JWST684-fm	JWST684-Mindham	February 24, 2016	9:9	Printer Name:	Trim: 127mm × 178mm

CONTENTS

1	Introduction and acknowledgements	1
	Acknowledgements	2
2	Roofing terminology	3
3	Calculating the size of timber members	9
	Strength and section size calculations	11
	How do we calculate the loading on the roof?	11
	Timber member sizing design: an example	12
	Cost consideration	19
4	Calculating the length and cutting angles of timber members:	
	data tables 5°–75°	20
	The pitch	23
	Using the tables to cut a common rafter	23
	Hip jack rafters	28
	Hip rafters	30
	Valley jack rafters	32

v

JWST684-fm	JWST684-Mindham	February 24, 2016	9:9	Printer Name:	Trim: 127mm × 178mm
------------	-----------------	-------------------	-----	---------------	---------------------

Contents

	The ridge	32
	Purlins	34
5	Wall plates – strapping and gable strapping	109
6	Wind bracing and openings for dormers and roof windows Openings for dormers and roof windows	111 113
7	Roofing metalwork and fixings Nails, bolts and screws	119 121
8	Engineered timber roofing components and prefabricated roofs Trussed rafters Spandrel panels Crane-on roof assemblies – trussed rafters Crane-on roofs – structural panels Crane-on roof assemblies – structural insulated panels Attic to room-in-the-roof conversion	123 123 125 127 128 128 130
9	Roof coverings – underlay, battens and tiles Underlay Battens Insulation and ventilation	134 134 138 140

vi

JWST684-fm	JWST684-Mindham	February 24, 2016	9:9	Printer Name:	Trim: 127mm × 178mm
------------	-----------------	-------------------	-----	---------------	---------------------

Contents	
Choosing the roof covering	154
Building regulations – thermal performance	162
10 Roof coverings – building detail drawings	179
The new BS 5534:2014	179
Manufacturer's specification	180
Hips, ridges, verges and valleys – traditional and new methods of construction	180
Roofing putties	187
Natural slates	189
Concrete interlocking tiles	192
Plain and peg tiles	193
Asphalt shingles	198
Metal tiles	201
Lead substitutes	202
11 Solar panels	205
Planning and roof suitability	205
Roof construction	206
Fixing the panels	207
Possible improved fixing	208
Variations on panel design	211

vii

JWST684-fm JWST68	84-Mindham February 24	4, 2016 9:9	9 Printer	Name: Trim	: 127mm × 178mm
-------------------	------------------------	-------------	-----------	------------	-----------------

Contents	
12 Sheds and outbuildings	212
Permitted development	212
Types of permitted building	212
Design	215
The structure	215
The mono-pitch roof	216
The dual-pitch roof	216
Roof coverings	218
Make your new building save money!	220
13 Tools and equipment	221
Obtaining information from the drawing	221
To cut the roof	222
Setting up the roof structure	222
Roof coverings	223
14 Health & safety considerations	224
Access to the roof	224
Basic principles	225
Restoration and renovation of existing roof structures	225
Newly constructed roofs	226

JWST684-fm	JWST684-Mindham	February 24, 2016	9:9	Printer Name:	Trim: 127mm × 178mm
------------	-----------------	-------------------	-----	---------------	---------------------

Contents

The roof covering	226
Conclusion	227
Bibliography	229
Index	243

ix

JWST684-fm JWST684-Mindham February 24, 2016 9:9 Printer Name: Trim: 127mm × 178mm