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ARCHITECTURAL CONSERVATION

Ar.Indira Kolli M.Arch
Principal



Architectural Conservation is Historic or contemporary built properties, culture, traditions, customs, religious beliefs, social beliefs, in association with past and present living pattern. Architectural Heritage can be tangible or intangible. Historic or old buildings contains various value system in it. Heritage buildings evolved through particular time of circumstances. In india Architectural heritage is multi diversified, rich in Architectural character, material and structural influences, unique functional aspects, impact of resources, impact of rulers & religion ,communal practices and amalgamation of all these. What is happening to this rich Architectural heritage of India? Architectural Conservation is not only the job of particular groups. It is the responsibility of every individual in the country. People are very insensitive towards Architectural heritage in india. We need to think what is the threat to the heritage in India. There is no sense of belongingness towards heritage, nor the initiation from public department to an individual. So there should be a value education is required for all levels of public. This paper focuses on certain issues on urban conservation to monument level in next series.

URBAN FEEDING TOWER IN THE FUTURE NEED TO FEED

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



In the future, farming will take place not only in the countryside and also in urban areas. Due to urbanization and development, people are migrating to the urban area. Recent Statistics say, In the next two decades, 90 percent population will live in the urban area. There is the general question arises how they will get feed and from where they get their food. Where will be the land for farming? When we development fast by acquiring land for building there won't be land for agricultural. Due to land scarcity, in the future, the agricultural couldn't possible to do by using a large area in a horizontal manner. It has to be occupying minimum space to supply more yields. To balance both. The vertical urban farming will be the only choice will have in the future.

In future masters of all urban areas, there should be an allocation of land for this typology in order to ensure the agricultural products for the urban area will be supplied with this help of towers. Where we can reduce transportation and carbon emission. Ecological footprint. Clean energy can be used for these towers. These towers should have specific building codes like other buildings.

IMPORTANCE OF FOUR LEG INVERTERS IN GRID INTERCONNECTION

Er.Z.Jenner M.E
Assistant Professor

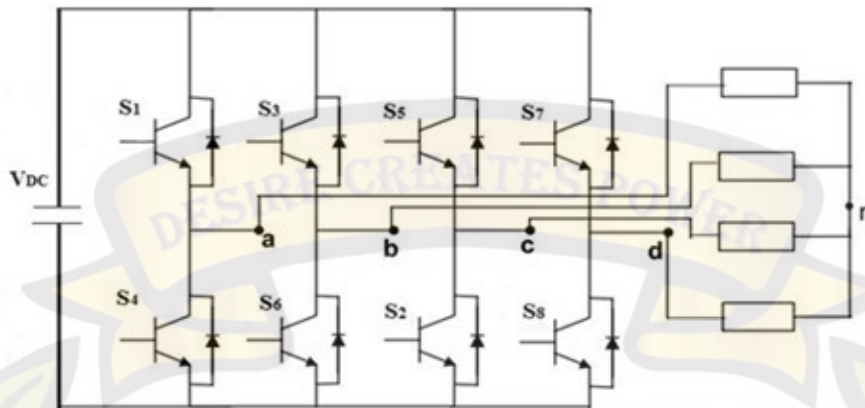


Figure: Four Leg Voltage Source Inverter

Today, most inverters are designed for balanced three-phase loads and consequently the associated control strategies are quite effective for three-phase, three-wire systems but are not able to manage loads that require a fourth (neutral) connection. If the load requires a neutral point in three phase applications with three leg inverters, two capacitors can be used and the neutral point can be connected to the midpoint of the two capacitors. In this condition, unbalanced loads will cause neutral currents to flow through the fourth wire between the load neutral point and the midpoint, which disturbs the symmetrical output voltage. So, in order to overcome this drawback a three phase four leg inverter can be used to provide a neutral connection. Therefore, when the load is unbalanced the fourth leg provides the path for the neutral current to flow through it.

