Improvement of cement concrete strength properties by short long steel fibre addi...

1. Project Title: Improvement of cement concrete strength properties by short/lon

Section 1: Introduction/Rationale:

The development of industrial and architectural structure refers to the new technolo material with effective performance. Concrete is a fundamental component to use in the ability to mold any shape and form in practical terms. Therefore, concrete constr However, concrete is significantly more brittle but exhibits a poor tensile strength ar is using discrete steel fibre to ameliorate the performance of brittle materials (Manso

The idea of using the fibres as materials reinforcement can reduce the concrete perm the element of steel fibre control opening also propagation micro-crack in early-stag concrete (Brandt, 2008, p. 3-9), increases the young modulus, reduce its consequen Furtherore, steel fibres additive makes concrete more cohesive and isotropic, and tra and Ashour, 1992). However, the beneficial effect on concrete design depend on ma characteristics of fibre and concrete mix design.

Due to the lack of documentation on the behaviour of steel fibre in concrete mix des investigation of
this research was conducted to evaluate and compare the mechanical efficiency of s r dosage in plain concrete.

Section 2: Research Questions:

2. How much ratio of long and short steel fibre to mix with reinforcement cement tensile strength?
3. Which type of steel fibre short produce greater mechanical impact in reinforce

Section 3: Annotated Bibliography :

4. Tadepalli, P. R., Mo, Y. L. and Hsu, T. T., 2013. Mechanical properties of steel fi

462-474.

Tadepalli (2013) examine the relationship between type of fibres, the characteristic reinforcement concrete design that effect on the mechanical propose of concrete, wh the relationship of bonding steel fiber characteristic with mechanical strength. These standard to reduce the risk by use of Soulioti *et al.* , 2011 and ASTM standard, 2011. scale prestressed concrete beam only.

5. Fraser, L. T., May, R. N. and Bagala, R. D., 2018. *Exploring the Properties of Fib*

This paper focuses on the toughness of concrete and the additional of different type polymer fibre. The author compared the corrosion testing resistance by using Shores concrete and Fraser et al. found that the polymer-fibre and steel fibre can reduce the research as it presents a detail overview role of steel fibre can diminish void in concr clearly prove their findings of the mixing ratio between steel fibre reinforcement and temperature and the moisture are attributing the curing time, multiple cracking and

6. Soutsos, M. N., Le, T. T. and Lampropoulos, A. P., 2012. Flexural performance o fibres. *Construction and building materials* , 36, pp. 704-710.

This paper focuses on the quantify different in fluctuations toughness of concrete ma using the same dosage. Moreover, the researcher compares the influence result of s shear bending performance and mechanics properties of fibre concrete performance Parker *et al.* (1974). This article assisted me in understanding the relationship betwe mechanical properties. However, they recognised that they were unable to clearly pr determined for the different steel fibre types even the same dosage

7. Ragavendra, S., Reddy, I. P. and Dongre, A., *Fibre Reinforced Concrete-A Case* Architectural Engineers and National Seminar on" Architectural Engineering As 2017.

It is clear that this paper categorises the fibre matrix interaction, reinforcement mec
performance has been already claim by Swamy *et al.* (2003) and Surendra (1987, p.
fibre concrete compressive-tensile strength and steel fibre type to use in experiment

8. Shende, A. M., Pande, A. M. and Pathan, M. G., 2012. Experimental study on st
Refereed Journal of Engineering and Science , *1* (1), pp. 043-048.

Shende *et al.* (2012) focus on the micro crack in mortal aggregate is responded in pl
This paper shows the advance admixture of concrete design sulphonate naphthalene
authors suggested a new model that uses Permalatha *et al.* (2003) which suggest th
design. Even though, it did not examine the relationship between of steel fibre and b
might be applied to my own study.

Section 4: Methodology:

The research approach influence design and provide to consider benefit and limitatio
time. In this research are considered use to type of approaches are available, for ins
from theories. This report uses secondary research approach as it aim to formulate t
concrete mix with short/long steel fibre.

There are two method available for data analysis- Qualitative and Quantitive; this pr
the researches, journal or published on the University of Glasgow website or library
to conduct in-depth exploration of particular mixture of concrete design.

9. Project scope:

Regarding the limitation and scope of this research, the study briefly considered the
entire production method, but the main focus was on the interrelationship between m
and the structural behaviour /performance.

10. Research limitation and constraints: mention time and money contraints

This study has potential limitation. The effect of time constrains and implementation the bias data or inaccuracy data than would have chosen. Furthermore, the lack of p reliability of data would be out of date.

11. Ethics consideration:

No ethics consideration needed as secondary research.

Section 5: Reference List

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