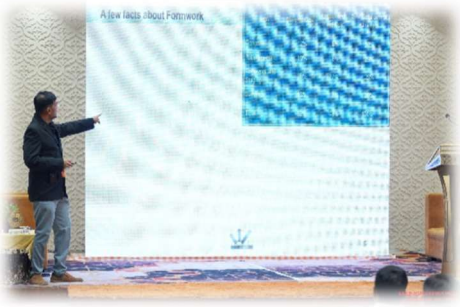
Indian Society of Structural Engineers - Kalyan Dombivli Local Centre

Report of Technical Lecture - Dt-08/08/2025

*ISSE (Indian Society of Structural Engineers) – Kalyan Dombivli Local Centre had organized a Technical Lecture Dtd. 08 Aug 2025 on :- '**Introduction to Formwork for Concrete & Mechanized Reinforcement Solutions for Faster, Safer, and Quality Construction'** sponsored by **TATA Steel**. The session began with the National Anthem and lamp lighting ceremony in tribute to Sir. Mokshagundam Visvesvaraya (father of Indian civil engineering), followed by the inauguration ceremony in presence of Chief Guest Er. Bhushan Harshe (Superintending Eng. MIDC) , Guest of Honor Er. Vibhas Acharekar (Dy. Chief Engineer, MCGM), Speakers- Er. Vivek Abhyankar and Er. Parag Raut, Er. M.S. Limaye and Er. Srinivasan Mudaliar (Secretary, ISSE KDLC). Er. Madhav Chikodi (Chairman, ISSE KDLC) have briefly introduced ISSE KDLC which was formed 2 Year ago in 2023. Inauguration ceremony was followed by Technical Lectures on **Introduction to Formwork for Concrete** by **Er. Vivek Abhyankar** (key points of this session are summarized below).*

<u>Technical Lecture 1</u> :- **Introduction to Formwork for Concrete**



- *Speaker introduced what is Formwork along with its brief history, classification, terminology, and components.*
- *A comparative analysis between conventional formwork and modern engineered formwork was presented. The discussion highlighted how engineered formwork is more economical, safer, long-lasting, and time-saving, with a simplified load transfer mechanism which was illustrated through a practical example.*
- *Speaker shared that how important concrete pour rate (m/hr) is and the factors it depends on such as the capacity of the batching plant, transit mixer, and pump; the desired cycle time as per project duration; the type of formwork system used; and the distance between the batching plant and the site.*
- *Later on, speaker spoke on the forces which are acting on formwork including self-weight, load due to fresh concrete, imposed load and lateral load. It was explained, with an example of a bridge pier, that increasing the concrete pour rate results in higher pressure on the formwork.*

For calculation of lateral Pressure due to fresh concrete a few formulas were shared as : CIRIA Report 108 / DIN 18218 / ACI Formula

- *The effect of bracing for symmetrical and unsymmetrical loading was demonstrated using a STAAD model. In the model without bracing, the frame undergone noticeable sway, whereas in the braced model, the impact of eccentric/unsymmetrical loading was significantly reduced because of bracing. The session also addressed the selection of the correct bracing system for stability*

- *Few Case Study were explained based on past experience of speaker that are early shore removal at Bailey's Crossroads in Virginia (1972), Friction Clamp, Kudan-Kulam Dome, Conventional Bridge staging, Tunnel Formwork for cold Dam Project.*

After the completion of the first lecture, felicitation of Eminent structural Er. M.S. Limaye was conducted. He shared that in his 63 years of professional experience in the field of structural design consultancy, he has worked on a wide range of projects, mostly in Industrial structure and also, he has worked on formwork and Temporary Structures with Er. A.B. Phadke.

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ISSE KDLC have conducted event to train the site supervisor which is a first batch of site supervisor. Which will help them to reduce the workload on site engineer and increase in the workmanship. After examining them ISSE has certified them. 5 supervisors were felicitated after successful completion of training.

Technical Lecture 2 **: Mechanized Reinforcement Solutions for Faster, Safer, and Quality Construction.**

Speaker started session with asking the question who are the engineers and what is the work of engineers here our work is to solve the problem in considering that smart fab is introduced.

TATA Steel has launched a new product called SmartFab, a welded wire fabric, designed as concrete reinforcement. This cold-worked, ribbed, and electrically fused wire mesh helps in optimize steel usage, minimize rebar wastage, reduce in requirement of binding wires used for lapping of rebars, reduce labour costs, and save construction time.

Manufacturing process

Cold Drawing → Ribbing *(optional) → Cross Wire Straightening & cutting → Electric Resistance Fusion

Technical Specification of SmartFAB.

- *The rebars used for forming the mesh are air-cooled, ensuring uniform hardness throughout the material unlike conventional TMT bars which are rapidly cooled by quenching process.*
- *The bars are air-cooled, and to mould them into the desired diameter, a drawing process is carried out.*
- *The wire mesh diameter ranges from 2mm to 12mm, in 1mm increments. This allows the mesh design to match more closely to the required area of steel (Ast).*
  - *a) 2mm to 4.9mm has plain welded wire fabric. (WWF)*
  - *b) 5mm to 12mm has plain/Ribbed WWF in flat customized shape.*
- *The standard wire mesh size is 2.2m in width X 6m in length. If required, L-shaped wire mesh can be fabricated, or bending can be carried out at the site for projects such as drainage systems where shaped mesh is necessary.*
- *Lap length for the mesh should be provided as per the codal provisions (IS 456:2000 and IS SP 34).*
- *Speaker has shown two videos during presentation first was on fabrication of welded wire mesh and second video was on installation of wire mesh.*
- *Application of SmartFAB can be widely done Slab Reinforcement, Rigid pavement, construction of drainage, Hume pipes, canal and Tunnel lining etc.*

After both sessions were concluded, Guest of Honor and Chief Guest expressed their views about the sessions and ISSE activities in general; committee members expressed vote of thanks. Guests and all participants were invited to a dinner gathering.

----------END OF REPORT ----------

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