

MANAGEMENT EDUCATION AND TRAINING FOR REFURBISHMENT WORK WITHIN THE CONSTRUCTION INDUSTRY

A Thesis Submitted To The University Of Salford For The Degree Of

DOCTOR OF PHILOSOPHY

In The Department Of Civil Engineering And Construction

By

CHARLES ODITA EGBU BSc. (Hons), MASl.

1994

TABLE OF CONTENTS

	Page
Table Of Contents	i
List Of Tables	ix
List Of Figures	xv
Acknowledgements	xvii
Dedication	xviii
Abstract	xix

CHAPTER ONE: INTRODUCTION

1.1. The Statement Of The Problem	1
1.2. A Review Of Research Needs In Refurbishment Management	15
1.3. Summary	20
1.4. Objectives Of The Study	21
1.5. Benefits Of The Study	22
1.6. Structure Of The Thesis	23

CHAPTER TWO: RESEARCH METHODOLOGY

2.1. Introduction	27
2.2. Identification Of The Population Sample And Selection Of A Sample Frame	28
2.3. Methods Adopted For Data Collection	31
2.4. Statistical Techniques And Measures Used In The Study	58
2.5. Summary And Recommendations	59

CHAPTER THREE:**THE IMPORTANCE AND GROWTH
OF THE REFURBISHMENT SECTOR**

3.1. Introduction	61
3.2. Defining Refurbishment Work For The Present Study	61
3.3. The Refurbishment Sector Of The UK Construction Industry	64
3.4. Factors Influencing The Growth Of Refurbishment Work	68
3.5. Summary	74

CHAPTER FOUR:**CHARACTERISTICS AND DIFFICULTIES
ASSOCIATED WITH MANAGING
REFURBISHMENT WORK**

4.1. Introduction	75
4.2. Characteristics And Difficulties Associated With Managing Refurbishment Work	81
4.3. Degree Of Difficulty Of Refurbishment Characteristics And Levels Of Management	98
4.4. Degree Of Difficulty Of Refurbishment Characteristics And Types Of Organisation	108
4.5. Management Experience In Refurbishment And Degree Of Difficulty Of Refurbishment Characteristics	113
4.6. Degree Of Difficulty And Characteristics Of Types Of Refurbishment Projects	121

4.7. Managers' Perceptions On How Best To Overcome Difficulties Of Refurbishment Characteristics	128
4.8. Frequency Of Occurrence Of Refurbishment Characteristics	132
4.9. Conclusions And Recommendations	137

CHAPTER FIVE:

EDUCATIONAL BACKGROUND OF REFURBISHMENT MANAGERS

5.1. Introduction	142
5.2. Qualifications Obtained To Date By Refurbishment Managers	143
5.3. Managers' Main Area Of Study	147
5.4. Professional Qualifications And Membership Of Institutions	149
5.5. A Comparative Study: Educational Qualifications Of Refurbishment Managers And Construction Managers	151
5.6. Qualifications And Management Hierarchy	153
5.7. Conclusions And Recommendations	157

CHAPTER SIX:

REFURBISHMENT MANAGEMENT: AN APPROPRIATE BODY OF SKILLS AND KNOWLEDGE

6.1. Introduction	159
6.2. Management Skills And Knowledge: Definition And Characteristics	163
6.3. Management Skills And Knowledge: Theory and Practice	166

6.4. Perceived Importance Of Management Skills And Knowledge For Refurbishment	174
6.5. Perceived Importance Of Management Skills And Knowledge Across Types Of Refurbishment Organisations	208
6.6. Management Skills And Knowledge: Comparison With Other Studies In Construction	213
6.7. Qualities And Attributes Associated With Effective Management Of Refurbishment Projects	234
6.8. Degree Of Difficulty In Handling Management Skills And Knowledge (Job Dimensions) In Refurbishment	239
6.9. Conclusions And Recommendations	251

CHAPTER SEVEN:

MANAGEMENT EDUCATION AND TRAINING FOR REFURBISHMENT

7.1. Introduction	256
7.2. Definition Of Management Education And Training In The Context Of The Present Study	260
7.3. Provisions Of Management Education And Training Within Refurbishment Organisations	264
7.4. Assessing Management Education And Training Needs Within Refurbishment Organisations	273
7.5. Management Education And Training Evaluation Methods Within Refurbishment Organisations	276
7.6. Preferences On Methods And Delivery Of Management education And Training	279

7.7. Management Education And Training Needs For Refurbishment: Managers's Perspective	299
7.8. Management Education And Training Needs For Refurbishment: Organisations' Perspective	312
7.9. Grouping Of Job Dimensions (Skills/Knowledge): Data Reduction	314
7.10. Conclusions And Recommendations	334

CHAPTER EIGHT

DESIGNING MANAGEMENT EDUCATION AND TRAINING PROGRAMMES FOR REFURBISHMENT MANAGERS

8.1. Introduction	340
8.2. The Concept Of Learning And Learning Theories	342
8.3. Adult Learning	359
8.4. Learning Styles Of managers	363
8.5. A Framework For Educating And Training Refurbishment Managers	368
8.6. A Model For Postgraduate And Continuing Professional Development	375
8.7. Conclusions And Recommendations	388

CHAPTER NINEREFURBISHMENT MANAGEMENT
AND THE FUTURE

9.1. Introduction	390
9.2. The Major Factors That Are Likely To Shape The Future Of Refurbishment Management	392
9.3. Perceived Importance Of Future Skills And Knowledge: Refurbishment Managers' Views	419
9.4. Refurbishment Management Education And Training Needs For The Future: Managers' Perspective	433
9.5. Refurbishment Management Education And Training Needs For The Future: Organisations' Perspective	447
9.6. Conclusions And Recommendations	449

CHAPTER TEN:SUMMARY CONCLUSIONS AND
RECOMMENDATIONS

10.1. Introduction	452
10.2. Summary Of Conclusions	452
10.3. Recommendations For Further Research	462

APPENDICES

APPENDIX A

Semi-structured Interview Sheet: Training Officers	465
Semi-structured Interview Sheet: Refurbishment Managers	467
Letter Accompanying Questionnaire	472
Reminder Letters For Completion Of Questionnaire	473
Questionnaire	475
Respondents' Comments Concerning The Content Of The Questionnaire And Other Related Topics	483
Letter Accompanying Summary Conclusions And Recommendations	485
Glossary Of Formulae	486

APPENDIX B

Managers' Perceptions On How Best To Overcome Refurbishment Difficulties	489
The Relative Importance Of Management Skills And Knowledge For Refurbishment (Table 1)	494
Degree Of Difficulty In Handling Management Job Dimensions (Skills/Knowledge) In Refurbishment (Table 2)	496
Job Dimensions For Which Senior Managers Need Education And Training In Their Present Jobs (Table 3)	498

Senior Managers' Perceptions On The Job Dimensions Which They Do Not Need Education And Training In Their Present Jobs (Table 4)	499
Job Dimensions For Which Middle Managers Need Education And Training In Their Present Jobs (Table 5)	500
Middle Managers' Perceptions On The Job Dimensions For Which They Do Not Need Education And Training In Their Present Jobs (Table 6)	501
Job Dimensions For Which Junior Managers Need Education And Training In Their Present Jobs (Table 7)	502
Junior Managers' Perceptions On The Job Dimensions For Which They Do Not Need Education And Training In Their Present Jobs(Table 8)	503

REFERENCES

504

LIST OF TABLES

Table No:	page
1. Education Of British Managers	4
2. Repair And Maintenance (R & M) Output By Region	36
3. Degree Of Difficulty Of Refurbishment Characteristics: Refurbishment Managers	83
4. Usage Of Contract Forms And Procedures For Commercial Refurbishment Projects	92
5. Degree Of Difficulty Of Refurbishment Characteristics: Senior managers	99
6. Degree Of Difficulty Of Refurbishment Characteristics: Middle managers	100
7. Degree Of Difficulty Of Refurbishment Characteristics: Junior managers	101
8. Length Of Time Spent Working In The Construction Industry And Level Of Management	104
9. Length Of Time Involved In Managing Refurbishment Work And Level of Management	105
10. Age Of Manager And level Of Management	106
11. Educational And Professional backgrounds Of Refurbishment Managers And Level Of Management	106
12. Degree Of Difficulty Of Refurbishment Characteristics: Managers Of Specialist Refurbishment Organisations	109
13. Degree Of Difficulty Of Refurbishment Characteristics: Managers Of General Refurbishment Organisations	110
14. Comparisons Of Degree Of Difficulty Of Refurbishment Characteristics: Specialist And General Refurbishment Organisations	111
15. Frequency Distribution Of Length Of Time Refurbishment Managers Have Worked In The Construction Industry	114

16. Frequency Distribution Of Length Of Time Refurbishment Managers Have Been Involved In Managing Refurbishment Work	115
17. Frequency Distribution Of Age Of Managers	118
18. Rank Order Of Difficulty To Manage Types Of Refurbishment Projects	122
19. Frequency Of Occurrence Of Refurbishment Characteristics: Refurbishment Managers	134
20. Qualifications By Age	145
21. Qualifications By Main Area Of study	148
22. Membership Of Professional Institutions	150
23. Educational Qualifications/Achievements Of Refurbishment Managers And Construction Managers	152
24. Management level By Highest Qualification Obtained To Date	156
25. Management Skills And Knowledge Perceived As Most Important In Managing Refurbishment Work: Refurbishment Managers	178
26. Management Skills And Knowledge Perceived As Fairly Important In Managing Refurbishment Work: Refurbishment Managers	180
27. Management Skills And Knowledge Perceived As Not Important In Managing Refurbishment Work: Refurbishment Managers	181
28. Skills And Knowledge Perceived As Most Important By Senior Managers In Managing Refurbishment Work	183
29. Skills And Knowledge Perceived As Most Important By Middle Managers In Managing Refurbishment Work	184
30. Skills And Knowledge Perceived As Most Important By Junior Managers In Managing Refurbishment Work	185
31. Management Skills And knowledge perceived As Fairly Important By Senior Managers In Managing Refurbishment work	202

32. Management Skills And knowledge perceived As Fairly Important By Middle Managers In Managing Refurbishment work	204
33. Management Skills And knowledge perceived As Fairly Important By Junior Managers In Managing Refurbishment work	205
34. Skills And Knowledge Perceived As Not Important By Senior Managers In Managing Refurbishment Work	206
35. Skills And Knowledge Perceived As Not Important By Middle Managers In Managing Refurbishment Work	207
36. Skills And Knowledge Perceived As Not Important By Junior Managers In Managing Refurbishment Work	207
37. Perceived Importance Of Management Skills And Knowledge Across Types Of Refurbishment Organisations (Specialist And General)	210
38. 'Very' Or 'Vitality' Important Job Activities In Construction Management And Supervision	216
39. Data On Positions Of Respondents And Types Of Organisations In The CII Study	220
40. Relative Ranking Of Skills/Traits By Importance/Value Across Various Positions/Functions	222
41. Skills And Knowledge Most Required By Senior, Middle And Junior Construction Managers	226
42. Qualities And Attributes Associated With Successful Accomplishment Of Refurbishment Projects	236
43. Skills And Knowledge Perceived As Most Difficult In Managing Refurbishment Work: Refurbishment Managers	242
44. Skills And Knowledge Perceived As Most Difficult In Managing Refurbishment Work: Senior Managers	244
45. Skills And Knowledge Perceived As Most Difficult In Managing Refurbishment Work: Middle Managers	245
46. Skills And Knowledge Perceived As Most Difficult In Managing Refurbishment Work: Junior Managers	246

47. The Relative Degree Of Difficulty In Handling Refurbishment Management Tasks Across Specialist And General Organisations	248
48. Management Education And Training As part Of Corporate Strategy Of Organisation	264
49. Management Education And Training Provisions Geared Towards Refurbishment	265
50. Attendance Of Management Education And Training For Refurbishment Within The Last 2 years: Refurbishment Managers	268
51. Need For Management Education And Training Geared Towards Refurbishment: Training Officers	269
52. Responses To Formal Methods Of Needs Assessment	274
53. Responses On Evaluation Methods For Management Education And Training	277
54. Organisations' Preferences On Course Delivery Methods (In-house And External)	279
55. Managers' Preferences On Course Delivery Methods (In-house And External)	281
56. Managers' Preferences On In-house Training Methods	283
57. Managers' Perceptions On How Management Skills And Knowledge For Refurbishment Are Best Developed	284
58. Managers' Preferences On Course Duration	286
59. Managers' Preferences On Time Of Year To Attend Courses	287
60. Managers' Preferences On Location/Place Of Training	288
61. Factors Which Influence Managers In selecting Courses	296
62. Factors Which Influence Managers To Attend Courses	298
63. Managers' Education And Training Needs For Refurbishment In Present Job	300
64. Job Dimensions For Which Senior Managers Most Need Education And Training For Refurbishment In Present Job	305

65. Job Dimensions For Which Middle Managers Most Need Education And Training For Refurbishment In Present Job	306
66. Job Dimensions For Which Junior Managers Most Need Education And Training For Refurbishment In Present Job	307
67. Current Education And Training Needs For Refurbishment Organisations	312
68. Initial Statistics	320
69. Final Statistics	323
70. Rotated Factor Matrix	326
71. Stages Of The Experiential Learning Cycle	352
72. Dimensions Of Human Development	360
73. A List Of Modules And Sub-modules For Postgraduate And Continuing Education Programmes For Refurbishment Management	379
74. Household Composition In England And Wales: 1989 - 2011	418
75. Management Skills And Knowledge Perceived As Most Important In Managing Refurbishment Work In The Future: Refurbishment Managers	420
76. A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Refurbishment Managers	422
77. A Comparison Of The Rank Order Of 'Not Important' Skills And Knowledge For Refurbishment (Present And Future): Refurbishment Managers	423
78. Senior Managers' Ratings On The Most Important Skills And Knowledge (Job Dimensions) For The Future	425
79. A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Senior Managers	426
80. Middle Managers' Ratings On The Most Important Skills And Knowledge (Job Dimensions) For The Future	428

81.	A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Middle Managers	429
82.	Junior Managers' Ratings On The Most Important Skills And Knowledge (Job Dimensions) For The Future	430
83.	A Comparison Of The Rank Order Of Most Important Skills And Knowledge For Refurbishment (Present And Future): Junior Managers	431
84.	Refurbishment Managers' Education And Training Needs For The Future	434
85.	A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Refurbishment Managers	436
86.	Senior Managers' Ratings On The Job Dimensions For Which There Is Most Need For education And Training In The Future	439
87.	A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Senior Managers	440
88.	Middle Managers' Ratings On The Job Dimensions For Which There Is Most Need For education And Training In The Future	442
89.	A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Middle Managers	443
90.	Junior Managers' Ratings On The Job Dimensions For Which There Is Most Need For education And Training In The Future	444
91.	A Comparison Of The Rank Order Of Job Dimensions For Which There Is Most Need For Education And Training (Present And Future): Junior Managers	446
92.	Future Education And Training Needs Of Refurbishment Organisations	448
93.	A Comparison Of The Rank Order Of Job Dimensions For Which Refurbishment Organisations Most Need Education And Training (Present And Future)	449

LIST OF FIGURES

Figure No:	page
1. Levels Of Management In The UK	5
2. Population Aged 16 - 19 : 1971 To 2001	14
3. Population Of Working Age: 1973 To 2025	14
4. Number Of Contracting Organisations Participating In The Study	35
5. A Breakdown Of Questionnaire Responses By Types Of Organisation	55
6. A Breakdown Of Questionnaire Responses By Level Of Management	56
7. Construction Output By Sector	66
8. Repair And Maintenance (R + M) Output	67
9. Types Of Qualification	144
10. A Comparison Of Skills And Knowledge Most Required For Construction With Skills And Knowledge Most Important For Refurbishment: Senior Management	229
11. A Comparison Of Skills And Knowledge Most Required For Construction With Skills And Knowledge Most Important For Refurbishment: Middle Management	230
12. A Comparison Of Skills And Knowledge Most Required For Construction With Skills And Knowledge Most Important For Refurbishment: Junior Management	231
13. Likelihood Of Attending Management Education And Training Courses	270
14. Perceptions Of Training Officers On Factors Which Promote Management Education And Training Provisions Within Their Organisations	290
15. Perceptions Of Training Officers On Factors Which Inhibit Management Education And Training Provisions Within Their Organisations	291

16. Number Of General Management Courses Attended By Refurbishment Managers Within The Last 2 Years	292
17. Degree Of Satisfaction With The Amount Of General Management Education And Training Received Within The Last 2 Years	294
18. Degree Of Satisfaction With The Quality Of General Management Education And Training Received Within The Last 2 Years	295
19. Scree Plot	322
20. Kolb's (1976) Learning Cycle	364
21. Kolb's (1976) Learning Style Inventory (LSI)	365
22. Honey And Mumford's (1982) Learning Style Questionnaire (LSQ)	366
23. A Framework For The Education And Training Of Refurbishment Managers	369
24. A Model For Postgraduate And Continuing Education In Refurbishment Management	378

ACKNOWLEDGEMENTS

The author would like to thank the Science and Engineering Research Council (SERC) for financially supporting the work of this thesis.

My Profound gratitude is extended to my supervisor, Professor Barbara A. Young, whose sustained guidance, constructive advice and generous support were welcome.

My thanks to the Chairman and Head of Department Of Civil Engineering and Construction, Professor Ian D. Cluckie, and to other members of staff for their help and assistance.

I am also indebted to Dr. Rose Baker and Miss Sarah Corker for their support and perceptive comments.

DEDICATION

The author dedicates this thesis to his family: Margaret, Anthony, Juliana and Henry, without whose help and support during the past three years would have made it all impossible.

Also, to my late father, Lawrence, who laid for me, a sound academic foundation to work from. May his soul rest in peace.

ABSTRACT

The study is concerned with the management of refurbishment work within the UK construction industry, from a contractors' perspective. It investigates the main difficulties and problems which managers face in refurbishment work, together with the management skills and knowledge which they need and bring to their work. Management education and training needs of the organisation is also considered.

The methodology is a combination of both semi-structured interviews and a postal questionnaire. A total of 142 completed questionnaires from senior, middle and junior managers of 32 large refurbishment (general and specialist) organisations, formed the data base for the quantitative analysis. The quantitative data was augmented by qualitative information derived from semi-structured interviews with 32 training officers and 22 refurbishment managers.

Analysis of both quantitative and qualitative data determined the relative degree of difficulty associated with managing refurbishment tasks, and the qualities and attributes associated with successful management of refurbishment projects. It also allowed for the evaluation of management education and training provisions within refurbishment, together with education and training backgrounds of managers. Course duration, location and factors affecting their selection and attendance also received consideration.

The major characteristics and difficulties associated with managing refurbishment works have been established. Results of the study show that refurbishment work is complex, highly specialised and contains elements of work which are unique to the refurbishment sector.

The educational background of refurbishment managers indicates that majority of refurbishment managers have a trades background, coming through the ranks mainly as joiners and bricklayers.

A skills and knowledge inventory for refurbishment management has also been devised.

The study also demonstrates that there is little, if any, management courses, in-house or external, directly geared towards refurbishment.

The study recommends that guidelines advocating "how best" to overcome refurbishment problems and difficulties" for different types of refurbishment projects, and refurbishment works across industrial sectors, i.e. defence, hotel and health service sectors, be produced. Similarly, research to establish the core management skills/knowledge associated with successful accomplishment of the various types of refurbishment projects, and refurbishment works across industrial sectors is needed.

Further research needs to be conducted on personal qualities and attributes of refurbishment managers who are associated with successful accomplishment of various types of refurbishment projects.

Research to establish the extent and degree of involvement of the client, contractor and the rest of the design team, especially refurbishment managers, in carrying out refurbishment work is recommended. Further research to establish management education and training needs of medium and small size refurbishment organisations is suggested.

Following the development of a model for postgraduate and continuing professional development (CPD) management education and training programmes, research into "how best" refurbishment management education can be successfully and widely introduced into undergraduate curricular is needed.

CHAPTER ONE

INTRODUCTION

1.0. INTRODUCTION

1.1. The Statement Of The Problem

As we approach the year 2000, the United Kingdom has yet to develop any widely used, clearly understood and accepted method of educating and training its managers. The situation is one of continuing national debate about improving the quality of UK management education and training, Maclagan and Snell (1992³³⁷), Hirsh and Bevan (1988²⁶¹).

Similarly, there is a body of evidence which shows that managers in the UK are poorly educated and undertake little management training, Mangham and Silver (1986³³⁹), Handy et al.(1987²⁴⁴) and Constable and McCormick (1987¹²³). The managers of the construction industry are no exception. Silver (1991⁴⁵⁰) has referred to this situation as a "crisis" in management education and training in the UK.

Yet, poor management education and training has been assailed as a culprit in contributing to a country's economic decline, (AACSB, 1985⁵; Wrap, 1982⁵⁰⁹; Samuelson, 1990⁴³⁵).

The benefits that could accrue from adequate provisions of management education and training in the construction industry have been well voiced. The UK construction industry has seen much emphasis and attention, in the last decade, targeted on the necessity of the management dimension in education and training for improving performance and efficiency by researchers, Bennett and Flanagan, 1983³⁵; Naoum and Langford, 1987³⁷²; government bodies, NEDC, 1983³⁷⁶;

CITB, 1986¹²⁸; practitioners, Moore, 1985³⁵⁹; Birchall and Bottjer, 1986⁴²; and construction clients, Andrews, 1982⁷, 1983⁸.

However, evidence from a literature review suggests that studies that do exist on management education and training in construction are directed at new build, with none being specific to the substantial refurbishment sector, Young and Egbu, 1992c⁵¹⁷, 1993a⁵¹⁸.

It is, therefore, the purpose of this introductory chapter to review:-

- (i) The rationale for improving management education and training in construction, and the direction of construction management education and training for the future.
- (ii) The research needs in the management domain of refurbishment, especially as it relates to education and training of managers involved in refurbishment.

The suggestions drawn from the literature review will underpin both the theme and direction of the present study.

In April 1987, two reports were published simultaneously - "The making of managers" by Handy et al.(1987²⁴⁴) and "The making of British Managers" by Constable and McCormick (1987¹²³). Handy et al. looked at the ways that managers were trained and educated in the United States, Germany, France and Japan and considered what lessons could be learnt by the UK. Constable and McCormick

looked in detail at the provision of management education and training in the UK. In the main, the findings of these two reports were the starting point of the current stance on management education and training in the UK. Some of the findings of these reports deserve mentioning:-

- (i) 85% of top managers in the USA and Japan have degrees, whilst the only comparative figure in Britain suggests 24%.
- (ii) Britain graduates only 1200 MBAs (Master of Business Administration) a year, whilst the USA produces 70,000.
- (iii) Large corporations (2,000 plus employees) in France spend 3.36% of their wage bills on training of all types (with 30% of that put aside for management training), when their law only requires 1.2%.
- (iv) 42% of the top 300 companies in the USA and many big organisations in Germany and Japan devote more than five days off-the-job training per year to each manager, but over half of all UK companies appear to make no formal provisions for training of their managers. Of the UK companies employing more than 1,000 people, one-fifth make no provision for training of their managers.
- (v) Fewer than one in ten of large UK companies provide training for their senior managers.

As reported in the 1985 Labour force survey, there are 3.3 million self defined managers of all types in Britain (see Table 1).

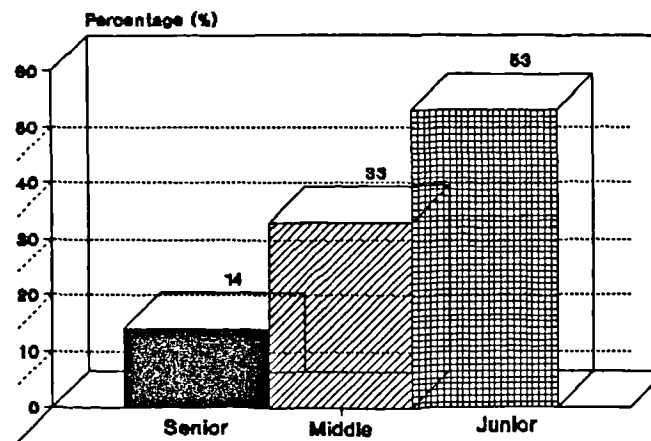
Table 1: Education Of British Managers

<u>Qualification</u>	<u>Men(%)</u>	<u>Women(%)</u>
First or higher degrees	12.1	12.8
Member of professional institution	6.2	2.5
HNC/HND	5.6	1.4
Nursing or teaching qualification	1.6	13.4
Apprenticeship (completed)	9.6	3.0
ONC/OND, city & Guilds, 'A'Levels	24.2	15.2
'O' level or equivalent	15.0	18.9
CSE below grade 1	1.5	2.2
Other	3.3	4.6
No qualification	19.1	24.7
Don't know/ No reply	1.7	1.2
Total Number of men/women	2,541,000	729,000

Source: Labour force survey, GB. 1985.

Of these, Handy et al. (1987²⁴⁴) note that 14% are senior managers, 33% are middle managers and 53% are junior managers (Figure 1).

Figure 1: Levels Of Managers In The UK



Source: Handy et al. (1987²⁴⁴) Making of Managers

On the basis of the UK management population, Handy et al. (1987), estimated that if a 25 year managerial career is assumed, the UK would require a minimum of 130,000 potential new managers each year to replace the stock. Of these, 90,000 would be expected to have senior managerial responsibilities.

Handy et al., went further to add that of the 90,000 new managers we produce, 5,000 have first degrees in business and management, 1,600 have diplomas and 1,200 have British MBA. The study conducted by Handy et al. concluded that with four times the British population, the USA produces over 40 times these numbers i.e. the UK performs less by a factor of 10.

Evidence from these reports suggests that the UK needs to do more to educate and train her managers, and also to do it more systematically.

Although the reports did not distinguish the various sectors of the British Industry, it is generally agreed that no sector is any better or worse than any other in the provision of management education and training. (Silver, 1991⁴⁵⁰; Handy et al., 1987²⁴⁴; Constable and McCormick, 1987¹²³).

In the Construction industry, especially in the 1960's, 1970's and 1980's, the route followed in educating and training managers was similar to that taken by most other industries. Management education and training were left to the more "sophisticated" contracting organisations, with individual managers undergoing traditional in-company training programmes, supplemented by intermittent periods at management training centres and/or Business Schools. Even until the late 1980's, there was no established career route in construction management, (Young, 1988⁵¹⁰; CITB, 1988a¹²⁹). There were also few construction related management qualifications and no framework for construction management development (CITB 1988a¹²⁹).

In the construction industry, the relationship between labour inefficiency and resultant business decline, coupled with losses and failure, is well known. Many construction writers contend that its root lies with management capability, Horner et al.²⁶⁸, 1987; Bufaied, 1987⁷¹; Oliver-Taylor, 1993³⁸⁸. As Oliver-Taylor (1993³⁸⁸) noted "over eighty (80%) of all controllable defects (in construction) are the result of management" p4.

In 1976, the National Economic Development Council (NEDC, 1976³⁷⁵) set out to establish specific areas for improving construction efficiency. The study revealed that

the area likely to make the greatest contribution to improving efficiency was construction management. In addition, the study recommended that an increase in education and training of site management coupled with a general improvement in skills acquisition of all construction management is needed.

As construction is a labour intensive industry (Hillebrandt, 1984²⁵⁷), improvement in labour efficiency can have significant improvement on both productivity levels and profit margins.

In appreciation of the effect of poor construction management education and training as well as the lack of any framework for construction management education and training in the UK construction industry, The Morley (1986³⁶⁰) report notes that:-

"...quality of higher management needs to be improved and that companies ought to make use of training programmes that are already available. Improved training would also be a means of improving profitability and competitiveness". p6

The Morley (1986³⁶⁰) report called for action to be taken on a number of issues, including:-

- (i) Undertake surveys into training needs and provisions.
- (ii) Identify gaps in the provision.
- (iii) Prepare a detailed structure plan of framework for management development in construction.

As a result of the recommendations of the Morley report, the CITB (1988b¹³⁰) published a survey of supervisory and management training needs in the UK construction industry. Although, the study highlighted training needs in construction management, it did not give due consideration to sector differences, particularly, the refurbishment sector. Failure to address the special problems and characteristics of sector differences, could have profound consequences for construction in the future. This could lead to mis-matching of skills and jobs in the different sectors of the construction industry. Hirsh and Bevan (1988²⁶¹), drawing on their study on "What makes a manager?", pointed out that management education and training, and any approach which aims to analyse management skills but does not address problems of diversity is likely to fail.

It is one thing to accept that construction management education and training is vital. It is another thing to address the content, length and direction of management education and training for construction.

In their study titled "Management Educators look to your Market", Reynier and Bennett (1979⁴²³) noted that recipients who had attended management courses, maintained that course content bore no relationship to the needs of managers. This view is also supported by Livingston (1971³³²), Pfeffer (1981³⁹⁹) and Mintzberg (1975³⁵⁵). Livingston (1971³³²) contends that 'crucial management tasks' are not taught in management education programmes. Similarly, according to Sir Peter Trench (1982⁴⁸²), management courses lack the practical edge of commerce.

The Council for National Academic Awards (CNAA, 1987¹³⁶) Survey, sought views from the National Contractors' Association on the direction of construction management education. The central message of the survey was that postgraduate provision in construction management should be more directly applied to the needs of the construction industry. There was unanimity on the method of achieving this, through improving the construction research base.

There was also a general consensus among all those (academic and practitioners) who attended a research seminar⁴¹⁸ in 1987 titled "Education For The Professions of the Construction Industry", that improving the research base is the best way of satisfying the needs of the construction industry, since it was recognised as particularly inadequate across the construction management discipline.

In considering an overall strategy for education training in construction, a report by the Centre for Strategic Studies in Construction, (CSSC, 1989⁹⁹) titled "Investing in Building 2001" notes that:-

"A council of Building Education and Training is needed to consider the total spectrum of education and training provision in a co-ordinated manner. In particular, it will need to reconsider and then keep under review the relationship between..., first degrees, postgraduate provision, experiential learning in the work environment and CPD" p38.

On the way forward for management education and training for construction, the CSSC (1989⁹⁹) report advocates the following:-

- (i) There should be an increase in Modular Courses with credit accumulation and transfer between courses.
- (ii) Greater interaction between education and industry at all levels and in provision for Continuing Professional Development (CPD).

These views of the Centre for Strategic Studies in Construction had also been voiced by Constable and McCormick (1987¹²³) in their study "The making of British Managers", cited earlier. This would seem to be the direction of management education and training in the UK. Some of the recommendations from Constable and McCormick's study can be summarised as follows:-

- (i) Management education and training should be seen as a career long process, involving in-company training and external education.
- (ii) Management training should be modular in form and designed in such a way that in-house programmes could be combined with external courses.
- (iii) There should be more than one level of qualification with level closely attuned to career development and related to on-the-job experience.
- (iv) There should be an established forum for management education and training to allow more effective consultation between all related parties.
- (v) There should be the establishment of a credit transfer system which covers both academic institution and programmes within companies.
- (vi) Management efforts should be made to increase the scale of continuing management education, training and development.

Continuing professional development is an issue which is currently receiving a great deal of attention in the construction industry. In 1988, the Centre for Strategic Studies in Construction, published a report titled "Building Britain 2001" (CSSC, 1988⁹⁸). The report notes that:-

"Education does not stop with a degree or a professional qualification and continuing professional development is crucial to everyone in building. All professionals have an obligation to keep abreast of developments in their fields. We should all expect to learn new techniques over the course of our working lives" p73.

By January 1990, continuing professional development was made obligatory for all members of the Chartered Institute of Building (CIOB, 1989¹⁰⁹). For other professional institutions, such as The Royal Institute Of British Architects (RIBA), The Institute of Civil Engineers (ICE), and The Royal Institution of Chartered Surveyors (RICS), continuing professional development is equally as important.

Similarly, the government White paper "Employment For the 1990's" (CM540 1988¹⁷⁶) recognised the particular importance of training for all managers through out their working lives, reinforcing the view that if the UK is to maintain her competitiveness in the world market place, "We must invest in skills and knowledge for our people and build up industry's skill base through a strategy of training through life". p4.

