

MODERN TECHNOLOGIES USE IN CIVIL CONSTRUCTION

Abhin kumar¹ , Mohd Abid ² , Dr.Sanjeev Gill³
^{1,2}B.Tech Final Year Department of Civil Engineering,
³HOD,Civil Department JBIT,Dehradun,(U.K)

Abstracts-Construction is one of the branches of civil engineering that is concern directly common people .As everyone want to have beautiful dwellings.Moden technology in building construction use of water proffing water resistant and waterproof often refer to penetration of water in its liquid state.A large store of water in tanks.Either underground .Its a specialized plumbing system in fire fitting system in 1980s photovoltaic module and one to roof being demonstrated most convienical solar cells use visible and infrared line to generate electricity.

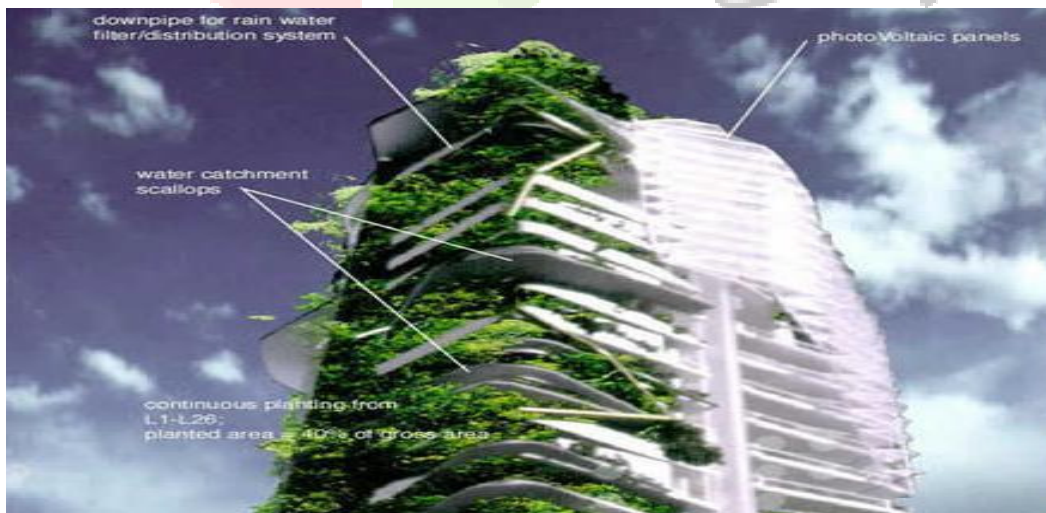
Index terms: Construction management network techniques automatic system .

INTRODUCTION-Construction is one of the branches of civil engineering that is concerned directly with common people, as everyone wants to have beautiful dwellings. Buildings are built from long ago in history but the difference is of technology as early buildings were simple and just for the purpose of shelter. With the passage of time, some changes have appeared in construction also and it is all due to the technology that can be defined as practical use of your knowledge. In the beginning, buildings were made from stones and mud, but in recent time, we construct buildings using multiple types of materials including stone, timber, concrete, metals, glass, etc. and now in 21th century there is a great demand for some changes to be introduced to build modern buildings with some revolutionary technologies discussed in

LITERATURE REVIEW

(CASE STUDY) -PREVIOUS WORK

Currently pending construction in Singapore, the **EDITT Tower** will be a paragon of “Ecological Design In The Tropics”. Designed by TR Hamzah & Yeang and sponsored by the **National University of Singapore**, the 26-story high-rise will boast **photovoltaic panels**, natural ventilation, and a biogas generation plant all wrapped within an insulating living wall that covers half of its surface area. The verdant skyscraper was designed to increase its location’s bio-diversity and rehabilitate the local ecosystem in Singapore’s ‘zeroculture’ metropolis.



Approximately half of the surface area of the **EDITT Tower** will be wrapped in **organic local vegetation**, and passive **architecture** will allow for **natural ventilation**. Publicly accessible ramps will connect upper floors to the street level lined in shops, **restaurants** and plant life. The building has also been designed for future adaptability, with many walls and floors that can be moved or removed. In a city known for its downpours, the building will collect rainwater and integrate a **grey-water system** for both plant irrigation and toilet flushing with an estimated 55% self-sufficiency. 855 square meters of photovoltaic panels will provide for 39.7% of the building's energy needs, and plans also include the ability to **convert sewage into biogas** and fertilizer. The tower will be constructed using many recycled and recyclable materials, and a centralized recycling system will be accessible from each floor.