EARTHQUAKE RESISTANT TECHNOLOGIES IN SKYSCRAPERS

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

Earthquakes are one of the most destructive forces of nature. Structures and infrastructures suffer the most when an earthquake strikes a seismically active region in the world. Therefore, be taken into account when designing structures especially in skyscrapers advanced technologies are used to resist the earthquake.



The most important technologies used in skyscrapers are:

- Tuned Mass Damper System
- Outrigger System

Tuned Mass Damper System

Tuned mass damper system works by suspending a huge mass pendulum near the top of the structure. This mass is supported by steel cables and viscous fluid dampers shown in Fig 1 are placed between the mass and the building that it protects. In case of any seismic activity, the pendulum moves in the opposite direction to balance the energy. Each of the pendulums are tuned to sync with the natural frequency of the structure. The job of a tuned mass damper is to counteract resonance and to minimize the dynamic response of the structure.

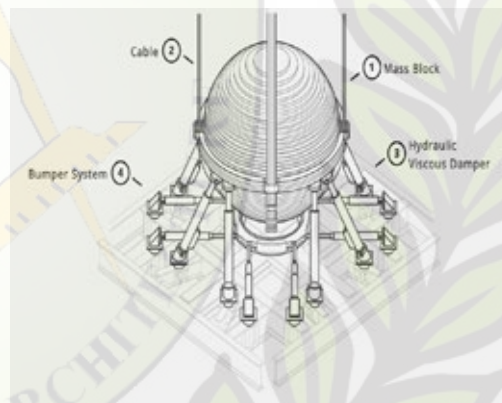


Figure 1: Huge Mass Pendulum

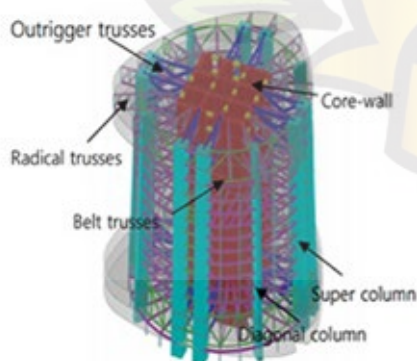


Figure 2: Outrigger Connected With Column & Shear wall

Outrigger System

Nowadays, in modern tall buildings, lateral loads induced by earthquake forces are often resisted by a system of outriggers. An outrigger is a stiff beam that connects the shear walls to exterior columns shown in fig2. When the structure is subjected to lateral forces, the outrigger and the columns resist the rotation of the core and thus significantly reduce the lateral deflection and base moment and the outrigger which connects to the core wall and the exterior columns, makes the whole system to act as a unit in resisting the lateral load.

CONTEMPORARY MOSQUE - TUANKU MIZAN ZAINAL ABIDIN MOSQUE

Ar.N.Nishya M.Arch
Assistant Professor

Tuanku Mizan is a contemporary mosque in Malaysia. It is located in the Putrajaya. Islamic architecture style is followed in this mosque in a contemporary way. Arches, columns, domes, chijas are made of steel, which adds contemporary expression to the mosque.

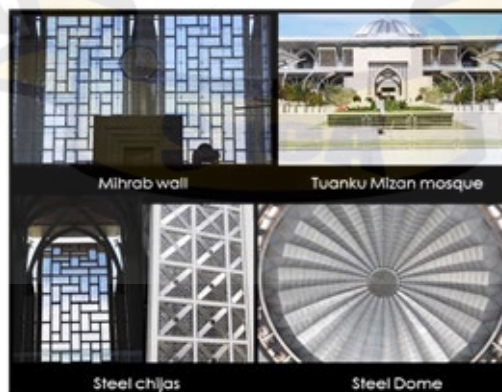
The main entrance arch to the mosque is made of steel. Towards the entry to the mosque both sides have administrative buildings. A steel robot sculpture is kept in the front of the arch. The entry has landscape with water fountains.

Architecture

This mosque is a two storey mosque with capacity of 20,000. Facade are made of steel structure with typical geometric ornamentation.



