



EASWARIENGINEERING COLLEGE

inBlick



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Department of Civil Engineering

Vol.9 Issue3

DEPARTMENT VISION

To provide basic and advanced knowledge and skills among civil engineering students so as to meet the changing industrial and research needs to become the acknowledged leader in civil engineering.

DEPARTMENT MISSION

- M1 To provide education in the field of civil engineering and guide them towards technical advancement
- M2 To impart essential skills to the students and enhance their employable potential and entrepreneurial capabilities
- M3 To educate the student in solving problems related to interdisciplinary fields
- M4 To nurture leadership skills with social consciousness to act professionally and ethically
- M5 Extend engineering knowledge through creative, innovative projects and research so as to promote consultancy for industrial and social needs.
- M6 To use modern engineering tools and appropriate teaching techniques for modeling, analyzing and designing the real world problems



WHAT'S INSIDE

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Introducing...

The Editorial team

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Department of Civil Engineering

INDUSTRIAL VISIT

The students of B.E., CIVIL ENGINEERING II year Students from Easwari Engineering College went for an industrial Visit to Grundfos pumps India Pvt. Ltd. on 05.09.2018 & 14.09.2018 located at Thorapakkam, Chennai under the supervision of Mr.Paramaguru Mr.Yashwanth, Mrs.Sandhya and Mrs.Srividya, Assistant Professors, Civil Dept – EEC.

On those days, we Split up in to two batches of students (II-B & II-A), both the batches visited on the respective working days to the plant. Then they listened key points about safety measures should be followed for all the operation process.

There by we listen to in Green building parameters which had followed. The students got the real picture of the Energy saving by less consumption of electricity which they studied in Mechanics of Fluids.



In-charge from Grundfos Pumps - explaining the pump production and its advantages over ii to the students.



Some of the Feedback received from the students were that they got clear idea about the evolution of Green building concept adopted in our city. So, we are very much thankful to you for a great opportunity to visit the site.

We are thankful to the HR of the Grundfos pumps and Dr.Virapan, Professor of EEC for guiding us and making a productive arrangement for the Civil Department students of Easwari Engineering college.

INDUSTRIAL VISIT

The students of M.E, STRUCTURALENGINEERING I &II year Students from Easwari Engineering College went for an industrial Visit to Structural Engineering Research Centre on 26.09.2018 located at Tharamani, Chennai under the supervision of *Mr.Neelamegam.M* Professor, Civil Dept – EEC. On those days, both the PG I year and II year students visited the Research centre. Then they listened key points about safety measures should be followed for all the operation process. There by we listen to all Equipment operating process and its calibration were strictly followed in all the laboratories. The students got the real picture of the deflecting beams under various material and different loading systems.



Students visiting Advanced concrete testing and evaluation laboratory



Some of the Feedback received from the students were that they got clear idea about the Evaluation process carried out for each and every testing materials in SERC. So, we are very much thankful to you for a great opportunity to visit the site.

We are very thankful to Dr.Neelamegam M, Professor EEC for guiding us and making a productive arrangement for the Civil Department students of Easwari Engineering college.

AWARDS



Award received by Dr.Neelamegam.M, Dept of civil engineering, EEC



Award received by Dr.Neelamegam, Dept of civil engineering

The department of civil engineering won the “*BEST STUDENT CHAPTER*” award out of 225 colleges nationally because of the events, guest lectures and competitions conducted by the students along with the department. The award ceremony took place in Bangalore on 22nd September,2018 at NIMHANS convention centre from 6:00pm to 9:00pm. The award was received by the professor *Dr.Neelamegam*, along with past president *Mr.Subash* and vice President *Mr. Vishwak chander*.

Use Of Drones In Urban Construction



The popularity of drones has skyrocketed in the recent years, and so has the market for them. From taking photos and videos for personal use, to their scientific applications and uses in many spheres of life and business, their importance and utilization are constantly growing. Although many may be familiar with them simply due to their fun and recreational purposes, drones, above all, have very important and practical uses in different industries. One of them is home construction, where drones have significantly contributed to the industry's efficiency and general development.

Construction vs. Technology

When it comes to the construction industry, it has generally been one that is somewhat averse to technology and technological advancements. It is an industry that relies mostly on traditional, manual labour and heavy machinery, and does not always welcome change very easily. Moreover, it is one of the least

digitized and technologically advanced areas, which can often reflect on its productivity. With BIM, smart devices and gadgets, 3D modeling and now drones, it is welcoming change into its very core, and becoming a part of the digital revolution. We no longer have to talk about construction vs. technology, but about construction and technology. Drones, specifically, have the potential to integrate various aspects of the project, simplify it, connect people from different parts of the country who are working on it together, improve the gathering of information, and provide better insight and overview of the project.

