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National University of Science and Technology Zimbabwe

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF CIVIL AND WATER ENGINEERING

FINAL YEAR PROJECT

STRUCTURAL DESIGN OF A DOUBLE STOREY FACULTY BLOCK

By


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Final year project submitted in partial fulfillment of the BEng (Hons) Civil and Water Degree.

CHAPTER 1: INTRODUCTION

1.1 GENERAL DESCRIPTION OF THE BUILDING

This project is part of a proposed double storey faculty block to be built in Lupane for the government of Zimbabwe. Its need is due to the increasing number of students and the decentralization of the higher education system, which require new state universities to be constructed in all the provinces of Zimbabwe. The purpose of this super structure is to provide offices, laboratories and all facilities necessary for university education.

The building consists of a ground floor and first floor, which are used for the university activities. The first floor is used mainly used for laboratories and offices for lecturers. The building is approximately 9m tall with floors at 3.7m centers. The roof consists of triangular and curved steel trusses carrying chromadeck sheeting.

The main block of the building has staircases proceedings to the 1st floor. All set of the staircases are present at almost symmetrical positions around the whole building to allow easy access with minimum possible time to all parts of the building.

The project hereafter covers the structural concept of the building which basically is about the design of concrete elements which include slabs, columns, staircases, flanged beams, trusses, and column footings.