

عنوان مقاله:

A DIRECT APPROACH FOR DUCTILITY COMPUTATION OF FLEXURAL RC MEMBERS

محل انتشار:

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خلاصه مقاله:

In seismic areas, ductility is an important factor in design of concrete members under flexure; it is due to the increase in capacity of plastic displacement. As a result, the inertial forces imposed on the structures can be decreased. The effective factors on ductility are; concrete compression strength f'_c , the percentage of tension and compression steel, ρ and ρ' , the amount of stirrups confinement for concrete ρ_c , the stirrups spacing, brittle effect of concrete strength, yield stress of longitudinal bars f_y and the effect of width to the depth of the section b/h . Perhaps the most simple and general definition for section ductility of members is defined, as the ratio of curvatures at ultimate load to curvatures at yield load ($\mu = \phi_u / \phi_y$). In this paper, a proposed method was considered to calculate the flexural curvature ductility ratio of reinforced concrete (RC) sections. Based on the proposed method, computer software was produced to calculate the curvature ductility in confined RC beams. The method is based on actual characteristics of a concrete flexural section by considering almost all effective ductility parameters such as available experimental concrete compression diagrams. By the developed software, the ductility factor of 250 beams under efficient circumstances were investigated completely. The nonlinear multiple regression analyses was also performed for these 250 beams and a direct equation is introduced to determine the ductility factor. Based on the obtained experimental results a comparison was made between the proposed direct method and experimental results, and it was shown that a good agreement is available.

کلمات کلیدی:

ductility, flexural member, RC, nonlinear multiple regression

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