BUILDING SERVICES

WATER PROOFING

Waterproofing failures cost billions of dollars annually, not to mention millions of man-hours of time lost in attending to these problems. Good waterproofing design will eliminate these problems!

Key Principles of Waterproofing

1. Get the water off the building, fast! The quicker you get the water off the building, the less chance of it pooling and leaking into the structure. You can do this by increasing slopes wherever possible, which increases the speed of the travel of water on the surface of building.
2. 90% of water intrusion occurs at critical junctions, such as the seam between one facade system and another. Today's building systems are complex, and many are proprietary, meaning that the details are worked out by the supplier, not the building designers. In this environment it is essential for the architect or building designers to understand these junctions in great detail to prevent problems.
3. When it is not a design failure, water intrusion occurs mainly due to installation error. These include inadequate surface preparation, improper use of primers, failure to take into account the thermal and wind movements of the structure, or other human errors such as not following the correct installation procedure.

FIRE FIGHTING SYSTEMS

A fire fighting system is probably the most important of the building services, as its aim is to protect human life and property, strictly in that order.

It consists of three basic parts:

- a large store of water in tanks, either underground or on top of the building, called fire storage tanks
- a specialised pumping system,
- a large network of pipes ending in either hydrants or sprinklers (nearly all buildings require both of these systems)

FIRE ALARM SYSTEMS

A fire alarm system is distinct from a firefighting system in that it has no connection to the firefighting system; its purpose is to inform all humans in the building that there is a fire via an audible alarm, so that they may evacuate the building. A fire alarm system consists of fire sensors, such as smoke and heat detectors, located throughout the building, connected to a main alarm panel by special cables. The panel is in turn connected to a set of hooters or speakers that give an audible alarm throughout the building and its surrounding areas. The main alarm panel should ideally be placed in a 24-hour control room or security room. The panel will indicate the location of the fire to the persons manning it so that they can coordinate the evacuation process.

PHOTOVOLTAIC GLAZING

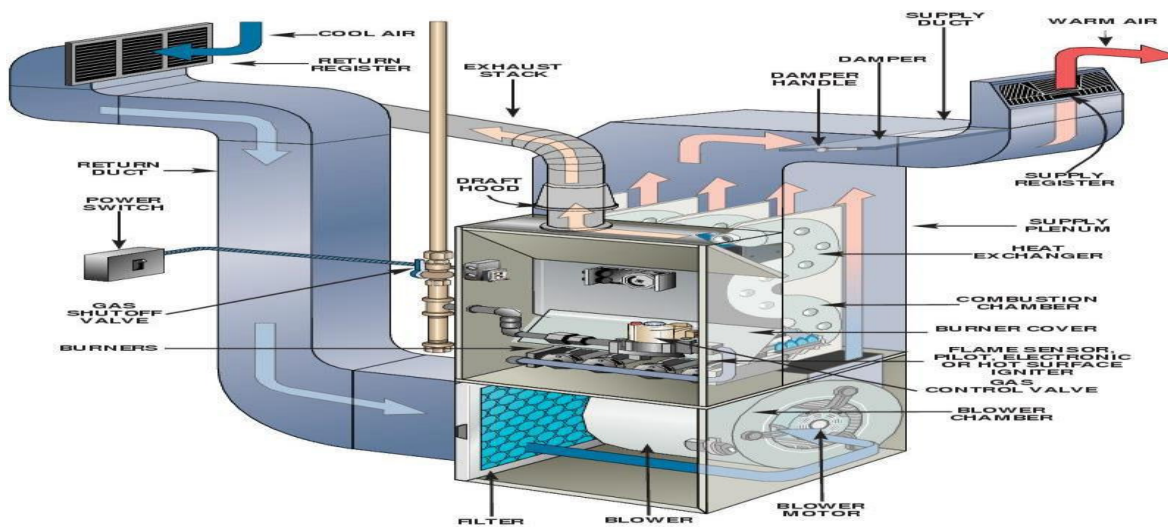


Building integrated photovoltaic (BIPV) glazing can help buildings generate their own electricity, by turning the whole building envelope into a solar panel. Companies such as Polysolar provide transparent photovoltaic glass as a structural building material, forming windows, façades and roofs. Polysolar's technology is efficient at producing energy even on north-facing, vertical walls and its high performance at raised temperatures means it can be double glazed or insulated directly. As well as saving on energy bills and earning feed-in tariff revenues, its cost is only marginal over traditional glass, since construction and framework costs remain, while cladding and shading system costs are replaced.

