INSULATION OF A HOUSE

by

Pambos Papadopoulos

Project Report
Submitted to
the Department of Civil Engineering
of the Higher Technical Institute
Nicosia Cyprus
in partial fulfillment of the requirements
for the diploma of
TECHNICIAN ENGINEER

in

CIVIL ENGINEERING

June 1990



SUMMARY

Insulation of a house

This project deals with various ways and means of providing sound and weather insulation for a house. Furthermore it deals with the insulation materials used in Cyprus.

The first and second chapter deals with dampproofing which is the provision of water impervious coats on structures, in order to protect them against attack by humidity. The roofs, the walls and the floors are protected with such dampproof courses.

The third chapter is thermal insulation. Is employed for protecting the interior of buildings against losses of heat and cold to the surrounding medium with a view to maintaining specified temperatures. The thermal inuslation layer is designed to minimize losses of heat and of cold from surfaces and consist of materials of low thermal conductivity.

The fourth chapter is sound insulation. It deals with planning which is the most significant step towards effective noise control and sound insulation in general.

Finally the project ends with the fifth chapter which deals wih insulating materials which are being used in Cyprus.

CONTENTS

	Acknowledgements	1
	Summary	2
	Introduction	3
	CHAPTER 1	
	Roofing work - dampproofing	
1.1	Preparation of Decks and materials for roll roofing	5
1.2	Glueing waterproofing coverings	6
1.3	Mastic roof coverings	8
1.4	Application and kinds of dampproofing	10
1.5	Paint dampproofing	11
1.6	Glued-on dampproofing	13
1.7	Plaster cement-sand dampproofing	15
1.8	Plaster and cast asphalt dampproofing	18
	CHAPTER 2	
	Dampproofing for walls and floors	
2 1	Weather resistance	24
	Solid masonry walls	24
	Monolithic concrete walls	25
	Rising damp	26
	Identification and occurence	26
	Methods to conceal rising damp	28
	Floors supported directly by the ground	30
	Suspended concrete ground floors	31
	Protection of walls against moisture from ground	31
	3	

CHAPTER 3

Thermal insulation

3.1	Heat loss from buildings	37
3.2	Heat transfer	38
3.3	Thermal insulation for walls	38
3.4	Thermal insulation for floors	40
3.5	Thermal insulation for roofs	41
3.6	Coupled double glazed windows	42
3.7	Sound insulation properties fo multiple glazed windows	43
3.8	Draught insulation	44
3.9	Cavity walls	46
	CHAPTER 4 MARKET SELECTION OF THE SELECT	
	Sound insulation	
4.1	Sound insulation	55
4.2	Planning	56
4.3	Absorpion of sound	57
4.4	Sound insulation for plumbing	60

CHAPTER 5

Materials and technics

5.1	The light and cellular concrete	61
5.2	Rockwool mineral wool	67
5.3	Stiromat	71
5.4	Black compressed cork	80
5.5	Cavity wall insulation	93
5.6	Waterpproofing bitumen emulsions	94
5.7	Cold asphalt	96
5.8	Silicone surface water repellent	98
5.9	Rooftex	99
5.10	Polymeric waterpproofing and protective slurry	105
5.11	Roll waterproofing membranes	106
5.12	Aluminium roof coating	110
5.13	Acrylic roof coating	110
	CONCLUSIONS	112