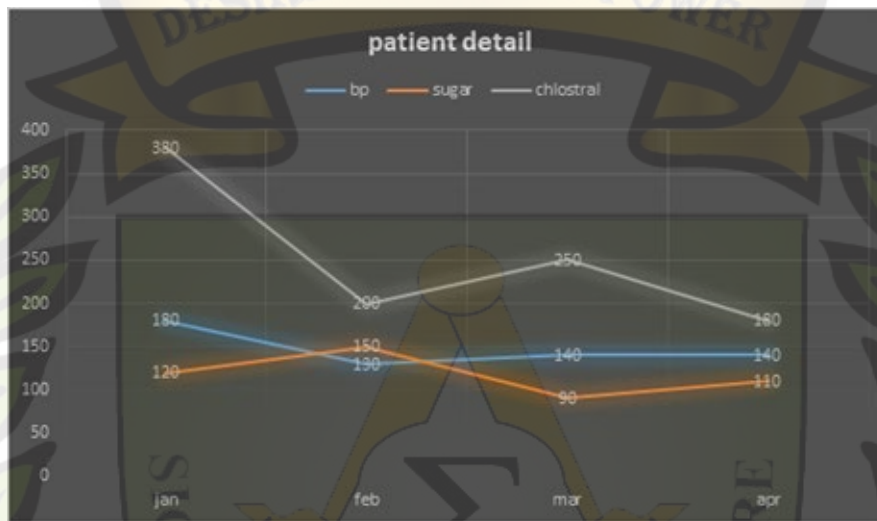
The interior of Tuanku Mizan mosque has good natural lighting compared to Putra mosque. Basement of this building is allotted for Parking. The interior is decorated with calligraphy. Mihrab wall is made of glass panel with calligraphy.



STOCHASTIC PROCESS IN REAL LIFE

Ms.R.Maria Anushiya M.Sc
Assistant Professor

In probability theory and related fields a stochastic or random process is a mathematical object usually defined as a family of random variables. Stochastic process are widely used as a mathematical model of systems and phenomena that appear to vary in a random manner. Basically a Stochastic process is a time varying function that assigns the outcome of a random experiment to each time instant $x(t)$. For a fixed simple path a random process is a time varying function. e.g .traffic signal



Example

Blood pressure, sugar, chlostral varies from day to day if you want to find a person blood pressure,sugar,chlostral of a patient using stochastic process is given below. It is the month ways detail of one patient

NORMAL DISTRIBUTION TO FIND DENGUE (2016-2017)

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



The normal distribution describes a family of continuous probability distributions, having the same general shape, and differing in their location (that is, the mean or average) and scale parameters (that is, the standard deviation). The graph of its probability density function is a symmetric and bell-shaped curve. The development of the general theories of the normal distributions began with the work of de Moivre (1733, 1738) in his studies of approximations to certain binomial distributions for large positive integer $n > 0$. Further developments continued with the contributions of Legendre (1805), Gauss (1809), Laplace (1812), Bessel (1818, 1838), Bravais (1846), Airy (1861), Galton (1875, 1889), Helmert (1876), Tchebyshev (1890), Edgeworth (1883, 1892, 1905), Pearson (1896), Markov (1899, 1900), Lyapunov (1901), Charlier (1905), and Fisher (1930, 1931), among others. For further discussions on the history of the normal distribution and its development, readers are referred to Pearson (1967), Patel and Read (1982), Johnson et al. (1994), and Stigler (1999), and references there in. Also, see Wiper et al. (2005), for recent developments. The normal distribution plays a vital role in many applied problems of biology, economics, engineering, financial risk management, genetics, hydrology, mechanics, medicine, number theory, statistics, physics, psychology, reliability, etc., and has been extensively studied, both from theoretical and applications point of view, by many researchers, since its inception.