HVAC System

What is a HVAC System? A HVAC system is a heating, ventilation, and air-conditioning system. A system that does any one (or more) of those tasks is called a HVAC system.

The objective of an HVAC system is to ensure that an indoor environment is both safe and comfortable for humans. Safety here mainly concerns the Indoor Air Quality or IAQ, meaning that the indoor air should have enough oxygen and be free of noxious gases. Comfort of course is based on human perception, which can vary within bounds. ASHRAE (the American Society of Heating, Refrigeration, and Air-conditioning Engineers), defines comfortable air quality as one "with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction."



SECURITY STSTEM

security systems are basically one of two types: CCTV systems and intruder alert systems.

CCTV, or closed circuit TV systems, consist of cameras, connected by cables to a digital video recorder, a device that automatically records the pictures from the cameras. An intruder alert system can be any device that sounds an alarm or reacts in some other way when an unwanted intruder tries to enter the home. There are many types of intruder alert systems, from complex burglar alarm systems with sensor connected to doors and windows, motion sensors, and the like, to simple outdoor lights that switch on when someone passes in front of them.

KINETIC FOOTFALL

Kinetic energy is another technology under development. Pavegen provides a technology that enables flooring to harness the energy of footsteps. It can be used indoors or outdoors in high traffic areas, and generates electricity from pedestrian footfall using an electromagnetic induction process and flywheel energy storage. The technology is best suited to transport hubs where a large flow of people will pass over it. The largest deployment the company has done so far is in a football pitch in Rio de Janeiro to help power the floodlights around the pitch. It also currently has a temporary installation outside London's Canary Wharf station powering street lights.

Italian startup Underground Power is exploring the potential of kinetic energy in roadways. It has developed a technology called Lybra, a tyre-like rubber paving that converts the kinetic energy produced by moving vehicles into electrical energy. Developed in co-operation with the Polytechnic University of Milan, Lybra operates on the principle that a braking car dissipates kinetic energy. The cutting-edge technology is able to collect, convert this energy into electricity and pass it on to the electricity grid. In addition to improving road safety, the device upgrades and promotes sustainability of road traffic.



SEISMIC ISOLATION

Seismic isolation is a relatively new concept in earthquake engineering, having been introduced in the early 1980s in the USA and New Zealand, and as early as 1975 in the former Soviet Union. Quite simply, the idea underlying the technology is to detach the building from the ground in such a way that the earthquake motions are not transmitted up through the building, or are at least greatly reduced. Seismic isolation is most often Advanced Technologies in Housing Construction installed at the base level of a building and is called base isolation. The principle of seismic isolation is to introduce flexibility at the base of a structure in the horizontal plane, while at the same time introducing damping elements to restrict the amplitude of the motion caused by the earthquake. The concept of seismic isolation became more feasible with the successful development of mechanical energy dissipators and elastomers with high damping properties. Seismic isolation can significantly reduce both floor accelerations and interstory drift and provide a viable economic solution to the difficult problem of reducing nonstructural earthquake damages.

There are three basic elements in any practical seismic isolation system. These are as follows:

- A flexible mounting so that the period of vibration of the total system is lengthened sufficiently to reduce the force response.

- A damper or energy between building and design level.

dissipater so that the relative deflections ground can be controlled to a practical

- A means of providing rigidity under low (service) load levels, such as wind and minor earthquakes.

Wind Turbines

Wind energy technologies can be classified into two categories – macro wind turbines that are installed for large-scale energy generation such as wind farms, and micro wind turbines used for local electricity production. The main components of a wind turbine include blades, rotor, gearbox and generator. Small wind turbines were originally designed with a horizontal axis, also known as HAWTs. To reduce the need for a high tower, and for aesthetic reasons, vertical axis wind turbines (VAWTs) become increasingly popular for integrated building applications. Furthermore, VAWTs are also quieter (resulting in less noise nuisance) than HAWTs during operation.



