

STRUCTURAL STEEL DESIGN
OF A TRANSMISSION TOWER

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PROJECT REPORT
SUBMITTED TO THE
DEPARTMENT OF CIVIL ENGINEERING
OF THE HIGHER TECHNICAL INSTITUTE
NICOSIA CYPRUS

c/1031

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS
FOR A DIPLOMA OF

TECHNICAL ENGINEER
IN
CIVIL ENGINEERING

JUNE 2007

HIGHER TECHNICAL INSTITUTE	PROJECT NO
	<i>3692</i>

CHAPTER 1

INTRODUCTION

1.1 GENERAL

Design of structural steel members has developed over the past 95 years from a simple approach involving a few basic properties of steel and elementary mathematics, to a sophisticated treatment demanding a through knowledge of structural and material behaviour.

The increasing need of people for electricity lead to the design and development of the transmission towers for a more direct and easier access of electricity into homes. In this project, a transmission tower will be designed with the programme of Staad.Pro.

Staad.Pro is the most popular structural engineering software product for 30 model generation, analysis and multi-material design. Staad. Pro uses software for structural analysis and design. The Staad. Pro Graphical User Interface (GUI) is normally used to create all input specifications and all output reports and displays.

1.2 STEEL STRUCTURE

For the project I have chosen a steel structure due to the fact that steel has several advantages comparing other materials. For example a steel structure costs less than other materials or a steel structure can be completed earlier. On the other hand, steel has also some disadvantages. For example steel has less fire resistance.

1.3 STRUCTURAL DESIGN

Structural design may be defined as a mixture of art and science combining the experienced engineer's intuitive feeling for the behaviour of a structure with a sound knowledge of the principles of statics, dynamics, mechanics of materials, and structural analysis to produce a safe, economical structure that will serve its intended purpose.

1.4 STRUCTURAL ELEMENTS

Transmission towers are constituted of distinct elements:

1. Beams (carrying lateral loads in bending and shear)
2. Columns (carrying axial loads in compression)
3. Trusses
4. Bases

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