectangular shape. It is the lead-rubber bearings supporting the building that are deformed. The base-isolated building itself escapes the deformation and damage, which implies that the inertial forces acting on the base-isolated building have been reduced.

Damping Devices and Bracing Systems

Damping devices are usually installed as part of bracing systems. Figure 3 shows one type of damper-brace arrangement, with one end attached to a column and one end attached to a floor beam. Primarily, this arrangement provides the column with additional support. Most earthquake ground motion is in a horizontal direction; so, building's columns which normally undergo the most displacement relative to the motion of the ground. Figure 3 also shows the damping device installed as part of the bracing system and gives some idea of its action.

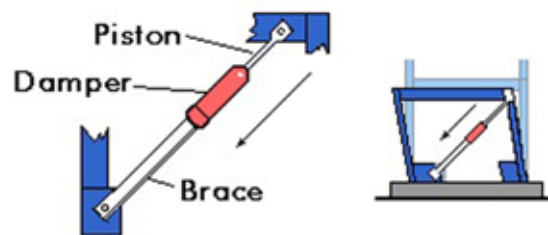


Figure 3: Damping Device Installed with Brace

FIBONACCI NUMBERS IN DAILY LIFE

Ms.R.Maria Anushiya M.Sc
Assistant Professor



Fibonacci sequence was first introduced by an Italian mathematician Fibonacci in his book Liber Abaci. People named this sequence with Fibonacci's name because it is closely connected with nature, science and real life. Fibonacci sequence was first introduced by an outstanding Italian mathematician Fibonacci (Leonardo Pisano.1175-1250) in his book Liber Abaci (1202). For he was born in the commercial center of Pisano, he was also called Leonardo of Pisano. When Fibonacci was a little child, he traveled with his father who worked as a businessman. He also traveled to other countries like Egypt, Greece, and Syria to study mathematic knowledge from the east when he grew up. The Fibonacci sequence begins with $a_0=0$, $a_1=1$ and each subsequent number is the sum of the previous two numbers, so the recursion formula of the Fibonacci sequence is $a_{n+1}=a_n+a_{n-1}$.

Fibonacci Numbers are very common in plants.

1, 2, 3, 5, 8, 13, 21, etc occurs in an amazing number of places. Here is a daisy with 21 petals (but expect a few more or less, because some may have dropped off or been just growing).

TRANSFORMATIVE ARCHITECTURE FOR THE SHRINKING CITY

Ar.Mohd Nasir M.Arch
Assistant Professor

Many cities such as Detroit and Cleveland have been shrinking over the past decades. As cities shrink there is a weeding out of inefficiencies in businesses, social venues and in occupied spaces. When growth returns, the perforations in the urban fabric become the spaces for growth opportunities. There are over 4.6 million commercial buildings in the United States housing nearly 70 billion square feet of floor space. Most do not meet ASHRAE Standards for thermal comfort, ventilation, and energy efficiency, due to age. The embodied energy in each of these buildings is enormous. Replacement of outdated buildings is not only a loss of this embodied energy but requires additional resources for the disposal of the demolished structure. A shrinking city has an abundance of outdated buildings at low prices creating an opportunity to replace the concept of urban re-growth with that of transformation. Transformation is different than restoration or renovation in that it does not necessarily strive to maintain the social, political or cultural embodiment of the place. Transformation allows a sustainable update with a new concept for the user encounter. The idea of building replacement is the economical choice at present not due to the merits of replacement but rather due to the lack of research into the transformation of existing structures into sustainable environments. While new methods and materials are important, the idea of building on a virgin site has passed its time. An exploration into the retrofitting of existing buildings with a new program and updated sustainable systems is important and preferable to the development of urban pockets or brownfields. This paper will discuss the need for transformative architecture in research. Examples of transformative projects highlighting success and failures will be reviewed. The paper will provide a basis for discussion of the development of transformative ideas for practicing architecture firms.



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