Fig1 Normal Distribution Curve



Fig 2 shows the number of people affected by dengue (2016-2017) in asaripallam government hospital using normal distribution

MONTH	NO.OF. PATIENTS	DENGUE POSITIVE (??)	DENGUE NEGATIVE (??)
Jan			
Feb			
March			
April			
May			
June	118	8	110
July	238	20	218
August	357	52	305
September	360	83	277
October	320	30	290
November	107	12	96
December	83	2	81

Table 1 The number of dengue patients and affected peoples in asaripallam govt hospital

S.No	Hospital	No of patients	Dengue Positive	Dengue Negative
1	Govt hospital Asaripallam	1554	207	1347
2	Govt Hospital Thuckalay	1347	167	1180
3	Govt Hospital Colachel	800	78	722
4	Govt Hospital Marthandam	689	23	666
5	Govt Hospital sundavillai	300	33	267

Table 2 shows the number of people affected by dengue in government Hospital (2016-2017)

TEXTILE INDUSTRY AND ITS POLLUTIONS

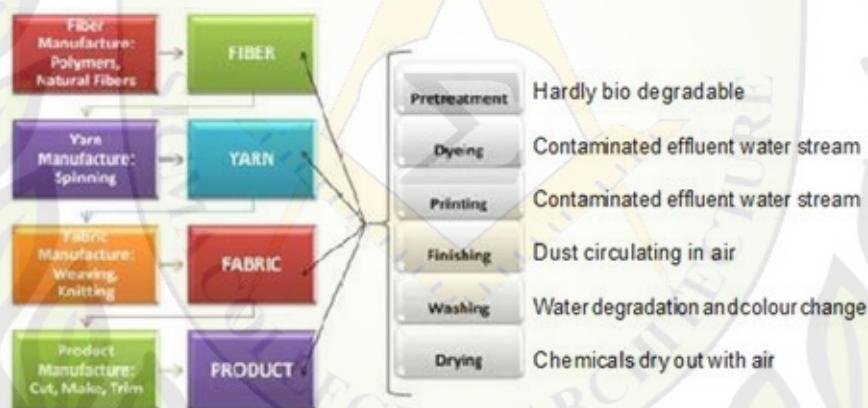
Ar.M.Priyadarshini M.Arch
Assistant Professor

TEXTILE INDUSTRIAL UNITS:

Most of these units are situated on the banks of the rivers for the purpose of transportation. They also drain effluents into the rivers which leads to environment degradation. Production of textiles consists of a long multistep chain involving a large number of chemically heterogeneous compounds and the greatest consumers of water per kg of produced material. Indian textile industry ranges from hand spun khadi to intensive mill sector to synthetic fibre dyeing/printing factories use most chemicals during textile production and workers in these factories face higher chemical risks

Primary factor:

Near-by River
Textile wastewater treatment plants
Stream effluents and surface waters
Sourcing raw material



POLLUTIONS:

The textile industry is one of the foremost pollutants producing industries of the world. Survey and analysis show that nearly six percent of all landfill space is consumed by this textile waste. Also, 20 percent of all fresh water pollution is made by textile treatment and the dyeing process. The rate of BOD, COD as well as the PH are more or less exceed the regulations established by government.

- Air pollution (odour)
- Water wastage and pollution — 20% of fresh water
- Land degradation
- Solid waste and plastic disposal
- Poor drainage network
- Increase in temperature
- Noise pollution
- Energy degradation

EFFECTS OF LIGHTING COLOURS IN WALLS (PART -1)

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

The creative use of interior lighting and its components on internal wall surfaces is one of the most aesthetically pleasing features of any interior space, considering the fact that interior walls are one of the most important prerequisites in the architectural designs of building interiors.

Aesthetically, interior walls are meant to partition space and entertain us visually, just as they are supposed to influence our moods with their finishes, colors, forms, textures or materials. But the final strokes of creativity on wall surfaces—call it 'art on walls' if you wish—is how well they are lit, and how well-thought-out their lighting design is.