The White paper saw the government's role as setting a framework to facilitate training to be taken forward by the Training Agency. The framework operates on three tiers. Firstly, at a national level, the task is the development of policies for training through a National Training Task Force. Secondly, at the industry level, a voluntary system of employer led organisations will identify an established national standards of competence - Management Charter Initiative (MCI). It will also secure

recognition either by sector or by occupational groups through accreditation by the National Council For Vocational Qualifications (NCVQ). Thirdly, it is the government's view that delivery of training should be closely related to the circumstances of local areas. This has led to the creation of Training and Enterprise Councils (TECs) which are to operate government's training programmes, and also to ensure that training efforts are of the scales and quality required to meet the needs of local labour markets.

In 1990, the Construction Industry Standard Conference (CISC) was formed through the joint efforts of the Construction Industry Council (CIC), the CITB and their leading members. The CISC is responsible for producing a framework of qualification for the NCVQ and accreditation covering professional management and technical occupations within the construction industry.

The NCVQ (1991³⁷⁴) has defined a National Vocational Qualification as

"a statement of competence", which should incorporate:-

- (i) The ability to perform in a range of work-related activities.
- (ii) The skills, knowledge and understanding which underpin such performance in employment.

The framework of National Vocational Qualifications are defined under five levels of qualification. Levels 1-3 are at craft and operative levels. Levels 4 and 5 are at professional and management levels. At the time of writing, a framework at level 5 is currently being devised for the construction industry.

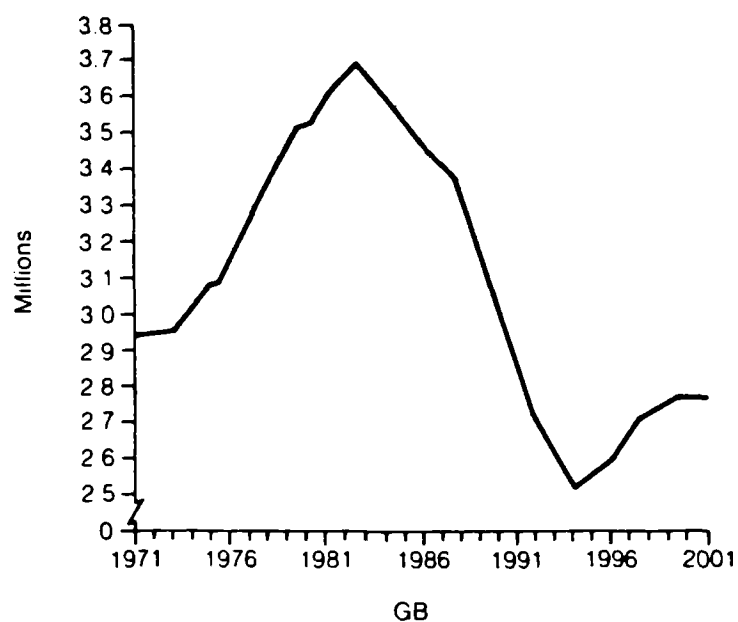
There are other factors that are likely to shape the direction of construction management education and training in the late 1990's and through to the early part of twenty-first century. These need to be considered. Two factors can be addressed with this discourse, they are:-

- (i) Harmonisation of the European Community (EC) - A single European Market 1992.
- (ii) Demographic changes.

The opening up of Europe is likely to increase opportunities and competition, as large number of workers and construction firms enter the UK construction industry. The CSSC (1988⁹⁸) is of the view that the construction industry 'will suddenly' face a home market six times as the present one. Construction management education base will need to be flexible to accommodate multi-disciplinary teams of builders, designers, managers, as well as specialist skills and knowledge that are likely to ensue.

Demographic changes is another issue that is likely to influence the direction of construction management education and training. The number of school leavers (16-19 year olds) entering the labour market - a traditional source of recruitment (CSSC, 1989⁹⁹) is predicted to decline (Employment Department, 1988¹⁷⁶). In 1993, the number of school leavers in the population eligible for work stands at 2.5 million (see Figure 2), one million less when compared to 1983.

Such discouraging news also applies to the number of graduate intakes. The Institute for Manpower Studies (IMS, 1989²⁷⁷), estimated a severe shortfall in the number of graduates until the end of the 1990's.

Figure 2: Population Aged 16-19: 1971 To 2001

Source: OPCS and Government Actuary's Department

In addition to this, the labour force in the late 1990's and early 21st century will contain more 25-54 year olds (see Figure 3), and as many over 55s as at present.

Figure 3: Population of Working Age: 1973 To 2025

Source: OPCS and Government Actuary's Department

The implication of these demographic changes to construction management education and training is two fold. Firstly, the construction industry will need to attract into management the best recruits and develop their skills, knowledge and talents to the full. Secondly, the construction industry will need to realise the great potential of existing managers through continuous management development.

However, as the CITB (1988a¹²⁹) pointed out, and to reiterate, the direction of management education and training and any framework for education and qualification in construction must take account of "the particular problems and special nature of the construction industry such as the sector differences" p4.

1.2. A Review Of Research Needs In Refurbishment Management

The management of refurbishment projects is an activity that has been in existence since mankind started building shelters and needed to upgrade and improve his built assets. Yet, for the refurbishment sector of the construction industry, only a meagre amount of research in the UK has been conducted in the management domain (Quah, 1988⁴¹⁰; Young and Egbu, 1992a⁵¹⁵, 1992c⁵¹⁷).

As Quah (1988⁴¹⁰) noted, "there exists at present imperfect knowledge and understanding of the refurbishment processes within an industry which has traditionally been geared to new works" p2.

Norman Douglas (1988¹⁶⁵), a Director of Costain Construction Limited (Refurbishment Division) is also in support of this view. He noted that "... there is concern within the Building Industry that for a sector such as refurbishment, rehabilitation, repair and maintenance, contributing a major proportion of the workload, all skills and management training are directed at new construction skills" . p78.

There are construction writers who have also suggested that refurbishment work is less predictable than new build work, with higher elements of risk and uncertainty (Harrington, 1979²⁴⁸; Chapman, 1980¹⁰²; Quah, 1986⁴⁰⁹, 1988⁴¹⁰, 1991a⁴¹²; Teo, 1990⁴⁷³).

Similarly, other writers are of the view that refurbishment processes are more difficult to manage than new build (Hoffman, 1978²⁶²; Koehn and Tower, 1982³⁰⁶) and that it demands management approach and skills which are different from new build (Hill, 1976²⁵⁶; Dixon, 1990¹⁶³; BRE, 1990⁷⁷).

In his keynote speech at the 1990 CIB W70 conference on "Building and Modernisation Worldwide", held in Singapore, Ian Dixon (1990¹⁶³), Past President of the Chartered Institute of Building (CIOB), UK, emphasized that building modernisation, refurbishment, conservation and maintenance present considerable demands for an industry whose structure, occupational pattern, contractual arrangement and training reflect a pre-occupation with new construction. He noted that:

"It is not sufficient simply to modify these things slightly in order to address the maintenance market successfully. A fundamentally new approach is needed based upon an analysis of the managerial demands which maintenance presents" Vol 1. Pg xlii.

From the foregoing, this would mean that the validity of using existing (for new build) techniques, procedures, management systems and principles, modified on ad-hoc basis to cater for the vagaries of refurbishment characteristics, problems and other processes remains questionable.

Quah (1988⁴¹⁰) in her study on "Evaluation of the risks and tendering for refurbishment work" pointed out that "a study into the managerial and technical skill needs for refurbishment work would be the first step towards improving productivity in this sector of the industry" p356.

Understanding the background of managers and the nature of refurbishment work was the central message of the 1981 report of the Construction Industry Research and Information Association (CIRIA, 1981¹²⁶). CIRIA recommended that there should be an investigation of the type, background and training of managers and supervisory staff in the refurbishment sector and of the future needs. To this end, CIRIA commissioned a study on the management of renewal works. This study is being conducted at the School of Civil Engineering, University of Birmingham. In 1992, the present author visited University of Birmingham, and had two separate meetings with the researchers involved in the study so as to ascertain both the exact nature of the research and the progress made to date. Since 1992, several contacts

have been made with University of Birmingham. However, as at the time of writing, a report on their study has not been published yet.

In 1985, the EDC¹⁷³ report titled "Strategy for Construction R&D" examined the inadequacy of construction industry research and development. The report noted that:-

"Repair and maintenance has increased 20% over the last decade ... a better R&D knowledge base is essential...even a 1% reduction in repair and maintenance because of better construction standards and improved durability would be a saving of over £100m a year". (EDC, 1985¹⁷³).

In recognition of the importance of the refurbishment sector, the department of Environment (DOE) and the Science and Engineering Research Council (SERC) instituted a study in support of the government LINK programme on construction technology and management of maintenance and refurbishment. The study was carried out by the Centre for Construction Market and Information (CCMI). The published CCMI (1988⁹⁷) report pointed out that the current education and training of managers is exclusively related to design and construction of new buildings. The report recommended that:-

"The curriculum of architects and professional consultants, construction managers and craftsmen need to embrace education and training that relate to the type of work...." Vol. 1, p13.

Similarly, in one of their articles titled 'A need for appropriate management training and education for refurbishment within the construction industry', Young and Egbu (1992c⁵¹⁷) emphasised that "...there is now an urgency to establish and identify appropriate education and training both in content and processes, for managers involved in refurbishment" p268.

Many researchers are of the view that an understanding of the manager's job is important, and needed before the design of any management education and training programme (Stewart, 1979⁴⁶⁵; Mintzberg, 1980³⁵⁶; and Kotter, 1982b³¹³). These researchers have also argued the need for management education and training to take account of reality, i.e. both managers job and environment. As Revans (1966⁴¹⁹) informed us, if any management course is to be worthy of attendance, it must be designed based on empirical investigation and embracing management operations as its field.

It follows, therefore, that an understanding of the nature and characteristics of the refurbishment processes, and the difficulties that confront managers is necessary, in conjunction with establishing management education and training needs.

1.3. Summary

This chapter assessed the extent to which construction management education and training is deficient, as well as the direction of management education and training for the future.

A number of reports, from government bodies, construction writers and those of the construction industry - contractors and clients, have highlighted that construction management education and training in the UK, is deficient both in content and processes. There are few management education and training courses and that there is no widely used, understood and accepted framework for educating and training of construction managers. Courses do not bear resemblance to the needs of construction.

With regards to the direction of construction management education and training:-

- (i) Construction management education and training should mirror the industry's needs in terms of skills and knowledge. Such skills and knowledge need to be research based, and take account of the particular problems and special nature of the sector differences.
- (ii) The structure of construction management education and training should be modular, and the contents transferable and geared to work based learning at a pace to meet the individual manager.

- (iii) Education and training should be for all throughout life - Continuing Professional Development (CPD).

Finally, from the literature review, a discovery was made of the meagre amount of studies conducted in the refurbishment management domain. Evidence has also shown that management education and training that exist in construction, are directed at new build, with little or none in the area of refurbishment.

1.4. Objectives Of The Study

The main objectives of the study are as follows:-

- (i) To establish the major characteristics and difficulties which confront managers in carrying out refurbishment work.
- (ii) To establish the educational and training backgrounds of managers involved in refurbishment.
- (iii) To ascertain the skills and knowledge needed for managing refurbishment work and to devise an appropriate body of management skills and knowledge for refurbishment - A skill and knowledge inventory.
- (iv) To examine the nature and extent of management education and training that exist within refurbishment organisations.
- (v) To ascertain the major factors that affect the provision of management education and training for refurbishment.
- (vi) To examine the current and future management education and training needs, both at organisational and managerial levels, for refurbishment.

1.5 Benefits Of The Study

The study may be of benefit to individual managers, refurbishment organisations, course designers/educators, and clients of the construction industry as follows:

- (i) Awareness and the acquisition of relevant skills and knowledge for refurbishment should be of value to the individual managers; as it could lead to job satisfaction.
- (ii) For individual managers, appropriate courses based on the needs of refurbishment could help advance career prospects.
- (iii) The results of the study could assist refurbishment organisation in the selection and recruitment of personnel. Recruiting managers with appropriate skills and knowledge should help reduce mis-matching of skills and jobs.
- (iv) Refurbishment organisations could become more knowledgeable about refurbishment processes, and may become more attuned to clients needs.
- (v) An understanding of the characteristics, difficulties and demands of refurbishment processes will assist in both the identification of responsibilities and level of training provisions.

- (vi) An establishment of management education and training needs for refurbishment, should allow educators to advise on and provide relevant courses for existing managers and those aspiring managers associated with refurbishment.
- (vii) Course designers, educators and those who are associated with the formulation of a national qualification framework for construction management, may wish to incorporate some of the findings of the results in national provisions.
- (viii) For the construction industry as a whole, managers with the relevant skills and knowledge could contribute to the productivity, labour efficiency and effective management of construction resources. The research may also have an added benefit of raising the profile and image of industry through a dissemination of the findings.

1.6. Structure Of The Thesis

The thesis has been organised in a logical manner in order to enable the reader to appreciate the thoughts of the author in achieving the objectives of the study.

The structure is as follows:

- (i) A review of literature will be conducted at each stage to enable a better understanding of the subject matter of the study. This should form the basis of the study, and allow working hypotheses to be formulated.

- (ii) Empirical investigations carried out by other researchers, when and where appropriate will be presented, and will enable comparisons of similar work to be made.
- (iii) Semi-structured interviews with training officers from refurbishment organisations, and refurbishment managers, will provide qualitative data for the study and will be reported at appropriate intervals throughout the study.
- (iv) Quantitative data from questionnaire distribution to refurbishment managers provide the major source of hypotheses testing.

In chapter two, the main research methodology is discussed, including the selection and justification of research approach and sample frame adopted. The difficulties encountered and the various research instruments used in mitigating such difficulties also received attention.

Chapter three states the definition of refurbishment in the context of the present study. The importance and growth of the refurbishment sector are also discussed. Various factors have given impetus to the growth of refurbishment. These are duly considered.

The nature and characteristics of refurbishment processes, from a management perspective, form the theme of chapter four. In addition, the major difficulties which confront refurbishment managers in the course of carrying out their work together with the frequency at which they occur, are established.

Chapter five discusses the educational and training background of refurbishment managers.

In chapter six, the skills and knowledge which managers need and bring to their work are highlighted. These skills and knowledge are also considered along managerial levels and on the basis of specialism of refurbishment organisations (general and specialist contractors). This chapter sees the derivation of an appropriate body of management skills and knowledge for refurbishment - A skill and knowledge inventory.

In chapter seven, the extent and nature of management education provisions within refurbishment organisations are discussed. Also considered are the preferences of managers and organisations as to the methods and delivery of management education and training. Besides these, management education and training needs for refurbishment are considered from both organisation and manager perspectives.

In chapter eight, a framework for management education and training of refurbishment managers is devised. The framework takes into account managers' preferences on methods and delivery of management education and training. Also, a model for postgraduate and continuing education is developed. The model takes

into consideration the current trend in management education and training, especially as it relates to modular schemes, National Vocational Qualifications (NVQ), credit accumulation transfer (CAT) and accreditation to prior learning (APL).

Chapter nine discusses the future of refurbishment management. The requisite management skills and knowledge needed for a changing industry are also discussed. Besides these, future management education and training needs for refurbishment are also duly considered.

Finally, chapter ten summarises the main findings of this research and its contribution to research in the management domain, especially as it relates to education and training. It also provides recommendations for future research in this area.

CHAPTER TWO

RESEARCH METHODOLOGY

2.0. RESEARCH METHODOLOGY

2.1. Introduction

This chapter sets out the research methodology adopted for the present study. One of the primary problems which this author faced at the outset was the lack of published literature, data and research findings relevant to management education and training needs for refurbishment work in the UK and international construction industry, which could be used as reference material.

The methodological procedure that had to be adopted for the present study needed to be one capable of providing in-depth, relevant, up-to-date and reliable information on the refurbishment industry. Also, it had to provide a means of evaluating the characteristics and difficulties of refurbishment processes from a contractors' perspective. The methodologies took account of the management skills and knowledge which managers need and bring to their work, as well as the nature and extent of management education and training provisions for refurbishment within the construction industry.

This chapter starts by identifying the sample population and sample frame for the study. The problems encountered in so doing, and the strategy adopted to mitigate such problems are also considered.

The social scientist is faced with a variety of options for data collection. The options adopted for the present study and the reasons underlying the choice of options are discussed in detail.

Finally, the statistical techniques and measures used for data analysis and transformation are presented.

2.2. Identification Of The Population Sample And Selection Of A Sample Frame

In a study of this nature, it was necessary to have a population sample which is homogenous, comprehensive, and one which gives a true representation of large construction organisations that carry out refurbishment work within the UK construction industry.

There are three main reasons for choosing large refurbishment organisations for this study, namely:-

- (i) It is generally accepted that the management training and education that exists in construction are mainly carried out by large organisations (CITB, 1988b¹³⁰; Duff and Mankin, 1990¹⁶⁹). It was, therefore considered, that the information sought on education and training for the study, are best obtained from large construction organisations.
- (ii) The period of this study, coincides with the poor economic climate in the UK construction industry, with record levels of insolvencies of firms, take-overs, restructuring amongst firms and many firms disposing of some of their better assets (Kynoch, 1992³¹⁵; Whitmore, 1992⁵⁰⁰). It is also generally recognised

that larger firms are better placed to cope with difficult times than small sized firms, as smaller firms are more at risk from the vagaries of the market (Young, 1991⁵¹²).

- (iii) By virtue of size, large organisations employ a large number of managers. This factor would assist in securing the co-operation of a large number of managers who are to participate in the study.

Non-existence of any official directory of refurbishment contractors in the UK, posed difficulties at the outset for this study, in obtaining a representative sample population.

Several efforts were made to obtain a suitable list of contractors in the UK who carry out refurbishment work. Initially, Kompass/CBS (1992) and Kellys' Business Directory (1992) were consulted for names of large refurbishment contractors. Although, both directories listed large contractors, it was impossible to ascertain which of the contractors carry out refurbishment work. With a large list of contractors in both directories, it was considered uneconomical to telephone each individual organisation to ascertain whether they carry out refurbishment work or not. The idea of using the two directories was abandoned.

Other attempts were also made in an effort to obtain a suitable population sample. The Construction Industry Training Board (CITB) was contacted in order to obtain a list of building companies, with details of the kind of work they carried out. Regrettably, the information sought could not be released due to reasons of

confidentiality. The Directory of the UK Construction Industry (1990), published by the Building Economic Bureau Ltd., was also consulted. The directory contains major construction organisations. However, it was not possible to identify from the directory, which of the contractors carry out refurbishment work. The idea of using this directory was also discarded.

Another attempt in obtaining a suitable population sample frame was to obtain a list of national contractors from the Building Employers Confederation (BEC). This attempt proved successful. The current membership directory of the National Contractors Group (NCG, UK - 1990) was obtained. The NCG is one of five sectors of the BEC, the premier employers' organisation for the UK building industry. The group comprises the largest companies in membership of the BEC.

The directory details the types of work each member undertakes, the area in which they operate, as well as contact addresses of individual organisations. This directory has the characteristics of a good sample frame, in that it is comprehensive (Hoinville et al., 1978²⁶³). It was important and necessary that the selection of contracting organisations was made from one source - a homogenous sample frame. Reliance on more than one sample frame is ill-advised as this could lead to duplication or double counting.

From the NCG directory, seventy contracting organisations were identified as carrying out refurbishment work. The work they carry out includes, new build work, commercial, industrial, housing and historic building refurbishment.

The procedure adopted in selecting refurbishment organisations, which were to participate in the study, was to contact the marketing and/or personnel departments of all the seventy contractors by telephone. It was essential to make sure that all the refurbishment organisations listed in the directory were large, still in business and carrying out refurbishment work. The telephone contacts made this possible. All the seventy refurbishment organisations make up the sample population for the present study.

Having arrived at the population sample the next stage was deciding whether the survey for the study should include all elements of the population, or targeted at certain elements of the population. As two of the main objectives of the study are to ascertain the extent of management education and training provisions that exist within refurbishment organisations, and the degree of importance of management skills/knowledge, which managers need and bring to their work, it became pertinent that training officers as well as managers involved in refurbishment (refurbishment managers) were to be targeted.

2.3. Methods Adopted For Data Collection

The data derived for the present study was not found to be available from any other source. This meant that collection of primary data was not only preferred, but inevitable.

There are several methodologies open to a researcher for collection of data. Buckley et al. (1976⁷⁰), have grouped these methodologies under four headings,

namely opinion research, empirical research, archival research and analytical research. Jobber (1991²⁸³) demonstrated that it is impossible to say which method is superior in abstract terms, and that each method has its own strength and limitations. He further added that "... the task facing researchers is to assess each of them in the light of the survey objectives, the nature of the information required and the resources available. Pg 178".

In the present study, this author has chosen the opinion research approach. The main data collection procedure under this research method is a combination of survey research - semi-structured interviews and postal questionnaires. The postal questionnaire was piloted before the final version was sent off to respondents. The semi-structured interviews, the postal questionnaire and the piloting phases of the study are duly considered below.

Writers such as Moser and Kalton (1971³⁶²), Babbie (1973¹⁷) and Bouchard (1976⁵¹), have argued that a combination of research procedures is often more useful than a single one, since the different methods yield different kinds of data, which taken together facilitates more comprehensive analysis of the phenomenon studied.

2.3.1. Interviews

Two sets of semi-structured interviews were conducted for the present study. The first, involved training officers and the second, which involved refurbishment managers was a follow-up study subsequent to the postal questionnaire. The follow-up study will be discussed at a later stage in this chapter.

Having established that seventy contractors, from the membership directory of the National Contractors Group (NCG) carry out refurbishment work, the next step was to gain the co-operation of their training officers for face-to-face, semi-structured interviews. This was achieved through telephone contacts with training officers from participating organisations. A training officer in the context of this study, is a person employed by an organisation to see that the training, education and career development of the organisation's managers and other staff is managed.

Of all the seventy refurbishment contractors contacted, forty-four had training officers, and also have in place, a form of management training and education provision. Of the forty-four training officers, six declined participating in the study because of possible mergers expected in due course. Three declined a week before the start of the interviews, due to heavy work load. In the final analysis, the co-operation of thirty-two training officers were gained. The semi-structured interviews which lasted for between 1hr and 1½ hrs, were conducted between May and June 1992. These interviews took place at the head offices of the refurbishment organisation. Each participating firm has an annual turnover in excess of £75 million. The author has chosen turnover as a measure of size because of the availability of this data.

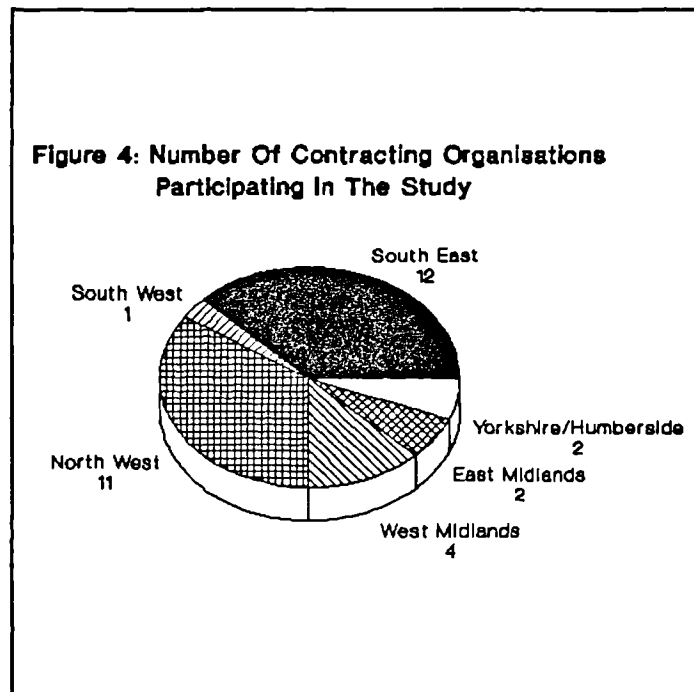
There are several size measures available for use by a researcher. Several studies in the field of construction have employed a variety of size measures, such as Net Assets, (Asenso and Fellows, 1989¹²); Number of employees (Young, 1988⁵¹⁰); Turnover, (Quah, 1988⁴¹⁰; Teo, 1990⁴⁷³) and Payroll (CITB, 1988b¹³⁰; Duff and Mankin, 1990¹⁶⁹).

Other measures available include volume of work subcontracted, scale of operation and capital to labour ratio. All having their merits and de-merits.

The use of net assets suffer from the problems associated with variation in company accounts. For number of employees, depending upon the method of contracting service delivery; there will be variation in numbers employed for approximately the same turnover.

Turnover is not entirely satisfactory, as it suffers from the problem of possible unbalance yearly distribution of the assets. However, as Bates (1968²⁸) and Newbould and Wilson (1977³⁸³) have concluded, the choice of size measure is flexible and it does not matter very much in practice, which measure is opted for, as most measures are highly correlated with each other. Newbould and Wilson (1977³⁸³) are also of the view that for practical reasons, only one measure has to be chosen.

The participating firms in the present study as suggested above, are all large with head offices spread throughout England. The head offices of the firms visited, which are all in England, are shown in Figure 4 below.



The regional disparity largely indicates the volume and concentration of refurbishment work across the country. As can be seen from Table 2, much of the repair and maintenance work, which accommodates refurbishment work, carried out between 1988 and 1992 were carried out in the south east, followed by the North west.

Table 2: Repair And Maintenance (R & M) Output By Region

<u>Regions</u>	<u>million (1985 prices)</u>					<u>Total</u>
	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	
South East	6,235	7,211	7,782	7,426	7,030	35,684
North west	1,658	1,938	2,141	1,954	1,812	9,503
South west	1,579	1,857	1,953	1,860	1,767	9,016
West Midlands	1,476	1,744	1,857	1,706	1,655	8,438
Yorkshire + Humberside	1,455	1,699	1,828	1,689	1,616	8,287
East Midlands	1,174	1,351	1,395	1,330	1,320	6,570

Source: DOE (1993¹⁵⁹) 'Housing and Construction Statistics: 1982 - 1992'. HMSO, p23 - 25

2.3.2. Reasons For choosing The Semi-structured Interview Approach

The author had a choice of three main types of interview techniques; structured, semi-structured and un-structured. In the main, the survey objectives, the nature of the information required, time constraint and finance, dictated the technique chosen.

The reasons why a semi-structured interview approach was chosen are:

- (i) With semi-structured interviews, responses to questions are likely to be spontaneous, which may in some circumstances more accurately reflect the true situation than a considered response. There is the likelihood in a considered opinion, for the respondent to give the response which he/she considers that the investigator wants or the response which the respondent feels comfortable with, and one which reveals him/her to be a "better person" than the "true" answer would. Through semi-structured interviews, the researcher can judge (through face to face) whether the interviewee is telling the truth.

- (ii) Semi-structured interviews allow for in-depth discussions in areas of concern. In so doing, new areas not already thought of, could emerge. This gives the researcher the flexibility of obtaining more information which are related to the area of concern while working towards the stated objectives of the study, and without deviating a great deal from the subject matter. A situation which could arise in un-structured interviews.
- (iii) With semi-structured interviews ambiguity in questions or answers may be clarified by the researcher immediately.

The following are the objectives for choosing the semi-structured interview approach:-

- (i) To examine and explore in depth the nature and extent of management education and training provisions that exist (if any) within refurbishment organisations.
- (ii) To ascertain if there is a need for management education and training for refurbishment (now and in the future), within refurbishment organisations.
- (iii) To ascertain the factors that affect the provisions of management education and training within refurbishment organisations.

- (iv) Also, interviews with company representatives, i.e. training officers on issues concerning refurbishment processes, would provide a framework for assessing not only the range, but the depth of questions necessary in the design of the questionnaire for the study.
- (v) To secure the support of training officers (company representatives) in obtaining names and office contact addresses of managers who have experience and are currently involved in the production function of refurbishment work within their organisations. These refurbishment managers were to participate in the postal questionnaire of the study.

This approach puts the researcher in control, when it comes to circulation and monitoring the return of questionnaires. A survey for the construction Industry Training Board (CITB, 1988b¹³⁰), adopted this procedure. Also, Young (1988⁵¹⁰), in her study on "Career Development in Construction Management", recommended this approach, and pointed out that it could make monitoring of postal questionnaires less problematic. This approach proved very useful in the present study.

- (vi) Refurbishment management, being a relatively un-researched area; in-depth, qualitative information and selected viewpoints from those involved in training in the construction industry, the training officers, would not only improve, but would also enrich the content of the study. The views of the training officers will be continuously reported throughout the study at appropriate intervals.

The semi-structured interview approach is however not without its critics. Shapiro (1970⁴⁴⁴) and Collins (1970¹²⁰) are of the view that the problem of potential bias is endemic to the interview methods. With semi-structured interviews, leading questions may unintentionally be asked. Also, the interviewer may lead the responses by imposing too much over the conversation. These are possible sources of bias in conducting interviews. Nevertheless, as Bouchard (1976⁵¹) argues, ‘... the careful researcher will take all the precautions possible’ p379 when conducting interviews.

The format of the semi-structured interviews with 32 training officers is appended (Appendix A). Training officers volunteered information relating to the following areas:-

Characteristics Of Organisation/General Information

- This included the history of company, organisation size, market structure, company strategy on management training.

Management Education And Training - Current Provisions

- This includes considerations of expenditure on training, methods of assessing and evaluating training, education and training needs, and management skills/knowledge for refurbishment (current needs).

Management Education And Training - Future Needs

- This includes management skills/ knowledge needs for refurbishment (future), and changes (if any) which need to be made in management education and training provisions for refurbishment.

Relevance And Preference Of Education And Training Methods

- This includes informal and formal training methods, in-company, external courses, on-the-job training, short courses and Continuing Professional Development (CPD).

Factors Affecting Management Education And Training Provisions

- This includes promoting and inhibiting factors.

Other issues considered for the interviews, and discussed with participating training officers deserve mentioning. As random sampling was not a feasible option, the author adopted stratification of the population sample. Stratification was discussed at length with training officers. It implies the division of the population into sub-groups, classes or strata. Proportionate stratification was adopted. This involves dividing the population into representative parts. In this case, stratifying refurbishment managers (managers involved in the production function of refurbishment processes) into three levels; senior, middle and junior. Senior managers include directors/executives and area managers. Middle managers are contracts and project managers. For junior managers, they include site managers, site agents and assistants. Foremen and other supervisory staff are excluded from this study. This method of categorising levels of management is generally accepted

in the field of construction. Young (1988⁵¹⁰) and CITB (1988b¹³⁰) adopted similar methods of classification in their studies.

Other sampling techniques that depart from random sampling are well known. Moreover, random sampling initiated after applying stratification technique is accepted (Fowler, 1984²⁰¹).

The training officers agreed to provide names of managers representing all levels of refurbishment management in their organisations.

2.3.3. Postal Questionnaire

In meeting the objectives of the study within the constraints of time and finance, postal questionnaire techniques for data collection was adopted, for the following reasons:-

- (i) With this technique, the coverage of a wide spread of sample of refurbishment managers is possible. It is, therefore of special value for scattered populations, such as the population of the present study, which is spread all over England.
- (ii) As a method of data collection in social research, the postal questionnaire is relatively cheap, simple and easy to administer.

The main objective for choosing a postal questionnaire approach for data collection is:

- (i) To obtain quantitative data, which would be used to statistically test hypotheses of the study, and also, used in making comparisons with other studies adopting a similar methodological approach. In this respect, a questionnaire provides the opportunity to analyze data through a variety of statistical techniques.

The use of postal questionnaires as a method of data collection has received severe criticisms from a number of quarters (Adams, 1956²; Dillman, 1972¹⁶¹; and Kerlinger, 1973³⁰¹). The technique has several disadvantages, such as poor response rates, response bias, wording of questions, as well as the inability of the investigator to verify the information provided. Nevertheless, other writers have suggested that the de-merits of the postal questionnaire method could be overcome by utilising a variety of techniques. Each technique having the effect of increasing the response rate. The techniques will be duly considered in the later part of this chapter, when discussing the administration of the postal questionnaire for the present study.

