Examples of RC Design with Eurocode2

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Abstract : The paper termed "Design of reinforced concrete with Eurocode 2" presents the theory regarding the design of reinforced concrete sections and the development of the tables and abacuses to verify the concrete section to the ultimate limit and service limit states. This paper is a complement of it, showing how to use the previous tools. Different numerical results are shown, proving the capability of the methodology. When a section of a beam is already chosen, the computer program presents the reinforcing steel in many locations along the structure, and it is the engineer´s task to choose the layout available for the construction, considering the maximum regular kind of reinforcing bars. There are many computer programs available for this task, but the interest of the present kind of tools is the fast and easy way of making the design and choose the optimal solution. Another application of these design tools is in the definition of the section dimensions, in a way that when stresses are evaluated, the final design is acceptable. In the design offices, these are considered by the engineers a very quick and useful way of designing reinforced concrete sections, employing variable strength concrete and higher steel classes. Examples of nonlinear analyses and redistribution of the bending moment will be considered, according to the Eurocode 2 recommendations, for sections under bending moment and axial forces. Examples of the evaluation of the service limit state will be presented.

Keywords : design examples, eurocode 2, reinforced concrete, section design
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