Horizontal axis wind turbine (HAWT) Integrating micro wind turbines (IMWT)

Vastu Analysis

Vastu the Indian ancient science which is used for civil engineer in many types of constructions like, residential houses, corporate buildings, Temples etc., Vastu is the science which helps the civil engineer to find exactly where and which room should be and it is truly in coordination with the nurture. It is mainly depends up on the sun light and air flow. Reference points for vastu starts form the north point.

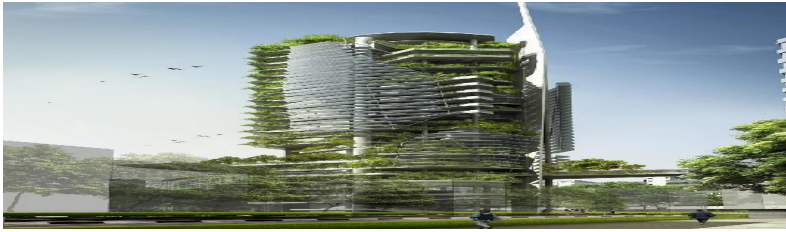
Green Construction

A green building is that building which is constructed at a well planed location with proper design and sustainable materials. Fitted and painted with eco friendly materials. The building should gives to its occupants healthy and comfortable environment in all climates. It remains cool in summer, warm in winter, inside fully protected from rain, gives natural pollution free air and light through doors, windows and ventilators without any artificial means. For particular requirements it

has solar, wind power and eco friendly electrical, mechanical etc. devices. A green building should have all safety devices. It should be provided with potable water, having proper drainage, sewerage and rainwater harvesting system. The building should be surrounded with trees, plants and grass to provide natural greenery.

Advantages Of Modern Technology

There are many advantages of modern technology that we see in our daily life. The major technology benefits are listed below.



1. **Information is Easy to Access:** We are living in an age of information overload and it is easy to access almost any information that you need through the internet or smaller internal intranets.
2. **Innovation and Creativity Are Fostered:** With the challenges of technology, the brain must react quickly to the amount of new and interesting data that is being presented. Creativity is encouraged through blogs and sites such as Etsy.com and people share ideas across the internet.
3. **Communication is Improved:** People cannot function without some form of communication and modern technology has made it possible to communicate across hundreds and even thousands of miles through telephones, e-mail, video conferencing and text messaging. Social networking is on the rise as well, putting your life out there for all to see your activities.
4. **Improved Lifestyle:** Modern technology has simplified lives by having sturdier construction of homes and added conveniences to make day to day activities easier. Indoor plumbing and central heat are just a few examples.
5. **Better Entertainment:** Modern technology has improved the world of entertainment. From radio to television to video games, advancements have made it possible to bring the latest and greatest in entertainment right into your home.

Modern Technology Disadvantages

Despite the pros, there are also many disadvantages of modern technology. Here are some of the technology cons described briefly.

1. **Loneliness is Increased:** Social isolation is becoming commonplace as more and more people are spending time on social networking sites or gaming sites instead of fostering real life relationships. As modern technology advances, people are forgetting how to interact with one another. They are more comfortable with a phone in their hand or a keyboard at their fingertips instead on having a face to face conversation.
2. **Jobs are Lost:** As modern technology evolves, humans are being replaced by robots in the workplace. Many packing firms use robots on the production lines instead of actual people. Businesses save money by having fewer employees, but people have a harder time finding work.
3. **Competency:** People are losing skills and creativity as we become more and more dependent on things such as calculators and spell check. Our brains do not have to calculate simple math problems or spell words correctly when there are tools to help with those simplistic tasks.
4. **Weapons of Mass Destruction:** Modern technology has been the main contributor to increasing violence and endless wars. With the manufacturing of modern war weapons and weapons of mass destruction, terrorists and other criminals will use them for selfish reasons.

Conclusion

Civilization has evolved because of modern technology. The way we work and play has been revolutionized as has the way we learn and communicate. Some people argue that without modern technology, life as we know it would cease to exist. They are right in some instances. However, there are many people choosing to live off the grid, which means living without modern technology or conveniences. For most people though, it has made life easier and more enjoyable.

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