2.3.4. Design And Content Of The Questionnaire

The literature abounds with many sources of advice on questionnaire design. Sudman and Bradburn (1982⁴⁶⁹) and Dillman (1978¹⁶²) provide comprehensive advice on the whole process of questionnaire design, lay-out and use of postal questionnaires. Information gleaned from the works of these authors was found to be useful in the preliminary stages of the questionnaire lay-out for the present study.

However, in the design of the questionnaire for the present study, guidelines from writers, notably, Moser and Kalton (1971³⁶²); Lewis and Fox (1969³³⁰) and Sinclair (1975⁴⁵¹) were noted.

Sinclair (1975⁴⁵¹) proposed five main issues worthy of consideration when designing a postal questionnaire:-

- (i) Define objectives
- (ii) Coverage
- (iii) Sampling method
- (iv) Probability of non-response
- (v) Wording of the questionnaire

Questionnaire length is another factor to be considered in the design of a postal questionnaire. Moser and Kalton (1971³⁶²) pointed out that the temptation with investigators involved in questionnaire construction, is to cover too much and ask questions on everything that might turn out to be interesting. This happens to be true with this author. The original questionnaire design was 18 pages long.

The evidence from the literature review suggested that the effect of questionnaire length on response rates have been mixed. Clausen and Ford (1947¹¹⁶), Scott (1961⁴⁴²) Kanuk and Berenson (1975²⁹⁰), have shown that there is no correlation between questionnaire length and lack of response.

However, there has been less support, especially when considering industrial and business populations, to the fact that length is not critical to response rate (Jobber, 1986²⁸²). Jobber emphasised that business managers work under rigid constraints, and any attempt to distract them from their business, would be viewed as intrusion on their time, and is likely to be resented.

Heberlein and Baumgartner (1978²⁵¹) and Forsgren (1986²⁰⁰) are of the view that the most important factor in assuring high response rates, is whether the respondents perceive the survey as important and current to him/her, i.e. whether the respondents is interested in the subject matter of the survey. Forsgren (1986¹⁸⁹) also noted that a high response rate can be attained if the respondent is knowledgeable about the issues covered by the survey.

As for the present study, the matters under consideration are management education and training needs, and management skills/knowledge for refurbishment. These are important issues; and it is the perception of the author that the respondents are knowledgeable, well placed, and are able to supply the information needed.

Having considered suggestions from both quarters of the debate on the effect of length of questionnaire on response rate, a balance was reached between obtaining as much information from the questionnaire in order to satisfy the objectives of the study, and ensuring that an "acceptable" response rate will be achieved. In the end, a postal questionnaire, 8 pages long, which could be completed without taxing the respondents a great deal would be satisfactory for the study, and would provide sufficient information to satisfy the objectives of the study.

The foundation of any questionnaire is the questions. The questionnaire must translate the research objectives into specific questions. In the present study, refurbishment managers supplied answers on 22 separate and specific questions. These questions which were developed through discussions with practitioners involved in refurbishment, leading authorities in the areas of general and construction management education, and a thorough review of literature in the areas of refurbishment, management skills/knowledge and management education and training, were grouped under four sections. The summary of the questions is listed below. The questionnaire format is appended (Appendix A).

Section A: General Information

- Specialism of organisation, manager's current job title, length of time in present job, length of time working in the construction industry, length of time involved in managing refurbishment work, managers career structure and the qualifications obtained to date.

Section B: Characteristics Of Refurbishment Management

- Degree of difficulty of refurbishment characteristics, frequency of occurrence of refurbishment characteristics, how best managers overcome difficulties encountered in refurbishment.

Section C: Management Skills/Knowledge For Refurbishment

- Degree of importance of skills/ knowledge (job dimensions) in present job, degree of difficulty of job dimensions in present job, need for education and training.

Section D: Management Education And Training Needs In Refurbishment.

- Preference for course duration, time of year, training providers, type of course delivery, in-house training methods, place of training.
- Perception of how best management skills/knowledge for refurbishment, are best developed.
- Number of courses attended within last 2 years, degree of satisfaction with amount, and quality, of management education and training received within last 2 years.
- Factors influencing course selection and attendance.
- Likelihood of attending education/ training courses for refurbishment, if suitable and relevant courses are available.

An allowance was also made for comments from managers, concerning questionnaire content, or any opinion respondents wished to express regarding related topics. The reader may refer to appendix (A) for a summary of the comments made by respondents.

There are other issues concerning the design and layout of the questionnaire that deserve mentioning.

As one of the objectives of the present study is to devise an inventory of management skills/knowledge for refurbishment management, the preparation of a list of management skills/knowledge instead of asking job content questions seemed a laudable approach.

It is important to have a layout which is suitable for respondents to rate themselves with speedy completion (Gael, 1983²¹¹). With this in mind, a question and answer approach was discounted. Listing skills/knowledge as opposed to asking job content questions, has the advantage of allowing respondents to concentrate and focus on the object of the exercise. Also, as respondents could identify with the object of the research, this approach could have contributed to increasing the number of responses.

For this study, where possible, management skills/knowledge 1-75, were grouped according to function. In assisting respondents in channelling and coordinating his/her thought process, a systematic ordering of skills and knowledge instead of random selection was preferred. This approach was adopted by Young (1988⁵¹⁰) in

her study on "Career development in construction management". An advantage of this approach as Young (1988⁵¹⁰) informs us, is that at a glance the individual can relate skills and knowledge to various management functions in the content of his present job. A similar approach was also adopted by Schein (1978⁴⁴⁰) with his Human Resources Inventory. Schein advised against disjointed listing.

One possible draw-back from listing skills/knowledge in this way, is the fact that the investigator may run the risk of conditioning the responses. However, feedback and responses from the pilot study did not indicate that this was happening.

The list of management skills/knowledge (see questionnaire in appendix A) was devised from a thorough review of literature on general management functions, notably the works of Whetten and Cameron (1991⁴⁹⁵); Cameron and Tschirhart (1988⁸⁵); Constable (1988¹²²), and on construction management skills/knowledge, Faulkner and Wearne (1984¹⁸⁸); Finnigan et al. (1987¹⁹⁵); Young (1988⁵¹⁰) and CITB (1988b¹³⁰). It was then modified after a review of literature on general areas of refurbishment activities, Hanley (1987²⁴⁵), Douglas (1988¹⁶⁵) and Summers and Fellows (1987⁴⁷⁰), and after interviews with 32 training officers from 32 separate refurbishment organisations.

The layout adopted by Young (1988⁵¹⁰), is most appropriate to the methodology of the present research, and therefore modified to meet the objectives of the study.

2.3.5. Pilot Questionnaire

Prior to sending out the final draft of the questionnaire to respondents, the questionnaire had to be piloted. An important part of the piloting process was to make sure that the questions provided the needed data. Furthermore, the pilot process was necessary so that difficulties, especially those of ambiguity and wording of questions were identified. In addition, it was important that the issues relevant in meeting the objectives of the study were not omitted.

The approach adopted followed that suggested by Dillman (1978¹⁶²), who recommends that pre-testing should include different groups, such as colleagues, and potential users of the data.

The initial draft of the questionnaire was presented to colleagues at the University of Salford, and the author's supervisor, to invite comments and suggestions. As a result, a series of discussions were held separately with each of the persons mentioned. The results of the discussion proved to be useful, and led to refinement of the questionnaire.

By August 1992, the questionnaire was near completion, and the information gleaned from interviews with 32 training officers improved its validity. The questionnaire was now perceived by the author to be ready to be piloted, involving potential users of the data , i.e. refurbishment managers.

Questionnaires were sent out to sixteen managers from five different refurbishment contractors. After two follow-ups, twelve completed questionnaires were received, nine of which were duly completed without any comments regarding refinements to the questionnaire. Moreover, these respondents noted that the questionnaire was detailed, straight forward, and without ambiguity. The three remaining questionnaires were also completed, but the respondents highlighted areas that needed clarification. These three respondents were contacted by telephone, and asked for their co-operation in a face-to-face, short interview in order to further discuss the issues that they had raised concerning the questionnaire. The interviews took place three weeks after sending out the pilot questionnaire. The three managers helped to identify ambiguities and omissions. This eventually resulted in further refinement of the questionnaire.

The managers pointed out three variables in section B: Characteristics of refurbishment management - Question 10. (Questionnaire, Appendix A), which they perceived to be double barrelled questions that needed to be split up into separate variables. These were:- Material supply/handling; plant supply/restriction in usage and storage and disposal of site rubbish. The respondents' comments were duly attended to.

One of the managers also pointed out that there was an important characteristic of refurbishment which had to be included, namely, 'Liaison with tenant/occupiers'. This variable was included in the list as well. Apart from the comments on the list of characteristics of refurbishment, the respondents were of the view that the questionnaire was well structured, detailed and easy to understand.

After limited modification to the questionnaire, a more comprehensive questionnaire was finally developed, and ready to be sent out to refurbishment managers.

2.3.6. Administration Of The Questionnaire Survey

Questionnaire distribution occurred in October 1992, four months after completing the semi-structured interviews with 32 training officers. Postal questionnaires were mailed directly to 300 refurbishment managers, whose names were earlier obtained from the training officers interviewed. Each questionnaire was accompanied by a covering letter which contained inter alia, objectives of the study, sponsoring institution, benefits of the study to respondents, cut-off date for receipt of completed questionnaires, confidentiality of the identities of respondents and their organisations, as well as an inducement of a free copy of the summary of the results of the study, if interested. For those who indicated interest in having a copy of the summary of the result of the study, this was duly attended to. A thank you letter, a copy of which is appended (Appendix A) accompanying the summary conclusions was sent to the managers.

Several writers have shown that semi-personalised covering letters containing individually typed personalised salutations and individually signed by the investigator increases questionnaire response rate (Matteson, 1974³⁵⁰; Kerin and Harvey, 1976³⁰⁰; and Thompson, 1984⁴⁷⁸).

Similarly, the naming of the university sponsoring the research (Scott, 1961⁴⁴²; Albaum, 1987³), notification of deadline for receipt of completed questionnaire

(Henley, 1976²⁵³) and granting anonymity and confidentiality (Futrell, 1981²⁰⁸; Futrell and Hise, 1982²⁰⁹) all have the effect of increasing response rate.

In addition, Linsky (1965³³¹) has shown that explaining how respondents were selected and chosen for the sample, and why they were qualified to supply the information required, also increase response rate. All these guidelines were adhered to in producing the cover letter accompanying the questionnaire. A sample of the questionnaire and the covering letter are given in Appendix A.

By the end of the first week of sending out the questionnaires, 10 responses were received, this was followed by 17 in week 2. A follow-up was made to the non-respondents after 14 days of initial mailing, this took the form of a written reminder (see Appendix A). Having the names and office contact addresses of all participating managers, and also, as each questionnaire was reference coded (see top right-hand of the questionnaire (Appendix A), it was possible to target reminders to non-respondents.

The use of follow-up techniques have been widely accepted by researchers as having significant effects in improving the response rate (Levine and Gordon 1958³²⁷; Robins, 1963⁴²⁵; Eckland, 1965¹⁷²; and Bouchard, 1976⁵¹).

Forty responses were received in the third week, in addition to the 40 responses, 15 respondents wrote to the author, indicating that they had not received the questionnaire, and requested that another copy be sent to them. This was attended to immediately.

In week four, a second follow-up was made to non-respondents. This was also in the form of a written reminder. However, in this case, a copy of the questionnaire and the original covering letter were enclosed. This procedure followed the suggestion of Futtrell and Lamb (1981²¹⁰) who noted that at least one follow-up with a questionnaire is required. In enclosing a replacement questionnaire, the respondents have something to return. As Futtrell and Lamb (1981²¹⁰) pointed out, "For the return rate to increase, there are two necessary conditions - motivation and opportunity. The respondents must be willing to return the questionnaire which additional mailing may help and must have a questionnaire to fill out and return" p 15.

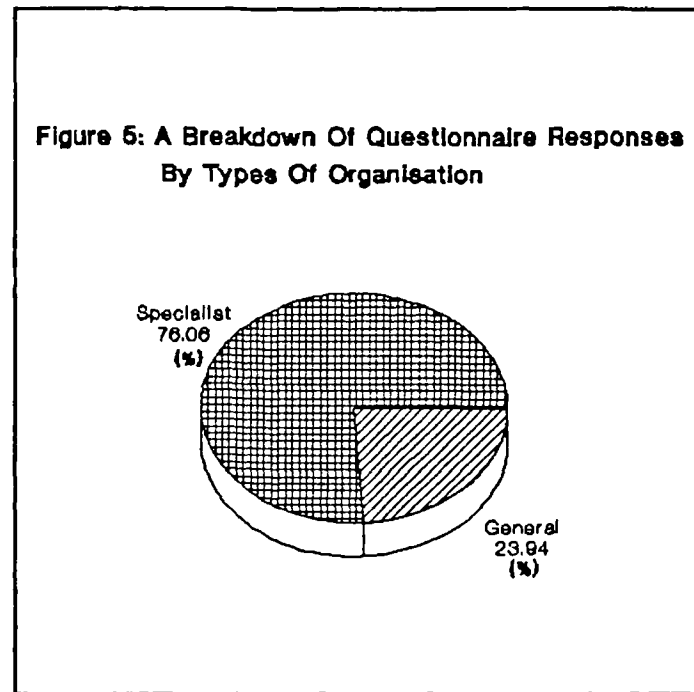
In week five, fifty more responses were received. In addition to this, five more of the participating refurbishment organisations telephoned and notified the author of the managers that were no longer in their employment.

In all, the author was notified of seventeen names. The recession and poor economic climate had forced the organisation to lay-off some of their managers. Also, twelve managers wrote directly to the author, to say that they would not be participating in the study because of heavy work-loads. In addition, two letters from the directors of two separate organisations sadly revealed that two managers had passed away.

In an attempt to further increase the response rate, non-respondents were contacted by telephone. Telephone contacts took place six weeks after initial mailing. This procedure followed the suggestion of Williams and Wechsler (1970⁵⁰²). Also, Kanuk

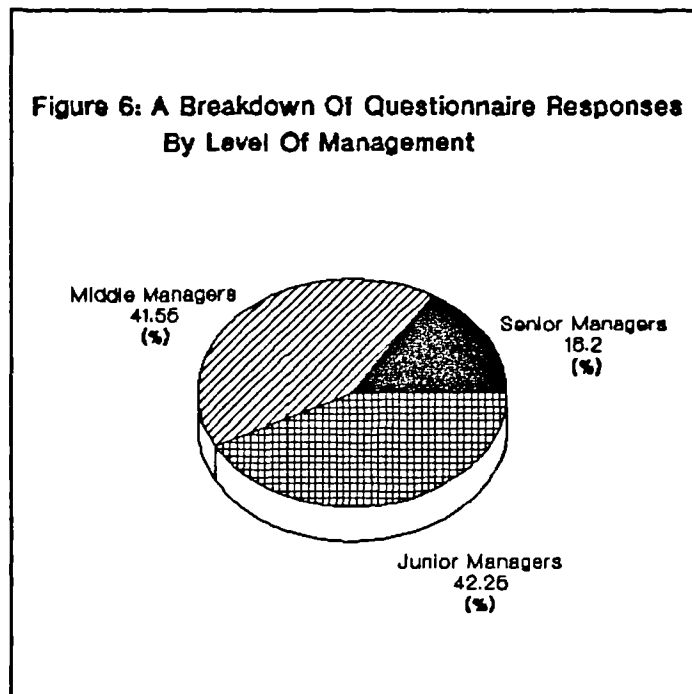
and Berenson (1975²⁹⁰) noted that each follow-up effort appears to bring added returns. This view is also supported by Erodoş (1970¹⁸²), Goulet (1977²²⁵), Goldstein and Friedman (1975²²³) and Ferrel and Krugman (1983¹⁹²). All the respondents contacted promised to "look into the issue" at their earliest convenience.

By the end of the eighth week after initial mailing, a total of 156 questionnaires were returned. Of these, five were incomplete and un-usable, five were blank and four questionnaires were ruled "out of scope" (Hoinville et al., 1978²⁶³). The questionnaires ruled as out of scope had been returned by two foremen and two public relations officers who are not in the sample population. As a result, the number of usable questionnaires was reduced. In total, 142 completed questionnaires provided quantitative data for analysis, representing a response rate of 47.33%. Of the 142 responses, 108 (76.06%) were managers of specialist refurbishment organisations and 34 (23.94%) were from managers of general refurbishment organisations (see Figure 5).



In specialist refurbishment organisations, refurbishment work accounts for 50% or more of turnover of total construction work, and for general refurbishment organisations, refurbishment work accounts for under 50% of turnover of the total construction work.

In terms of responses received by level of management, 60 (42.25%) were received from junior managers, 59 (41.55%) from middle managers, and 23 (16.20%) from senior managers (see Figure 6). Without exception, all the 142 respondents to the questionnaire are male managers.



For statistical reasons, the percentage of usable returns was considered acceptable. As will be demonstrated in the following chapters, the data from 142 responses are capable of rigorous statistical treatment. The sample population is sufficient to allow statistical testing.

2.3.7. Follow-up Study: Semi-structured Interviews With Refurbishment Managers

In July 1993, it was necessary to carry out a one month follow-up study. This took the form of semi-structured interviews with 22 refurbishment managers (7 senior, 7 middle and 8 junior managers). These managers were from 10 of the 32 participating organisations, who had earlier participated in the questionnaire phase of the study. The co-operation of these managers was obtained through telephone contacts. These 22 managers are part of the 142 managers who received the postal questionnaire and responded to it.

The objectives of the semi-structured interviews with refurbishment managers are:-

- (i) To validate and compare some of the results obtained from the questionnaire analysis, as well as results from the views of 32 training officers.
- (ii) To obtain further in-depth qualitative information and reasoning behind some of the vagaries of refurbishment processes, from those actually involved in the management of such projects.

The interview format with refurbishment managers is enclosed in Appendix A. Managers volunteered information concerning :-

Structure Of Organisation

- Formal structure, centralised/decentralised nature of organisation, reporting relationships between levels of management, frequency of site visits by managers.

Refurbishment Characteristics

- Degree of difficulty of refurbishment characteristics in general, and the degree of difficulty by type of refurbishment work.

Management Skills/Knowledge For Refurbishment

- Degree of importance of management skills/knowledge (present and future).

Management Education And Training Needs

- Degree of need for management education and training (present and future).
- Attendance of training courses for refurbishment within the last two years.
- Likelihood of attending courses for refurbishment, if relevant and suitable courses are available.

Miscellaneous

- Qualities and attributes needed to effectively accomplish a refurbishment project.
- The effect of managers' education/training background on ability to manage refurbishment work.

2.4. Statistical Techniques And Measures Used In The Study

The purpose of the data collection is analysis. The methods adopted for the data analysis invariably depend on the nature and complexity of research questions employed at meeting the objectives of the study.

For this study, the Statistical Package for the Social Sciences (SPSS: PC Version 5) was used for data transformation and analysis. In most cases, the results are presented in tabular format and include summary statistics.

Data for the study also received rigorous treatment. The following are test statistics employed in hypotheses testing, reduction of data or in preparation of typology:- Fisher's (1970¹⁹⁷) Chi-square, Kendall's (1967²⁹⁹) Tau_c, Factor analysis associated

with Spearman's 1904 pioneering work (Kendall, 1980²⁹⁸), Kendall's coefficient of concordance W (Kendall, 1980²⁹⁸; Siegel, 1956⁴⁴⁸); Spearman's coefficient of correlation (Siegel, 1956⁴⁴⁸; Rees, 1989⁴¹⁷). Statistical formulae for these measures are given in Appendix A.

The test statistics employed for testing hypotheses, was at a 5% level of significance.

2.5. Summary And Recommendations

This chapter attempted to describe in detail the methodological approach adopted in this study. The methodologies adopted comprise semi-structured interviews with 32 training officers from 32 separate refurbishment organisations (general and specialists) and postal questionnaires which yielded a response rate of 47.33%. This was further reinforced by semi-structured interviews with 22 refurbishment managers, primarily to validate results of the study.

The problems encountered and the strategies employed to minimise them, have been discussed. Also, the statistical techniques and measures used for data analysis were presented.

On the whole, the methodological approach proved successful. The research instruments applied have provided the kind of information needed for the study, information which relates to management education and training, management skills/knowledge, and the nature and characteristics of refurbishment work.

The methodology adopted in the present study is recommended to researchers who are interested in exploring the difficulties and characteristics associated with other sectors of construction and other industries. Also, for researchers involved in establishing skills, knowledge, attributes, and education and training needs of managers/personnel from different industrial sectors, the methodology employed in the present study may be useful.

CHAPTER THREE

THE IMPORTANCE AND GROWTH OF THE REFURBISHMENT SECTOR

3.0. THE IMPORTANCE AND GROWTH OF THE REFURBISHMENT SECTOR

3.1. Introduction

This chapter starts by defining refurbishment in the context of the present study. It also provides background information on the importance and growth of this sector of the UK construction industry. There are many factors that have given impetus to the growth in the refurbishment market. These factors are duly considered. However, the growth in refurbishment has not been matched by comparable research in the management domain. Attention is also given to this.

3.2. Defining Refurbishment Work For The Present Study

One of the difficulties which confronts anyone interested in construction works carried out on existing buildings, is the fact that there is no distinction between the various activities conducted on existing buildings. This results in overlapping definitions in terminology.

For refurbishment, this has led to various definitions put forward by practitioners, researchers and professional institutions.

In defining refurbishment, Marsh (1983³⁴⁶) notes:-

"This is the hard-headed business of making use of what is usable in the ageing building stock; the skilful adaptation of a building shell (which is valuable in its own right and not due to any historic mystique) to a new, or an updated version of its existing use". p3

Norman Douglas (1988¹⁶⁵), Director of Costain Construction Limited (Refurbishment Division), defined refurbishment as:-

"A process of changing a building or indeed an area previously unusable or unsuitable, to a condition where it becomes usable at a standard acceptable to the community. It may involve substantial change of use. This also includes improvement which is less dramatic and does not usually involve change of use. Repair and maintenance also enters into this section of the building industry, which implies the continuing up-keep of a building stock to existing standards". p67

As regards maintenance, the British Standard Institution (BSI, 1974⁶⁶) is of the view that maintenance is a combination of any actions carried out to retain an item in, or restore it to, an acceptable condition.

In attempting to distinguish building maintenance from the refurbishment and modernisation market, Ian Dixon (1990¹⁶³), Past President of the Chartered Institute of Building (CIOB) notes that building maintenance "is that process concerned with the restoring to good condition any part of a building that is in any way defective, or non functioning" p xlii. He further adds that refurbishment and the modernisation market are concerned with alteration, addition and enhancement to buildings on both small and large scale" p xlii.

Marsh (1983³⁴⁶) emphasised that "refurbishment is also nothing to do with maintenance, although, in the process of adapting a building shell for revised use, maintenance will have to be carried out on the existing structure. But this is a secondary component of refurbishment and should not be confused with its primary purpose" p 3.

In its code of estimating practice, supplement number one, the CIOB (1987¹⁰⁷) defines refurbishment as :-

"The alteration of an existing building designed to improve the facilities, rearrange internal areas and/or increase the structural lifespan without changing its original function". p2

A definition put forward by Hall (1984²³⁸) is that "refurbishment refers to the process of repair, conversion and alteration of existing buildings to permit their re-use for various specified purposes".

Hall (1984²³⁸) classified refurbishment work into four main categories, which are:-

- (i) Alteration: Work which is carried out to change the structure of a building to meet new requirement. For instance, changing the internal layout of a building.
- (ii) Adaptation: Work which is carried out to accommodate a change in use of a building.

- (iii) Extension: Work which is carried out to increase the floor area of a building and includes both horizontal and vertical extensions.
- (iv) Improvement: Work which is carried out to bring a building and its facilities up to an acceptable standard.

In the context of the present study, refurbishment works should be understood to mean such works as improvement, adaptation, upgrading, rehabilitation, renovation, modernisation, conversion, retrofit, repair and fitting out, carried out on existing buildings for varying specified reasons. However, this definition excludes repair and maintenance works which are carried out on a routine basis, such as cleaning, painting and decorating, as well as emergency maintenance work.

3.3. The Refurbishment Sector Of The UK Construction Industry

The Repair and Maintenance (R&M) sector has traditionally been regarded as the "poor cousin" of the new build sector and the "Cinderella" of the construction industry.

However, within the last two decades, there has been a significant increase in refurbishment work in relation to total volume of the UK construction output. In 1970, the R&M sector accounted for £1,109m or 22.46% (DOE 1981a¹⁵⁴) of total construction output. By 1990, it accounted for £18,743m or 42.88% (DOE 1992¹⁵⁸), an increase of 90.92%.

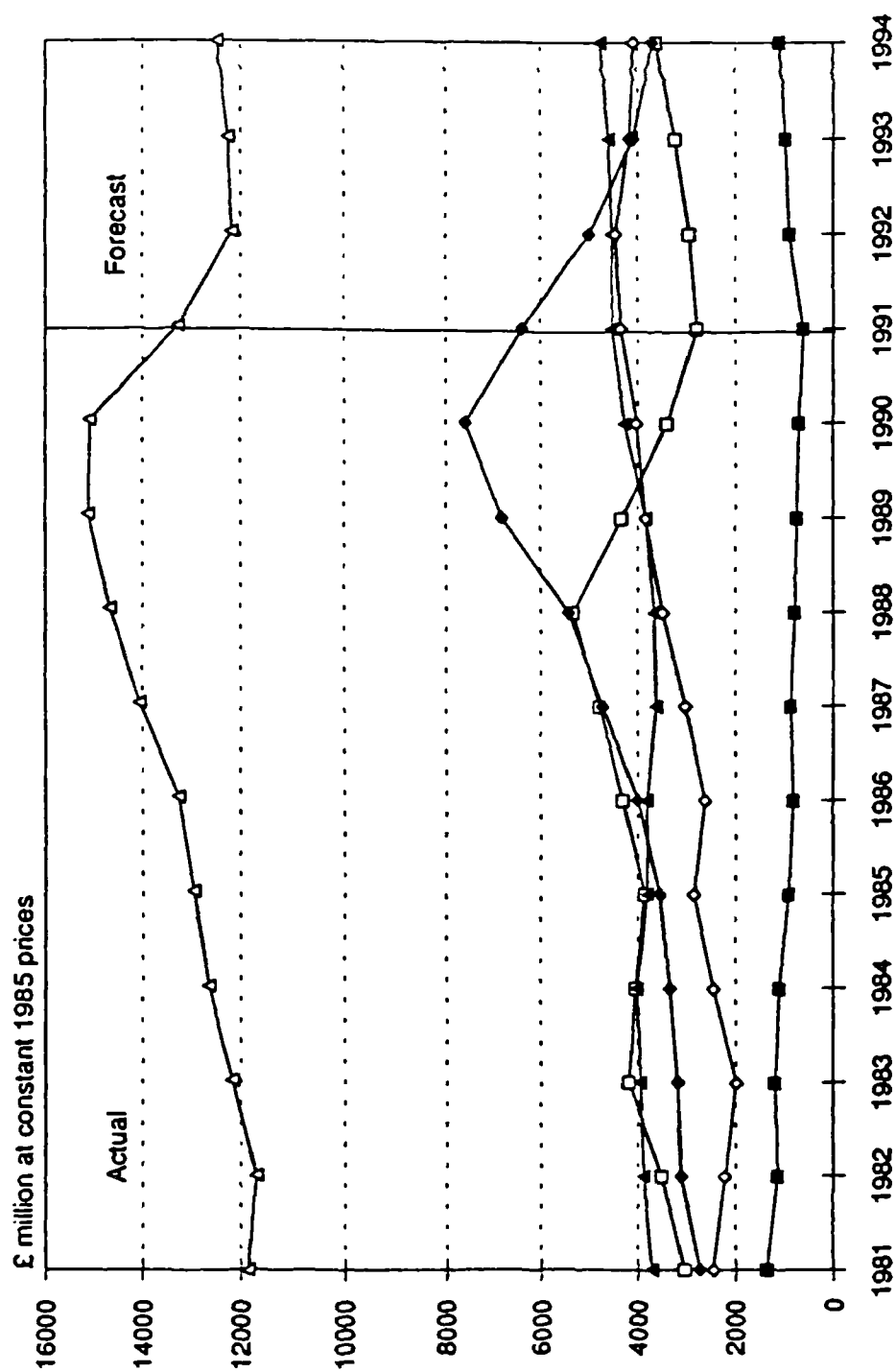
The R&M sector rose steadily during 1986 to 1989 as illustrated in Figure 7, commanding over 40% of total construction output, thus contributing significantly to overall construction output.

Following several years of steadily rising output which peaked in 1989, output fell sharply as the economy plunged into recession; dropping to £6,411 billion in 1992, the lowest level in real terms since 1983.

In the UK construction industry, the decline in new work is set to continue with marginal growth forecast (JFC, 1993²⁸⁴) for 1994 - 1995. The R&M sector is expected to recover by six percent by 1995.

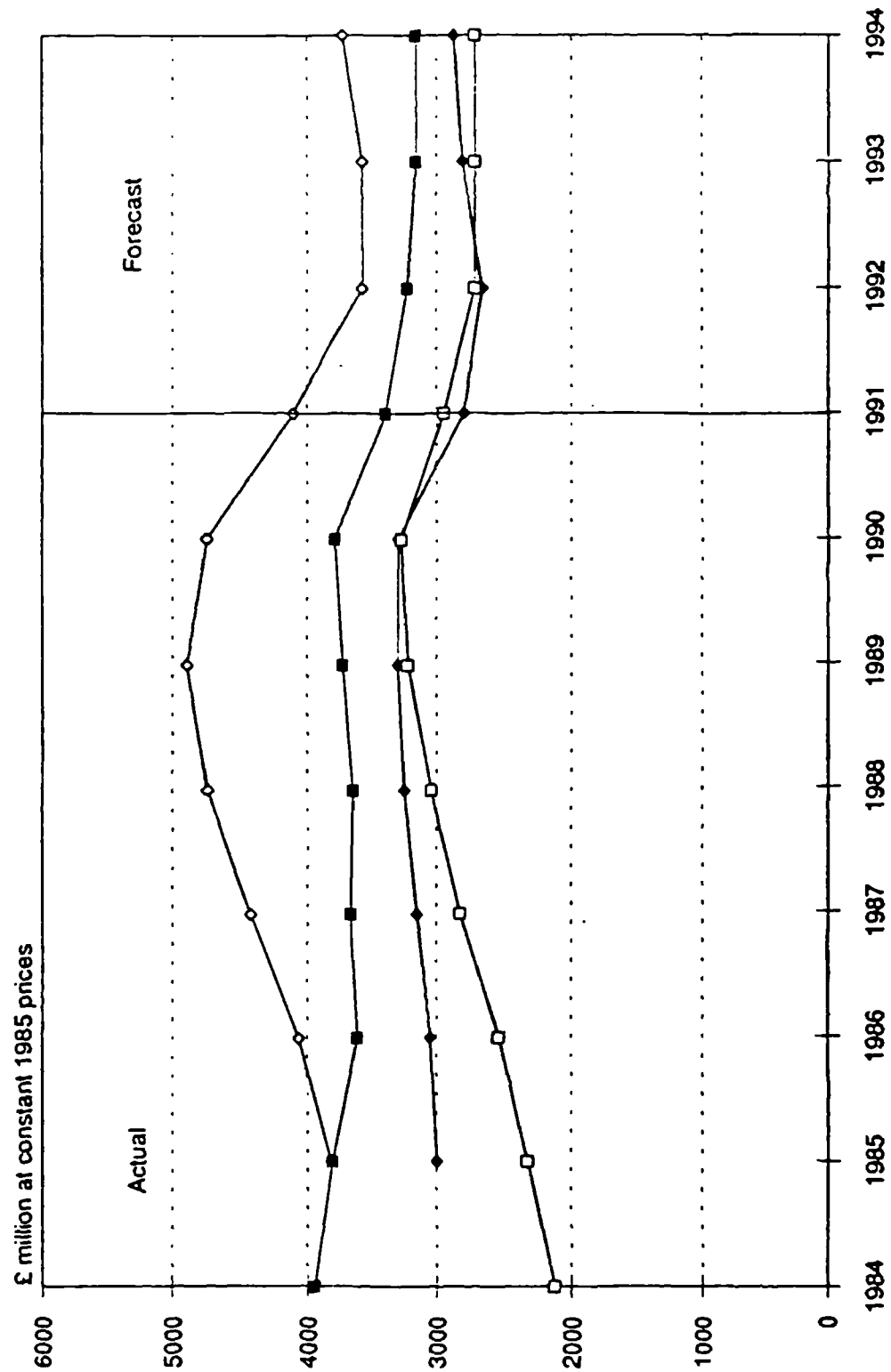
Figure 8 shows a breakdown of the components of the R&M output, with the greatest proportion of the work carried out on private housing.