Saving Time and Money

To keep the project successful and on track, it is important to always have all the necessary data on the site and the building at hand. The traditional methods of surveying, research, and data collection would usually take a lot of time – days or even weeks. And making sure that every minor change in the site or the data is updated and recorded is another part of that strenuous task

Drones can change all of it and revolutionize the way a site is researched and monitored. They can collect all the necessary data and information in a matter of minutes and update it regularly. They input the data into the BIM (building information modeling), a project management software, and keep you updated at all times. This can save the industry significant amounts of money by decreasing the time spent researching and the amount of labour that is put in

New and Improved Inspection

Using drones for inspection purposes can also help stay on top of your projects, as well as save you a lot of time and money. One of the greatest advantages of drones is that they show you data in real time, so you can act on time. This can help in avoiding unnecessary and costly mistakes or making changes to your plans, and all without wasting time, money or labour.

With drones, the risk of your project going off-track is much smaller and allows you to make some crucial decisions or changes before it's too late, or before the project has advanced too far. Apart from that, you can also inspect the aesthetics of the building, receive the images and see how they compare to the blueprints and the model. .

Presenting the project's progress

Many clients and homeowners like to stay informed and keep track of how their house is coming along. That is not always convenient for the architects, the construction company, and the workers, nor for the clients themselves. It would usually involve making trips to the jobsite, which can be time-consuming or showing photos to the clients, which is not a real enough representation of the progress. This is another aspect where drones help significantly to keep clients well-informed and involved in the project. They allow the architects to show the live progress of the project, present it from all angles and give a better and innovative overview of it to the clients. And clients can then express their (dis)satisfaction, which can be addressed in time.

Improving Safety

Construction is known to be one of the most hazardous fields. Many injuries and even deaths occur precisely at constructions worksites, and it has many safety risks. One of the great and very important benefits of the use of drones is also improving this factor and decreasing safety risks. Inspecting roofs, locations or areas that are hard or too dangerous to reach, working on heights, and similar hazardous tasks can all be done with the help of a drone. This way, accidents, and injuries can be prevented and significantly reduced, making this field of work much safer.

Conclusion

Applying new technologies, such as using drones in your construction work, can benefit both you and your clients in great proportions. Technology is shaping and changing our world, so why shouldn't you be a part of it as well. Drones can not only save time and money on your project, but they can also provide better results and more successful projects. They are an innovation with many applications and benefits and are surely on their way to become the standard of the industry

Benefits Of Steel Construction



In the multi-storey building sector, the benefits of steel construction are largely related to the fast-track nature of the construction process, which leads to a wide range of financial and process benefits. Many innovations associated with the construction process have further improved these inherent benefits and have increased efficiency and productivity. This is very important in inner city projects where lack of space for storage of materials and other facilities, limitations on deliveries and logistics, and planning constraints, mean that a higher proportion of work should be done in the factory and less on site. The benefits of steel in multi-storey construction arise mainly from its prefabricated nature, its lightweight and the ability to phase the various activities in series rather than in parallel. Speed of Construction

Speed of construction is the most important benefit offered by steel construction, which

leads to financial, management and other logistical benefits, many of which can be experienced in economic as well as sustainability terms. For an eight-storey office building, it is found that steel construction is up to 20% faster than reinforced concrete. But, importantly, the construction of the primary frame and floors is up to 40% faster and allows for early start in building services, installation, cladding and other activities. The fast construction process

The financial Benefits of Speedy Construction Includes:

- Early completion, which leads to reduced interest on the borrowed capital and to early return in terms of revenue*
- Lower cash flow*
- Reduced management costs on-site,*

primarily due to the shorter construction period, but also due to the fewer personnel employed

- Reduced hire costs of site facilities*
- Greater certainty and less risk in the construction process*

Construction Process

Speed of construction is achieved by 'just-in-time' delivery of components and by rapid assembly of the steel framework. It is estimated that a single tower crane can install up to 20 steel elements per day, which corresponds to a floor area of approximately 300m². Secondary benefits in steel construction arise from:

