



## Amrutvahini College of Engineering, Sangamner

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**Department of Civil Engineering**

(In association with Ferrocement Society, India)

### **A Report on the one day workshop on** **“Applications of Ferrocement Technology in Civil Engineering”** **(AFTCE-18)**



**27<sup>th</sup> March 2018**

Amrutvahini College of Engineering, Sangamner and Ferrocement Society, India jointly organized this one day workshop on 27 March 2018. Prof Amol Mehetre was the in charge of this event. Students are searching for new technologies which will be helpful after graduation. The intention of this workshop was to expose the students to the new technologies which can help them to become successful entrepreneurs. 76 SE students participated with 4 faculty members of this institute.

The workshop was inaugurated by Mr Anil Shinde, CEO and Prin. Dr M A Venkatesh. He said awareness of new technologies is very essential for the students. As such training will be very helpful for the students. Dr. J B Gurav, Head of Civil Engineering Department was also present. Ferrocement experts like Arch Satish Paranjape, Nashik and Arunkumar Lawane Professional Engineer also visited the training of workshop form Nashik.

In the first session, Er Chandramohan Hangekar, President of Ferrocement Society explained the use of Ferrocement in the world. So many beautiful structures like Nautilus house, Mexico, the Mojo Century Centre Texas, dome houses in Chile, Indonesia, Sri Lanka are built using Ferrocement. But he said India is much ahead. In India also full buildings are built with ferrocement like a Jadhav Farm house in Satara, Bhalerao Banglow near Pune. Hundreds of various constructions are available where Ferrocement is used in India, like big size pipes, Silos, Fan duct cylinders, Big water tanks and retaining walls. He said ferrocement is a friend of any architect. Er Chandramohan also explained how innovative structures are built using Ferrocement. He explained cases where RCC contractors failed and Ferrocement could be done easily. A nalla was diverted in Pune by constructing in situ Ferrocement pipe of 700 feet length and 15 feet diameter. Many such structures were explained by him. He said Pune based Dr Divekar has developed "All in One method" of building construction. He also explained how earthquake forces act on any building and how the building fails. Ferrocement buildings being monolithic are more resistant to earthquake forces.

Er Padmanabh Lele is a working professional in ferrocement. He has built so many buildings in Ferrocement. He explained full construction activities of his project. The simple use of thermocol (EPS) between two slim walls of ferrocement makes the buildings soundproof. It insulates from heat. He explained the behavior and characteristics of the ferrocement with the help of graphs. He showed the models and explained the precast ferrocement components of a building. He explained other applications also and answered many questions from the students.

In the next session after lunch, a demonstration of the construction was arranged in the open auditorium. Er Girish Sangle showed the various meshes and skeletons. He demonstrated how they are welded and tied very tightly. The cement mortar was made by students in one part cement and three parts of fine sand. Water was then added to the dry mix so that water to cement ratio was 0.35. The mortar was quite thick and could not flow at its own. Small balls could be easily prepared by taking a lump in the hands. Er Girish Sangle said this is the field test to ensure that the mortar is very thick. Mr. Akshay Thorat assisted students for the demo specimen. A symbolic rectangular plate was selected for making skeleton. It was inspected and the wire meshes were tied tightly by the students. It was ensured that the skeleton is quite sturdy. Two groups were formed to make ferrocement objects.

Some students turn by turn in batches of four actually performed the press-filling of mortar in the meshes. Two plane trowels were used on both side of mesh to press the mortar in the gaps of the wire meshes, which tightly tied with the skeleton. After this method the hand filling method was also demonstrated. The students realized that the mortar is remaining in its place without any shuttering or form work. This is the main advantage of the Ferrocement that no timber planks and shuttering are

necessary. This makes Ferrocement as eco-friendly. Any shape can be given to the skeleton and it makes the structure beautiful.

The next session started again in the Conference Hall.

Er Chandramohan explained the complete process of a ferrocement building with 2 videos. Ferrocement Society of India based Pune is ready to assist such colleges and students. Society organizes National level Conventions every alternate year. He explained the students that they must become members of such professional societies to get up dates and remain ahead in technological advances. This will make them successful entrepreneurs,

Er Girish Sangle explained how to prepare rate analysis and the cost estimates of a ferrocement project. He also explained rates approved by Government of Maharashtra I e CSR book. He said the ferrocement is a labour intensive work so in rural area if the houses or water tanks are built by villagers, they can prove cheap or cost effective.

The workshop was concluded with question answer session and very fruitful discussions with the experts. The workshop coordination was done by Prof. Amol Mehetre. Anchoring of the program was nicely done by Vaishnavi Shiledar, Shraddha Rahane. The program was successful due to the volunteers and coordinators, which include Vaidehi Sawarkar, Priti Sable, Nikita Wakchaure, Nikita Sonawane, AbhishekThorat, Pankaj Sawant, Sushant Kanawade, Nilesh Kadam, Abhijeet Jadhav, Lokesh Patil and Bharat Thorat. Prof Mehetre gave vote of thanks to the guests.

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#### Photographs