Figure 7: Construction Output By Sector



Source:- JFC Construction Forecasts; Winter 1993; p4

Figure 8: Repair And Maintenance (R&M) Output



Source: JFC construction forecasts, Winter 1993, p78

At present (1994), in the UK, there are unfortunately no official statistics that exist on the actual value of refurbishment work. Although, the DOE's statistics on the R&M sector are generally accepted by practitioners, government establishments and academics as the basis for monitoring trends in the refurbishment sector, they do not take account of "DO-IT-YOURSELF" work, which is carried out by many house owners. The black economy is not represented either. The actual size of refurbishment work is probably much larger in view of the DOE's classification and unreported work.

In recognition of the shortcomings of the DOE statistics, and the importance of the refurbishment sector, there have been moves to provide separate and more accurate statistics (CCMI, 1988⁹⁷) on the value of work carried out on existing buildings.

3.4. Factors Influencing The Growth Of Refurbishment Work

The growth in refurbishment work, especially in the 1970's and 1980's has been fuelled by a number of factors, which are, in the main, related to social, political, economic, technology, planning constraints, large stocks of redundant and ageing buildings, and health & safety controls.

3.4.1. Social Factors

Increasing and sustained pressure from social and preservationist groups such as SAVE Britain's Heritage formed in 1975, the Society for the Protection of Ancient Buildings, and the Building Conservation Association founded in 1977, in favour of maintaining and keeping communities together as opposed to slum clearance, have contributed to the growing demand for refurbishment.

The strong movement towards conservation and preservation and away from demolition as championed by the English Heritage (formerly the Historic and Monument Commission) has further fuelled the growth in refurbishment (Catt, 1992⁹⁴).

Shortages of land (Turner, 1987⁴⁸³), and the "explosion in land prices" (Robinson, 1987⁴²⁶) especially in the South East of England, during the mid-late 1980's, have increased demand for refurbishment of buildings as opposed to redevelopment. In the same vein, the gradual decline in the average household size in the UK (Fleming and Nellis, 1992¹⁹⁹) has fuelled the conversion of larger houses into smaller units, thereby increasing residential refurbishment.

Also, taste and fashion in shopping and retail developments have led many developers and investors, each independently, to upgrade and modernise their premises in order to stimulate demand.

3.4.2. Political Factors

The growth in the refurbishment market has been influenced by changes in the political climate of the UK. Within the last fifteen years, under the Conservative government, the economy has seen drastic restructuring. This is particularly evident in the decline of old forms of sea port and manufacturing activities (Raftery, 1988⁴¹⁶). A resultant of this, is a stock of redundant industrial buildings requiring upgrading, modernisation or conversion for residential and/or commercial use.

The 1980's saw a great amount of interest and importance placed on regenerating and renewal of the existing building stock. Many buildings, especially those in the inner cities as observed by Hillebrandt (1984²⁵⁷), have been under-utilised, wrongly utilised or have even become dilapidated. The result of this is that these buildings and run-down areas tend to generate social problems, such as vandalism and graffiti. This has led both the government and the private sector to embark on new initiatives to tackle the problem.

Similarly, there has been growing interest in the regeneration of City Centres, which is seen not only as socially necessary, but politically desirable.

In July 1981, the government launched an "urban programme" scheme requesting all local authorities to embark on such a scheme (DOE, 1981b¹⁵⁵; Stewart & Whitting, 1983⁴⁶³). The initiative would improve, not only the physical environment, but also upgrade local services and amenities of the communities in the urban areas.

In general terms, in a favourable economic climate with low interest rate, a low level of inflation, a high level of employment and a growing gross domestic product, there is increased commitment from the government to increase its public expenditure on construction activities, including refurbishment. The reverse is the case during depressed market conditions.

During recession, there is an added need for conservation of resources and waste avoidance. This means that the vacant building stock will have to be re-used. During

these times, the government curtails expenditure on new programmes. The oil crisis and the market crash of the 1970's in the UK are examples of recessionary times, so is the current economic condition of the early 1990's. More attention is focused on refurbishing existing buildings rather than in redevelopment.

3.4.4. Technological Factors

Advances in technology, in office automation and computerisation, especially in the wake of the "Big Bang", coupled with the fact that tenants and firms are increasingly becoming image conscious, demanding higher standards of accommodation, modern communication systems and building services, have all fuelled the need for refurbishment.

Similarly, the advent of intelligent buildings and facility managers upgrading their properties to accommodate end users needs, have had the effect of increasing demand for refurbishment work.

Office buildings of the 1960's and 1970's in comparison with modern buildings, do not provide adequate floor to ceiling heights (IMR, 1987²⁷⁵) needed to accommodate modern electronic equipment and communication systems, as well as suspended ceilings needed for air conditioning systems. Extensive refurbishment and upgrading work are therefore called for if the requirements of tenants and firms are to be met.

3.4.5. Planning Constraints

Constraints on planning have also contributed to the growth of the refurbishment market. Many buildings of architectural and historical value are "listed". These buildings are only permitted to be refurbished and upgraded and not redeveloped.

In accordance with section 55(2)(a) of the Town and Country Planning Act (TCPA) 1990 and its predecessors, planning permission is not required where work is carried out for the maintenance, improvement or other alteration of a building which will affect only the interior of the building, or will not materially affect the external appearance of the building.

Also, Class A of Part 1 of the Town and Country Planning General Development (Amendment) Order 1989 (SI No 603), automatically confers planning permission on the enlargement, improvement or other alteration of a dwelling house provided its cubic content is not exceeded by more than 50 cubic metres or 10% whichever is greater, or in other cases, 70 cubic metres or 15% whichever is the greater. These limits must be applied to the original building as existing on 1 July 1948, or if built later, as first built; and right to extend is a "once and for all" right. This possible extension associated with refurbishment accounts in some cases for the combination of refurbishment with new build activities.

Most older buildings have a higher plot ratio than new buildings (Highfield, 1987²⁵⁵). Applications of plot ratio control in the restriction of new developments favour refurbishment and rehabilitation work. Also, in some cases, the sheer difficulty in

obtaining planning consent will push developers and investors alike towards refurbishment than redevelopment.

3.4.6. Large Stock Of Redundant And Ageing Buildings

A large stock of redundant and ageing buildings has also contributed to the growth in the refurbishment market. The English Housing Condition Survey (DOE, 1988¹⁵⁶), indicated that in 1986, of the 18.8 million dwellings in England, there were 1.05 million dwellings unfit to live in, 0.54 million dwellings which lack basic amenities and 1.11 million having "serious" disrepair. This extensive catalogue of unsatisfactory properties necessitates an investment in the range of £18 - 30 billion (Thomas and Acher, 1989⁴⁷⁷). This report, augmented by the declining conditions of not only residential buildings, but also industrial and other commercial buildings, have exerted great pressure on both the government and individual home owners alike to carry out refurbishment and rehabilitation work.

3.4.7. Health & Safety And Statutory Controls

Regulations imposed by the government to ensure the health and safety of occupants and building workers, which in some cases are stringent, have influenced the growth of refurbishment work. Also, building regulations concerning means of escape and other fire safety regulations, access, ventilation, energy conservation and, the use of acceptable building materials, result in many buildings failing to meet the minimum standards. This has meant that buildings, especially those of the 1950's, 1960's and 1970's have to be refurbished and improved to meet these requirements.

Unfortunately, the growth in the refurbishment sector, especially in the 1970's and 1980's has not been matched by comparable research in the management domain of refurbishment. Little is known about the major characteristics and difficulties which confront managers in the course of carrying out refurbishment work, and the frequency at which they occur. Similarly, the strategies and means which refurbishment managers employ in mitigating refurbishment difficulties remain unclear.

3.5. Summary

This chapter has provided a working definition for refurbishment for the present study. The importance and place of refurbishment in the UK construction industry also received attention. Besides, this, the underlying factors for the growing demand for refurbishment namely, social, political, economic, technology, planning constraints, large stock of redundant and ageing buildings were duly considered. In addition, health, safety and statutory controls were also taken into account.

Evidence provided suggests that the refurbishment sector will keep contributing significantly to the overall UK construction output for many years to come.

CHAPTER FOUR

CHARACTERISTICS AND DIFFICULTIES ASSOCIATED WITH MANAGING REFURBISHMENT WORK

4.0. CHARACTERISTICS AND DIFFICULTIES ASSOCIATED WITH MANAGING REFURBISHMENT WORK

4.1. Introduction

The subject of general management has attracted endless attention and volumes of published material. Few researchers such as Melles et al. (1990³⁵²) and Hutcheson (1990²⁷³) have specifically commented on the difficulties and problems associated with managing construction work.

A thorough review of literature on management of construction does not inspire confidence, and it gives little comfort. Published material tends to be subjective and with mainly anecdotal elaborations. Limited to a handful of empirical studies, researches focus on the normative aspect of construction management domain (British Property Federation, 1983⁶⁵) with particular emphasis on new build work; and on problem areas facing professional practice in construction (Birchall and Newcombe, 1985⁴³). As for the area of refurbishment management, it remains relatively unresearched (Hanley, 1987²⁴⁵; Dixon, 1990¹⁶³; Quah, 1991b⁴¹³; Young and Egbu, 1992a⁵¹⁵, 1992b⁵¹⁶).

Perhaps, the limited amount of empirical studies in the management domain of refurbishment, and indeed, in construction management, is an indication of how problematic it is to study and measure the content of complex phenomena. Researchers such as Stewart (1979⁴⁶⁵), Mintzberg, 1980³⁵⁶; and Stone, (1982⁴⁶⁷) are in agreement that measuring management job content is difficult, as management tasks are numerous and unsystematic. The characteristics of the construction

industry, it would appear, does not make the task any easier. The construction industry is regarded as a "special" and "unique" industry (International Labour Organisation (ILO), 1983²⁷⁸; and Hillebrandt, 1984²⁵⁷). If construction is a special industry, the ILO (1983²⁷⁸) maintains, it follows that construction management must also contain approaches that differ in emphasis from general management practice.

Most of what differentiates the construction industry from other industrial sectors stem from the characteristics of the construction industry itself, and the activities carried out within it. Eight main characteristics associated with construction activities can be considered with this discourse. They are:-

(i) Construction projects (apart from repetitive housing) are in the main, of a one-off discrete nature (ILO, 1983²⁷⁸), necessitating a flexible organisation structure to cope with constant change. This contrasts with the "steady state" organisations, such as hospitals and mass-production factories, where a good proportion of tasks can be reduced to a routine.

(ii) Construction work is carried out in the open and therefore, subject to weather forces (ILO, 1983²⁷⁸; Hillebrandt, 1984²⁵⁷; and Bufaied, 1987⁷¹).

(iii) Construction activities, especially public works, are frequently used as a form of economic regulator (Hillebrandt, 1984²⁵⁷, 1985²⁵⁸; ILO, 1983²⁷⁸; and Turner, 1987⁴⁸³), resulting in the industry being unable to rely upon a steady workload to ensure continuous employment of its resources. Government public spending on house building, roads, bridges, hospitals and schools has a direct effect on

construction activities. On the other hand, government policy, for example, on interest rates, wages and expenditure, has an indirect influence on issues such as demand for housing, offices and shops (Turner, 1987⁴⁸³). Also, the national preference of certain construction materials, helps to ensure that import penetration of construction materials is reduced. Thus, in this way, the construction industry is used by government to expand the economy without exerting direct pressure on the trade balance. As Turner (1987) pointed out, the construction industry "... is also one of the most sensitive to government influence, since it is affected directly and indirectly by changes in economic policy". p16.

(iv) Construction works involve a high volume of specialist works, such as building services, mechanical and electrical (M & E) works which includes such activities as lifts and air conditioning services. Construction works also involve a wide range of trades and activities, for example, bricklaying, plastering, joinery, plumbing and painting.

(v) Construction activities are labour intensive (Clark, 1992¹¹⁵; Hillebrandt, 1984²⁵⁷; Weatherhead, 1985⁴⁹⁰; and Turner, 1987⁴⁸³), since the various trades and activities involved in construction involve manual labour craft skills. Unlike manufacturing products and activities that lend themselves to mass-production, construction products are, in the main, one-off products involving more labour input in its production. Weatherhead (1985⁴⁹⁰) notes that "labour costs are an expensive element of construction". pg 183.

(vi) The construction industry has a casual nature of employment, and this hinders the development of work patterns (ILO, 1983²⁷⁸). Construction workers adopt a nomadic way of life, moving not only from job to job, but also from employer to employer as opportunities arise. This makes the organisation of casual workers difficult. Similarly, for trade unions, this reduces their negotiation and bargaining capabilities for more favourable conditions of employment.

(vii) The construction industry is fragmented. According to the DOE (1992¹⁵⁸) Housing and Construction Statistics, the UK construction industry consists of more than 207,000 firms, 195,000 of these employ fewer than eight people. Although only about 100 firms employ 600 or more people, they account for about 20% of the industry's output. Typically, the industry contains a small number of relatively large firms and a very large number of quite small firms.

The fragmentation of the construction industry reflects the economics of production, encouraging small firms organised by trade or craft. Two issues are important. Firstly, construction products (eg. houses, roads and bridges) are immobile, construction firms have to go to the customer, and each construction site or location is a temporary place of work. Secondly, every construction order is specific to a given type of construction activity. These two factors reduce the scope of economics of large scale production. Turner (1987⁴⁸³), is of the view that, as some buildings can be produced in factory conditions and assembled on site, "only few large contracts exist for such projects, and therefore smaller companies are at no disadvantage" p16.

(viii) The absence of entry and exit barriers, limited scope of collusion and the large number of small firms,(94% of firms employ fewer than eight people), make construction a competitive industry. Low barriers to entry are a consequence of the industry's limited capital requirement (Turner, 1987⁴⁸³).

It is under these conditions that the managers of construction activities have to work. In addition to these, new contractual procedures; new technology; and clients becoming more sophisticated than ever, emphasizing and demanding tight completion dates and high quality standards, will compound the issues for those managing construction work. As Mustapha and Langford (1990³⁶⁸) note "management of construction work is getting tougher. Projects are becoming much more complex and difficult" p346.

With the opening up of Europe, with different construction practices that are likely to ensue, and also greater competition, the situation is not going to get any easier.

Similarly, in the UK construction industry, self employed labour and sub-contracting are on the increase (CSSC, 1988⁹⁸; and Clark, 1992¹¹⁵). "Although accurate information on the numbers employed in construction is impossible to collect" (CSSC, 1988) because of the casual nature of the construction industry, Clark (1992¹¹⁵) notes that there was a 62% growth in self-employment between 1970 and 1986.

Increased subcontracting on a project is associated with project complexity (Bufaied, (1987⁷¹). Clark (1992¹¹⁵) maintains that the amount of management on site has not been reduced as a result of increased sub-contracting, rather, the reverse is the case, thereby creating an extra layer of supervision.

The discussion so far has concentrated on the characteristics of the construction industry, and their impact on managers, from a general construction management perspective. The management of refurbishment processes, it has been noted, demands greater management attention and supervision (Koehn and Towers, 1982³⁰⁶; Whiteman, 1987⁴⁹⁷; Charmer, 1985¹⁰³, 1987¹⁰⁴⁹⁹; and Dixon, 1990¹⁶³) than general construction management. Sidwell (1984⁴⁴⁶) is of the view that refurbishment work is more labour intensive than new build construction. This view is also supported by NEDO (1978³⁷⁷) and Weatherhead (1985⁴⁹⁰). The NEDO (1978³⁷⁷) report titled 'How Flexible Is Construction', states that "preliminary results for housing repairs indicate that the input of man-days per £1,000 is considerably higher than that required for new work". Productivity levels are also lower in refurbishment work, when compared to new build (Sidwell, 1984⁴⁴⁶; Weatherhead, 1985⁴⁹⁰; Bland, 1978⁴⁷; and Willenbrock et al., 1987⁵⁰¹). Sidwell, 1984⁴⁴⁶, concludes that "... the nature of refurbishment projects places great emphasis on the flexibility and management skills of the building team".p.23.

A better understanding of the characteristics and difficulties associated with managing refurbishment work within an industry which, in itself is complex and difficult, is important and needed. It would not only facilitate our knowledge of a manager's job, but is needed to improve theoretical study and practical utility.

It is therefore the purpose of this part of the study to evaluate the characteristics and difficulties of refurbishment management in order that:-

- (i) Refurbishment organisations could become more knowledgeable about refurbishment processes, and may become more attuned to client's needs.
- (ii) An understanding of the characteristics, difficulties and demands of refurbishment processes will assist in both the identification of responsibilities and level of training.
- (iii) Awareness and knowledge of the difficulties of refurbishment characteristics, and how they can be best overcome, should be of value to the individual manager; as it could lead to an increase in job satisfaction.

4.2. Characteristics And Difficulties Associated With Managing Refurbishment Work

To commence the analysis, the difficulties that confront managers in carrying out refurbishment work will be presented at the aggregate level. This will be followed by the degree of difficulty of refurbishment characteristics at senior, middle and junior management levels. Data by types of organisation - specialist and general refurbishment organisations will also be presented.

Another dimension will be taken into account in order to explore in more detail, the difficulties associated with managing refurbishment work. From the literature review, the most common and widely undertaken types of refurbishment projects in the UK

were identified. Manager's perceptions, through semi-structured interviews, were sought as to the difficulties associated with the different types of refurbishment projects. Similarly, the difficulties associated with working in occupied and un-occupied buildings received attention.

A list of refurbishment characteristics was derived from a thorough review of general literature on refurbishment, especially that of Koehn and Tower, 1982³⁰⁶; Catt, 1983⁹³; Jothiraj and Fellows, 1986²⁸⁷; Summers and Fellows, 1987⁴⁷⁰; Willenbrock et al, 1987⁵⁰¹; Hanley, 1987²⁴⁵; and Douglas, 1988¹⁶⁵; and then modified after interviews with 32 training officers from 32 refurbishment organisations.

From this list which comprised 33 characteristics, refurbishment managers were asked to identify those characteristics which they find difficult in managing refurbishment work, "very difficult", "difficult", "fairly difficult" and "not difficult". These categories were coded 1, 2, 3 and 4 respectively. (See Questionnaire in Appendix A). Average scores are then computed from ordinal coding of these data.

Table 3: Degree Of Difficulty Of Refurbishment Characteristics: Refurbishment Managers

<u>Characteristics</u>	<u>Mean Score (N = 142)</u>	<u>Rank</u>
Cost control	1.528	1
Dust control	1.641	2
Influence of tenants on regular progress of works	1.669	3
Pricing of the works	1.711	4
Variation/change order to the works	1.739	5
Noise control	1.746	6
Site security	1.754	7
Storage of building materials and plant	1.782	8
Site access	1.873	9
Time prediction for completion of the works	1.908	10
Handling and disposal of hazardous/toxic substances	2.014	11
Keep site tidy	2.028	12
Maintaining existing services	2.056	13
Productivity control and maintenance	2.106	14
Maintaining site safety and welfare standards	2.141	15
Decanting buildings for commencement of work	2.155	16
Protecting the general public	2.162	17
Programming and scheduling of works	2.169	18
Quality control and assurance	2.169	19
Contract documentation/arrangement	2.225	20
Restriction on working hours	2.246	21
Protecting the works & adjacent buildings	2.246	22
Materials handling	2.261	23
Handling and disposal of site rubbish	2.317	24
Long and unsociable working hours	2.408	25
Restriction in plant usage	2.430	26
Supervision of the works	2.444	27
Liaison with tenant/occupier	2.458	28
Selection and recruitment of workforce	2.648	29
Materials supply	2.732	30
Coping with employee stress & absenteeism	2.817	31
Building regulations & other statutory control	3.035	32
Plant supply	3.338	33

As mean score increases, the degree of difficulty decreases. It was necessary that managers were not specifically asked to identify those characteristics they find difficult in their present job. This has the benefit of allowing manager's perceptions of the degree of difficulty of refurbishment characteristics, to be based on their general experience and involvement with refurbishment work. Table 3 presents the full list of the degree of difficulty of refurbishment characteristics as perceived by 142 refurbishment managers who participated in the questionnaire phase of the present study.

An inspection of Table 3 shows that managers ranked cost control as the most difficult refurbishment characteristic. The high risk and uncertainty (Quah, 1988³⁹³; Teo, 1990⁴⁷³) associated with refurbishment work, make cost control and the cost planning processes difficult. As Pickford (1983⁴⁰¹) maintains, "It is easy to calculate the cost of new building quite accurately, but with restoration the cost is a great unknown" p95. Similarly, as Ferry and Brandon (1991¹⁹³) noted, "... being aware and keeping the client aware of the current cost situation is even more important than usual on this [refurbishment] type of project, where in spite of everybody's effort the cost commitment is always liable to escalate at fairly short notice". p 250.

In his article titled "Refurbishment: Formulae for Success", Walters (1991⁴⁸⁶) pointed out three underlying problems in refurbishment costs. These are :-

(i) More design variables such as re-alignment of floors in order to provide space for services, and underpinning operations to strengthen foundations, contribute to greater total cost than in new build and therefore less useful cost data is available

for estimating purposes.

(ii) Refurbishment "can be viewed differently by individual tenderers", creating wide tender ranges and adversely affecting the price base stability for collection of data. The view that tender bids for refurbishment work are more variable than new build work is supported by the Chartered Institute of Building (CIOB, 1987¹⁰⁷) and Quah (1990⁴¹¹, 1992a⁴¹⁴). The CIOB (1987¹⁰⁷) notes that "... comparative statistical studies of tender bids for refurbishment and new building projects show that the bidding range for refurbishment projects is consistently more variable than new work" p1. Quah (1992a⁴¹⁴) in her article on "Comparative variability in tender bids for refurbishment and new build work", showed that the mean coefficient of variation of tender bids for refurbishment is 0.0075 (Mean CV = 7.5%). This value is 1.6 times higher than that of new build work. Quah, 1988⁴¹⁰, is of the view that the variability in tender bids for refurbishment work has its origin in a variety of factors such as :-

- Unsuitability of tender documentation which often fails to convey the scope and extent of the work.
- High reliance on domestic sub-contractor's quotation.
- An assortment of different sized contractors involved in competition to win work.

(iii) Tender price levels for refurbishment will often not move in parallel with new work. Sparrow (1989⁴⁵⁸) maintains that there is an abundance of data for estimating the cost of new build, but this is not so for refurbishment work. This view is shared by Smith, 1983⁴⁵⁶; Chapman, 1980¹⁰²; Quah, 1986⁴⁰⁹; and Walters, 1991⁴⁸⁶.

Dust control is one characteristic of refurbishment work which managers find very difficult, even with the use of dust control equipment and screens. This characteristic is ranked second in degree of difficulty. (See Table 3).

The problem of dust control is compounded when working on buildings with a high content of demolition work, and also buildings with tenants in occupation, such as hospitals and hotels. Even if most of the work is carried out at weekends and at night, the dust problem is still difficult to overcome. Finding stocks, papers and furniture covered in dust every morning, maintains Ferry and Brandon (1991¹⁹³), is one of the greatest irritants to occupants and tends to lead to complaints about everything else.

Tenants influence on regular progress of the works is another most cited characteristic which managers find very difficult. Tenants can influence the progress of the work in a variety of ways. Two examples are useful at this point :-

(i) In housing refurbishment, with tenants still in occupation, the tenants may not allow refurbishment operatives into the house until breakfast is completed and children sent to school. Similarly, operatives may be made to stop work while lunch is served and eaten.

(ii) In refurbishment projects such as offices, banks, schools, hospitals and churches, there may be stipulated times where refurbishment operatives will have to stop work and vacate the building for safety, security and religious reasons.

The dilemma faced by managers in this instance, especially with occupied buildings, is two fold, making progress with the works; and maintaining good relations with tenants and satisfying their needs. Influence of tenants on regular progress of the works leads to abortive time in refurbishment, i.e. time lost through restrictions imposed by tenants. This has the effect of reducing labour productivity.

Pricing of the works, variations to the works and noise control are ranked 4th, 5th and 6th respectively (see Table 3).

The high ranking of pricing of the works by managers as being difficult is not surprising, since for most refurbishment work, the content of the work cannot be ascertained before commencement. For example, refurbishment work, when "opened up", could reveal deterioration of the fabric and fittings damaged by adjacent building works. It could also reveal asbestos and other toxic substances, such as lead, which would have to be made safe. This means that the price of the works is difficult to ascertain, especially at the outset. Price control and monitoring of the works become necessary.

A similar explanation can be offered for variation/change order to the works. As work progresses, variations/changes would have to be made to the works, in order to accommodate the unexpected. Such changes could involve underpinning to

strengthen foundations, strengthening walls and floors, or even a complete change of roof structure because of structural weakness. As Albert Murcutt (1979³⁶⁷), a Director of Shepherd Construction Limited (UK), noted "It is impossible to determine before hand all the work to be undertaken, and although sensible provisions can be made at tender stage, nevertheless, the hidden detail and the unexpected will always arise" p109. Increased variations means that the works would need to be monitored more closely and regularly.

As refurbishment work frequently involves stripping out, demolition and the use of small powerful tools, this increases the levels of noise and vibrations on refurbishment sites. The responsibility for protecting the workforce, tenants, adjacent building users and the general public from noise, rests with the site management team. There might be the need to employ noise control measures such as mufflers on tools, ear defenders and sound acoustic sheets.

Site security is ranked 6th in order of difficulty. The issue of site security is heightened when works are carried out on sensitive premises such as Ministry of Defence (MOD) buildings, airports, banks, and where the sensitivity of documents and equipment demand attention and protection. When working in these sort of environments, the workforce and the site management team may be submitted to random searches for the bringing in or removal of 'unwanted' materials to and from site.

Site access restriction was also cited as being difficult, and ranked 9th. This is compounded when work is undertaken which involves refurbishing on very restricted urban sites, between existing buildings and in close proximity to the public and highways. Access restrictions on refurbishment sites have far reaching implications on the works. It may exacerbate the problems of handling and storage of materials. Inadequate site storage will invariably restrict the amount of materials purchased and brought to site, which means that the contractor will not benefit from the economies of scale. This may also lead to increase in transportation costs, double handling and more management time and effort in the co-ordination of materials on site. Site access restrictions also have implications on labour and plant resources. Site restriction means that the workspace and physical movement of the workforce will be hampered, leading to increase labour hours and additional costs. This could ultimately impinge on both productivity and efficiency levels, and profit margins.

Similarly, for plant and machinery, use is restricted. This has the effect of reducing the choice of plant and machinery employed for the works, thereby making the work more labour intensive (NEDO 1978³⁷⁷; Weatherhead 1985⁴⁹⁰). Plant/machinery like tower cranes and hoists are more difficult to be brought on to site.

Maintaining site safety and welfare standards, protecting the general public and contract documentation/ arrangement are ranked mid-way, being rated 15th, 17th and 20th respectively.

Refurbishment works are prone to site fatalities, especially when refurbishing historical and old buildings with a high content of demolition work; and when work involves the removal or stripping out of asbestos, lead and other toxic materials. As statistics published by the Health and Safety Executive (HSE, 1988²⁵⁰) suggest, the repair, maintenance and improvement sector accounts for between 30 and 50% of the total number of construction fatalities in the UK. The same source revealed that over the five year period of 1981 to 1985, the figure averaged 43%. It is the responsibility of the site management team that a high safety standard is maintained and enforced at all times; and that everyone on site is knowledgeable and conversant with the safety code and procedures applicable to the type of work being carried out.

A similar explanation can be offered for the difficulty of protecting the general public. It is paramount that the general public is protected from dust, debris and dangerous site conditions. Marino et al. (1990³⁴⁴) in their article titled "A case report of lead paint poisoning during renovation of a victorian farm house", described a series of four cases of childhood lead poisoning and two cases of lead toxicity from lead dust and fume during renovation of a rural farmhouse.

As for contractual documentation and arrangement, the validity of adopting contractual procedures which are suitable in new build work for refurbishment work, have been questioned (Enflo-Jensfelt, 1978¹⁷⁹; Fine, 1983¹⁹⁴; Quah, 1986⁴⁰⁹; Pearson, 1988³⁹³; and Sidwell, 1984⁴⁴⁶).

The Royal Institution of Chartered Surveyors (RICS, 1982⁴³²) in their publication titled "Refurbishment and Alteration Work", noted that "... traditional bills of quantities prepared in accordance with Standard Method of Measurement, are generally not suitable for the average refurbishment project" p1.

Similarly, Hakman (1975²³⁶) argued that repair and alteration work "have their own special problems and conditions which need to be addressed in the preparation of the bills of quantities". In their study on "Client Control of Commercial Refurbishment Projects", Fellows et al (1985¹⁸⁹) observed that the traditional contractual procedures which distribute responsibilities directly between members of the building team were "inappropriate" on refurbishment projects. Their survey on the usage of contract forms and tendering procedures for commercial refurbishment projects found unorthodox management systems and contract forms to be more popular than traditional contractual procedures.

Table 4 summarises the usage of contract forms and procedures for refurbishment projects from Fellows et al's (1985¹⁸⁹) study involving structured interviews and 32 postal returns from clients, consultants and contractors.

An inspection of Table 4 shows a widespread of management systems used for refurbishment work. It also shows that the use of the traditional contractual system in association with firm Bills of Quantity is favourable to new build and limited in commercial refurbishment work. This is mainly due to the fact that it is not possible to define refurbishment work with the requisite degree of accuracy, because of the uncertainty and risk associated with the works.

Table 4: Usage Of Contract Forms And Procedures For Commercial Refurbishment projects

<u>Management Systems</u>	<u>Refurbishment</u>	<u>New Build</u>
Traditional	28%	64%
Project management	25%]	15%]
Management contracting	28%] 72%	13%] 36%
Design & build	19%]	8%]

Contract Forms

JCT With Quantities	18%	65%
JCT With Approx. Quantities	22%	10%
JCT Without Quantities]		
JCT Fixed Fee]	35%	14%
JCT Contractors Design]		
Contractors'/Clients' own forms	25%	11%

Tendering Procedures

Single Stage	39%	71%
Two Stage]		
Negotiated]	61%	29%
Cost - plus]		

Source: Fellows et al (1985¹⁸⁹) Client Control Of Commercial Refurbishment Projects p. 7

As Ferry and Brandon (1991¹⁹³) advised, "the uncertainties of refurbishment work mean that it will be almost impossible, and certainly inadvisable, to undertake the [refurbishment] project on the basis of lump sum competitive tenders for the works, and other more collaborative methods of procurement will have to be used - either cost-plus or some form of management contracting" p 247.

From Table 4, it can be seen that 28% of refurbishment projects are carried out under management contracting. Fellows et al (1985¹⁸⁹) observed that management contracting were used frequently when time is of the essence. The drawback to management contracting, according to Fellows et al (1985¹⁸⁹) is the fact that it does "not provide sufficient incentives to contractors to complete the project on time; such situation necessitates stringent client control" p 8.

As for design and build, Fellows et al's (1985¹⁸⁹) study noted that it was used on less complex projects.

As regards tendering procedures, Table 4 shows that the most commonly used procedures for refurbishment projects are two stage tendering and negotiation. The criticisms levelled at the single stage tendering procedures, as maintained by Fellows et al (1985¹⁸⁹), are that :-

- (i) They do not provide sufficient importance to clients' time requirements on refurbishment projects.
- (ii) They are cost-oriented and may restrict savings which could be realised from a shorter project duration.

Fellows et al's (1985¹⁸⁹) study shows that for refurbishment management, a more participative and flexible approach to contractual arrangement and procedures are needed.

Refurbishment managers ranked coping with employee stress and absenteeism, building regulations & other statutory controls, and plant supply as being the least difficult characteristics. These were ranked 31st, 32nd and 33rd respectively (see Table 3).

