PLANNING, EQUIPMENT AND METHODS USED IN THE

CONSTRUCTION AND BUILDING INDUSTRY IN CYPRUS

BY

Andreas Andreou

Project Report

submitted to

the Department of Civil Engineering

of the Higher Technical Institute

Nicosia Cyprus

in partial fulfilment of the requirements

1

for the diploma of

TECHNICIAN ENGINEER

in

CIVIL ENGINEERING

June 1991

HICHER	(1- (1)- (1) RQ
TECH	1769
	Construction of the second second second

HIGHER TECHNICAL INSTITUTE Nicosia - Cyprus

CIVIL ENGINEERING DEPARTMENT

Academic Year 1990/91

Diploma Project Number: C/565

<u>Title:</u> Planning, equipment and methods used in the Construction and Building Industry in Cyprus

Objectives:-

- To write a report on the different type of planning and equipment which are used by building and civil engineering contractors.
- 2. To discuss the methods of construction which are used by building and civil engineering contractors.
- 3. To comment on the above methods and give your opinion on how can be improved.

Terms and conditions:-

- 1. To visit various sites and take photographs to support your report.
- 2. To discuss the above objectives with local contractors.
- 3. To check with ministry of Trade and Ministry of Labour and Social Insurance for the Safety of planning and equipment an a building site.

Student : Andreou Andreas (3C1) Supervisor : Andreas Kkolos

External Assessor :

AK/ML

INTRODUCTION

The use of suitable mechanical aids on the site can reduce building costs considerably and speed up building operations. The off-site production of most building materials and components is generally highly mechanized; the mechanization site operations has been far less general. The of introduction of mechanical aids reduces labour costs and, by increasing the speed of construction results in earlier completion and enables the building owner to occupy the building and recover his capital outlay at an earlier date. It has been pointed out that there are a number of obstacles in the way of complete mechanization of building. Compared with other industries, building work is less repetitive and involves the movement of plant from one place to another as one job is completed and the next commenced. Perhaps the greatest hindrance lies in the fact that the greater majority of buckling designs, building techniques and sequences of operations on the site are still based an normal methods. Unless a building is so designed and the contract work so organized that machines can be operated for continuous periods at full capacity their use will not be economic.

The high cost of the more expensive plant can be justified only if the plant is kept in more or less continuous use. Many firms, especially the smaller contractors, experience difficulty in maintaining the necessary sequence of operations over a period long enough to justify the high initial cost of the plant. There are now, however, a considerable number of specialist firms with the necessary equipment who can be hired to carry out a particular operation, as well as firms who only stock plant for hire, so that with adequate and careful planning. It is possible for even the smaller contractor to mechanize those operations which can thereby be performed more cheaply.

The efficient employment of mechanical plant depends on a number of factors which must be given careful consideration at the outset of each job.

Careful planning of the work throughout is essential while it is true that on large contracts, provided that the work is satisfactorily planned mechanization will usually be on smaller contracts other advantageous, means of rationalization alone may be more effective such as careful programming of the work, flexible methods of working, efficiently planned site organization and the use of production aids to normal manual methods.

CONTENTS

	Introduction	
	Acknowledgements	
1 1 1 1 1	CHAPTER 1	Pag
a.		
Α.	CONTRACTOR'S MECHANICAL PLANT Small power plant	1
в.	Earth - moving and excavation plant	6
C.	Hoisting plant	9
D.	Transportation plant	14
E.	Mixing plant	17
	CHAPTER 2	
	METHODS OF CONSTRUCTION	
A.	Methods of excavating	37
Β.	Trench and Basement Excavations	38
C.	Formwork	40
D.	Methods of Handling	44
E.	Methods of Mixing and Transporting	45

age

CHAPTER 3

	COMMENTS ON THE ABOVE METHODS AND IMPROVEMENTS OF	THEM
Α.	Methods of Excavation	55
в.	Trench and Basement Excavations	55
C.	Formwork	56
D.	Methods of Handling	57
E.	Methods of Mixing and Transporting	58

CHAPTER 4

SAFETY OF PLANNING AND EQUIPMENT AND A BUILDING SITE

Introduction

Α.	Small power tools		59
Β.	cranes		62
C.	Hoists		67
D.	concrete pumps	X	69
Ε.	Other plants		70
	CONCLUSIONS	,	82