Developing an Interior Lighting Plan

A lighting designer knows that the perceived brightness or dimness of interior wall finishes is vital to visual cheer. Therefore it is imperative to develop a lighting plan that will complement the entire space, rather than diminish its aesthetics. Based on this, a designer must create a plan showing the hierarchy of walls, each with its own comparative significance in the space's lighting scheme.

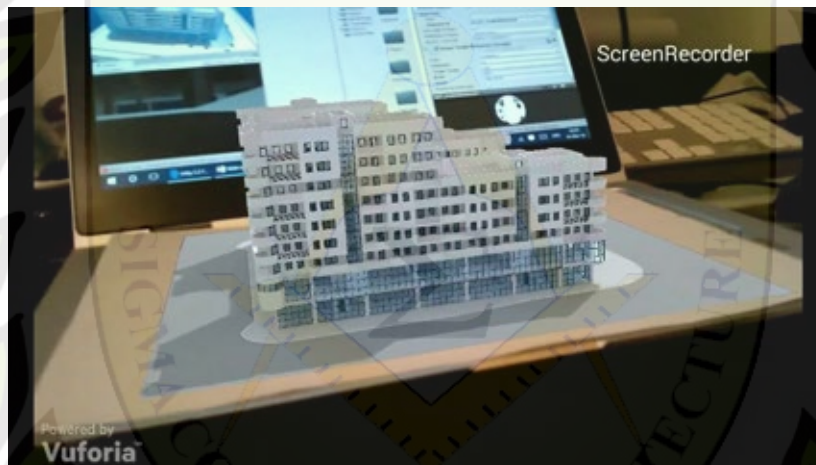
- Identify the interior walls you wish to paint or to give some special effect finish.
- What mood do you intend to achieve in the room?
- How will this come to play in the lighting scheme?
- Decide on which materials and colours you intend to use on the walls
- Do you plan to mount some wall art, floating shelves, or a series of framed paintings? If the answer is yes, which specific wall or walls do you have in mind?

A lighting designer must analyse the surrounding spaces or environment for details as to what light sources, fittings and fixture is best to use. Additionally, the size of the room, the height of the walls, and the walls' construction materials will determine the available mounting locations, which in turn will influence how the wall or walls can be lit.

AUGMENTED REALITY SIMULATION FOR ARCHITECTURE

Ar.Dhenuka Nandhu M.Arch
Assistant Professor

Augmented Reality (AR) is nothing but adding additional information on to the existing reality. AR for Architectural Simulation is the latest in AR and Virtual Reality (VR) laboratories all over the world. AR is interesting as- if you point your device (could be a camera, cell phone or any other digital interface) on to a building or urban space, the device not only shows you an image of the reality but it also gives you additional information about the existing structures. NOKIA has already produced these cameras which show AR interfaces which are rich with information. Another useful tool of AR for Architecture is linked to simulation of buildings. How? When we work with head gear which shows an AR visual of an existing plan or map we are able to manipulate it with our hands to make or break 3D following the information on the head gear itself. We can perform all the activities which Google Sketchup gives us freedom to do on the AR interface with head gear with our bare hands. The above picture is one such simulation.



The other major application is linked to gaming with Architecture. Have you ever played Mario brothers in the urban scenario? Yes it is possible. You can play any game projected onto the facades of buildings around you using AR simulation. In this case you may observe how a game can be played ubiquitously from a centre on the facades of buildings which augments you onto the existing reality of the urban simulacrum. Three or four players can play simultaneously in the urban framework chosen for game play, sitting in a remote location. Actually any number of players may play such games. As a designer you may be interested in designing such games that involve architecture and a digital interface to create AR simulations for everybody to participate. AR and VR are the way to go in the very near future itself.

ARCHITECTURE THAT YOU CAN ROLL, WEAR, TOE & FLOAT

Ar.Dinesh M.Arch
Assistant Professor

“The architectural forms that are studied here have an ephemeral nature – in some way or the other they are movable and are designed specifically for deployment in different situations and/or location. Though some possess characteristics from more than one category, mobile and temporary “– Robert Kortenbergh

The various parameters of function – weather, users, and needs are still essential considerations in the creation of successful takeaway spaces like that of permanent buildings dealing with quality of space, environment and appearance.

