

ANALYSIS AND DESIGN OF A TALL STRUCTURAL STEEL BUILDING

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By

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Project Report

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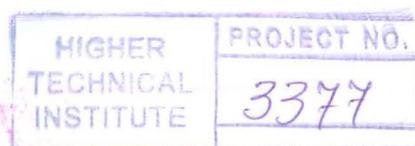
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CHAPTER 1 : INTRODUCTION

Today's construction engineers and managers are faced with unprecedented challenges in planning, designing and managing the construction process while at the same maintaining the public and private facilities required to meet our complex society's needs.

One can only imagine what a society without Civil engineers would result in, most probably a flat, monotonous, and plain structural landscape with little or no organizational nor sanitary order. Civil engineers take on the important role of the planner; they design, construct, and operate systems and structures that are of great importance to society. These systems and structures include huge suspended bridges, underwater highways, huge dams, international airports, subways and water treatment plants.

With the huge technological advancements that face our society on a day-to-day basis, it is more than obvious the computers have taken on a serious role not only in our everyday lives but also in our professional careers. Nowadays, the use of computers has overcome dull, time-consuming activities and reformed them into much compressed and sometimes even fun activities.

For the purpose of this Project, I have been given the opportunity to use the prominent "user friendly" Civil Engineering program, known as STAAD to analyze and design a fifty-storey building, while concurrently, taking into consideration other variables such as its wind loads, its imposed load, its dead load etc.

It is known and understood in this industry that the program, STAAD is the professional's choice for steel, concrete, timber, aluminium and cold-formed steel structures and thus it is currently used by over 90% of UK universities and many other universities in Europe. The main advantage of STAAD is that

it is "User Friendly" and features state – of – the – art user interface, excellent visualization tools combined with powerful analysis and design engines that have advanced finite element and dynamic analysis capabilities.

It is merely ironic that STAAD was originally developed by practicing engineers for practicing engineers around the globe, For over 20 years it has been changed and overcome many barriers and is now closely and constantly guided by a premier industry - based committee and for those who understand ISO regulations, it is the only Structural Analysis and Design software whose maker meets the rigid requirements of ISO 9001 certification. STAAD's development, maintenance, and support are all based upon the highest quality standards that are offered in the industry.

Given the opportunity to work with this program for my project I have learnt that trying to learn something new and different can at many times be a very hard and tiring challenge. On many occasions, when I thought that I had mastered the theory behind the creation of the program, something would occur that would make me re-evaluate my findings and data. On an overall note, understanding the fundamentals of the program was not as simple and easy as I had thought it would be. However, after spending endless hours, nights, and weekends using STAAD I feel that I have become quite accustomed to this unique program. Using this program combined with this project has changed my views, beliefs and ideologies regarding this overwhelming complex field.

On a final note, I believe that this particular project has given me a better understanding of this highly complex field and how I can use it in understanding the complicated structures that surround us. Regarding the STAAD program, well, I think that it was in itself an excellent learning experience. However, I am certain that even in this ever evolving industry we are very far from total commitment to any program hence the hands on approach in designing tomorrow's structures is still needed.

CONTENTS

Acknowledgements

Chapter I : Introduction

Chapter II : Theory

Chapter III : Training

Chapter IV : Main Structure

Conclusions

Appendix A : Output