Through semi-structured interviews with twenty-two refurbishment managers, an attempt was made to ascertain the reasons for the low ranking of these characteristics. As for coping with employee stress and absenteeism, this author found it necessary to differentiate 'stress' from 'absenteeism'. This was done on the premise that the causes of employee stress might not necessarily lead to an employee being absent from work (see Appendix A for the questions asked during semi-structured interviews with managers).

Although conceding that refurbishment work is relatively more stressful than new build work, the 22 refurbishment managers noted that employee stress does not constitute a problem to the extent that it is detrimental to the works. This view supports the views of 142 managers who participated in the questionnaire phase of the study, and validates the result. Refurbishment managers who participated in the questionnaire phase of the study ranked stress and absenteeism 31st in terms of degree of difficulty (See Table 3).

The reasons given by the managers who were interviewed, are that refurbishment works are largely of short duration, in work packages, and less repetitive. This means that employee stress patterns and levels are easily dampened before they become detrimental to the works. Perhaps, this may also be a reflection of the

degree of job satisfaction employees experience from their work. Their work is satisfying and rewarding. It may also be reinforced by the fact that managers at all levels appear close to the workplace, in which case there is a sense of belonging, an identity amongst the workforce. A view also expressed by all 32 training officers from 32 refurbishment organisations who were interviewed as part of the present study.

The twenty-two managers who were interviewed were also asked 'to what extent the nature of refurbishment work can lead to frustration of the workforce?'. It was the managers' views that the nature of the work does not affect employees to such an extent as to lead them to be absent from work.

The views of the 22 managers interviewed, and those of the 142 managers who participated in the questionnaire survey, are in agreement. One hundred and forty-two (142) refurbishment managers ranked stress and absenteeism 31 out of 33 in terms of degree of difficulty of refurbishment characteristic (see Table 3). This is a further validation of the results of the present study.

Regarding employee absenteeism, it also deserves mentioning, that in the present economic climate, with high job losses and redundancies (Kynoch, 1992³¹⁵; Whitmore, 1992⁵⁰⁰) in the construction industry, employees will tend to hold on to their jobs, and as a result there may be less absenteeism.

Building regulation and other statutory controls, such as fire regulations, means of escape and ventilation requirements was ranked 32 out of 33 in terms of degree of difficulty of refurbishment characteristics. Although very limited in its application as it does not have much bearing on the major part of the building stock, the DOE circular 23/77 para.81, "Historic Buildings and Conservation Area : Policy and Procedures", encourages local authorities to relax regulations and normal planning requirements where old buildings are to be rehabilitated. Also, planning delay is avoided since planning permission may not be required under the Town and Country Planning Act (TCPA 1990), s55(2)(a), for refurbishment works that will affect only the interior or do not materially affect the external appearance of the building.

The perceptions of the managers who were interviewed, were sought on the extent to which Building regulation/other statutory controls pose any difficulty to refurbishment work. Of the 22 managers interviewed, 20 (90.91%) responded that coping with Building regulation/other statutory controls was either fairly difficult or not difficult. Two managers rated it difficult, and none rated it very difficult.

The two managers who found Building regulation/other statutory controls difficult, cited fire regulations, means of escape, strengthening of structural components, and meeting the requirements of ventilation and other services to be difficult. The views of the managers who participated in the questionnaire phase of the study and the managers interviewed are in agreement; and further validates the results of the study.

Plant supply was ranked the least difficult and rated 33 out of 33, in terms of degree of difficulty, by 142 managers who responded to the questionnaire survey of the study. Similarly, 18 (81.82) of the 22 managers interviewed responded that the supply of plant and machinery to the works was not of a concern, and noted that it was either fairly difficult or not difficult. 18 of the 22 managers who responded that the supply of plant was either fairly difficult or not difficult, also noted that their organisations have a plant/machinery department; and that they also maintain a good relationship with their local plant suppliers.

The views of the managers who participated in the postal questionnaire survey are consistent with the 22 managers who were interviewed. There is consistency in the results of the present study.

For plant supply, it could be argued that on small work packages the fragmentation of the work and often restricted access are not conducive for heavy use of plant. Even though there is a wide variety of plant and machinery available, because the work is labour intensive, hand tools are more appropriate.

Having considered the degree of difficulty of refurbishment characteristics at the aggregate level, the next section of this chapter will focus attention on the degree of difficulty of refurbishment characteristics at the dis-aggregate levels, namely at senior, middle and junior management levels.

4.3. Degree Of Difficulty Of Refurbishment Characteristics And Levels Of Management.

The approach adopted in analyzing data at the aggregate level will also be employed at the dis-aggregate levels for senior, middle and junior managers respectively. As mean score increases, the degree of difficulty of refurbishment characteristics decreases.

To commence data analysis, a thorough observation of Tables 5, 6 and 7 reveals that of the eight characteristics ranked by senior, middle and junior managers as being the most difficult, cost control, pricing of the works, variations/change order to the works and dust control were cited by all levels of management.

However, cost control was ranked 1st by senior and mid-level managers, and 5th by junior managers. The need for regular cost control and monitoring in refurbishment work is of utmost importance, since refurbishment work is full of the unexpected which have cost implications. Ferry and Brandon (1991¹⁹³) informs us that in refurbishment work, "the cost commitment is always liable to escalate at fairly short notice". Moreover, as the overall responsibility for cost of construction and the success or failure of projects, rest on those in senior management positions, namely the area managers and directors, the issue of cost control on refurbishment projects need to be taken very seriously by those in the senior management positions.

Table 5: Degree Of Difficulty Of Refurbishment Characteristics: Senior Managers

<u>Characteristics</u>	<u>Mean Score (N = 23)</u>	<u>Rank</u>
Cost control	1.087	1
Variation/change order to the works	1.348	2
Storage of building materials	1.391	3
Dust control	1.565	4
Site access	1.609	5
Pricing of the works	1.609	6
Materials handling	1.783	7
Productivity control & maintenance	1.826	8
Handling & disposal of site rubbish	1.826	9
Maintaining existing services	1.870	10
Noise control	1.913	11
Time prediction for completion of the works	1.913	12
Maintaining site safety and welfare standards	1.957	13
Programming and scheduling of works	2.000	14
Influence of tenants on regular progress of the works	2.000	15
Handling & disposal of hazardous/toxic substances	2.174	16
Contract documentation and arrangement	2.217	17
Keep site tidy	2.217	18
Protecting the works and adjacent buildings	2.261	19
Supervision of the works	2.304	20
Site security	2.304	21
Decanting building for commencement of work	2.348	22
Quality control and assurance	2.348	23
Liaison with tenant/occupier	2.435	24
Protecting the general public	2.478	25
Restriction in plant usage	2.565	26
Restriction on working hours	2.609	27
Long and unsociable working hours	2.783	28
Selection and recruitment of workforce	2.826	29
Coping with employee stress & absenteeism	3.130	30
Building regulations & other statutory control	3.217	31
Materials supply	3.217	32
Plant supply	3.565	33

Table 6: Degree Of Difficulty Of Refurbishment Characteristics: Middle Managers

<u>Characteristics</u>	<u>Mean Score (N = 59)</u>	<u>Rank</u>
Cost control	1.576	1
Influence of tenants on regular progress of the works	1.627	2
Site security	1.729	3
Storage of building materials and plant	1.763	4
Pricing of the works	1.763	5
Variation/change order to the works	1.797	6
Dust control	1.831	7
Noise control	1.864	8
Quality control and assurance	1.932	9
Keep site tidy	1.949	10
Handling & disposal of hazardous/toxic substances	1.949	11
Site access	1.966	12
Protecting the general public	2.068	13
Maintaining site safety and welfare standards	2.102	14
Time prediction for completion of the works	2.102	15
Productivity control and maintenance	2.102	16
Maintaining existing services	2.169	17
Decanting building for commencement of work	2.186	18
Restrictions on working hours	2.254	19
Materials handling	2.271	20
programming and scheduling of the works	2.288	21
Handling and disposal of site rubbish	2.399	22
Long and unsociable working hours	2.356	23
Protecting the works and adjacent buildings	2.356	24
Restriction in plant usage	2.373	25
contract documentation/arrangement	2.373	26
Liaison with tenant/occupier	2.441	27
Supervision of the works	2.458	28
Selection and recruitment of the workforce	2.729	29
Coping with employee stress & absenteeism	2.814	30
Materials supply	2.814	31
Building regulations and other statutory control	3.034	32
Plant supply	3.119	33

Table 7: Degree Of Difficulty Of Refurbishment Characteristics: Junior Managers

<u>Characteristics</u>	<u>Mean Score (N = 60)</u>	<u>Rank</u>
Dust control	1.483	1
Site security	1.567	2
Noise control	1.567	3
Influence of tenants on regular progress of the works	1.583	4
Cost control	1.650	5
Pricing of the works	1.700	6
Time prediction for completion of the works	1.717	7
Variation/change order to the works	1.833	8
Site access	1.883	9
Storage of building materials and plant	1.950	10
Handling and disposal of hazardous/toxic substances	2.017	11
Maintaining existing services	2.017	12
Keep site tidy	2.033	13
Decanting building for commencement of work	2.050	14
Contract documentation and arrangement	2.083	15
Restrictions on working hours	2.100	16
Programming and scheduling of the works	2.117	17
Protecting the general public	2.133	18
Protecting the works and adjacent buildings	2.133	19
Productivity control and maintenance	2.217	20
Maintaining site safety and welfare standards	2.250	21
Long and unsociable working hours	2.317	22
Quality control and assurance	2.333	23
Materials handling	2.433	24
Restriction in plant usage	2.433	25
Materials supply	2.467	26
Supervision of the works	2.483	27
Handling and disposal of site rubbish	2.483	28
Liaison with tenant/occupier	2.483	29
Selection and recruitment of workforce	2.500	30
Coping with employee stress & absenteeism	2.700	31
Building regulations & other statutory control	2.967	32
Plant supply	3.467	33

For junior managers, dust control was ranked as the most difficult characteristic, followed by site security. Dust control and site security are both activities associated with site management, hence it is not surprising that junior managers rated them as they did .

Influence of tenants on regular progress of the works was ranked 15th, 2nd and 4th by senior, middle and junior managers respectively. Middle managers (contracts and project managers) and junior managers (site agents and site managers) are normally more in contact with tenants in occupation when carrying out refurbishment work than do senior managers (directors/area managers). Middle and junior managers are more likely to be faced with the difficulties associated with tenants in occupation than senior managers, in managing refurbishment work. Similarly, site security is ranked 2nd, 3rd and 21st by junior, middle and senior managers respectively.

However, looking at the three least difficult refurbishment characteristics, namely materials supply, building regulation/other statutory controls, and plant supply on Tables 5, 6 and 7, it will be observed that there is agreement amongst all levels of management.

An attempt was made to establish if there is a significant correlation between the degree of difficulty of refurbishment characteristics and levels of management. In other words, to ascertain if managers in the senior management positions perceive refurbishment characteristics to be less difficult than managers in the junior management positions.

In testing the null hypothesis, that there is no significant negative correlation between levels of management and degree of difficulty of refurbishment characteristics, the computed value of Spearman rank-order correlation coefficient (r_s) is -0.086. Although a negative correlation, this is not significant at the 0.05 level. The null hypothesis is not rejected. This means that there is not sufficient evidence to suggest that managers at the higher levels of management perceive refurbishment characteristics to be less difficult than managers at lower levels of management. Perhaps, this is an indication that managers at the higher levels of management are not necessarily more experienced than managers at the lower management levels.

To clarify this further, Tables 8 and 9 show that managers who occupy the senior management positions have not necessarily spent longer time in the construction industry, or been involved in managing refurbishment work for a longer period, than managers who occupy junior management positions.

Table 8: Length Of Time Spent Working In The Construction Industry And Level Of Management

	<u>Frequency Distribution</u>		
	<u>Senior</u>	<u>Middle</u>	<u>Junior</u>
1 - 5 years	-	-	1
6 - 10 years	1	4	5
11 - 15 years	5	8	6
16 - 20 years	6	6	5
More than 20 years	<u>11</u>	<u>41</u>	<u>43</u>
	23	59	60

For example, an inspection of Table 8 reveals that whilst 11 (47.83%) of senior managers have worked in the construction industry for more than 20 years, 41 (69.49%) of middle managers and 43 (71.67%) of junior managers have worked in the industry for that same period of time.

Similarly, Table 9 shows that no manager at the senior management position has spent more than 20 years managing refurbishment work, whilst 7 middle managers and 6 junior managers have been involved in managing refurbishment work for more than 20 years.

Table 9: Length Of Time Involved In Managing Refurbishment Work And Level Of Management

	<u>Frequency Distribution</u>		
	<u>Senior</u>	<u>Middle</u>	<u>Junior</u>
Less than 1 year	-	1	2
1 - 5 years	9	18	22
6 - 10 years	4	16	19
11 - 15 years	4	12	6
16 - 20 years	6	5	5
More than 20 years	<u>-</u>	<u>7</u>	<u>6</u>
	23	59	60

When the age of managers is considered it would be noticed that managers at the senior management levels are not necessarily older than managers in the junior management positions. From Table 10, it can be seen that 8 (34.78%) of senior managers are aged 46 years and above, when compared to 27 (45.76%) of middle managers and 30 (50.00%) of junior managers.

Table 10: Age Of Manager And Level Of Management

	<u>Frequency Distribution</u>		
	<u>Senior</u>	<u>Middle</u>	<u>Junior</u>
Less than 25 years	-	-	-
25 - 35 years	4	11	12
36 - 45 years	11	21	18
46 - 55 years	8	19	20
56 - 65 years	<u>2</u>	<u>8</u>	<u>10</u>
	23	59	60

When educational and professional background of managers are considered, as in Table 11, it can be seen that the majority of the managers with first or higher degrees are in the senior management positions. Nearly 67% of senior managers have first or higher degrees, when compared to 20.00% of middle managers and only 13.33% of junior managers.

Table 11: Educational And Professional Backgrounds Of Refurbishment Managers And Levels Of Management

	<u>First/Higher Degrees (%)</u>	<u>Professional Bodies (%)</u>	<u>Crafts Background (%)</u>
Senior	66.67	58.33	6.38
Middle	20.00	29.17	42.56
Junior	<u>13.33</u>	<u>12.50</u>	<u>51.06</u>
	100.00	100.00	100.00

Similarly, over 58% of senior managers are members of one of the three professional bodies in the Construction Industry, The Chartered Institute of Building (CIOB); The Institution of Civil Engineers (ICE); and The Royal Institution of Chartered Surveyors (RICS). 29.17% of middle managers, and only 12.50% of junior managers have professional qualifications.

Also, from the current study, 67.61% of all managers; senior, middle and junior managers, have a crafts background. In terms of hierarchy, these managers have followed one of the three following routes :-

- (i) Joiner - Foreman joiner - General foreman - Site agent/Site manager.
- (ii) Bricklayer - Foreman bricklayer - General foreman - Site agent/Site manager
- (iii) Apprentice Steel fixer - Steel fixer - Foreman - General foreman - Site agent/Site manager.

The remainder of the managers, 32.39%, have come through the Building, Civil Engineering, Quantity Surveying and Estimating routes.

Of the managers who have come through the crafts route, only 6.38% are senior managers (see Table 11). More than 51% of all managers with crafts background are junior managers. Middle managers make up the remainder (42.56%) of the managers with crafts background.

These results would suggest that managers with first or higher degrees tend to rise faster into senior positions, irrespective of age, length of time in construction and length of time in managing refurbishment work. This would mean, as will be shown later on in Section 4.5 of this Chapter, that managers in the senior positions do not necessarily have more experience of managing refurbishment processes than those in the junior management positions.

Similarly, managers with professional qualifications, and from non-craft backgrounds tend to move faster up the hierarchy of management structure, than their counterparts with crafts background and without professional qualifications.

4.4. Degree Of Difficulty Of Refurbishment Characteristics And Types of Organisation.

Another dimension on data analysis on the degree of difficulty of refurbishment characteristics, is to ascertain how managers of specialist refurbishment organisations perceive the degree of difficulty of refurbishment characteristics, when compared to their counterparts in general refurbishment organisations. Tables 12 and 13 report on the degree of difficulty of refurbishment characteristics as perceived by managers of specialist and general organisations respectively.

The characteristics ranked at or near the top of the Tables are most difficult. Conversely, those characteristics ranked at the bottom are relatively least difficult.

Table 12: Degree Of Difficulty Of Refurbishment Characteristics: Managers Of Specialist Refurbishment Organisations

<u>Characteristics</u>	<u>Mean Score (N = 108)</u>	<u>Rank</u>
Cost control	1.583	1
Influence of tenants on regular progress of the works	1.694	2
Site security	1.722	3
Dust control	1.741	4
Variation/change order to the works	1.759	5
Pricing of the works	1.769	6
Storage of building materials and plant	1.787	7
Noise control	1.870	8
Site access	1.898	9
Time prediction for completion of the works	2.019	10
Keep site tidy	2.056	11
Maintaining existing services	2.065	12
Productivity control and maintenance	2.083	13
Decanting building for commencement of work	2.139	14
Handling and disposal of hazardous/toxic substances	2.148	15
Programming and scheduling of the works	2.185	16
Maintaining site safety and welfare standards	2.185	17
Protecting the general public	2.213	18
Quality control and assurance	2.222	19
Restrictions on working hours	2.287	20
Contract documentation and arrangement	2.306	21
Materials handling	2.333	22
Protecting the works and adjacent buildings	2.333	23
Handling and disposal of site rubbish	2.426	24
Liaison with tenant/occupier	2.454	25
Long and unsociable working hours	2.509	26
Supervision of the works	2.509	27
Restriction in plant usage	2.556	28
selection and recruitment of workforce	2.667	29
Materials supply	2.741	30
Coping with employee stress and absenteeism	2.778	31
Building regulations and other statutory control	3.074	32
Plant supply	3.380	33

Table 13: Degree Of Difficulty Of Refurbishment Characteristics: Managers Of General Refurbishment Organisations

<u>Characteristics</u>	<u>Mean Score (N = 34)</u>	<u>Rank</u>
Dust control	1.324	1
Cost control	1.353	2
Noise control	1.353	3
Pricing of the works	1.529	4
Time prediction for completion of the works	1.559	5
Influence of tenants on regular progress of the works	1.588	6
Handling and disposal of hazardous/toxic substances	1.588	7
Variation/change orders to the works	1.676	8
Storage of building materials and plant	1.765	9
Site access	1.794	10
Site security	1.853	11
Keep site tidy	1.941	12
Contract documentation and arrangement	1.971	13
Handling and disposal of site rubbish	1.971	14
Protecting the works and adjacent buildings	1.971	15
Maintaining site safety and welfare standards	2.000	16
Quality control and assurance	2.000	17
Protecting the general public	2.000	18
Materials handling	2.029	19
Maintaining existing services	2.029	20
Restriction in plant usage	2.029	21
Long and unsociable working hours	2.088	22
Programming and scheduling of the works	2.118	23
Restriction on working hours	2.118	24
Productivity control and maintenance	2.176	25
Decanting building for commencement of works	2.206	26
Supervision of the works	2.235	27
Liaison with tenant/occupier	2.471	28
Selection and recruitment of workforce	2.588	29
Materials supply	2.706	30
Building regulations and other statutory control	2.912	31
Coping with employee stress and absenteeism	2.941	32
Plant supply	3.206	33

When comparing both Tables 12 and 13, the relative ranking by managers of both types of organisation on four characteristics deserve mentioning, especially as there is a wide disparity in ranking as shown below in Table 14.

Table 14 : Comparison Of Degree Of Difficulty Of Refurbishment Characteristics: Specialist And General Refurbishment Organisations

<u>Refurbishment Characteristics</u>	<u>Specialist</u>		<u>General</u>	
	<u>Mean</u>	<u>Rank</u>	<u>Mean</u>	<u>Rank</u>
Site security	1.722	3	1.853	11
Handling/disposal of site rubbish	2.148	15	1.588	7
Contract documentation/arrangement	2.306	21	1.971	13
Restriction in plant usage	2.556	28	2.029	21

Apart from site security in Table 14, it would appear that managers of general refurbishment organisations find the handling/disposal of hazardous and toxic substances; contract documentation; and restriction in plant usage, more difficult than managers of specialist refurbishment organisations, as can be seen from their relative rank positions.

It is therefore necessary to test statistically if a significant correlation exists between the degree of difficulty of refurbishment characteristics, and specialism in refurbishment work. Put differently, to ascertain if specialist refurbishment organisations perceive refurbishment characteristics to be less difficult than general refurbishment organisations.

Spearman rank-order correlation co-efficient (r_s) is an appropriate test statistic, and one which is employed to test the null hypothesis, that there is no significant negative correlation between specialism in refurbishment operations and degree of difficulty of refurbishment characteristics. The computed value of Spearman rank-order correlation co-efficient (r_s) is -0.192. This is significant at the 0.05 level. The null hypothesis is rejected. This means that there is a significant negative correlation

between specialism in refurbishment operations and difficulty of refurbishment characteristics. The more an organisation is specialised in refurbishment work, the less difficult refurbishment characteristics are perceived to be. It can be concluded that specialist refurbishment organisations find refurbishment characteristics less difficult than general refurbishment organisations.

As the majority of work carried out by specialist refurbishment organisations are refurbishment work, their managers are more likely to have gained greater experience and understanding of refurbishment processes than managers of general refurbishment organisations by virtue of being more exposed to refurbishment difficulties. This could account for specialist refurbishment organisations' perceptions of refurbishment characteristics to be comparatively less difficult.

The implication of this result is that refurbishment clients may prefer to appoint a specialist contractor where managers with a range of experience are likely to find refurbishment characteristics less difficult to handle. Similarly, clients may prefer to appoint specialist refurbishment contractors with track records in a particular type of project, e.g. Kyle Stewart, UK, specialises in hospital refurbishment.

4.5. Management Experience In Refurbishment And Degree Of Difficulty Of Refurbishment Characteristics.

To further confirm the extent to which experience in refurbishment work affects perceptions of the difficulty of refurbishment characteristics, three hypotheses are tested :-

(i) There is no significant negative correlation between the length of time a manager has worked in the construction industry and the degree of difficulty of refurbishment characteristics.

(ii) There is no significant negative correlation between the length of time a manager has been involved in managing refurbishment work, and the degree of difficulty of refurbishment characteristics.

(iii) There is no significant negative correlation between age of manager and the degree of difficulty of refurbishment characteristics.

Table 15 shows a frequency distribution of length of time managers have worked in the construction industry.

Table 15: Frequency Distribution Of Length Of Time Refurbishment Managers Have Worked In The Construction Industry

	Frequency <u>N = 142</u>	Percentage <u>(%)</u>	Cumulative Percentage <u>(%)</u>
Less than 1 year	-	-	-
1 - 5 years	1	0.7	0.7
6 - 10 years	10	7.00	7.70
11 - 15 years	19	13.40	21.10
16 - 20 years	17	12.00	33.10
More than 20 years	95	66.90	100.00

Table 15 reveals that nearly 80% of the sample group have spent 16 or more years working in the construction industry, whilst only 7.70% have been in the construction industry for less than 10 years.

Spearman rank-order correlation coefficient (r_s) was used to test the null hypothesis, that there is no significant negative correlation between the length of time a manager has spent working in the construction industry, and the degree of difficulty of refurbishment characteristics.

The value computed for Spearman rank-order correlation coefficient (r_s) is -0.285. This is significant at 0.05 level. The null hypothesis is rejected. This means that the longer the time a manager spends working in the construction industry, the less difficult he/she finds refurbishment characteristics.

Table 16 shows a frequency distribution of length of time managers have been involved in managing refurbishment work.

Table 16: Frequency Distribution Of Length Of Time Refurbishment Managers Have Been Involved In Managing Refurbishment Work

	<u>Frequency</u> <u>N = 142</u>	<u>Percentage</u> <u>(%)</u>	<u>Cumulative</u> <u>Percentage (%)</u>
Less than 1 year	3	2.10	2.10
1 - 5 years	49	34.50	36.60
6 - 10 years	39	27.50	64.10
11 - 15 years	22	15.50	79.60
16 - 20 years	16	11.30	90.80
More than 20 years	13	9.20	100.00

An inspection of Table 16 shows that 36.60% of the sample population have been involved in managing refurbishment work for 5 years or less; and 27.50% of managers have been involved in managing refurbishment work for between 6 and 10 years. Only 9.2% of the managers have been involved in refurbishment work for more than 20 years. As shown in Table 9, earlier in Section 4.3 of this Chapter, of the 9.2% of managers who have spent more than 20 years managing refurbishment work, none are from the senior management positions.

In testing the null hypothesis that there is no significant negative correlation between the length of time spent managing refurbishment work and the degree of difficulty of refurbishment characteristics, Spearman rank-order correlation coefficient (r_s) was used. The value of r_s obtained from computation is -0.294. This is significant at the 0.05 level. The null hypothesis is rejected. This means that the longer the time a manager is involved in managing refurbishment work, the less difficult he/she finds refurbishment characteristics. Perhaps, this is a reflection of the experience and knowledge gained in working with refurbishment operations over a long period of time.

As was shown in Section 4.3 of this Chapter, being in senior management positions does not necessarily mean more time has been spent managing refurbishment work than their junior counterparts. Hence, it can be deduced that senior managers are not necessarily more experienced about refurbishment processes than junior managers.

In Table 15, it would be recalled that 66.90% of managers in the sample frame have worked in the construction industry for more than 20 years. Table 16 shows that 9.2% of the managers have spent more than 20 years managing refurbishment. This means that managers who have spent 20 years or more managing refurbishment work would have spent some time working in other areas and sectors of the construction industry. Some managers might have been involved in new build work, as was the case with all the 22 managers who were interviewed by the author. As mentioned in section 2.3.7 of chapter two, these managers also participated in the postal questionnaire phase of the present study.

An understanding of both new build and refurbishment work should be useful to managers involved in refurbishment work, since refurbishment work could involve some elements of new construction, such as in carrying out extension work.

The author attempted to establish the ease at which managers move from one sector to another, i.e. from new build to refurbishment work and vice-versa. From the semi-structured interviews with 22 managers, managers were asked to what extent they agreed with the statement :-

"A manager with new build experience finds it relatively difficult to manage refurbishment work".

Of the 22 managers interviewed, 18 (81.82%) either strongly agreed or agreed with the statement. The remainder of the managers, 4 (18.18%) disagreed with the statement.

Similarly, when asked to what extent they agreed with the statement :-

"A refurbishment manager finds it relatively easy to manage new build work".

Sixteen (16) or 72.73% of the managers interviewed either strongly agreed or agreed. The remainder of the managers, 6 (27.27%), disagreed.

Those who disagreed with both statements noted that it was not possible to make comparisons, since the two types of work are totally different. The majority of the managers, however, agreed with both statements and are of the view that:-

- (i) Refurbishment work does not lend itself to systematic planning as does new build work, and that:-
- (ii) Refurbishment work is more risky and uncertain than new build.

The relationship between the age of manager and the degree of difficulty of refurbishment characteristics deserve considering. Table 17 shows a frequency distribution of age of managers.

Table 17: Frequency Distribution Of Age Of Managers

	<u>Frequency</u> <u>N = 142</u>	<u>Percentage</u> <u>(%)</u>	<u>Cumulative</u> <u>Percentage (%)</u>
Less than 25 years	-	-	-
25 - 35 years	27	19.00	19.00
36 - 45 years	50	35.20	54.20
46 - 55 years	47	33.10	87.30
56 - 65 years	18	12.70	100.00
More than 65 years	-	-	100.00

From Table 17, it can be seen that no manager is below the age of 25, also, no manager is above the age of 65. The age of retirement for men in the U.K. is 65 years. All the respondents in the current study are male, as earlier mentioned in section 2.3.6 of chapter 2.

An inspection of Table 17 also reveals that 54.20% of the managers are between the ages of 25 and 45, while 68.30% are between 36 and 55 years of age. Only 12.70% of the managers are aged between 56 and 65 years.

To test the null hypothesis that there is no significant negative correlation between age of manager and degree of difficulty of refurbishment characteristics, Spearman rank-order correlation coefficient (r_s) test statistic was used. The computed value of r_s is -0.163. This is significant at the 0.05 level. The null hypothesis is rejected. This means that older managers find refurbishment characteristics less difficult than their younger managers. As have been shown in Section 4.3 of this chapter, younger managers are not necessarily junior level managers.

By virtue of spending longer time in the construction industry, and obtaining knowledge and experience about general construction and refurbishment processes, older managers are more likely and able to cope with refurbishment difficulties than younger managers.

The results obtained so far in this chapter, have implications to clients, clients' advisers and contractors who are involved in refurbishment work. For clients and their advisers, it would be beneficial to choose contractors with specialist knowledge of refurbishment operations to carry out their refurbishment work. Also, at tender presentation stage, it would be advantageous, and indeed necessary for clients and their advisors to establish at the outset, the experience of the site management team on refurbishment operations. Experience can be considered in terms of length of time a manager has spent working in the construction industry, length of time a manager has been involved with managing refurbishment work, and age of manager. The three measures of experience are, however, not mutually exclusive.

For contractors, especially those who are in new build and have the intention of diversifying into refurbishment work, it would be advantageous to select and recruit managers who have experience of refurbishment work. These managers are likely to find refurbishment work less difficult to manage. The recruitment of managers with refurbishment experience should be beneficial to a contractor's organisation, as these managers bring in the relevant expertise associated with refurbishment work. Added benefits to the contractor would also accrue if managers with experience of refurbishment work are involved in on-site coaching, as well as acting as mentors to their subordinates, and to younger managers within the organisation.

The importance of relevant experience of refurbishment work to contractors is well expressed by Quah (1988⁴¹⁰) and Building (1984b⁷³) magazine. Quah (1988⁴¹⁰) in her study on "An Evaluation of the Risks in Estimating and Tendering for Refurbishment Work" notes that when competing to win refurbishment contracts, "refurbishment specialists performed significantly better than general contractors measured in terms of the success rates in tendering, bid spreads in tenders won, and in the margin of failure in unsuccessful tenders". pg 351.

Similarly, in an interview with the Building (1984b⁷³) magazine Refurbishment Supplement, Denis Thornton, the Group Marketing Manager of Ashley & Horner, a specialist refurbishment contractor based in London, notes that the refurbishment market requires its own skills, and also, "...people who come into it from new-build don't make money at it initially". pg 10.

The analyses on difficulty of refurbishment characteristics have so far focused on the generality of refurbishment operations. The next section of this chapter will take the analyses one step further. It will consider the most commonly undertaken types of refurbishment projects in the United Kingdom, and the major characteristics and difficulties associated with them. The purpose is to ascertain which type of refurbishment project is most difficult to manage.

4.6. Degree Of Difficulty And Characteristics Of Types Of Refurbishment Projects.

From a thorough review of literature in the general area of refurbishment, notably the works of the Centre for Construction Market and Information, CCMI (1988⁹⁷); IMR (1987²⁷⁵) and Teo (1990⁴⁷³), the most commonly undertaken types of refurbishment projects in the U.K. were established. In all, fifteen types of refurbishment projects were established. From a list of fifteen types of refurbishment projects, managers were asked to rank these in terms of degree of difficulty to manage. Also, managers' perceptions as to the characteristics associated with the most difficult types of refurbishment projects were sought.

Table 18 reports the rank order of difficulty to manage refurbishment projects by 22 refurbishment managers who were interviewed as part of the present study. As mean scores increase, the degree of difficulty to manage refurbishment project decreases. Refurbishment projects at or near the top of the table are most difficult to manage. Conversely, refurbishment projects at or near the bottom of the Table are the least difficult to manage.

An inspection of Table 18 shows that managers ranked hospital refurbishment as the most difficult type of refurbishment project to manage. Hotels and Ministry Of Defence (MOD) buildings were ranked 2nd and 3rd respectively, as being difficult to manage.

Industrial and agricultural buildings were the least difficult types of refurbishment projects to manage, and were ranked 14th and 15th respectively.

