

The study of fibers reinforced mineral liants construction elements

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Summary

The ample information on the stade of utilization of dispersed reinforced concrete, the prosecution of an detailed analisys of the fibers-matrix mechanism and the compound effects of the two materials, to ilustrate the fiber's effect on the physical-mechanical characteristics of the material.

Pointing out the rolle performed by the parameters dependent of the composed condition on the mecanichal characteristics of concrete reinforced dispersed of steel fibers used in the modelation study and experimental, also on the behavior of the liniar element from the two points of view.

The use of the numerical modelling method in the case of the concrete reinforced dispersed of steel fibers on reduse scale beams.

True the study of the tension maps obtained following numerical modelling method we make a first step in the knowlege of the real tensions from the element for the



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bearing strength evaluation. The area or the volume of the strain compression effort can incorporate a measurement of the response with the material is able to give.

From the balance condition with exterior solicitation we can define a physical-mathematical pattern, which can lay down design relation.

The use of new modelling programs and technic design, on which the discretion was made with precision and detail regarding: the distance between the fibers weight centers, overlying length and variable orientation angle, obtaining numerous patterns on type of fibers, on which the investigation assumptions are based upon.

Obtaining results with very close value between the experimental and modeling part.

Obvious conclusions on the use in the near future of the numerical modelling method on the concrete reinforced dispersed of steel fibers on which the angle of fibers orientation is limited to $\alpha = \pm 10^\circ$ and the possibility to introduce dispersed reinforced area p_{fm} , which is variable with in the transversal section of the virtual linear element.

The prosecution of an rigorous experimental study on the purpose of clearing out the essential aspects of the behaviour to breaking point of some beam type elements, executed on reduce scale.

The data processing of the experimental results regarding the concrete properties modifications by an certain preestablished composition and with a dispersed reinforcement .

Pointing out the report in which the deformation and resistance of this material is different of those of the ordinary concrete, was possible due to the making and testing of a large number of specimens, in various forms and dimensions, at compressing, bending and strain.

Keywords: reinforced dispersed concrete, steel fibers, compound effect concrete-fibers, finite elements, the structures discretion, plane analysis tensions, numerical modelling, mechanical characteristics of concrete reinforced dispersed of steel fibers, concrete deformations, characteristic curve.

