

## Subcommittee on Design System of Reinforced Concrete (Subcommittee 340)

The Reinforced Concrete Design Subcommittee (Subcommittee 340) was established in 2008 and is chaired by Dr. Tadatomo Watanabe of Hokubu Consultant Corporation. The subcommittee has been discussing a future design system for reinforced concrete and has published an interim report, in May 2011. The work of the subcommittee continues for another two years.

In outline, the mission of the subcommittee is to investigate the process of design used for well-designed existing reinforced concrete structures and also the historical evolution of Japanese design codes, focusing specifically on structural details. Ultimately, these investigations will lead to the proposal of an advanced design system. To move forward with this mission, two working groups have been organized as summarized below.

### Design System Working Group:

The JSCE's Standard Specifications for Concrete Structures (2007) [Design] include the concept of "structural planning," where the type of structure and other factors are to be determined in consideration of such factors as structural characteristics, materials, construction methods, maintenance methods, and economy such that the performance requirements are met. This working group is tasked with defining "good design" for reinforced concrete structures under this performance-based system and practical methods for its implementation. As such, the group has a wide range of interests such as design versus verification, contracting, standards, and designer education, as shown in Figure 1.

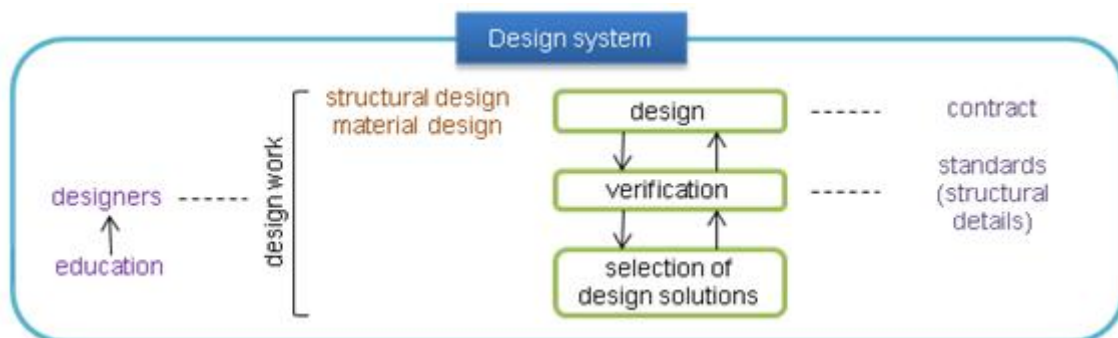


Figure 1 Design system

Structural details such as shapes, dimensions, and reinforcement layouts may restrict the freedom of a designer in developing a design. It is not easy to eliminate such structural details from the design process, since simplified methods of verifying performance requirements are based on them. This working group is tasked with investigating the history and significance of structural details. Once this has been done, it will study ways of eliminating the restrictions they impose using the latest understanding and techniques, such as numerical analysis using the finite element method. An example of this is shown in Figure 2.

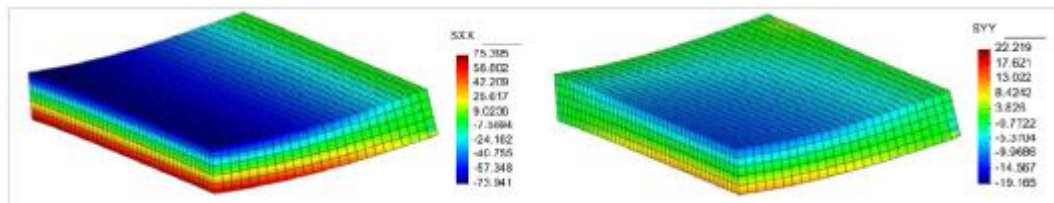


Figure 2 Finite element analysis of reinforced concrete slabs