Table 18: Rank Order Of Difficulty To Manage Types Of Refurbishment Projects

<u>Types Of Refurbishment Projects</u>	<u>Mean Rank</u>	<u>Rank Order Of Difficulty To Manage</u>
Hospitals	2.00	1
Hotels	2.14	2
MOD Buildings	3.14	3
Shopping Centres	4.09	4
Listed Buildings	4.86	5
Prisons	6.00	6
Housing	7.27	7
Banks	7.86	8
Airports	9.00	9
Offices	9.77	10
Educational Buildings	11.00	11
Religious Buildings	11.86	12
Recreational Buildings	12.91	13
Industrial Buildings	13.86	14
Agricultural Buildings	14.23	15

No. of managers = 22, W = 0.889, Chi-square = 273.936, D.F. = 14, Significance level = 0.05

It is useful to test if there is agreement amongst the 22 managers in their rating of the degree of difficulty to manage refurbishment projects. If there is agreement amongst managers, then this would further add consistency to the results of the study.

To test the null hypothesis, that there is no agreement amongst refurbishment managers in their rating of the difficulty of managing refurbishment projects, Kendall's Coefficient of Concordance W, is appropriate (Kendall, 1980²⁹⁸; Siegel, 1956⁴⁴⁸; and Siegel and Castellan, 1988⁴⁴⁹) to measure the relation.

The method for determining whether the observed value of W is significantly different from zero, depends on the size of N (the number of objects ranked).

When N is larger than 7, Kendall suggests the computation of a value of chi-square. This is so, since the probability associated with the occurrence of any value as large as W may be determined by chi-square. Also, the probability associated with the value of chi-square can be tested. If the 15 ranks are related because chi-square exceeds a particular value (critical value from statistical table) at the 0.05 level of significance, then the null hypothesis is rejected.

An inspection of Table 18 shows that $W = 0.889$, is substantially different from zero; and chi-square ($= 273.936$) at the 0.05 level is significant. This means that there is agreement amongst the 22 refurbishment managers in their ranking of the difficulty of managing refurbishment projects.

Managers' perceptions on the characteristics associated with the most difficult types of refurbishment projects were also sought. These are listed below in decreasing order of difficulty.

Hospital Refurbishment

For hospital refurbishment, the major difficulties managers face are :-

- (i) Working and being sensitive to the needs of patients, especially in meeting stringent dust, noise and vibration controls.
- (ii) Meeting hygiene standards of the hospital.

(iii) Satisfying hospital requirements for safety of patients and staff, especially as they relate to wet and slippery floors, and regular removal of debris and rubbish from construction areas.

Hotel Refurbishment

The major difficulties associated with hotel refurbishment are :-

- (i) Noise and dust control.
- (ii) Restricted access.
- (iii) Working around guests, with minimal interference to services.
- (iv) Maintaining privacy of the guests.

Ministry Of Defence Buildings (MOD)

The major difficulties associated with refurbishing MOD buildings are :-

- (i) Tight security observance including, in some cases, the need for the management team to be knowledgeable about the Official Secrets Acts.
- (ii) Strict checks and control over materials and plant supplied to site.
- (iii) Access restrictions.

(iv) Management team and operatives can be searched at random.

It would appear from the ongoing discussions, that in the main, all types of refurbishment projects are characterised by similar difficulties. However, the difficulties can be severely heightened depending on the particular project.

Refurbishment works can also be classified under two main headings, namely :-

(i) Work carried out on occupied buildings.

(ii) Work carried out on un-occupied buildings.

This study also attempted to ascertain if managing refurbishment work on occupied buildings is more difficult than on un-occupied buildings.

When the twenty-two managers were asked this question, all the managers (100% response rate) responded positively, because the issues of safety, dust, noise, vibrations, supervision of the work, maintaining existing services and access restrictions are compounded. For example, in refurbishing a hotel with guests in occupation and a business running as normal, existing services such as water and electricity would have to be maintained when carrying out refurbishment work; similarly, the safety of guests would have to be taken seriously, unlike when the building is un-occupied.

The result supports the work of Summers and Fellows (1987⁴⁷⁰). In their study on "How to Refurbish Occupied Buildings", which involved a series of structured interviews with eleven contractors, Summers and Fellows (1987⁴⁷⁰) noted that "refurbishment of buildings is problematic; when the buildings are occupied the difficulties are compounded" p34.

The view that refurbishing occupied buildings is more difficult than un-occupied buildings is also supported by Glover and Dyer, 1989²¹⁸; Russell, 1989⁴³³; Glover, 1989²¹⁷; Prodggers, 1989⁴⁰⁶; Banton, 1980²¹; and CIOB, 1981¹⁰⁵.

Glover and Dyer (1989²¹⁸) note that "The project management of a refurbishment involving an empty building is complex enough. Carrying one out with tenants in-situ can easily become a management nightmare p69".

Similarly, as Russell (1989⁴³³) pointed out, "... the refurbishment of a vacant building creates problems. Doing the job in an occupied building is like walking into a veritable minefield" p 89.

Having also established that all the twenty-two refurbishment managers interviewed have had experience of new build work, the managers' perception on whether refurbishment work is more difficult to manage than new build work was sought. All the managers (100% response) responded that this is so.

The reasons given are :-

- (i) Refurbishment work does not lend itself to systematic planning as does new build work.
- (ii) Refurbishment work is more risky and uncertain than new build work.
- (iii) Working around tenants in occupation makes refurbishment work more difficult to manage; and also reduces productivity.
- (iv) There are more variation/change orders to the works, and the valuation of variation is more difficult than in new build.

The view that refurbishment work is more difficult to manage than new build work has also received support from the Building Research Establishment (BRE, 1990⁷⁷); Jothiraj and Fellows (1986²⁸⁷); Whiteman (1987⁴⁹⁷); Willenbrock et al. (1987⁵⁰¹) and Quah (1991a⁴¹²).

It is one thing to establish the characteristics and difficulties that pose problems to managers in carrying out refurbishment work, it is another thing to understand how these difficulties are best overcome by managers. Understanding this would be beneficial in at least two main ways :-

- (i) For younger and new managers in the refurbishment field, an understanding of how best to manage refurbishment difficulties should assist greatly in advancing their career in refurbishment management. This could also lead to an increase in job satisfaction.

(ii) For course tutors, it could assist in the teaching of the difficulties of refurbishment work and how best to overcome the difficulties. In so doing, preparing students, in the best possible way for a real life situation when the opportunity arises to work in a refurbishment context.

4.7. Managers' Perceptions On How Best To Overcome Difficulties Of Refurbishment Characteristics.

The perceptions of managers who participated in the questionnaire phase of the study were sought on how they considered the difficulties of refurbishment characteristics to be best overcome (see questionnaire in Appendix A).

Based on majority responses, of all levels of managers, the results are presented under each refurbishment characteristic. Refurbishment characteristics are arranged in decreasing order of difficulty. Only managers' perceptions on the five most difficult characteristics are presented below, within the text, the remainder are included in Appendix B.

Cost Control

- Conduct weekly cost reviews.
- Have a system to record variation orders (V.O.) and Architects instructions (A.I.'s). Document written confirmation of all site variations.
- Work closely with architects, surveyors and the rest of the design team.
- More intensive Quantity Surveyors input than similar size new build projects
- On-site Surveyor and Client's representative at all times.

- Faster agreement of costs of changes to the design.
- A thorough understanding of the building before commencement of work; including site visits and availability of structural survey reports.
- Weekly reconciliation of material, plant, labour and subcontractor's work.
- More use of schedule of rates and day works.

Dust Control

- Use of dust control equipment and screens.
- Make sure that the Control of Substances Hazardous to Health (COSHH:1988) regulations are adhered to by all.
- Keep tight control over labour and the plant/machinery they employ in the works.
- Employ correct work methods.
- Employ reputable specialist subcontractors.

Influence Of Tenants On The Regular Progress Of The Works

- Appoint a Tenant Liaison Officer/ Public Relations Officer.
- Conduct regular meetings with tenants prior to job commencement and during the construction stage.
- Offer tenants alternative accommodation/ temporary residence, if cost effective.

Pricing Of The Works

- Much of the work contents remain unseen either on drawings or until work is opened up. A percentage mark-up is to be allowed when pricing, to take account of the "risk items".
- Site visits to be conducted before pricing the works.
- More use of schedule of rates and dayworks.
- Need for more detailed information, and more time to be spent at the tender stage.
- A detailed structural survey is essential. Report on structural survey should be made available to the contractor.

Variation/Change Orders To The Works

- Close liaison between client's and contractor's Quantity Surveyors, and members of the design and construction teams.
- Better investigative work and site visits before commencement of work.
- Constant monitoring and documentation of A.I's and V.O's.
- Obtain speedy decisions on variations.
- Tight site control by Site Agent and Quantity Surveyor.

Since cost control is perceived as the most difficult characteristic, weekly cost reviews are suggested as part of the solution. Systematic recording of data, and closer working relations with the client and the professional team are the other ways of keeping tighter control of costs.

The avoidance or reduction of dust is largely down to common sense and strict working practices.

Good communication seems to be an appropriate way of handling tenants, with the appointment of a full time public relations officer or tenants liaison officer.

Effective risk management may prevent price escalation providing all information is sought in conjunction with site visits prior to pricing the works. Preparation is often the key to securing a contract which invariably involves the collection and interpretation of accurate, up-to-date information. Even after securing the contract, pricing against actual costs needs careful monitoring.

Regarding ways in which the difficulties with variation orders to the works can be overcome, these are best dealt with in close consultation with the client and the rest of the professional team. This enables speedy decisions to be obtained with approval.

Guidelines advocating 'how best to overcome refurbishment problems and difficulties' for different types of refurbishment projects, and refurbishment work across industrial sectors, especially, defence, hotel and health service sectors, will be useful.

The discussion so far has centred on the difficulties of refurbishment characteristics. It is not just sufficient to establish the major difficulties that confront managers in carrying out refurbishment work. The frequency at which refurbishment

characteristics occur is equally relevant, and deserves attention. It adds another dimension to knowledge and understanding of refurbishment management.

A refurbishment characteristic which is perceived to be very difficult may not necessarily occur frequently in managing refurbishment work, and the reverse. However, if a characteristic is found to be very difficult, and at the same time occurring frequently in the course of managing refurbishment work, the management team would need to pay particular attention to that characteristic.

The next section therefore considers the frequency of occurrence of refurbishment characteristics in managing refurbishment work. Analysis of data will be presented at the aggregate level. This will be followed by testing statistically, if there is a relationship between those characteristics managers ranked as most difficult, and their frequency of occurrence.

4.8. Frequency Of Occurrence Of Refurbishment Characteristics

Adopting the same methodology as in the degree of difficulty of refurbishment characteristics, managers were asked to identify from a list of 33 refurbishment characteristics, how frequent these characteristics occur in managing refurbishment work, "very frequent", "frequent", "fairly frequent" and "not frequent".

The categories were coded 1, 2, 3 and 4 respectively (see questionnaire in Appendix A). Average scores were computed from ordinal coding of these data. As mean score increases, the frequency of occurrence of refurbishment characteristics

decreases. Table 19 presents the full list of rank order of frequency of occurrence of refurbishment characteristics as perceived by 142 managers who participated in the questionnaire phase of the study.

An inspection of Table 19 shows that variation/change order to the works is rated the most frequently occurring characteristic. This is not surprising, since for most refurbishment works, the content of the work cannot be fully appraised before commencement. This means that as work progresses, variations/changes would have to be made to the works. This has far reaching implications on the works, as it means that the cost of the works would have to be controlled, monitored and updated regularly. Also, the programming and scheduling of the works would have to be reviewed constantly. All of these, inevitably, make the time prediction for completion of the works difficult and requiring regular reviews. These are shown in Table 19, where cost control, programming and scheduling of the works; and time prediction of the works are ranked 3rd, 5th and 8th respectively.

Keeping site tidy was ranked 2nd. Since many refurbishment works are carried out on residential or commercial buildings with tenants still in occupation and business continuing as usual, managers would have to make efforts to keep the site tidy at all times. Safety would be an important consideration in conjunction with good housekeeping.

Table 19: Frequency Of Occurrence Of Refurbishment Characteristics: Refurbishment Managers

<u>Refurbishment Characteristics</u>	<u>Mean Score (N = 142)</u>	<u>Rank</u>
Variation/change order to the works	1.254	1
Keep site tidy	1.387	2
Cost control	1.408	3
Maintaining site safety and welfare standards	1.437	4
Programming and scheduling of the works	1.451	5
Quality control and assurance	1.465	6
Dust control	1.479	7
Time prediction for completion of works	1.479	8
Storage of building materials and plant	1.486	9
Supervision of the works	1.493	10
Site security	1.577	11
Productivity control and maintenance	1.592	12
Protecting the general public	1.599	13
Handling and disposal of site rubbish	1.620	14
Materials handling	1.648	15
Liaison with tenant/occupier	1.676	16
Maintaining existing services	1.697	17
Pricing of the works	1.746	18
Protecting the works and adjacent buildings	1.761	19
Noise control	1.796	20
Materials supply	1.803	21
Site access	1.852	22
Contract documentation/arrangement	1.915	23
Influence of tenants on regular progress of the works	1.937	24
Restrictions on working hours	2.120	25
Building regulations and other statutory control	2.204	26
Decanting building for commencement of work	2.282	27
Long and unsociable working hours	2.338	28
Handling and disposal of hazardous/toxic substances	2.373	29
Plant supply	2.387	30
Selection and recruitment of workforce	2.387	31
Restriction in plant usage	2.394	32
Employee stress and absenteeism	2.993	33

Liaison with tenant/occupier was ranked mid-way, being rated 16th. This takes on a heightened dimension when carrying out refurbishment work in hotels, hospitals and housing. Of the 32 refurbishment organisations who participated in the present study, eight have employed Public Relations Officers/Tenant Liaison Officers to manage this important function.

Restriction in plant usage and employee stress and absenteeism were ranked least at 32nd and 33rd respectively. Site access restrictions may limit the type of plant/machinery brought on to site, e.g. cranes and hoists. Clients' demands on control of noise and vibrations, for example in carrying out refurbishment work in hospitals and hotels, may restrict the selection and use of plant/machinery for a job. In order to minimise noise from plant/machinery, contractors may be forced to use less powerful hand tools which might have an effect on productivity and efficiency levels. Similarly, in meeting the clients' demands on noise control, contractors might need to use noise control materials, such as mufflers on tools. These have cost implications to contractors.

For employee stress and absenteeism, the low rating may be a reflection of the degree of job satisfaction employees experience from their work. Their work is satisfying and rewarding. It may also be reinforced by the fact that managers at all levels appear close to the workplace, in which case there is a sense of belonging, a view supported by 32 training officers from 32 refurbishment organisations who were interviewed as part of this present study. Training officers noted that refurbishment managers at all levels of management co-operate with one another to a great extent, and that all managers are close to site.

Having considered both managers' perceptions on degree of difficulty of refurbishment characteristics; and the frequency at which they occur, it is in order to ascertain if there is a significant positive correlation between the two.

A close observation of Table 3 (Degree of Difficulty of Refurbishment Characteristics: Refurbishment Managers) and Table 19 (Frequency of Occurrence of Refurbishment Characteristics: Refurbishment Managers) show that nine out of the fifteen most difficult characteristics appear also amongst the fifteen most frequently occurring characteristics, these characteristics being :-

- (i) Cost control
- (ii) Dust control
- (iii) Variation/change orders to the works
- (iv) Site security
- (v) Storage of building materials and plant
- (vi) Time prediction for the completion of the works
- (vii) Keep site tidy
- (viii) Productivity control and maintenance
- (ix) Maintaining site safety & welfare standards.

It would appear that there is a positive correlation between those characteristics ranked most difficult and their frequency of occurrence.

To statistically test the null hypothesis, that there is no significant positive correlation between those characteristics managers ranked most difficult and their frequency of occurrence, Spearman's rank-order correlation coefficient (r_s) is an appropriate measure (Siegel, 1956⁴⁴⁸; Siegel and Castellan, 1988⁴⁴⁹; Rees, 1989⁴¹⁷). Siegel and Castellan (1988⁴⁴⁹) advise that if r_s exceeds a certain critical value at 0.05 level of significance, reject the null hypothesis. The computed value of r_s is 0.333, and it is significant at the 0.05 level. The null hypothesis is rejected. This confirms

that there is a significant positive correlation between the characteristics which managers ranked most difficult and their frequency of occurrence.

As refurbishment characteristics occur during refurbishment operations, it is compounded by the highly unpredictable and risky (Quah, 1988⁴¹⁰; Teo, 1990⁴⁷³; and Chapman, 1980¹⁰²) nature of refurbishment works. This heightens the difficulties associated with refurbishment characteristics.

4.9. Conclusions And Recommendations.

This chapter concentrated on exploring in detail, the major characteristics and difficulties which confront managers in carrying out refurbishment work. The purpose of this approach is to increase the knowledge and understanding of refurbishment processes, an area which remains relatively unresearched (Douglas, 1988¹⁶⁵; Quah, 1988⁴¹⁰; and Dixon, 1990¹⁶³). In doing so, it could facilitate individual managers, organisations, clients and course tutors, so that each, in their own way, can prepare for, or provide a career in, refurbishment management.

Secondary aspects of refurbishment management theory and practice received attention, directly arising from this research. The issues of similarity and differences in perceptions of difficulty of refurbishment characteristics across three tiers of management levels, two types of organisations, and fifteen types of refurbishment projects, received due consideration. Also investigated, was the frequency of occurrence of refurbishment characteristics in managing refurbishment work.

The conclusions that follow from this part of the study can be documented as follows :-

(i) The major characteristics and difficulties which confront managers in carrying out refurbishment work have been established. In all, 33 refurbishment characteristics are identified. Cost control, dust control, influence of tenants on the regular progress of the works, pricing of the works and variation/change orders to the works are the most difficult refurbishment characteristics. The least difficult characteristics are: coping with employee stress/absenteeism, building regulations/other statutory controls, and plant supply.

(ii) Refurbishment work is complex, highly specialised and contains elements of work which are unique to the refurbishment sector.

(iii) The frequency of occurrence of refurbishment characteristics in managing refurbishment work has been established. Variation/change orders to the works, keeping the site tidy, cost control, maintaining site safety & welfare standards, and programming and scheduling of the works are the most frequently occurring characteristics. The least frequently occurring characteristics are plant supply, selection & recruitment of workforce, restriction in plant usage, and employee stress & absenteeism.

(iv) There is no significant negative correlation between management levels and degree of difficulty of refurbishment characteristics. In other words, managers at higher levels of management do not necessarily find refurbishment characteristics

less difficult than managers at lower levels of management.

(v) Specialist refurbishment organisations find refurbishment characteristics less difficult than general refurbishment organisations. This can be explained by the fact that as the majority of work carried out by specialist refurbishment organisations is refurbishment work, their managers are more exposed to refurbishment difficulties and are, hence, more likely to have gained greater experience and understanding of the refurbishment processes. General refurbishment contractors would need to engage in more training geared towards refurbishment, given the degree of difficulty of refurbishment characteristics.

Clients may prefer to appoint a specialist refurbishment contractor where managers with a range of experience in refurbishment are less likely to find difficulties in handling refurbishment characteristics.

(vi) There is a significant negative correlation between the length of time a manager has spent working in the construction industry, and the difficulty of refurbishment characteristics. The longer the time a manager spends working in the construction industry, the less difficult he/she finds refurbishment characteristics. A wealth of experience accumulated over the years on construction processes would be useful for refurbishment operations.

(vii) There is a significant negative correlation between the length of time a manager has been involved in managing refurbishment work; and the degree of difficulty experienced with refurbishment operations. The longer the time a manager

spends in managing refurbishment work, the less difficult he/she finds refurbishment operations. Personnel officers should be looking to recruit managers for refurbishment, based on the length of time involved in managing refurbishment work. Similarly, clients and their advisors would need to ascertain, during the tender presentation stage, the experience of the contractor's management team on refurbishment operations. The experience of managers on refurbishment work, could make or break a refurbishment contract.

(viii) There is a significant negative correlation between the age of manager and the degree of difficulty of refurbishment characteristics. Older managers find refurbishment characteristics less difficult than younger managers. Older managers, have spent longer time in the construction industry and therefore obtained knowledge and experience concerning general construction and refurbishment operations. They are more likely to cope with refurbishment difficulties. Personnel officers should be looking to recruit managers based on experience of refurbishment processes.

(ix) In terms of refurbishment projects, hospitals, hotels and MOD buildings are the most difficult to manage. Contractors involved in refurbishment, would need to staff these projects with managers of relevant experience of refurbishment work. The least difficult refurbishment projects to manage are recreational buildings, industrial buildings and agricultural buildings.

(x) Refurbishment managers perceive work on occupied buildings to be more difficult to manage than work carried out on unoccupied buildings.

(xi) Refurbishment managers perceive refurbishment works to be more difficult to manage than new-build work.

(xii) There is a significant positive correlation between those characteristics managers ranked most difficult and their frequency of occurrence. Where a characteristic is perceived to be very difficult and occurs very frequently, then the management team would need to pay particular attention to that characteristic.

(xiii) Managers with refurbishment experience and knowledge find it relatively easier to move into new-build work than the reverse.

(xiv) Managers who are able to gain considerable experience in managing different types of refurbishment contracts are less likely to find their work problematic. Contractors would therefore be well advised to prepare potential managers for a career in refurbishment management, through a process of job enrichment.

(xv) For those individuals wishing to embark upon a career in refurbishment, a specialist contractor may provide a rich vein of opportunity rather than working for a general contractor with a range of services.

(xvi) It is recommended that guidelines advocating "how best to overcome refurbishment problems and difficulties" for different types of projects and refurbishment work across industrial sectors, especially in the defence, hotel and health service sectors, be produced.

CHAPTER FIVE

EDUCATIONAL BACKGROUND OF REFURBISHMENT MANAGERS

5.0. EDUCATIONAL BACKGROUND OF REFURBISHMENT MANAGERS

5.1. Introduction

This chapter investigates the educational background of refurbishment managers. The objectives being to establish the types of education and training managers involved in refurbishment receive, together with their educational achievements. An investigation of this kind would be useful in ascertaining 'where refurbishment managers come from', together with the calibre of managers involved in managing refurbishment work.

Educational characteristics of managers will be presented using frequency distribution. Managers' educational background will be analyzed by age, main area of study, and levels of management.

A comparative analysis will be made with a similar study. The selection of study is based on similarity in research objectives, industrial setting (construction industry), and compatibility with the methodology of the present study.

This chapter will also attempt to examine whether further qualifications are beneficial to refurbishment managers in attaining higher management positions. Kendall's (1962²⁹⁷) Tau_c is employed for hypothesis testing.

5.2. Qualifications Obtained To Date By Refurbishment Managers

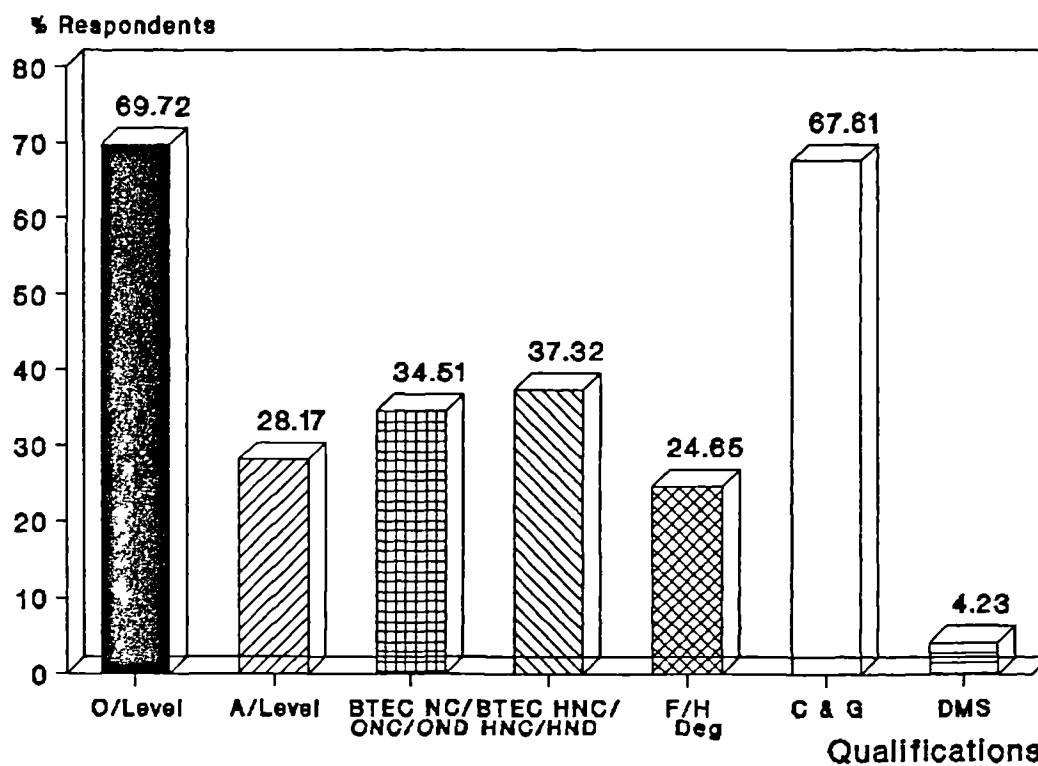
Respondents to the postal questionnaire were asked to record what qualification they have obtained to date (see questionnaire in appendix A). Figure 9 presents these data.

Nearly 70% of respondents have obtained Ordinary Levels (O/Levels) qualification or equivalent, when compared to 28.17% who have obtained Advanced level (A/Level) or equivalent qualifications. Figure 9 also shows that nearly 68% of the respondents are City & Guild (C&G) qualified.

Only four managers in the present study have obtained the Business and Technology Education qualifications (BTEC). Three of these qualifications are BTEC National Certificates (NC), and the remainder is the BTEC Higher National Certificate (BTEC HNC). These managers have obtained these qualifications through part-time courses.

Most courses which in the past would have led to Ordinary National Certificates (ONC) and Diplomas (OND), and the Higher National Certificates (HNC) and Diplomas (HND) have almost entirely been succeeded by, at the lower level, BTEC National Certificates and Diplomas and, at the higher level, by BTEC Higher National Certificates and Diplomas.

Figure 9: Types Of Qualifications



For data analysis, in the present study, BTEC National Certificates and ONC qualifications will be combined. Similarly, BTEC Higher National Certificate and HNC qualifications are combined together.

There are slightly more managers with Higher National Certificate (HNC)/ BTEC HNC/Higher National Diploma (HND) (37.32%), than with Ordinary National Certificate (ONC)/BTEC NC/Ordinary National Diploma (OND) (34.51%).

It can also be seen from Figure 9 that nearly a quarter (24.65%) of the respondents are qualified to first degree or higher degree levels.

To take the educational achievements one step further, qualification obtained by age of manager will be considered.

Table 20: Qualification By Age

Qualification	Age (%)			
	(N = 27) <u>25 - 35</u>	(N = 50) <u>36 - 45</u>	(N = 47) <u>46 - 55</u>	(N = 18) <u>56 - 65</u>
O/Levels	88.90	70.00	63.83	55.55
A/Levels	22.22	46.00	23.40	-
C & Guild	44.44	56.00	65.96	83.33
ONC	22.22	24.00	21.28	11.11
BTEC. NC	11.11	-	-	-
OND	3.70	10.00	10.64	11.11
HNC	18.52	22.00	21.28	-
BTEC. HNC	3.70	-	-	-
HND	14.81	26.00	14.89	-
F/Degree	11.11	44.00	21.28	-
H/Degree	-	2.00	-	-
DMS	-	10.00	2.13	-

Table 20 shows that younger managers, aged between 25 and 35 years have obtained more O/levels than older managers. However, when A/level qualification is considered, managers aged between 36 and 45 years have obtained more A/levels

(46.00%) than younger managers aged between 25 and 35 years (22.22%). Similarly, managers aged between 46 and 55 years (23.40%) have obtained more A/Levels than younger managers in the 25 - 35 age band (22.22%). Older managers in this sample who are aged between 56 and 65 have obtained no A/level qualification.

First degree qualifications also feature among managers in the 36 - 45, and 46 - 55 age bands. This is consistent in view of the percentage of managers who obtained A/level qualifications, and therefore help to confirm the reliability of these data. As Zeller and Carmines (1978⁵²⁰) remind us, without reliability, results may be questioned on the grounds of inconsistency.

As would be expected, none of the managers in the 56 - 65 age band have obtained first degrees. These managers it will be recalled have obtained no A/level qualification. Only one manager in the present study had obtained a higher degree (MSc. Civil Engineering). He is of a civil engineering background, and as Table 20 shows, is in the 36 - 45 age band.

An inspection of Table 20 reveals that the older managers in the sample have obtained more City & Guild qualification than their younger counterparts. 83.33% of managers aged between 56 and 65 are City & Guild certified, when compared to 44.44% of managers in the 25 - 35 age band.

Further inspection of Table 20 shows that only younger managers in the 25 - 35 age band have obtained BTEC qualifications (BTEC NC or BTEC HNC). This result supports the view that BTEC qualifications are relatively new when compared to

ONC and HNC qualifications. It also helps to confirm the reliability of the data of the present study.

With the exception of managers aged between 56 and 65 years, the attainment of ONC and HNC show little variation across age groups. Similarly, apart from managers in the 25 - 35 age band, there is little variation in the attainment of OND qualifications across age groups.

As regards the Diploma in Management Studies (DMS), only six managers in the sample population have obtained this qualification. This represents 10.00% of the managers aged between 36 and 45 years, and 2.13% of managers in the 46 - 55 age band.

5.3. Managers' Main Area Of Study

Managers were also asked to indicate their main area of study (see questionnaire in appendix A). The data presented in Table 21 shows that while building is the most popular area studied below first degree, the attainment of first degrees are mostly in civil engineering.

This result supports the observation made by Young (1988⁵¹⁰) in her study on "Career development in construction management". It also lends support to Morley/Lighthill (1986³⁶⁰) report which suggests that there are more first degrees obtained in civil engineering than in building.

The result of the current study would suggest that civil engineers tend to be more qualified than builders. Builders tend to hold certificates or diplomas in their chosen courses, while civil engineers tend to graduate. Further inspection of Table 21 shows that while 29.41% of builders have achieved first degrees, nearly 53% of civil engineers are first degree holders. Also as previously mentioned, the only higher degree (MSc. in Civil Engineering) is obtained by a manager whose main area of study is civil engineering.

Table 21: Qualifications By Main Area Of Study

Main area of study	Qualifications									
	N=33	N=3	N=13	N=28	N=1	N=24	N=96	N=34	N=1	N=6
	<u>ONC</u>	<u>BTEC</u> <u>NC</u>	<u>OND</u>	<u>HNC</u>	<u>BTEC</u> <u>HNC</u>	<u>HND</u>	<u>C&G</u>	<u>F/Deg</u>	<u>H/Deg</u>	<u>DMS</u>
Building	66.67	100.00	84.62	57.15	-	58.33	18.75	29.41	-	100.00
Civil Eng.	15.15	-	-	25.00	100.00	12.50	3.13	52.94	100.00	-
Q.S.	12.12	-	15.38	7.14	-	29.17	1.04	17.65	-	-
Estimating	6.06	-	-	10.71	-	-	1.04	-	-	-
Craft	-	-	-	-	-	-	76.04	-	-	-

Only 17.65% of quantity surveyors in the sample population have obtained first degrees.

From Table 21, it can be seen that the three managers with BTEC National Certificates (NC) have a building background, while the only manager with a BTEC HNC qualification is of a civil engineering background.

Table 21 clearly shows that over 76% of managers with City & Guild qualification indicated that craft is their main area of study. Also from Table 21, it can be seen that ninety-six (96) of the 142 managers who participated in the study have obtained City & Guilds at one stage or the other as part of their education/training. This represents over 67% of the total sample. This suggests that majority of managers have trades backgrounds, a point made earlier in section 4.3 of chapter four of this thesis. An understanding of the technical aspects of construction, it would appear, is useful for those managing refurbishment work.

Further analysis of the study suggests that in terms of trades backgrounds, joinery, bricklaying, and steel fixing are the main areas associated with managers in this study. This finding supports the view of Hanley (1987²⁴⁵), when, in answering the question - 'Where do refurbishment managers come from?', in his article on "Management Research Needs - Refurbishment", pointed out that:-

"Refurbishment management is one area where ex-tradesmen (generally joiners) can and do make up a significant proportion of the available resource. They are, because of their technical training and exposure to both new build and repair works, good at practical aspects and the logic necessary for programming. The more academic requirements, quantities, administration, building law, can be, and generally are learnt through further education such as leading to ONC, HNC or Chartered Institute of Building (CIOB) examinations" p30.

