



FINAL YEAR PROJECT REPORT
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BEHAVIOUR OF AXIALLY DISCONTINUOUS THIN-WALLED FRAME
STRUCTURES WHEN SUBJECTED TO TORSION

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ABSTRACT

The main objective of this project is to study the behaviour of an axially Discontinuous Thin-Walled Structures under torsional load.

Material test will be carried out on samples taken from both the member to determine the complete uniaxial stress-strain characteristics of the materials from which the modulus of elasticity and uniaxial yield stress can be extracted. Strains perpendicular to the direction of the applied stress will also be recorded for calculating Poisson's ratio.

A simple model was used to represent completely the behaviour of this thin walled structure with respect to bending and torsional.

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CHAPTER ONE

INTRODUCTION AND OBJECTIVES

1.1 INTRODUCTION

In the recent years the use of thin-walled cellular structures in the various types of civil engineering construction has increased with the economic necessity of providing high strength with low weight and cost. Thus thin-walled box section beam are replacing massive reinforced concrete beams, and torsionally stiff thin-walled cellular deck are replacing conventional lattice girder design in suspension bridges. Thin-walled hollow box sections are also used as columns and beams in building construction.

1.1.2 Characteristic of thin-walled structure

A thin-walled can be described as being a beam composed of several plates monolithically connected along their edges with the thickness of the plate being small compared with the other dimensions. Thin-walled section are usually cold formed steel sections and they are characterised by having high ultimate strength and very thin plate thickness.

Thin-walled structures may be of either “open” or “closed” cross section. Generally , however thin-walled structures are fabricated from thin steel plates in cold formed.