

HIGHER TECHNICAL INSTITUTE

CIVIL ENGINEERING COURSE

DIPLOMA PROJECT

ROOF CONSTRUCTION AND ROOFING SYSTEMS

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I dedicate this project to little
Aggelica
with all my love.

ROOF CONSTRUCTION AND ROOFING SYSTEM

by

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Project Report

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the Department of Civil Engineering

of the Higher Technical Institute

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in partial fulfillment of the requirements

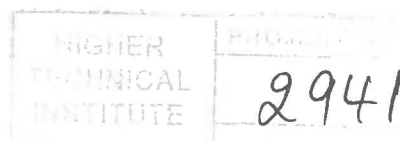
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SUMMARY

TYPES OF ROOF CONSTRUCTION AND ROOFING SYSTEMS

This project is a study about roof construction and roofing system that can be used on various kinds of buildings like houses, big buildings and factories , according to environmental and climatic conditions of Cyprus

The objectives of the project are:

1. Draw Details of the different types of Roof Construction and suitable Roofing Systems.
2. Elaborate on Watertightness, Energy Losses and Thermal and Sound Insulation criteria.

The project has been structured in such a way, so it can assist the reader to obtain a general knowledge about roof construction and systems and furthermore to enhance the readers with information concerning specific topics.

The first chapter deals with the Functional Requirement of the various type of roofs. Emphasis has been given to strength and stability, weather resistance, thermal insulation, sound Insulation and also fire resistance.

The second chapter works out the materials available for roof structure. Materials like Timber, Plastics, Steel, Reinforced and prestressed concrete and Aluminium alloys are explained in this chapter in a detailed report.

The third chapter explains all the types of roof structures according to three ways titled as:

- I. Flat and pitched roofs
- II. Two and three dimensional roof structures, and
- III. Long and short span roofs

From the fourth to the ninth chapter, readers can obtain every detail concerning the design Criteria for Flat roofs, Pitched roofs, Mild steel roof trusses, Wooden roofs, shell roofs and also the Traditional roofs. These chapters are accompanied with many photos and line drawings about the different types of roofs.

In tenth chapter an explanation is given of all the Roofing drainage systems of Pitched and Flat roofs .

Chapter eleven deals mainly on thermal insulation of the roofs.

In chapter twelve there is a detailed report and study of the various kinds of Dampness and Dampproofing connected with the causes of dampness. Additionally, a description about Waterproofing and the Material for roll roofing.

The thirteenth chapter deals with the Roof external and internal finishes and in with all types of tiles and ceilings related.

Finally in chapter fourteen, a brief explanation is given, about the Safe access for roof construction, the Economic Factors associated with roof construction and ways to prevent trouble in roof.

Appendices , conclusions and references are given at the end of this manual..

INDRODUCTION

Roofing - a marriage of beauty and function

From the very first beginning of the human race, human beings expressed their instinct need to protect themselves, goods and animals under a shelter, either physical or technically constructed by them.

Nowadays, for this shelter we try to maintain harmony between function and appearance. And whereas this manual deals mostly with practical matters, appearances should not be forgotten. Its focus is the roofs of domestic building-houses, home extensions, garages, and so on.

In this project I discuss the different types of roof structure and illustration of figures can be find inside.

All the suitable materials that are used nowadays are also mentioned in detail and illustrated with photos.

With the good knowledge of the materials used for thermal insulation and dampness and dampproofing we eliminate all the problems that we see on most of the roofs. Insulation is supplied in many forms which fulfill the requirements of the different conditions and locations in which they have to be used.

The roof finishes external and internal, except of the good appearance that they give, must also protect the roof from all the climate conditions. A good maintenance from the part of the owner is also necessary.

Ordinary roofs on ordinary houses are unlikely to achieve architectural awards, but if you prevent ugly depreciation you are contributing to visual amenity. "Small" can be beautiful, and if regularly maintained, the simplest roof enhances the skyline. A successful roof represents a marriage of beauty and function.

The aim of this manual is to provide guidance , explaining both the theoretical <why> as well as the practical <how>.