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The Architecture Departments' Students Approach to The Reinforced Concrete Course

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Abstract

Reinforced concrete is a kind of structural system, which plays a lead role in shaping the built environment throughout the twentieth century in Turkey and throughout the world. From the beginning of the century this carrier system was seen as part of modernization project in Turkey as in many countries, spread over the entire country in rural and urban areas. This structural system's features, advantages and disadvantages must be known by architects who design the artificial environment. This study has been carried out to examine the approaches for teaching reinforced concrete structures' static and dynamic behavior to architecture department's senior students and to develop a common language use with civil engineers in their professional life. It was conducted on the last year undergraduate students at Gazi University Department of Architecture. A ten-question survey form designed by the researcher to collect data. The students' expectations from reinforced concrete course compared with the current situation by the answers. Currently, the main mission of departments of architecture which give Professional architectural education is to attribute the reinforce concrete courses to numerical analysis in means of resizing the structural elements due to the need to equip the individuals who start education. So this fact it indicates that purely formal evaluation is not sufficient in creation of contemporary architectural spaces equipped with reinforced concrete structural systems. However, some of architecture students never see themselves as a discipline to do calculations or analysis.

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1. Introduction

Concrete; sand, gravel, cement and water as materials with different properties is a building material produced by the mechanical and chemical interaction properties. The story of modern reinforced concrete began in 1824 with

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cement. A wall master named Joseph Aspdin obtained a product with bake and grinding the mixture of clay and limestone. Aspdin gave the name of Portland cement and patented this name with England Portland with the idea that resemble the building blocks of the island (1). Cement was first applied in warehouse and store. Reinforced concrete structural system; besides the pressure of trying to increase the tensile strength of concrete in order to think it should be used with steel line WB Wilkinson (1854) and Francois coignet's (1855) began with the patent (Collins, , "Concrete : The Vision of a New Architecture". Second Edition, Faber&Faber,London).

As a single body of Reinforced concrete and steel, which runs through adherence is a complex matter. Reinforced in order to get the desired form is a unique feature for aesthetic architecture. Concrete structures are generally more economical than steel structures. Longer than wood and steel structures can resist against external influences. The lifetime is longer than wood and steel structure. It is greater than the strength of the steel structure fire resistance. According to the wood and steel structure requires less skilled labor. The adoption of concrete in the world with these features increased variable in Modern Movement's summit between the two world wars and during the Great Depression. After the Second World War increased interest in technology, in architectural education and practice technical and technological issues have gained importance, increased emphasis on materials has advanced the field of design. In this process, the use of reinforced concrete began to increase worldwide (World Business Council For Sustainable Development (2002)The Cement Sustainability Initiative: CO2 Accounting and Reporting Standard for the Cement Industry,WBCCSD, Geneva)

2. Importance Of Concrete Delivery System Architecture Design Training Course

Vitruvius's Ten Books of Architecture of work entitled "Architectural Education" section on the summaries say: Architects and is a prerequisite in many fields of investigation to be armed with the information generated in different ways of learning. Thus, the validity of the work done in other areas will be able to test the architect's own practice (Nalbantoglu,H.U., Teknoloji Sorununa Bazi Felsefi Yaklasimler Uzerine , Architecture number:276 s.24-31).

When this perspective is the architect of civil engineering disciplines to work together more. Turkey is a country located on the major earthquake zones and gave a lot of life and economic losses in earthquakes. Research conducted at the end of this earthquake showed that;

- a. Conveyor System Error (Strong beam - column weak, weak floors, inadequate size, etc.)
- b. Architectural Design Mistakes (Tape window, soft floor, wall discontinuities, etc.)
- c. Inadequate Labor (Winding lack of equipment, poorly placed concrete, etc.)
- d. Poor quality of materials (Low concrete strength, quality reinforcement etc.)
- e. Inadequate Engineering - Architecture Service (Project, uncontrolled manufacturing etc.)

In the System Selection Mistakes:

Choice of systems for buildings are known the behavior of these highly affected (Davidovici, 1985;Durmus, 1991; Ersoy,1978). If you select an incorrect system even if no errors have been made to other stages of design building with the required security it is impossible to build. The building fell down due to the Kocaeli earthquake significant mistakes made in the selection system are described below.

In picture 1 As seen in the photo taken after the earthquake, deep beams are usually placed on slender columns. In this case the column is stronger than the beam in particular the occurrence of colon mechanism basements it caused by the fell down of the structure.

Picture 1- weak column-strong beam column under seismic loading mechanism consisting of samples in a building



In picture 2 short columns with window openings and landings beam formed inadequacy of the stirrups in the column caused brittle fracture.

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