

# Electrical Services for Buildings: A Consultant's Guide

FIRST EDITION

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## **Preface**

This book sets out to provide a basic grounding in the design of electrical services for buildings. It is intended for consultants and graduates in electrical and mechanical engineering who are about to specialize in building services after obtaining a broadly based, first degree. The book will also be useful to students of buildings services engineering in universities, technical colleges and polytechnics. The emphasis throughout is on the needs of a design engineer rather than those of an installation electrician.

While there is an increasing number of specialized degree courses, the requirements for greater flexibility among engineers within the industry has increased commensurably. Graduates find themselves called on to work in fields not fully covered in their studies. For example, an electrical graduate engineer who specialized in heavy current (high voltage) may be called upon to design low and extra low voltage systems. There is still a lack of books to bridge the gap between the theoretical texts and the unwritten experience of the experienced engineers. It was in the hope of meeting this need that I wrote this book.

To make concepts clearer, calculation examples have also been added where possible. An online page with real drawings in DWG (AutoCAD) format, real Bills of Quantities in Excel Format and Specifications in Word Format is also provided for every copy of this book bought online. The samples can be used in any project and will prove to be a good starting point for those interested in working on similar projects.

The subject matter of this book is the design of electrical services in buildings and I have kept strictly to this. There are in practice many cases where the electrical designer relies on information and assistance from specialists in related but separate fields such as heating and air conditioning, control systems in buildings. Description of such would be out of place here. There are complete books that deal with such.

Electrical systems in buildings are increasingly becoming sophisticated and it's enough for the building services engineers to be reasonably aware of the systems in use, and the duties that they perform; without the need for the engineer to be familiar with the intricacies of the electronic circuits. There are many building services design software packages on the market today, but the engineer still needs to know the basics of what they output and how the values are arrived at. The pace of change of legislation and standards is ever increasing and the engineer must keep tabs with such.

References used and quoted copiously have also been inserted at the end of each chapter and these can be consulted for further detailed information. I must thank the many firms and organizations who have lent information for public use as much of it has been incorporated in this book.

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