

MECHANICAL PROPERTIES OF SELF COMPACTING CONCRETE USING FLY ASH

THESIS

**Submitted as Partial Fulfillment of the Requirements
For Getting Master of Civil Engineering Graduated Program**



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**POSTGRADUATE PROGRAM
DEPARTMENT OF CIVIL ENGINEERING
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2015**

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**MECHANICAL PROPERTIES OF
SELF COMPACTING CONCRETE USING FLY ASH**

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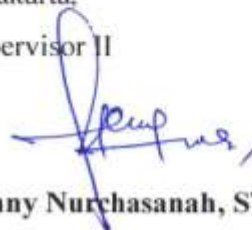
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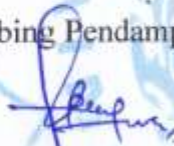
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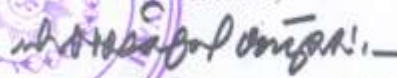


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ABSTRACT

MECHANICAL PROPERTIES OF SELF COMPACTING CONCRETE USING FLY ASH

The purposes of this study were 1) to analyze the effect of fly ash on the mechanical properties of self compacting concrete; and 2) to determine the optimum fly ash content as cement replacement in improving mechanical properties on self compacting concrete at 28 days.

This research was conducted in laboratory of Muhammadiyah University Surakarta. Primary and secondary data collection techniques were used in this research experiment. Primary data was collected directly from laboratory experiments. All the data was recorded on a daily basis until the research is completed. The researcher collected the data from the result of self-compacting concrete and compare to other standards to get the level of compressive strength and tensile strength. Self- Compacting Concrete is characterized by filling ability, passing ability and resistance to segregation. Mechanical properties of self-compacting concrete modified with 0%, 15% and 35% Fly ash as cement replacement were studied. The main goal were to analyse mechanical properties (compressive strength, flexural strength and modulus of elasticity) of self-compacting concrete mix and to determine the optimum amount for Fly Ash replacement for improved mechanical properties.

From the study results can be concluded that 1) the Slump Flow test results were increasing as the amount of Fly Ash increased within the allowable ranges of 500-700 mm in accordance to ASTM standard; 2) the compressive strength and modulus of elasticity measurement values decreased as the amount of fly ash increased from 0 to 35% whereas; and 3) the value for improved mechanical property of flexural strength was found at 15% Fly ash content.

Keyword: fly ash, Self-Compacting Concrete

ACKNOWLEDMENT

First and foremost, want thank Allah I would like to express my sincere thanks and appreciation to my father and mother, and academic supercusors of Dr. Mohammad Solikin and Yenny Nurchasanah, ST, MT who continously guided me throughout every step of my study and generously shared their time and knowledge with me.

My special thanks must be extended to technical staf members postgraduated program of Civil Engineering Muhammadiyah University of Surakarta. Millions words of thanks for fellow friends who showed the concern and support all the way. Unfortunately, it is not possible to list all of them in this limited space.

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