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Autor: Finzi, Leo

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Conclusions to Theme D New Frontiers in Structural Engineering

Leo FINZI

Professor
Technical University
Milano, Italy

While developing theme D, we have looked at the future of Structural Engineering as it appears today.

The job of a prophet is normally a very difficult one. Nevertheless, it seems to me that some of the trends that have emerged are now clear enough and may be underlined.

The traditional demarcations between people involved in concrete, steel, masonry or timber are gradually disappearing. New engineers are thinking in terms of various materials, depending on how well they serve particular structural needs. Thus composite or hybrid structures are becoming more and more common with remarkable fabrication and erection advantages and consequent economic benefits. Moreover, typical cladding or finishing materials such as metal corrugated sheets or polyester panels are taken into consideration for the behaviour of the structure as a whole. Also the interface with mechanical and aerospace engineering is continuously growing as a building takes on more and more the appearance of machine. Technological processes related to construction and erection techniques are also assuming a dominant role.

Much has recently been done and is being done in the area of tall buildings, but other jumbo structural problems ask for a great effort from us. The crossing of Straits such as the English Channel, Gibraltar, Honshu-Shikoku and Messina, the need of greater power plants on the mainland and offshore and space enterprises ask for new materials and new technologies supported by more and more sophisticated mathematical and physical models. But phantasy is also needed to allow for significant changes in scale. The lecture by Dr. Happold and other presentations have indeed brilliantly underlined the capital role of the form in structural engineering.

Even small scale structures ask nevertheless for substantial improvements to face the need of low cost housing in the economically developing areas or to allow for the possibility to live in desert or arctic parts of the globe.

Eleven valuable papers on these items have been presented today and I congratulate the Authors. The closing lecture by T.Y. Lin, an outstanding structural engineer, has given some glimpses into the future.

I am sure that all of them will be stimulating for each of us and will open to us the opportunity to think about our future as structural engineers.

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