FINAL YEAR PROJECT

ADVANCED DIPLOMA IN CIVIL ENGINEERING

SCHOOL OF ENGINEERING

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM

BEHAVIOUR OF TWO - WAY PARTIALLY PRESTRESSING WAFFLE SLAB INCORPORATED WITH WIRE MESH (BRC) UNDER CYCLIC LOADING

by

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SYNOPSIS

This project study consists of preparing, fabricating and testing of two-way partially prestressing waffle slab incorporated with wire mesh (brc) test specimens under the **Knife Edge Load (K.E.L.)** cyclic loading process.

The test specimens, namely waffle slabs WS 01, WS 02 and WS 03 are of similar overall size but having different size and number of waffles and ribs within them.

The performance or behaviour of the test specimens are examined by load - deflection relationship, load - strain relationship, deflection and strain under load reversals and the ultimate and service loads of each slab system.

The experimental results obtained indicate that the presence of increased number of ribs will result in an improved overall performance by the test specimens.

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1.0 INTRODUCTION

1.1 GENERAL

Prestressing may be defined as the purposeful and controlled creation of permanent stresses in a structural member, before the full dead and live loads are applied, so as to counteract all or part of these loads. It serves two main purposes :

1. to improve the resistance of the member to the dead and live loads (service load).
2. to modify the behaviour of the member or structure in such a way as to make it more suitable for its intended purpose.[1]

For instance, post-tensioned prestressing slabs are stiffer and possess higher rigidity than normal reinforced concrete slabs, exhibiting improved qualities under service load.[2]

Prestressing can be classified into:

1. Full prestressing
2. Partial prestressing