CALCULATION MODEL FOR A CASE OF EXPERIMENTAL TESTING ON SLENDER RC COLUMNS

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Abstract: This paper presents results of experimental investigations of the slender reinforced-concrete columns behavior, which are in the stress state of eccentric pressure under action of long-term loading. Using eight models, the testing was performed of two series of columns with slenderness $\lambda = 60$ and $\lambda = 120$ which had their unloaded twins for their behavior testing under short-term loading. After the treatment with constant longitudinal compressive force was completed, at the level of working loads, all columns were loaded in increments up to fracture.

After completion of experimental analysis of any problem, as the primary task the researcher is to form the mathematical model that will confirm the real behavior of the analyzed system. Modeling by the finite element method with application of appropriate software suits represents one of the methods to present the behavior of tested model as realistically as possible. Since reinforced concrete is a composite material with nonlinear behavior, mathematical approximations are inevitable. While solving this problem, it is also necessary to have in mind geometrical nonlinear changes which are manifested in the change of state of stresses and deformations under continuous increment of side deformations.

This analysis by the finite element method makes an attempt to describe the response of the observed system as realistically as possible on the basis of known input parameters through a series of linear steps.

Key words: columns, slenderness, modeling, experiment.

MODELING OF STRUCTURES

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