- Decking, in 'bundles' on the beams and installation of decking at a rate of up to 500m²perday*
- Avoidance of temporary propping by using steel decking spans of 3-4m for*

profiles of 50-80mm depth
- Fire protection by intumescent coating that is applied in the factory and, therefore, eliminates the time required for this process

on-site

- Opportunities for reduction in the amount of fire protection by use of fire engineering analysis
- Use of mobile installation platforms to improve construction safety and speed up the installation process
- Prefabricated stairs that are installed as part of steel construction package
- Safety barriers can be attached to the perimeter steel beams
- Rapid concrete placement
- Light steel infill walls and partitions that are installed rapidly and can be prefabricated
- Modular service units that may be installed with the steelwork package

Lightweight Structures

Steel construction of all types is lightweight, even when including concrete floors. The self-weight of a typical composite floor system is typically only 40% of that of a RC flat slab. When the total building weight is considered, a steel framed structure is up to 30% lighter than the equivalent concrete building, which leads to an equivalent saving in foundation costs. Further, steel construction is the preferred solution for building on:

- Post-industrial or former built-on sites, often with pre-existing foundations
- Building over underground services and tunnels

-Building on railway lines and other 'podium-type' structures Steel construction virtually eliminates waste by the nature of its manufacturing process and all steel waste is recycled. Synergistic materials such as plasterboard can also be recycled

BenefitsofAdaptability

General expectations for all multi-storey buildings change substantially during their design lives. A building's occupancy is also likely to change several times during its life. Increasingly, the nature of the occupancy may change. In the 1960s and 70s, many buildings were reconstructed to minimise cost without any allowance for future adaptation. These structures have not proved capable of responding to occupant's changing needs, leading to their early demolition. Although difficult to quantify at the proposal development stage, there are clear qualitative benefits in specifying a structure that is inherently adaptable to changes in requirements during its design life. Key issues on adaptability are:

- Specifying longer spans, permitting greater flexibility of layout
- Providing space for additional services
- Specifying floor loadings that permit change of occupancy

Some examples of steel buildings are given below.

Luxembourg Chamber of Commerce

The headquarters of the chamber of commerce of the Grand Duchy of Luxembourg was designed by Vasconi Architects and comprises an existing building and 20,000m² of new office space. A conference centre of approximately 8,000m² was provided together with 650 underground parking spaces on four levels. The total building area is 52,000m² including car parking. The four and five storey composite structure consists of hot rolled steel sections and concrete floor slabs with integrated IFB sections. The integrated steel beams are stiffened using a lightweight truss below the beams, leading to a 40% increase in span. Services are passed below the beams and through the truss to minimise the floor depth. The structure was assessed by a fire engineering analysis, which demonstrated that 60 minutes fire resistance could be achieved without additional fire protection. The IFB beams are particularly protected by the concrete slab and support the reduced load in fire despite the loss of the exposed truss.

TIPS IN CIVIL ENGINEERING

Suggested Civil engineering tips at construction site of school buildings to be followed by SMDC

- Cement mortar, when mixed with water should be consumed within 30 minutes
- Reduce the over sized metal to correct size by breaking
- Ensure that concrete/mortar mixed on steel plate, not on ground or RCC slab
- After filling the sand consolidation of sand by ramming with crowbar after flooding entire area with water
- Concreting of slab for toilets should be done with water proofing compound
- Provision should be kept for future expansion by providing bend for all projections like chajjas canopy and also slab
- 75 mm thick concrete should be laid over footing pedestal to maintain verticality and reinforcing bars shall be kinked and straightened to 40mm uniform cover all around.
- RCC columns at two ends and at centre should be raised first and then the remaining to maintain the alignment in school buildings
- During concreting cover blocks should be bind with wire to keep in position during concreting
- Reinforcement bars should be clean of grease, furniture mud etc. before placement
- Binding wires should be tied to bind the reinforcement from both diagonal directions
- Reinforcement bar once bent should not be rebind lap in reinforcement should not be staggered
- Reinforcement of slab should start from the edge of the support
- Removal of Vibrator from concrete should be ensured by filling with concrete if cavity formed due to prolonged uses
- Bricks used should be soaked in tank till bubble ceases.
- Bricks should be kept over planks not on ground during the work at site.

GALLERY



-Art by Ms.Pavithra.A



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Hey all

*Hope you all found this issue of inBlick informative and fun to read. This is all for this month and we promise to come back to you with the same spirit. So, please write to us about how you found this issue. Your valuable suggestions and criticisms are most welcome
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