Takeaway Architecture for Today

The takeaway architecture is an international and fast-developing phenomenon, taking its source from the nomadic lifestyle of ancient communities and adding to it the technology of the modern world thus catering the immediate needs of the people from which it may change according to the changes in the future

“The age of new Nomadism”

Jennifer Siegel terms it as “New Nomadism” describing the trend towards mobile, lightweight, eco-friendly lifestyles.

The principles of takeaway architecture did not change so much since the older times, however, the materials did. New materials are produced continuously for better performance, operation, appearance and for easier construction.

Now a day the design of the takeaway architecture became important both in terms of aesthetics and functions. The concept of flexibility and long term adaptability to these structures are carried out in current scenario for different needs – flexibility in conceptualization, design and fabrication.



STEEL STRUCTURES

Ar.K.Keerthana B.Arch
Assistant Professor

Steel structures deals with detailing, construction, maintenance and therefore the application of science to enhance the steel materials. This helps in initiating with a variety of remarkable structures in architectural field.

Steel is used in building because for its stability, strength and rigidity. The basic objective is to produce a structure that is creative, functional and one that enhances the quality, culture of the occupant and is aesthetically attractive.

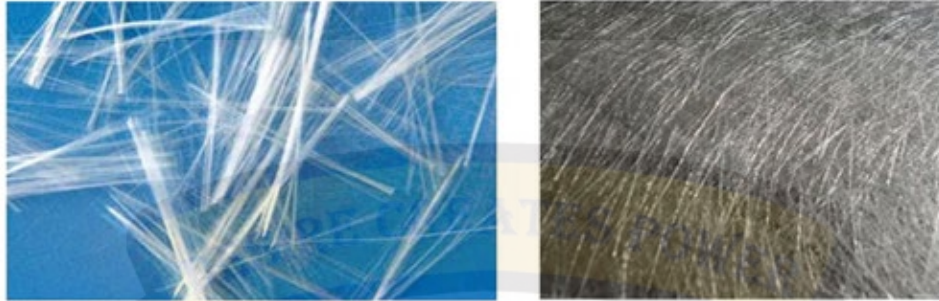
The development and mass production of steel was an important milestone for modern architecture and architects. This innovation allowed for more architectural freedom and for new aesthetics to be realized.

Frank Gehry's Jay Pritzker Pavilion is located in Millenium Park, Chicago, Illinois. In the heart of downtown Chicago, the Pritzker Pavilion is a glittering mass of stainless steel, sprawled out among a jungle of skyscrapers. The Pritzker Pavilion shows an innovative use of steel in its construction; by using the reflective nature of steel, Gehry effectively blends the structure into its surroundings and landscape. In addition, the integrity of the material allows for the steel trellises that encase the seating area to be thin bands rather than imposing beams. The steel trellises create an enclosed concert space yet contain the integrity needed to suspend heavy audiovisual equipment. This allows for the spectators to have an uninterrupted view of the city and skyline while still being able to enjoy the concert-hall quality of music being performed.



STUDY OF GLASS FIBRE REINFORCED CONCRETE

Er.C.Jenil Kumar M.E
Assistant Professor



INTRODUCTION

Glass fiber also called fiberglass which is made from an exorbitant thin fiber of glass. It is a lightweight, extremely strong, and robust material. Although strength properties are somewhat lower than carbon fiber and it is less stiff, the material is typically far less brittle, and the raw materials are much less expensive. Its bulk strength and weight properties are also very favorable when compared to metals, and it can be easily formed using molding processes. Glass is the oldest, and most familiar, performance fiber.

