

AN EXPERIMENTAL STUDY OF CUBES CAST

IN POLYSTYRENE MOULDS

C/533

Project Report Submitting by

Ioannides Petros
Tsindides Efstathios

in part satisfaction of the award of
Diploma of Technician Engineer
in Civil Engineering of
Higher Technical Institute,
Nicosia - Cyprus

Project Supervisor : K. Anastasiades
Lecturer in Civil
Engineering, HTI

External Assessor : A. Constantinides
Civil Engineer

Type of Project : Individual
Group ✓

Ref. No. C/533

May 1990

HIGHER	PROJECT NO
--------	------------

ABSTRACT

This project is an experimental study of cubes cast in Polystyrene moulds.

The study consists of 3 parts chapter one gives general information about the properties of hardened concrete and the factors affecting the compressive strenght. The second chapter gives general information about testing of concrete. Finally the third chapter give all the experimental work, the results and conclusions.

CONTENTS

PAGE

ACKNOWLEDGMENTS

ABSTRACT

INTRODUCTION

CONTENTS

PART 1

1.0.	The properties of hardened concrete	1
1.1.	General	1
1.2.	Compressive strength	1
1.2.1.	W/C ratio	2
1.2.2.	Compaction	5
1.2.3.	Cement type	10
1.2.4.	Aggregate type	10
1.2.5.	Aggregate/cement ratio	12
1.2.6.	Specimen type and geometry	13
1.2.7.	Testing procedure	18
1.2.8.	Age	19
1.2.9.	Curing	19
1.3.	Vibration	26
1.3.1.	Segregation	26
1.3.2.	Bleeding	27

PART 2

2.0.	Testing Concrete	31
2.1.	Compression test (General)	31
2.2.	Sampling of concrete	32
2.3.	Number of tests	33
2.4.	Variation of cube test	34
	Standard deviation	
	The coefficient	

PART 3

3.0.	Experimental programme	39
3.1.	Preamble	39
3.2.	Materials	39
3.3.	Mix proportions	39
3.4.	Manufacture of the cubes specimens	41
3.4.1.	Apparatus	41
3.4.1.1.	Rotating drum concrete mixer	41
3.4.1.2.	Vibrating table	41
3.4.1.3.	Compacting bar	42
3.4.1.4.	Steel moulds	42
3.4.1.5.	Polystyrene moulds	42
3.4.1.6.	Trowels	43
3.4.1.7.	Tank	43
3.4.1.8.	Testing machine	43
3.4.2.	Procedure	47
3.4.2.1.	Fabrication of concrete	47
3.4.2.2.	Method of making test specimen from fresh concrete	47
3.4.2.3.	Curing conditions	47
3.4.2.4.	Method for determination of compressive strength of concrete specimen	48
3.5.	Slump test	49
3.6.	Results	50
3.7.	Conclusions	73