5.4. Professional Qualifications And Membership Of Institutions

Respondents were asked to indicate the professional institution to which they belong (see questionnaire in appendix A). Only 25.30% of the sample population claim to hold professional qualification other than diplomas and degrees. These managers

are from building, civil engineering, and quantity surveying backgrounds. These are also the same managers who are members of professional institutions.

Table 22 shows that while nearly 64% of managers with professional qualifications are members of The Chartered Institute of Building (CIOB), 22.22% and 13.89% of the respondents are members of The Institution of Civil Engineers (ICE), and The Royal Institution of Chartered Surveyors (RICS) respectively.

Table 22: Membership Of Professional Institutions

	<u>N = 36</u>
	%
The Chartered Institute of Building (CIOB)	63.89
The Institute of Civil Engineers (ICE)	22.22
The Royal Institution of Chartered Surveyors (RICS)	13.89

This result is not surprising, considering the proportionally higher number of managers whose main area of study is building (see Table 21). Managers involved in refurbishment it would appear tend to come from a building background rather than a civil engineering background.

Of the managers who claim membership of the ICE, 75% are graduates. Graduates make up 21.74%, and 20.00% of membership of the CIOB and RICS respectively. The inference that can be drawn from this result is that more graduates apply for membership of the ICE than apply for membership of CIOB or RICS. This finding

lends support to Young's (1988⁵¹⁰) study. Only 18% of civil engineering graduates in Young's (1988⁵¹⁰) study are not members of the ICE.

It would appear that the majority (78.26%) of managers in the present study, who are members of the CIOB, and who do not hold degree qualifications, would have gained membership through other qualifications which they have obtained (e.g BTEC NC, ONC, OND, HNC, HND and DMS), in conjunction with an indication of professional competence in their areas of discipline.

5.5. A Comparative Study: Educational Qualifications Of Refurbishment Managers And Construction Managers

In the UK, a series of studies have been conducted to discover more about the educational background of British managers. These include studies by Melrose-Woodman (1978³⁵³), Mansfield et al (1980³⁴¹), and Lee (1981³²⁶). Studies on educational background of British managers tend to have different objectives. These are conducted using different methodologies, vary in sample size and industrial setting, and therefore prevents meaningful comparison. For example, the study by Lee (1981³²⁶) is heavily concentrated towards the manufacturing industry.

To the best knowledge of this author, no study exists which specifically attempts to obtain data on educational background and achievements of refurbishment managers. In 1988, Young in her study on Career Development in Construction Management, investigated the educational background of construction managers in the UK. Seventy-three (73) managers who participated in her study, were in the main, involved in new build work. For reasons of scarcity of current studies,

compatibility of research objectives and methodology, and similarity in industrial setting (construction), a comparative exercise will be undertaken between Young's (1988⁵¹⁰) study and the present study.

Table 23 presents summary data on educational qualifications/achievements from managers from both studies.

Table 23: Educational Qualifications/Achievements Of Refurbishment Managers And Construction Managers

<u>Types of Qualification</u>	<u>Refurbishment Managers</u> *	<u>Construction Managers</u> **
	<u>N = 142</u>	<u>N = 73</u>
	<u>%</u>	<u>%</u>
O/Levels	69.72	83.00
A/Levels	28.17	51.00
BTEC NC/ONC/OND	34.51	35.00
BTEC HNC/HNC/HND	37.32	37.00
F. Degree/H. Degree	24.65	45.00
DMS	4.22	4.00
Professional Qualifications	25.35	48.00

* The Present Study (1994)

** Young (1988⁵¹⁰), Career Development In Construction Management

An inspection of Table 23 shows that even in spite of a lapse in time between studies, refurbishment managers in this study appear to be less qualified than their counterparts in construction management. While 51% of respondents in Young's study have A/level qualifications, only 28.17% of respondents in the present study have similar qualifications. Similarly, as can be seen from Table 23, 45% of managers in Young's study have first or higher degrees when compared to 24.65 %

in the present study. In general, it would appear that people who become refurbishment managers have a lower level of knowledge than their counterparts in new build.

In terms of professional qualifications and membership of institutions, 48% of managers in Young's study have obtained professional qualifications compared to 25.35% of managers in the present study.

This result further supports the view that there is under-course provisions geared towards refurbishment management. For refurbishment organisations and educators, more effort is needed to increase the level of qualification of managers involved in refurbishment work. The provision of more, and relevant courses which are qualification oriented will be a move in the right direction. This should also help in improving the image of both refurbishment managers and the refurbishment sector.

5.6. Qualifications And Management Hierarchy

The purpose of this section of the chapter is to analyze the effect of qualifications on manager's job. In other words, to ascertain if in refurbishment, managers with higher qualifications occupy higher management positions.

The positive influence which higher education and qualifications have on manager's level of attainment, e.g. in their present job is well recognised. The 'Human Capital' school as championed by Schultz (1963⁴¹) and Becker (1975³²) is of the view that higher education and qualifications is beneficial to career development. The central

message by Becker (1975³²), is that individuals in the early part of their career make investments in the form of being educated and obtaining qualifications, in order to reap the benefits in the future. Such benefits include higher salaries, promotion, greater opportunities and a better job.

Human Capital theory is not without its critics (Rosenbaum, 1984⁴²⁸; and Blaug, 1976⁴⁸). Rosenbaum (1984⁴²⁸) critically outlined the flaws in human capital theory by testing hypotheses from a collection of data. The central message from Rosenbaum (1984⁴²⁸) is that human capital theory is flawed in that it does not take due consideration of organisational strategies and product market. Organisational strategy in the product market directly affects the labour market, together with the resultant opportunities to the organisation. In effect, this means that an organisation experiencing difficult times, such as difficulties with cash flows, reduced sales, and falling profit margins, are less likely to promote individuals within their organisations, irrespective of their qualifications.

For the present study, to engage in an analysis of the effect of qualification on management positions require a working hypothesis. Thus it is hypothesised that there is a significant positive relationship between level of management, and qualification obtained to date, by a manager in his present job. For the purpose of this analysis, management levels will be divided into three levels, senior, middle and junior. The senior level position consists of directors, and area managers. Middle level managers are contracts and project managers. Site managers and site agents occupy the junior level position. The qualifications considered are First & Higher degrees; BTEC HNC, HNC & HND; BTEC NC, ONC & OND; and City & Guild.

A number of test statistics which can be used as measures of association is well documented in the literature. Pearson (1904³⁹⁴), Cramer (1946¹⁴²), Kendall (1962²⁹⁷), Kendall and Stuart (1967²⁹⁹), Everitt (1977¹⁸⁴), and Goodman and Kruskal (1979²²⁴) are all well renowned for their contributions to the subjects of contingency tables and measures of association. The choice of any test statistic is dependant not only on preference, because of popularity or common usage, but also on the appropriateness of the data which is to be tested. Kendall's (1962²⁹⁷) Tau_c is appropriate when one or both of the variables is ranked ordered (Blalock, 1979⁴⁶; Siegel and Castellan, 1988⁴⁴⁹). Kendall's (1962²⁹⁷) Tau_c also identifies the strength of the relationship and direction, whether it is positive or negative.

In the present analysis, since one of the categories is ordered, i.e. management level, Kendall's (1962²⁹⁷) Tau_c will be employed as the test statistic.

In Table 24, managers are classified by the highest qualifications they have obtained to date and cross tabulated according to management level. An inspection of Table 24 shows that there are proportionally more managers in the senior positions with first/higher degrees than in middle or junior positions.

Table 24: Management Level By Highest Qualification Obtained To Date

Management Level	Qualifications				
	F/H Degrees	BTEC HNC/HNC/HND	BTEC NC/ONC/OND	C & G	
Senior	15	4	2	2	23
Middle	12	15	9	23	59
Junior	8	13	10	29	60
	35	32	21	54	142

Kendall's $Tau_c = 0.299ns$ Significance level = 0.05

While fifteen (15) of the respondents in senior management positions have first or higher degrees, only eight (8) of respondents in junior management position have obtained similar qualifications. Table 24 also shows that while twenty-nine (29) of the junior managers have obtained City & Guild, only two (2) senior managers have obtained similar qualification. These two senior managers would have progressed through the ranks from a trades background on the basis of their personality and practical abilities.

Tau_c as shown in Table 24 is close to 0.3, and away from zero (0). This value is significant at 0.05 level. There is significant positive relationship in the rank ordering of qualifications on management level. In other words there is sufficient evidence from this study to suggest that managers with higher qualifications are more likely to reach senior positions than managers with lower qualifications e.g City & Guild.

The inference which can be drawn from this result is that refurbishment managers would have to strive to obtain higher qualifications, preferably, first/higher degrees, if they are to increase their chances of attaining senior management positions. However, as previously discussed in section 4.5 of chapter four, the highly qualified managers in refurbishment are not necessarily the more experienced managers, both in terms of length of time spent working in the construction industry, and length of time involved in managing refurbishment work.

The findings of this study supports that of Nickell (1982³⁸⁴). Nickell (1982³⁸⁴) applied regression techniques to measure the impact of 'human capital' variables on occupational variables. Data for Nickell's (1982³⁸⁴) study was obtained from a National Training Survey 1975, and embracing a number of occupations. The regressors in Nickell's (1982³⁸⁴) study included degrees, higher professional qualifications, and City & Guilds. The conclusion from Nickell's (1982³⁸⁴) study is that higher qualifications are of significant importance for career success. Nickell (1982³⁸⁴) also showed that if personal characteristics are held constant, higher professional qualifications and degrees raised the individual's occupational level by 3% and 7% respectively.

5.7. Conclusions And Recommendations

This chapter considered the educational backgrounds of refurbishment managers, highlighting their educational achievements. An attempt was also made to establish whether higher qualifications are beneficial to managers in attaining higher management positions. The conclusions of this study are as follows:-

(i). The majority (67.61%) of refurbishment manager have had a trades background. The three main trade areas being joinery, bricklaying and steel fixing. An understanding of the technical aspects of construction is necessary for managers involved in refurbishment.

(ii). Managers involved in refurbishment work tend to come from a building background when compared to civil engineering, quantity surveying and estimating.

(iii). Managers involved in refurbishment appear to be less qualified than their counterparts involved in other aspects of construction management. More efforts would have to be made by refurbishment organisations and educators in order to improve the level of qualifications of managers involved in the refurbishment sector. Courses for refurbishment management which lead to qualifications will be a step in the right direction.

(iv). There is evidence to suggest that in refurbishment management, higher qualifications are beneficial in the attainment of senior management positions. For refurbishment managers seeking career advancement and higher positions, obtaining the relevant higher qualifications is important.

CHAPTER SIX

REFURBISHMENT MANAGEMENT: AN APPROPRIATE BODY OF MANAGEMENT SKILLS AND KNOWLEDGE

6.0 REFURBISHMENT MANAGEMENT: AN APPROPRIATE BODY OF SKILLS AND KNOWLEDGE

6.1. Introduction

Many of the problems and ailments affecting construction enterprises and often, the construction industry of a country, are only symptoms of the underlying problems of a weak enterprise management. This is a central message of the 1984 study by the World Bank (1984⁵⁰⁸) on construction management. This view is also reinforced by the International Labour Organisation (ILO, 1983²⁷⁸) which states "... a positive response to the problems facing the industry would be to strengthen the managerial capability of those individuals and groups responsible for implementing construction programmes" p6. Similarly, according to Austen and Neale (1987¹⁶), a major bar to the progress in the construction industry "has been a lack of construction management skills" p 1046.

The importance of management to individual managers and organisations, both in general management perspective (Revans, 1966⁴¹⁹; Drucker, 1979¹⁶⁷; and Margerison, 1988³⁴²), and in construction management (Bennett and Flanagan, 1983³⁵; NEDC, 1983³⁷⁶; CITB, 1986¹²⁸; and Lansley, 1987³¹⁸), is well documented. To this effect, the literature abounds with studies which have given attention to the contents of managerial work, and what managers actually do. Some of the more accomplished works include Carlson, 1951⁸⁸; Sayles, 1964⁴³⁹; Stewart, 1976⁴⁶⁴, 1986⁴⁶⁶; Mintzberg, 1980³⁵⁶; Kotter, 1982a³¹², Luthans et al, 1985³³⁵; Hales, 1986²³⁷; and Martinko and Gardner, 1990³⁴⁷.

Sayles (1964⁴³⁹) informs us that without the knowledge of management activities, there can be no rationale for staging management courses. Other writers are also in agreement that the analysis of management activity is essential, and indeed, of practical value in designing management courses (Revans, 1966⁴¹⁹; Drucker, 1981¹⁶⁸; and Mintzberg, 1980³⁵⁶).

In the construction industry, few studies, notably, Faulkner and Wearne 1979¹⁸⁷, 1984¹⁸⁸; Finnigan et al, 1987¹⁹⁵; CITB, 1988b¹³⁰; and Young, 1988⁵¹⁰, have been conducted in the area of skills and knowledge (job dimensions) for construction management. These studies appear, in the main, directed towards new build activities, and to the best knowledge of this author, none specific to refurbishment. The management domain of refurbishment work still remains relatively unresearched (Quah, 1988⁴¹⁰, 1991b⁴¹³; Douglas, 1987¹⁶⁵; Dixon, 1990¹⁶³, Young and Egbu, 1993a⁵¹⁸, 1993b⁵¹⁹).

According to Mintzberg (1980³⁵⁶), "There are certainly essential features common to all managers' jobs, and that there are also uniqueness that distinguish every type of management job" p 26. This view is reinforced by the Construction Industry Training Board (CITB, 1988a¹²⁹) when they pointed out that management of construction work and the framework of construction education, training and qualification must take account of the particular problems and special nature of the construction industry such as the sector differences.

Construction management, we are told, is the art of utilising and integrating men, money, materials and methods for the production of built facilities (Imbert, 1987²⁵⁹), and maintaining the organisation in a state of dynamic equilibrium with the

environment (Phatak, 1983⁴⁰⁰). If as the Centre for Strategic Studies in Construction (CSSC, 1988⁹⁸, 1989⁹⁹) informs us, the construction environment is rapidly changing, with new materials and methods employed in construction, improved technology, shortage of skilled workforce, more complex projects, greater competition and clients becoming more sophisticated; then the need for managers in refurbishment activities to acquire and develop the relevant management skills and knowledge has never been greater.

A better understanding of the job of refurbishment managers, and the skills and knowledge they need and bring to their work should be of theoretical and practical value. It is the concern of this study to investigate and evaluate refurbishment managers' work so that:-

- i. Awareness and acquisition of relevant management skills and knowledge for refurbishment will be of value to individual managers; as it could lead to increase in job satisfaction.
- ii. For individual managers, appropriate management courses based on the needs of refurbishment could help advance career prospects.
- iii. For refurbishment organisations, it could assist in the selection and recruitment of the right calibre of personnel. Recruiting managers with relevant skills and knowledge should help reduce mis-matching of skills and jobs.

This chapter addresses the issues of management skills and knowledge for refurbishment. It commences with definitions and characteristics associated with management skills and knowledge. Next, it briefly reviews literature on the theory and practice of management skills and knowledge from both general and construction management perspectives. Data will be presented from the sample population of refurbishment managers on skills and knowledge which they perceive to be important in their present jobs in managing refurbishment work. An attempt would be made to compare data from the present study with other studies based on same methodology, similar objectives, and/or statistical representation.

The study takes another dimension as it reports on the qualities and attributes which managers need to possess in order to successfully accomplish a refurbishment project. A knowledge of the qualities and attributes associated with successful management of refurbishment works should assist organisations in the recruitment and selection of the right calibre of managers who are likely to fit into managing in a refurbishment environment.

It is not just sufficient to consider the management skills and knowledge which refurbishment managers perceive to be important, the degree of difficulty in handling those skills and knowledge in refurbishment is equally important, and demand attention. The establishment of the relative degree of difficulty associated with handling job dimensions could assist organisations in directing attention to areas of refurbishment that need more managerial input and support. For organisations and educators, it could help trigger attention to job dimensions in which managers might need education and training. This is also considered.

6.2. Management Skills And Knowledge: Definition And Characteristics

The needs and benefits of management skills and knowledge to managers and industry are well recognised (Livingston, 1971³³²; Katz, 1971²⁹²; Constable, 1988¹²²; and Whetten and Cameron, 1991⁴⁹⁵). Also, it is generally accepted that an appropriate body of skills and knowledge is fundamental, not only in demonstrating competence, but also in promoting a professional image in construction (Batley, 1987²⁹; Guest, 1988²³⁴; Gale, 1989²¹²; and Young and Duff, 1990⁵¹⁴). But what is management skill, and what is knowledge?

Boyatzis (1982⁵⁶) in his study on the "Competent Manager", describes skill as an ability to perform a specific job or task. In the same vein, Constable (1988¹²³) defines skill as the ability to perform a job to a prescribed standard. As for knowledge, Constable (1988¹²³) sees knowledge as the received concepts, ideas, theories, schools of thought and even traditional wisdom about management functions and problems.

Katz (1971²⁹²) is one of the earlier writers to dispel the myth that skill is inborn and cannot be developed. Katz (1971²⁹²) informs us that skill is an ability to translate knowledge into action, and also an ability which can be developed and not necessarily inborn. He also notes that skill is manifested in performance, not merely potential. Katz's views are supported by Anderson (1984⁶), who pointed out that skills are learned and developed with experience and practice.

From the definitions given above, there would appear to be agreement amongst researchers as to the definition of management skill and knowledge. Effective action seems to be the principle or standard by which skill is judged. In other words, the action must lead to a desired outcome.

A working definition of management skill and knowledge is useful, and needed. In the context of this study, and in consideration of the above definitions, management skills for refurbishment should be understood to mean the activities or patterns of behaviour which managers undertake in order to accomplish a given desired outcome. Knowledge on the other hand, is the ideas, wisdom and facts managers acquire through experience, theory and practice; the acquisition of which gives them an ability to understand. Knowledge can be potential or manifested in performance. Management skills and knowledge should complement one another.

Several attempts have been made to distinguish management skills from other types of skills, e.g. professional skills (Whitley, 1987⁴⁹⁹; Larson, 1977³²¹; Whetten and Cameron, 1991⁴⁹⁵; and Bigelow, 1983⁴¹). Whetten and Cameron (1991⁴⁹⁵) argue that management skills are interrelated and overlapping. No effective manager performs one skill or one set of skills independent of the other. For example, in order to effectively motivate others, a variety of skills such as communication, influence and delegation are also required. This characteristic of management skill allows flexibility in managing diverse situations. The fact that management skills are complimentary depending on situations is also supported by the work of Young (1988⁵¹⁰) on construction management skills and knowledge across the management strata.

Whetten and Cameron (1991⁴⁹⁵) are of the view that management skills are linked to a more complex base than other types of skills, and also, are inherently connected to interaction with other individuals. They emphasised that a standardised approach to welding or shooting baskets may be feasible, but no standardised approach to managing human beings is possible. The nature of managerial activities (Mintzberg, 1980³⁵⁶) limits the standardisation of managerial tasks and problems. This in turn limits the ability of highly standardised skills to deal with them. Since tasks are quite interdependent and embedded in a particular context, it follows that general problem solving procedures which treat them as isolated problems will be less useful than methods and approaches that take account of their contextual nature. As Whitley (1987⁴⁹⁹) noted, "Managerial skills that are relatively specific to particular organisations and industrial sectors, are, then, more likely to be effective than those based on idealised models of general processes abstracted from particular context" p 13. The limited standardised nature of managerial skills and their situational specificity, which implies flexibility and an ability to develop, is also supported by Larson (1977³²¹). Larson (1977³²¹) is of the view that limited standardisation of managerial tasks means that reliance on a narrow cognitive base would render managerial skills far too narrow and specialised to be useful. Kotter (1982b³¹³) is also in agreement with this way of thinking. Given the interdependent and contextual nature of managerial positions, useful skills incorporate considerable knowledge of "local" contexts and networks, as he claims was true of successful general managers.

Bigelow (1983⁴¹) noted that a useful skill has four attributes, namely :-

- i. It is based around explicitly identified problematic situations a person can expect to encounter in early career.
- ii. It provides a way of thinking about these situations which enables the person to develop effective situational action i.e. based on past experience.
- iii. It provides opportunities for action oriented learning.
- iv. It provides a means of feedback to the person about his/her situational effectiveness.

From the ongoing, it would appear that management skills are characterised by being situationally specific, collective and interdependent, complimentary, linked to a broad base and can be developed.

6.3. Management Skills And Knowledge: Theory And Practice

It is the aim of this section of the chapter, to briefly review individual contributions to the theory and practice of management skills and knowledge, from both general management and construction management perspectives. By so doing, theories and research relevant to the kinds of managerial behaviour, skills and knowledge that contribute to management success and performance in a variety of forms are discussed.

A great deal of attention has been levelled on the area of management skills and knowledge in general management, especially in the U.S.A. and U.K. Less research has been carried out in construction management.

One of the earliest studies on management skills and knowledge was conducted in 1966. In their study on "Perception of managerial needs and skills in two national samples (America and British managers in progressive firms)", Heller and Porter (1966²⁵²) observed that the higher ranked skills are those dealing with people at work, such as leadership, motivation and communication. The lower ranked skills are the ones concerned with the functional and technical demands of the job. In his study of skills of an effective administrator, Katz (1971²⁹²) suggests that effective management depends on three basic personal developable skills. Katz (1971²⁹²) identified three skills for effective management, namely:-

- i. **Technical skill:** This involves specialised knowledge, analytical ability within that speciality, and also, faculty in the use of tools and techniques of the specific discipline.
- ii. **Human skill:** This is concerned with working with people. Unlike technical skill which is concerned with physical objects or processes. Human skill is demonstrated in the way the individual perceives his superior, peers and subordinates, and in the way he behaves subsequently.
- iii. **Conceptual skill:** This involves the ability to see the enterprise as a whole. It also extends to visualising the relationship of the individual business to the industry, the community and the socio-economic and political forces of the nation as a whole. Conceptual skill can be said to show that the various function of the organisation depends not just on one another but also on how changes in any part affect all others.

Katz (1971²⁹²) informs us that all levels of managers require competence in each of the three skills mentioned above, although the relative importance of them vary according to a manager's level in the organisation. According to Katz (1971²⁹²), at lower levels, the major need is for technical and human skills, but at higher levels, the managers' effectiveness depend largely on human and conceptual skills. Kast and Rosenzweig (1985²⁹¹) are also in support of this view, noting that at top management level, conceptual skills become the most important.

Mintzberg (1980³⁵⁶), in his description of managerial work suggests a number of important managerial skills. He classified management skills under eight broad headings, namely:-

- i. Peer skills
- ii. Leadership skills
- iii. Conflict resolution
- iv. Information processing skills
- v. Skills in decision making under ambiguity
- vi. Resource allocation skills
- vii. Entrepreneurial skills
- viii. Skills of introspection

Mintzberg (1980³⁵⁶) also points out that there are some features that are common to each type of management job, and also there is uniqueness with each type of managerial activity. This would imply that there are managerial skills which are applicable to all managerial jobs, but because of the uniqueness of managerial jobs and situations, the relative degree of importance or level of application is likely to differ in different jobs. Burgoyne (1989⁸⁰) reminds us that "The simple reality is that all managerial jobs are different at a detailed level of resolution and all managerial jobs the same at high level of abstraction" p58.

A comprehensive study on management skills was conducted by Whetten and Cameron (1991⁴⁹⁵) in the U.S.A. Their study involved interviews with 402 highly 'effective' managers from organisations in the field of business, health care, education, and state government. In their interviews, they aimed to discover what made managers successful. Analysis of their interviews produced sixty characteristics of effective managers. They however, listed ten most cited skills of effective managers. These are listed below:-

- i. Verbal communication (including listening)
- ii. Managing time and stress
- iii. Managing individual decisions
- iv. Recognising, defining, and solving problems
- v. Motivating and influencing others
- vi. Delegating
- vii. Setting goals and articulating vision
- viii. Self awareness
- ix. Team building
- x. Managing conflict

Notice that these ten skills are all behavioural skills. Other studies using a variety of kinds of respondents with similar results include Prentice, 1984⁴⁰⁵; Margerison and Kakabadse, 1984³⁴³; and Hunsicker, 1978²⁷². Also in the United States, the study conducted by Cameron and Tschirhart (1988⁸⁵) to assess the skill performance of 500 mid-level and upper middle managers of 150 organisations lend support to Whetten and Cameron's (1991⁴⁹⁵) ten most cited skills which are listed above. Some of the skills used in the study by Cameron and Tschirhart (1988⁸⁵) were adapted from the work conducted by Ghiselli (1963²¹⁵), Campbell et al (1970⁸⁷), Miner (1973³⁵⁴), and Flanders (1981¹⁹⁸).

According to Cohen and Cohen (1984¹¹⁸), the ten essential skills for successful management are:-

- i. Problem solving and decision making
- ii. Communication
- iii. Motivating subordinates and co-workers
- iv. Leadership
- v. Marketing oneself to the boss
- vi. Time management and goal achievement
- vii. Stimulating innovation and creativity
- viii. Stress management
- ix. Planning
- x. Productivity management

Studies in Management skills have also been conducted in the United Kingdom. Burgoyne and Stuart (1978⁸²), in their study on management skills and development, observed that the manager interacts with his environment by carrying out inner plans or programmes with some purpose in view which he/she then modifies according to the feedback he/she receives from the environment. Burgoyne and Stuart (1978⁸²) also acknowledge that effectiveness is related to the appropriateness of the plans, and the feedback a manager receives from the environment, and is determined by ten skills. These skills derived by Burgoyne and Stuart are related to three different kinds of learning which could be seen to correspond to Katz's (1971²⁹²) three skills; learning facts, learning new forms of response, and learning how to abstract and conceptualise. The ten skills which Burgoyne and Stuart (1978⁸²) arrived at which are not ranked in order of importance are:-

- i. Command of the basic facts of the situation
- ii. Relevant professional understanding
- ii. Perceptive skills
- iv. Problem solving and decision making skills
- v. People skills

- vi. Coping with stress
- vii. Proactivity, achievement of needs, persistence
- viii. Creativity
- ix. Mental agility
- x. Balanced learning

Mumford et al's (1987³⁶⁶) study involving interviews with British directors noted that planning for the future, influencing and maintaining relationships are necessary skills. Similarly, a study conducted by Cox and Cooper (1988¹⁴¹), which involved interviews with 45 male top managers of most successful (with good financial records) British companies, list three managerial skills which directors perceive as important. These are, in order of importance:-

- i. Interpersonal skills
- ii. Analytical abilities and decision making
- iii. Long term planning and coping with changes

From the discussion of general management skills, there seems to be agreement amongst writers that management skills that relate to people, i.e. interpersonal and behavioral skills are the most important set of skills for management. The review of literature on management skills has also shown that at higher levels of management, the need for human and conceptual skills is greater than at lower levels of management. There also appear to be consensus amongst writers that the relative importance of management skills and knowledge vary across managerial levels and managerial jobs.

The next stage of the review on managerial skills will focus on the studies carried out in the construction industry.

Fryer (1979²⁰⁷), after discussions with 29 site and contract managers, noted that the most important skills for project management are social skills.

Young (1988⁵¹⁰) conducted a study involving in-depth interviews with eleven personnel managers, and postal questionnaires were completed by seventy-three managers (senior, middle and junior) from eight different building and/or civil engineering firms. Her study produced 56 job dimensions (skills/knowledge). The core management skills and knowledge from her study were classified under three main headings, namely:-

- i. Financial Business Management: These skills/knowledge are normally associated with senior construction managers.
- ii. Operational Management: These skills/knowledge tend to involve middle and junior construction managers.
- iii. Interpersonal skills (Management of people): These skills/knowledge involve personal contact with people, include leadership, and supervision of others; and concerns all levels of management.

Other studies on construction management skills include those of Finnigan et al (1987¹⁹⁵), Faulkner and Wearne (1979¹⁸⁷, 1984¹⁸⁸), CITB (1988b¹³⁰), and Mustapha and Langford (1990³⁶⁸). These studies show that interpersonal skills i.e. communication, leadership, supervision, and motivation are the most required or important skill for construction management.

Finnigan et al (1987¹⁹⁵) conducted a study on 'Managerial Needs Of Chartered Builders'. Three hundred and thirteen (313) CIOB members, the majority (52%) of whom were employed by contracting organisations, participated in the study. Respondents were categorised under four levels of responsibility: director, senior, middle, and junior members. These respondents were asked to record from a list of skills or expertise, whether they 'sometimes' or 'frequently' required them in their present job. The investigators did not attempt to analyze these sets of data independently to establish relative skills frequencies. Instead they took the view that participants would be more selective in responding, and since the primary objective was to establish skill dimensions, Finnigan et al (1987¹⁹⁵) decided to aggregate the data. When levels of responsibility are combined, the skills/expertise required is presented below in decreasing order of requirement in present job.

<u>Skills/Expertise</u>	<u>Frequently/Sometimes Required</u> <u>Skill/Expertise (%)</u> <u>(N = 313)</u>
1. Motivation of others	84
2. Direct supervision of others	83
3. Estimating	81
4. Costing	79
5. Plan and control budgets	79
6. Evaluate projects	75
7. Negotiate with supplier/subcontractor	74
8. Select personnel	71
9. Plan and schedule projects	68
10. Negotiate contracts with clients	68

Source: Finnigan et al (1987¹⁹⁵) "Managerial Needs For Chartered Builders". Technology Management Unit, Bradford Management Centre, University of Bradford. Report TMR 154, p 18.

It can be observed from Finnigan et al's (1987¹⁹⁵) study, that motivation, and supervision, the interpersonal skills are ranked highest as requirements for construction management.

Faulkner and Wearne's (1984¹⁸⁸) study on 'Civil Engineers Needs In Construction Management', involving 839 corporate, associates and graduate members of the Institute of Civil Engineers, also supports the view that interpersonal skills are the ones most required for construction management.

These studies conducted on construction management skills/knowledge, are in the main geared towards new build work, and not directed towards refurbishment work. Yet, refurbishment work is perceived to have higher elements of risks and uncertainty (Quah, 1988⁴¹⁰; Teo, 1990⁴⁷³; Chapman, 1980¹⁰²), more complex (Briscoe et al, 1980⁶⁴; Chandler, 1991¹⁰¹; Koehn and Towers, 1982³⁰⁶), and more dangerous (HSE, 1988²⁵⁰) than new build work.

The next section of this chapter will concentrate on deriving a list of management skills and knowledge that are important for refurbishment, a skills and knowledge inventory.

6.4. Perceived Importance Of Management Skills And Knowledge For Refurbishment

The analysis of management skills and knowledge that are important for refurbishment will commence with data on managers' perception of the relative importance of management skills and knowledge in their present job, at the aggregate level. This will be followed by an evaluation of the importance of skills and knowledge at senior, middle, and junior management levels.

A list of management skills and knowledge for refurbishment was devised from a thorough review of literature on general management skills and knowledge, especially those of Constable, 1988¹²²; and Whetten and Cameron, 1991⁴⁹⁵; and from construction management skills/knowledge, notably, the works of Young, 1988⁵¹⁰; CITB, 1988b¹³⁰; Finnigan et al, 1987¹⁹⁵; and Faulkner and Wearne, 1979¹⁸⁷, 1984¹⁸⁸; as well as literature on the general area of refurbishment (Douglas, 1987¹⁶⁵; Hanley, 1987²⁴⁵; and Charmer, 1985¹⁰³). The list obtained was then modified after interviews with 32 training officers from 32 refurbishment organisations. From this list which comprised 75 management skills and knowledge, refurbishment managers were asked to identify those skills/knowledge which they perceived to be important in managing refurbishment work, and to categorise them as 'Very important', 'Important', 'Fairly important' and 'Not important'. This four category rating system was adopted to avoid respondents aiming for the middle column.

It is worth mentioning that this study is concerned with management skills and knowledge, as opposed to technical skills, such as building/construction technology. In dealing with management skills and knowledge, the author assumes that refurbishment managers have the relevant technical skills and knowledge for their job. Also, in devising management skills and knowledge for refurbishment, it was essential that all the skills and knowledge had two things in common. Firstly, they can all be taught, and secondly, they all have the potential for improvement through practice.