Types of Glass Fiber

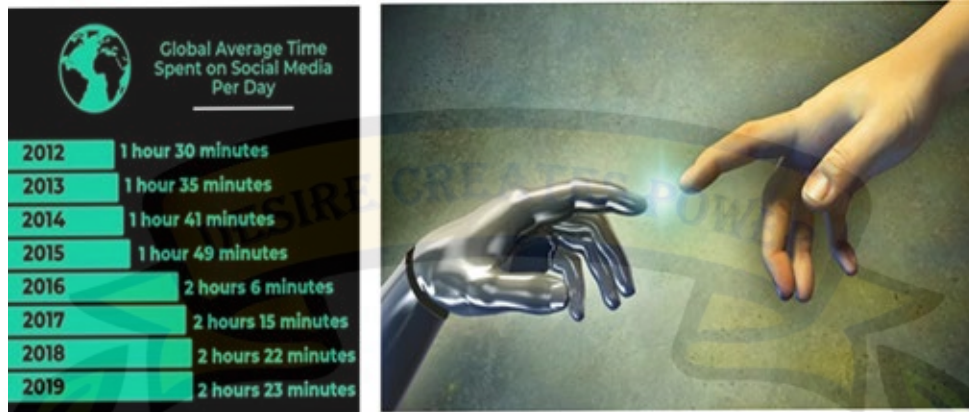
As to the raw material glass used to make glass fibers or nonwovens of glass fibers, the following classification is known:

1. **A-glass:** With regard to its composition, it is similar to window glass. It is mainly used in the manufacture of process equipment.
2. **C-glass:** This kind of glass shows better resistance to chemical impact.
3. **E-glass:** This kind of glass combines the characteristics of C-glass with very good insulation to electricity.
4. **AE-glass:** Alkali resistant glass.

Generally, glass consists of quartz sand, soda, sodium sulphate, potash, feldspar and a number of refining and dyeing additives. The characteristics, with them the classification of the glass fibers to be made, are defined by the combination of raw materials and their proportions. Textile glass fibers mostly show a circular.

USE OF SOCIAL MEDIA AS A TEACHING TOOL IN 21ST CENTURY/ MODERN ERA

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



Technology and gadgets are becoming an inevitable part of our life. When we talk about these two, Social media the key player can't be separated from the daily routine. A recent survey & statistics tells that on average a person spends 2hrs 23 mins on daily basis (Global Average). According to the statistics of 2018, an average Indian spends 2hrs 26mins on social media which is slightly on higher side than global average. What people do with so much time on social media or with gadgets is 90% plus people spend most of the time in watching videos, listening music, scrolling news feeds & reading. In recent times it is speculated that soon the artificial intelligence will take over the human brains.

In a very recent interview of Elon Musk, they have mentioned that technology advancement is happening in a very rapid manner that we can imagine. So, adopting to it will become a mandatory to all of us. He also added that one human brain can produce many robots but not even a single robot will be capable of producing 10% of what we are. So human brains and the imagination (thought process) which happens with it has to be tapped for the betterment of the society.

So, the technology and gadgets can be seen as a part of DNA. We teachers have a great responsibility of making good citizens for a better society. I would like to float an idea of using social media and digital media as a tool to educate, enrich, empower the society. This is not something new, yes, many people are utilising it. If every teacher takes it as a challenge and start their own Blogs, Facebook, Instagram pages & YouTube Channels will be great one. As even we teachers are also in the trap or mentality to use social media & technology in an equal scale to our students. We should take that as a common platform of knowledge sharing and pouring. I am sure the average time will get increased drastically within a decade with the advancement happening around us. So, its better to tap the opportunity and grow along the advancement will boost our carrier and scale in the profession.

