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SELF-COMPACTING INSTEAD OF CONVENTIONAL CONCRETE AS A STRATEGY FOR SUSTAINABLE CONSTRUCTION

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EXTENDED ABSTRACT

The use of concrete, either reinforced or prestressed, is a set of steps that includes the establishment of the composition in terms of variables that must be met, such as resistance; executive conditions for manufacturing, transportation, release, densification, curinge and durability including the broader concept of sustainability.

The development of special concrete, specifically self-compacting concrete, using high dosage of industrial solid waste in the form of fine materials, to the extent of its performance, is a positive contribution to sustainable technology of concrete. Considering that such use represents an alternative action to reduce the consumption of cement and aggregates, preserving non-renewable resources and reducing the negative impact to the environment, these are sustainable concretes. In this regard several studies have developed concrete incorporating high volume of industrial byproducts. Among them, the self-compacting concrete has stood out with great features for the technological development of more sustainable concrete (Diniz, 2005).

The use of self-compacting concrete translates into capital gains, including better involvement of the armor, even when they are very dense, the possibility of new construction systems, the reduction of human resources and equipment, reducing the noise associated with the equipment resulted in the consolidation and improvement of occupational health workers (Ferreira, 2001).

The real self-compacting concrete has strong presence in the above concepts with emphasis on issues of executive works, especially with regard to the placement and consolidation of concrete. It should be noted that the use of real self–compacting can ensure the execution of works that would be of difficult viability execution with conventional concrete.

To identify the benefits that involve the self-compacting concrete, in regard to manufacturing processes, transportation, placement, in the structural density and healing, it is important to try to see the point of view of producers of concrete measured in central, builders specifiers and designers and their clients (Belohuby, 2009).

Despite the advantages that this material presents, there are knowledge gaps in both their internal structure which affects its durability, and the difficulties involved in its implementation on a larger scale and in a different way, compared to conventional concrete.

Based on these problems, the study aims to discuss the benefits and determine the specifications associated with applications of self-compacting concrete sustainability as a strategy against the use of conventional concrete to sensitize designers and builders of the construction.

The method is structured in three steps: bibliographic and documentary in the national and international literature, comparative study of laboratory tests and tests on real scale work and field research.

The field study is carried out through a comparative analysis of laboratory tests between the use of CC and the SCC, in a building and/or bridge, which is the study of technical and economic feasibility; study of the influence of the scale of the work; study of the prospecting of the most promising fields of application, study methodology with an emphasis on specific executive, study the specifications and technological control of the SCC employee; study of extraction parameters evaluated for large-scale application of the SCC in Brazil, analysis of results.

Since the field research, involving structured interviews and/or open or closed questionnaires builders and designers, and subsequent analysis of results and drafting tool for raising public awareness of target, designers and builders, as the advantages of using the SCC and sustainability strategies.

MAINLY RESULTS AND CONCLUSIONS

From the work, it is expected that the studies and research to bring new knowledge to use on a larger scale of the self-compacting concrete in construction works.

Such a result is possible from the awareness of designers and builders for the use of self-compacting concrete in your endeavors. But this will require that the work responds clearly and directly to questions that are always made when making the comparison between conventional concrete before the self-compacting concrete (SCC).

Can explained some of these issues, such as durability, sustainability, difficulties and possibilities with implementing the SCC on a larger scale in the works, economic evaluation, and most promising fields of application.

Thus it is expected to be able to influence, from the treatment of existing knowledge in technical and business decision-making process to increase the practical application of SCC in Brazil.

It is hoped, finally, that the treatment of systematized existing knowledge to produce new framework for use of material, if the self-compacting concrete, that adds value to the activity of civil engineering and can be expressed by the word that represents a set of values what is sustainability.

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