

# COMPUTER AIDED DESIGN OF STEEL STRUCTURE TO REAE<sup>1</sup>

(CODE OF STRUCTURAL STEEL FOR BUILDINGS, MACAU STANDARD)

by

Vong Man-Kit

Thesis Supervisors: Mr. K. K. Cheong, Dr. K. P. Kou

## ABSTRACT

In steel structure design it is common to assume a section and check whether it is able to resist applied loading according to specified standard design criteria. This process is termed as “passive design” which is usually very complicated and time consuming.

Nowadays with the aids of computer, it is easy to perform complicated calculation accurately and rapidly. Many compatible analysis and design suites are in common use within the design groups, and to move in between analysis and design is generally so seamless that the separate processes are considered as one in the minds of many structural engineers or designers.

This thesis provides a design software application for steel structures, named as “**Steel Design REAE**”, short form as “***SD-REAE***” (version 1.0.0), which is a tailor-made tool with GUI (Graphical User Interface) working platform for Windows users, developed based on the regulations of Macau steel code published in 2001.

It is able to facilitate the steel design processes of tension members, compression members, bending members, combined axial force and bending, known as beam-column members in ultimate limit state and in fire limit state design. The program can provide individual details report and general report for users to examine. Furthermore, the components of the program include several kinds of structural sections, database, worked examples and tutorials etc.

---

<sup>1</sup> REAE is the short form of “**Regulamento de Estruturas de Aço para Edifícios**” which is the Macau standards for steel structure design.

In addition, the development of this software application will be of great value for engineers and designers in Macau.