STUDY AND DEVELOPMENT OF VILLAGE AS SMART VILLAGE

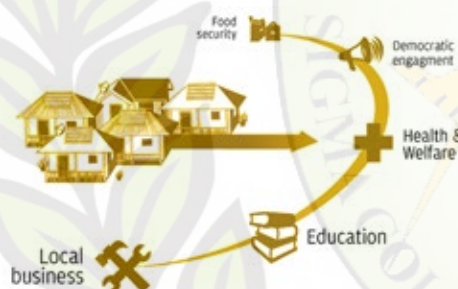
Ar.T.Josephine Sabena B.Arch
Assistant Professor

ABSTRACT

Villages are the heart of nation. In India there are 6,00,000 villages out of them 1,25,000 villages are backward so there is a need for designing and building the village as a smart village. With modernization and urbanization people migrate from one place to another place for different facilities such as education, employment and affinity of people towards the locality or city. It is adopted by national, state and local governments of India, as an initiative focused on holistic rural development, derived from Mahatma Gandhi's vision of Adarsh Gram (Ideal Village) and Swaraj (Self Reliance) Prime Minister Narendra Modi launched Samsad Adarsh Gram Yojana (SAGY).



The concept of smartness is popular in respect and honour of human



development regardless of rural or urban area, literate or illiterate in all the countries. The idea of "smart village" will also attention to multiple challenges such as unplanned urbanization, under-development of villages migration for economic pursuance, improved standard of living for good education and healthcare, access to clean water, sanitation and nutrition, the growth of productive enterprises to boost incomes, and enhanced security, gender equality and democratic engagement.



Vision of smart villege

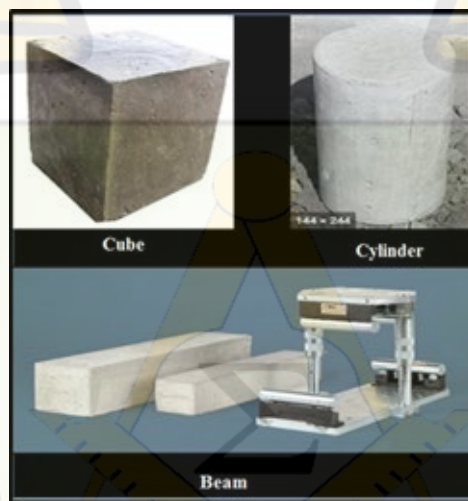
To accomplish the "smart vilage" status, the community individually and collectively, will be empowered to take smart decisions using smart technologies and with the support of smart manpower and try to be managing self-sufficient.



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 preliminary tests such as specific gravity, water absorption, fineness modulus etc. are carried out for the materials such as cement, fine aggregate, coarse aggregate silica sand and marble powder. Using the properties of the materials, the mix is designed for M30 grade concrete as per IS10262:2009. The mix design has been calculated and the mix ratio is 1 : 2.28 : 3.19 : 0.40.



The casted specimens will be test for compressive strength, split tensile strength and flexural behaviour. Compressive strength or compression strength is the capacity of a material or structure to withstand loads tending to reduce size, as opposed to tensile strength which withstands loads tending to elongate. The compressive strength test for cubes was conducted in compression testing machine as per IS 516 : 1964. Splitting tensile strength test on concrete cylinder is a method to determine the tensile strength of concrete. It is necessary to determine the tensile strength of concrete to determine the load at which the concrete members may crack. The test is carried to study the flexural behaviour of concrete. The beam which was casted is simply supported.

NEW AMAZING FUTURE COMPUTERS

Ar.Simran M.Arch
Assistant Professor

As u can see people are going towards digital world from analogue and manual world. It is no surprise that in near future people are more dependent on digital devices like mobile, computers etc. which will eventually lead to their better and more advance development.



Right now there are many countries that are working towards the development of these devices like all developing countries. They are able to embed into one like combining camera and pen into pen camera having resolution and picture quality that of a real high camera. Sometimes they are also able to put a projector in place of camera. In a revolution of mini computers, scientist had created advance development with Bluetooth technology. There are forth coming computers which you can carry in your pocket. The pen instrument will carry function of a computer monitor on a flat surface. So this development in computer technology is really a boom for future generation. In future time you don't need a bag to carry a computer all you need is a pocket to carry all your info easily and conveniently from one place to another.



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