A mention also has to be made of the layout of the list of skills and knowledge from which managers have to rank their relative degree of importance. Suggestions from Gael (1983²¹¹) and Young (1988⁵¹⁰) on the importance of layout was adhered to. Skills and knowledge were grouped according to functions. Systematic ordering as opposed to disjointed listing was adopted (see questionnaire, appendix A). Schein (1978⁴⁴⁰) with his Human Resource Inventory, is also in support of this approach. This approach has the advantage of assisting respondents (managers) to co-ordinate their thought processes in completing the questionnaire. It also has the added advantage of assisting managers with speedy completion of the questionnaire, since the managers can easily relate the skills and knowledge to various managerial functions in their present job (Young, 1988⁵¹⁰). There is the risk that listing of skills and knowledge in the format adopted may lead to the conditioning of responses. However, feed back from the pilot questionnaire did not suggest this to be the case.

Table 1 in Appendix B shows the aggregate percentage responses of management skills and knowledge which managers find important in their present job.

Management skills and knowledge are reported by majority frequencies 'Fairly important' and 'Not important'. 'Very important' and 'Important' are combined to form the skills and knowledge which managers perceive as most important, in managing refurbishment work. Majority frequencies were established by analyzing for each skill/knowledge, whether majority of the sample population find these skills/knowledge important in their present job. If they did, then for each skill/knowledge, the category which recorded the highest frequency was chosen and presented in Tables 25, 26 and 27, headed most important, fairly important not

important in managing refurbishment work. For each category of importance, the majority responses are then ranked to their average scores.

Average scores are computed from ordinal coding of these data. The categories 'Very important', 'Important', 'Fairly important' and 'Not important' were coded 1, 2, 3 and 4 respectively (see questionnaire in appendix A). As the mean score increases, the relative importance attached to management skills/knowledge decreases.

Two examples can be useful at this instance. In Table 25, Team building is ranked 10th, besides a frequency of 95.8%. This is the sum of the two columns 'Very important' and 'Important' (see Table 1 in Appendix B). Employment legislation is of importance to 92.2% of managers, of which 41.5% (Table 26), the majority, perceive this skill/knowledge fairly important in their present job. Analyses of data by levels of management are carried out using the same procedure. This procedure allows the reader to see the majority responses as well as the relative importance attached to management skills/knowledge for refurbishment.

Analysis of data can now commence. An inspection of Table 25 shows that managers rated leadership, communication (oral/written), motivation of others and health & safety as the four most important skills and knowledge in their present job, for managing refurbishment work. These skills and knowledge, are respectively ranked 1st (99.3%), 2nd (97.9%), 3rd (98.6%) and 4th (97.9%). Other skills and knowledge which receive high rating in terms of the most important skills/knowledge include decision making, forecasting and planning, budgetary control and supervision

of others. Mid way down Table 25 are skills/knowledge such as conducting meetings, managing conflict/crisis, tenant welfare and public relations. Lower down Table 25, the skills/knowledge of analysis of project risks/uncertainty, costing and estimating, competitor awareness and managing change are evident.

Table 25: Management Skills And Knowledge Perceived As Most Important In Managing Refurbishment Work: Refurbishment Managers

Job Dimensions (skills/knowledge)	Average Scores	V.imp/imp(%) N=142
-----	-----	-----
Leadership	1.197	99.3
Communication (oral/written)	1.197	97.9
Motivation of others	1.218	98.6
Health and safety	1.246	97.9
Decision making	1.338	95.7
Forecasting and planning	1.359	97.2
Site organisation	1.394	93.7
Budgetary control	1.408	96.5
Supervision of others	1.415	95.8
Team building	1.423	95.8
Quality control and assurance	1.528	90.2
Managing time	1.542	91.5
Materials planning and control	1.549	90.1
Manpower planning and control	1.563	92.9
Settling goals and objectives	1.492	89.4
Conducting meetings	1.606	95.8
Managing conflict/crisis	1.606	90.1
Recruit/select: supervisor/foreman	1.627	85.2
Delegating responsibilities	1.634	90.2
Programme maintenance (update)	1.641	85.2
Tenant welfare	1.676	88.0
Public relations	1.676	84.5
Recruit/select: subcontractor	1.683	84.5
Employee training: supervisor/foreman	1.683	89.5
Competitive tendering	1.690	83.1
Analysis of project risk/uncertainty	1.690	89.5
Programme design	1.711	83.1
Identify personal strength/weaknesses	1.725	85.2
Employee training: management	1.739	86.7
Site security	1.746	84.5
Productivity maintenance and control	1.754	83.1
Negotiate: client	1.761	81.7
Costing and estimating	1.789	78.9
Competitor awareness	1.810	78.2
Managing change	1.831	83.1
-----	-----	-----

Table 26 lists the skill and knowledge which respondents perceived as fairly important in their present job. Recruitment/selection of management, negotiation with main contractors, and subcontractors, were ranked 1st, 2nd and 3rd respectively. Organisation of communication systems, managing job stress and creativity also received high ranking in terms of skills/knowledge considered to be fairly important.

Refurbishment managers may need to apply business management skills in the work they do. There are occasions when they have to be skilled in company accounting and company (strategic) planning. Mid way down Table 26, are skills of career development/appraisal, company accounting, company (strategic) planning, and construction law.

Lower down Table 26, the skills and knowledge associated with contract drafting, sources of finance, employment legislation and client/consumer protection law, are evident. The skills/knowledge associated with contract drafting is important for winning work in refurbishment. Refurbishment managers also need to understand the legal aspects of refurbishment management.

Table 27 presents management skill and knowledge which the respondents suggested are not important in their present job, for managing refurbishment work. Foreign language, demotion & retirement, and managing other national cultures are the three management skills/knowledge ranked highest by the sample population as not important for refurbishment.

Table 26: Management Skills And Knowledge Perceived As Fairly Important In Managing Refurbishment Work: Refurbishment Managers.

Job Dimensions (Skills/knowledge)	Average Scores	Fairly imp(%) N=142
-----	-----	-----
Recruit/select management	1.831	14.1
Negotiate: main contractors	1.859	13.4
Negotiate : subcontractor	1.894	14.8
Organisation of communication systems	1.923	16.9
Managing job stress	1.951	19.0
Recruit/select : manual labour	1.993	22.5
Employee training: manual labour	2.021	22.5
Plant planning and control	2.028	26.8
Negotiate : supplier	2.077	20.4
Creativity	2.077	26.8
Career development/appraisal	2.077	26.1
Decanting buildings	2.183	31.0
Company accounting	2.218	29.6
Company (Strategic) planning	2.239	31.7
Construction law	2.246	31.7
Property insurance	2.246	25.4
Organisation structure	2.261	34.5
Termination/dismissal :subcontractor	2.282	30.3
Job analysis/ specification	2.303	31.7
Code of practice/working rule agreement	2.331	31.7
Termination/dismissal :supervisor/foreman	2.352	28.2
Contact drafting	2.373	33.8
Sources of finance	2.387	26.1
Employment legislation	2.415	41.5
Client/consumer protection law	2.472	40.8
-----	-----	-----

Other skills/knowledge which the respondents claim not to be important for refurbishment include, organisation culture, company law, advertising and promotion, and promotion & transfer.

Table 27: Management Skills And Knowledge Perceived As Not Important In Managing Refurbishment Work: Refurbishment Managers

Job Dimensions (Skills/knowledge)	Average scores	Not Imp(%) N=142
Foreign Language	3.507	64.1
Demotion and retirement	3.049	33.8
Managing other national culture	2.873	31.0
Planning law	2.761	23.9
Organisation culture	2.634	16.9
Use of computer technology	2.599	16.2
Company law	2.592	19.7
Termination/dismissal: manual labour	2.592	16.2
Negotiate: Trade unions	2.577	21.1
Termination/dismissal: Management	2.542	18.3
Market research	2.521	22.5
Advertising and promotion	2.521	18.3
Negotiate: Government bodies	2.507	19.7
Employee welfare/counselling	2.479	11.3
Promotion and transfer	2.472	9.9

Adopting the same procedure, analysis of management skills and knowledge for each level of management; senior, middle and junior will now commence. The majority frequencies of management skills/knowledge ranked by average score will be presented under the categories of 'Most', 'Fairly ' and 'Not important'. The data will be presented in such a way that the relative changes in skills and knowledge across the three tiers of management levels can be readily seen. Firstly, the skills and knowledge perceived as most important at each level of management, followed by skills/knowledge perceived as fairly important, and then skills and knowledge which respondents at each level of management claim not to be important for refurbishment.

An inspection of Tables 28, 29 and 30 relating to management skills and knowledge which respondents perceived as most important reveals that of the six most important skills/knowledge for all levels of management, four are cited by managers at all levels. These are:-

- i. Leadership
- ii. Communication
- iii. Motivation of others
- iv. Health and safety

Leadership, communication and motivation of others are interpersonal skills. In refurbishment, with increase of contract labour, together with a corresponding increase in fragmented specialised work, and the difficulties associated with labour on site, the skills of leadership and communication become even more necessary. Also, with the increase need for speed of response to address the issues arising from variations to the works, the skill of communication becomes vitally important.

Supervision of others, which is also an interpersonal skill, is also ranked highly in importance. This skill was ranked 9th by senior managers, 10th by middle managers and 11th by junior managers. In an uncertain environment, as is the case with refurbishment projects, with variations/change orders to the works, the need for constant supervision of subordinates and co-workers is of immense importance.

Table 28: Skills And Knowledge Perceived As Most Important By Senior Managers In Managing Refurbishment Work

Job Dimensions (Skills/knowledge)	Average Score	V.imp/imp(%) N=23
-----	-----	-----
Communication (oral/written)	1.217	100.0
Health and safety	1.217	95.6
Leadership	1.261	100.0
Decision making	1.261	100.0
Budgetary control	1.304	100.0
Motivation of others	1.304	95.6
Forecasting and planning	1.348	100.0
Costing and estimating	1.435	91.3
Supervision of others	1.478	100.0
Team building	1.478	95.6
Managing conflict/crisis	1.478	91.3
Identifying personal strength/weaknesses	1.522	100.0
Managing time	1.522	95.7
Site organisation	1.522	91.3
Analysis of project risk/uncertainty	1.565	91.3
Recruit/select: Supervisor/foreman	1.565	91.3
Quality control and assurance	1.565	86.6
Conducting meetings	1.609	100.0
Manpower planning and control	1.609	95.7
Recruit/select: Subcontractor	1.609	87.0
Materials planning and control	1.609	86.9
Employee training: management	1.652	95.6
Setting objectives and goals	1.652	86.9
Delegating responsibilities	1.652	86.9
Employee training: Supervisor/foreman	1.696	91.3
Tenant welfare	1.696	86.9
Competitor awareness	1.696	82.6
Managing change	1.739	87.0
Recruit/select: management	1.739	86.9
Organisation of communication systems	1.739	82.6
Competitive tendering	1.739	78.2
Programme maintenance (update)	1.783	78.2
Programme design	1.783	82.6
Public relations	1.826	78.3
Productivity control and maintenance	1.870	78.2
-----	-----	-----

Table 29: Skills And Knowledge Perceived As Most Important By Middle Managers In Managing Refurbishment Work

Job Dimensions (Skills/knowledge)	Average Scores	V.imp/imp(%) N=59
Health and safety	1.203	100.0
Leadership	1.220	98.3
Motivation of others	1.220	98.3
Communication (oral/written)	1.220	95.0
Budgetary control	1.288	100.0
Decision making	1.305	98.3
Forecasting and planning	1.356	94.9
Site organisation	1.356	93.2
Team building	1.373	94.9
Supervision of others	1.424	93.2
Recruit/select: Supervisor/foreman	1.492	94.9
Conducting meetings	1.508	96.6
Delegating responsibilities	1.525	94.9
Recruit/select: Subcontractor	1.559	93.2
Quality control and assurance	1.559	88.1
Managing time	1.576	89.8
Programme maintenance (update)	1.576	86.4
Setting objectives and goals	1.593	91.6
Managing conflict/crisis	1.610	89.8
Manpower planning and control	1.627	91.6
Employee training: Supervisor/foreman	1.661	91.6
Recruit/select: Management	1.661	84.8
Analysis of project risk/uncertainty	1.678	89.9
Site security	1.678	89.9
Negotiate: Client	1.678	84.7
Negotiate: Subcontractor	1.712	89.8
Materials planning and control	1.712	86.5
Programme design	1.712	84.8
Public relations	1.712	84.8
Competitive tendering	1.712	83.1
Competitor awareness	1.729	84.8
Negotiate: Main contractor	1.746	89.8
Employee training: Management	1.746	86.5
Identifying personal strength/weaknesses	1.763	83.1
Tenant Welfare	1.780	83.1

Table 30: Skills And Knowledge Perceived As Most Important By Junior Managers In Managing Refurbishment Work

Job Dimension(Skills/knowledge)	Average score	V.imp/imp(%) N=60
Leadership	1.150	100.0
Communication (oral/written)	1.167	100.0
Motivation of others	1.183	100.0
Health and safety	1.300	96.7
Forecasting and planning	1.367	98.3
Materials planning and control	1.367	95.0
Supervision of others	1.383	96.7
Site organisation	1.383	95.0
Decision making	1.400	91.7
Team building	1.450	96.6
Manpower planning and control	1.483	93.3
Quality control and assurance	1.483	93.3
Managing time	1.517	91.7
Productivity control and maintenance	1.533	90.0
Budgetary control	1.567	91.6
Tenant welfare	1.567	91.6
Setting objectives and goals	1.567	88.5
Public relations	1.583	86.6
Managing conflict/crisis	1.650	90.0
Programme maintenance (update)	1.650	86.6
Competitive tendering	1.650	85.0
Programme design	1.683	81.6
Conducting meetings	1.700	93.4
Employee training: Supervisor/foreman	1.700	86.7
Delegating responsibilities	1.733	86.7
Site security	1.733	85.0
Analysis of project risk/uncertainty	1.750	88.4
Identifying personal strength/weaknesses	1.767	81.7
Employee training: Management	1.767	81.7
Recruit/select : supervisor/foreman	1.783	73.4
Negotiate: Client	1.800	80.0
Managing job stress	1.817	78.4
Managing change	1.833	78.3
Costing and estimating	1.833	76.6
Recruit/select: Subcontractor	1.833	73.4

Koehn and Tower (1982³⁰⁶), in their article on "Current Aspects Of Construction Rehabilitation", are of the view that refurbishment work demands greater supervision than new build work. Koehn and Tower (1982³⁰⁶) also noted that for refurbishment, "more time and effort are needed on the part of the superintendent (supervisor), project manager and the designer to enable a rehabilitation project to run smoothly and efficiently" p337.

The high degree of importance attached to supervision by respondents of the postal questionnaire, is also supported by the 22 managers who were interviewed as part of the current study. All the 22 managers interviewed noted that it was either very important or important. Having had experience of new build work, all the 22 managers noted that refurbishment work demands more frequent and closer supervision than new build work.

Willenbrock et al (1987⁵⁰¹) in their study on "Factors affecting Outage Construction Efficiency" are of the view that the nature of refurbishment work, coupled with a long working week and overtime work by construction personnel leads to low morale and low productivity of refurbishment work. To this end, the skill/knowledge of motivating others is needed.

Health and safety received high ranking by all levels of management, being ranked 2nd by 95.6% of senior managers, 1st by 100% of middle managers and 3rd by 100% of junior managers. This is not surprising, given the fact that refurbishment work is dangerous (HSE, 1988²⁵⁰). More often than not, it involves demolition work, and can also involve the disposal of hazardous substances such as asbestos and lead.

As statistics from the Health and Safety Executive (HSE, 1988²⁵⁰) show, the repair and maintenance sector, including refurbishment, accounts for about 43% of the total number of construction fatal accidents in the UK. Another reason for the high ranking of health and safety could be due to the increasing coverage of health and safety issues by the media (Employment Gazette, 1988¹⁷⁷), and threat of personal prosecution.

The result of a recent European Community (EC) directive on health and safety regulations, known as "Temporary or Mobile Sites Directive" (Birkby, 1994⁴⁴), makes every one concerned in construction (including clients, contractors, project managers and quantity surveyors), liable for the breach of health and safety regulations. This directive which came into effect on 31st December 1993, means that accidents arising out of failure to comply with the new regulation could lead to prosecution by the Health and Safety Executive, and also a fine or imprisonment . This would further increase awareness in health & safety issues.

The need to understand and be able to control substances hazardous to health, such as asbestos and lead, especially by the site management team is of utmost importance. Managers would need to be knowledgeable and conversant with the 1988 regulation on Control of Substances Hazardous to Health (COSHH).

Decision making skill was also rated highly by all levels of management. This skill was ranked 4th by 100% of senior managers, 6th by 98.3% of middle managers, and 9th by 91.7% of junior managers. Refurbishment work is characterised by high risk, uncertainty and high variation orders to the works. Working under such conditions,

and at the same time attempting to achieve the stipulated time for project completion, managers would be required to make impromptu and sound decisions. The skill of decision making is therefore of great importance at all levels of management. This view is also supported by most of the refurbishment managers who were interviewed. Of the 22 managers interviewed, 18 (81.82%) were of the view that it is of immense importance that site managers, and any manager for that matter, involved in refurbishment, should be entrusted to take decisions, since the works demand quick and on-the spot decisions. There was also general consensus amongst all the 22 managers, that the organisation structure at project level needs to be decentralised, to allow for flexibility and quick decisions and response, which refurbishment work demands.

In an environment of uncertainty, increased variation to the works, and costs likely to escalate at short notices, the skills and knowledge associated with forecasting and planning become necessary. Not surprising therefore, that all level of managers ranked the ability to forecast and plan of very high importance [Forecasting and planning, being ranked 7th by 100% of senior managers, 7th by 94.9% of middle managers and 5th by 98.3% of junior managers]. Managers would need to be able to plan and forecast the amount of labour, materials and plant resources needed for the works. The effects of unavailability and/or insufficient resources on the time for project completion, quality of workmanship and cost, are issues that need attention.

Controlling the financial requirements of refurbishment processes are considered to be part of the duties of all managers, more so for senior managers than junior managers. As was mentioned earlier, with costs liable to escalate at fairly short

notice, managers would need to maintain firm control over finances. Budgetary control was ranked 5th in terms of the most important skill/knowledge by 100% of senior managers, 5th by 100% of middle managers, and 15th by 91.6% of junior managers. Unlike middle and junior managers who are responsible for their own individual operating departments, directors, area and regional managers take overall responsibility of their divisions or regions. It would therefore be expected that senior managers attach more importance to budgetary control than would junior managers. A similar explanation can be offered for the high ranking of costing and estimating by senior managers, when compared to middle and junior managers.

Site organisation was ranked 8th by 95.0% of junior managers, 8th by 93.2% of middle managers and 14th by 91.3% of senior managers. Senior managers it would seem ranked site organisation highly, in degree of importance, bearing in mind that senior managers are mainly office based and relatively speaking, away from site. The semi-structured interviews with 22 managers sought to explore the reasons behind the relatively high importance attached to site organisation by senior managers.

Firstly, of the 22 managers interviewed, all (100% response) ranked the skill/knowledge of site organisation as either very important or important for refurbishment. Seven of the twenty-two managers were senior managers. They were targeted, and asked of their perceptions of the importance of site organisation. Explanations for the relatively high level of importance attached to site organisation were also sought from senior managers

The following explanations were given by senior managers for the high importance attached to site organisation:-

- i. Senior managers would need to know what is happening on site, as it is on the basis of this information that further work for the organisation is secured. Since senior managers are also heavily involved in tendering and putting bids together, a thorough understanding of site organisation is needed, if the organisation is to put in a competitive bid.
- ii. Senior managers are responsible for the recruitment of supervisors/foremen. They would need to know the job roles of supervisors/foremen, as well as whether the people they recruit are of the right calibre. To be able to do this in any meaningful way, an understanding of site organisation, and the demands of the site are important.
- iii. In order to be able to communicate confidently with the client, regarding site progress, and the demands of site, senior managers need to be knowledgeable about site organisation.
- iv. By virtue of their position, senior managers are responsible for works carried out by their organisation. This means that they need to be satisfied with the way in which the site is run, and that the overall work on site is in compliance with the organisation's requirements. In order to be able to assess this in any meaningful way, the skill/knowledge of site organisation becomes necessary.

- v. Another reason for ranking site organisation highly, in degree of importance, is that some senior managers are a product of it. Some of the senior managers have gone through the ranks, and have spent considerable amount of time on site, during which they have appreciated the importance of site organisation.

A view expressed by the 32 training officers who were interviewed as part of the current study, that all refurbishment managers are close to site might also explain the high degree of importance attached to site organisation by managers at all levels. As will be seen from the discussion below, the training officers' view of all managers being close to site, is also supported by majority of managers who were interviewed.

All the twenty-two managers (8 junior, 7 middle and 7 senior) who were interviewed, were asked how frequently they visit site; 'very frequently', 'frequently', 'fairly frequently', or 'not frequently'. All the junior managers responded that they visit site very frequently. This is expected since site managers are site based, and expected to be close to the work face at all times, and are responsible for the site they manage.

Of the seven middle managers, three responded that they visit the site very frequently, and the remainder of the managers responded that they make frequent visits to the site. In other words, middle managers visit the site either very frequently or frequently.

Of the seven senior managers, three visit the site very frequently, one visit the site frequently, and one makes fairly frequent visits to the site. Only two of the managers responded that they do not visit the site frequently. By virtue of their position, one would expect the rate at which senior managers visit the site to be limited. To take this issue one step further, having established that all senior managers, and indeed all the managers interviewed have had experience of new build work, senior managers were asked, if in comparative terms, they visit refurbishment site more frequently than they do for new build site, all the senior managers responded that this is the case. The reasons given were:-

- i. The likelihood of problems occurring in refurbishment sites are greater than on new build site, and there is a need for closer attention to site.
- ii. Clients visit refurbishment sites more regularly than they do new build site. Senior managers would need to avail themselves of visits to show the client the progress of work on site, when necessary.
- iii. Senior managers visit refurbishment sites to lend morale support to staff and operatives, since as senior managers pointed out, refurbishment work is relatively more stressful than new build work, and can lead to fatigue and frustration.

In order to validate the results of senior managers frequency of visits on site, junior and middle managers who were interviewed were asked 'how frequently senior managers visit sites'? Of the 15 junior and middle managers, 12 (80.0%) responded

that senior managers either visit sites very frequently or frequently. Only 3 of the junior and middle managers responded that senior managers do not visit site frequently. This result supports the senior managers views on their frequency of visit to site. It also supports the view of the training officers that all refurbishment managers are close to site.

An observation of Tables 28, 29 and 30 shows that the need to work as a team is perceived to be of high importance by managers at all levels. Team building is ranked 10th by 95.6% of senior managers, 9th by 94.9% of middle managers and 10th by 96.6% of junior managers. The importance of team building in refurbishment has also been expressed by Cole and Hutton (1987¹¹⁹), partners in a large UK Architectural practice with experience of refurbishment work. They note "Co-operation between architects and contractors -and for that matter the other members of the building team - is at a premium" p22.

The nature of refurbishment work with high levels of uncertainty and variations to the works, lends itself to project time over-run. The skill and knowledge associated with time management is therefore necessary. Managers would need to exert control over construction activities so that the time stipulated for project completion is not exceeded. To this end 95.7% of senior managers, 89.8% of middle managers and 91.7% of junior managers, ranked it as being of immense importance. The importance of time management is supported by Jothiraj and Fellows'(1986²⁸⁷) study on 'Clients control on commercial refurbishment projects'. In their study, they observed that time performance was the major factor in determining clients' overall satisfaction with commercial refurbishment projects.

Marston and Skitmore (1990³⁴⁵), in accepting the importance of time management in refurbishment, have called for the need to improve methods of time forecasting by using a resource based, non-deterministic approach. This would involve automating and simulating the planning process. The resource based approach should reflect actual production processes, while the non-deterministic approach would allow for uncertainties and risk assessment.

The ability to cope with the unexpected, changes, conflicts and crisis, is needed in refurbishment work. To this end, the skill/knowledge of managing conflict/crisis is ranked relatively high in importance by managers at all levels of management, being ranked 11th, 19th and 19th by senior, middle and junior managers respectively.

As directors/area and regional managers have overall responsibility for the outcome of refurbishment contracts, it is expected that their requirement for the skill/knowledge of managing conflict and crisis is greater than those of middle and junior managers.

Quality control and assurance also received relatively high ranking, being ranked 12th, 15th, and 17th by junior, middle and senior managers respectively. Senior managers also have to be knowledgeable and conversant with the management of quality assurance. Similarly, they also need to be conversant with quality control which involves the delivery of products and services. Moreover, clients are demanding a quality service and BS 5750 is becoming widely recognised as the standard. To this end, efforts would have to be made in achieving that aim.

The skill/knowledge associated with the analysis of project risk/uncertainty is also of high importance to all levels of management, with senior managers placing more emphasis on its importance. Competitor awareness and competitive tendering are also ranked higher in importance by senior managers when compared to junior managers. The three sets of skills/knowledge of project risk/uncertainty, competitor awareness, and competitive tendering are used greatly in the securement of contracts, which in the main, is the domain of senior management. However, the high degree of importance attached to project risks/uncertainty by all levels of management, reflects the nature of refurbishment work - (High levels of risk and uncertainty, Quah, 1988⁴¹⁰; Teo, 1990⁴⁷³; and Chapman, 1980¹⁰²). Refurbishment work therefore demands the required skill/knowledge associated with being able to assess and analyze risks/uncertainty in construction work.

As clients of refurbishment contracts increasingly want to see that the contractor and members of the management team have the necessary expertise for the works, middle and junior managers would need to show requisite skill/knowledge in being able to analyze and cope with the risks/ uncertainties associated with projects. As Cole and Hutton (1987¹¹⁹) pointed out, "more and more we interview not just the directors of contracting companies, but their contract managers and site agents - the individuals the contractor expects to put in as responsible for site development" p23.

The importance of managing project risks and uncertainty for refurbishment work is also supported by Teo (1990⁴⁷³). He advised on the necessity for refurbishment contractors to be able to manage risks in refurbishment work. Teo (1990⁴⁷³) developed a decision support and risk management system model which provides

a systematic and objective approach to risk management in competitive bidding for refurbishment work.

An observation of Table 28 shows that recruitment/selection of supervisors and foremen was ranked relatively high in importance, by senior managers who responded to the postal questionnaire. The semi-structured interviews with managers allowed the relatively high ranking of this skill/knowledge to be explored. Of the twenty-two managers who were interviewed, and asked of their perception on the importance of recruitment/ selection of supervisors and foremen, 18 (81.82%) responded that it was very important. The remainder of the managers, 4 (18.18%), noted that it was important. Put differently, all the managers interviewed, responded that the task of recruiting/ selecting supervisors and foremen is either very important or important in refurbishment. This result supports the views of managers who participated in the postal questionnaire of this study. Of the seven senior managers interviewed, 6 (85.71%) ranked recruitment/selection of supervisors/foremen very important. Only one manager ranked it as important. Senior managers' view, which is consistent with other managers' views are that having the right calibre of supervisor/foreman is vital in refurbishment. The person supervising at the workplace, is the one who is representing the organisation, and he needs to demonstrate the organisation's expertise and abilities. He also needs to project the right image of the organisation and be able to initiate the operatives to conduct their work to the required standards expected by the organisation.

The extent to which managers were involved in recruiting and selecting supervisors/foremen was also explored through the interviews with refurbishment

managers. Managers were asked 'To what extent are you involved in recruiting/selecting supervisor/foreman, in your present job - (very much involved, involved, fairly involved, or not involved?)'. All the seven senior managers interviewed responded that they are very much involved in the recruitment/selection of supervisors/foremen, and that they conduct the last interviews and take decisions for their employment.

Of the seven middle managers interviewed, five responded that they are much involved and also play an important part in the recruitment/selection of supervisors/foremen. Apart from one middle manager (contracts manager) who responded that either himself or the director conducts the last interviews before the employment of a supervisor/foreman, the main role of middle managers is that of recommendation of the supervisors/foremen to the senior managers. For junior managers, although accepting that they are not very much involved, note that their assistance might be called upon in recommending suitable candidates to the middle managers. This result is clear, and leaves no doubt that senior managers are fully responsible for the recruitment and selection of supervisors/foremen. This, to some extent, could also explain the relatively high level of importance which senior managers attach to this task.

Mid way down Tables 29 and 30, emphasis is placed on the importance of skills/knowledge in operational programming of the construction phase of projects, by middle and junior managers. Such skills as manpower planning and control, programme maintenance (update), programme design, and site security are evident.

Tenant welfare is also recognised to be of most importance by 91.6% of junior managers, 83.1% of middle managers and 86.9% of senior managers. As many refurbishment works are carried out with tenants still in occupation, and businesses still in operation, the welfare of tenants become necessary. Also, being able to relate to the public is recognised to be of immense importance by all levels of managers, with the greatest emphasis being placed on public relations by junior managers. Site managers/agents are closer to site, and are more in contact with the public and tenants in occupation. They are therefore more likely to require the skill/knowledge of public relation in their work than do middle or senior managers.

The importance of public relations and liaison with tenants is also supported by the 32 training officers from 32 refurbishment organisations, who were interviewed as part of the present study. To this end, of the 32 participating organisations involved in the study, eight have employed Public Relation Officers (PRO's)/Tenant Liaison Officers (TLO's) to manage these important functions. The author attempted to ascertain if the employment of PRO's and TLO's in any way suggest that refurbishment managers are not able to perform that role. Refurbishment organisations pointed out that their refurbishment managers do perform that role, and it is important that they do so. However, due to the heavy workload which managers are faced with, and the variety of refurbishment projects carried out by refurbishment organisations, it is economical and practicable to appoint a separate individual to carry out that role. This is more so in housing refurbishment, with tenants in occupation. All the PRO's and TLO's appointed by eight of the thirty-two refurbishment organisations are female. The reason given being that women PRO's/TLO's appear to be more sympathetic to tenants than their male

counterparts.

The government's Citizen Charter published in 1991 and the Tenant's Charter published in February 1992, could also have accounted for the high level of importance attached to tenant welfare and public relations by managers. The government's Citizen Charter contains proposals relevant to council tenants, three of which refer to repair and refurbishment. These are:-

- i. Improving the right of council tenants to the repair of their home.
- ii. Ensuring all tenants receive information about the standard and performance of their local authority, such as repair times, target times for dealing with enquiries, and complaint procedures, with tenant representation for arbitration.
- iii. Encouraging local authorities to introduce refurbishment contracts, where contractors as well as direct labour organisations who exceed the agreed completion date would face financial penalties under the contract.

The Association of Metropolitan Authorities (AMA, 1991¹⁴), however, argues that the government proposal will stifle decision making on housing repair and refurbishment by local authorities. Lusk (1992³³⁴) is also of the view that the charter initiative has not addressed what he considers as the "great bulk of repair problems", such as coping with the vast amount of requests from tenants, some not evidently urgent, and dealing with increased inspection time.

For refurbishment contractors and managers, the requisite skills/knowledge needed to relate with tenants and the public, in the wake of the Tenant's Charter, becomes much more important.

In summary, the data presented in Tables 28, 29 and 30, clearly show that refurbishment managers at all levels, consider the interpersonal skills i.e. leadership, communication, motivation of others, and supervision of others, as being highly important to refurbishment. Health and safety is also a concern for managers at all levels. Forecasting and planning, managing time, and analysis of project risks/uncertainty are also perceived as being of immense importance at all level of management.

The top echelon of management considers the skills and knowledge associated with financial control, i.e. budgetary control, and costing and estimating to be relatively more important than less senior management.

Junior, middle and to a lesser extent, senior managers, require working knowledge of management skills in operational programming of construction phase of projects, e.g. programme maintenance (update) and programme design.

The study also sought to test if managers' jobs in refurbishment are totally different across levels of management, as defined by the relative importance attached to skills and knowledge. By testing the null hypothesis that there is no significant correlation between the degree of importance attached to management skills/knowledge for refurbishment, and levels of management, Spearman's Coefficient of Correlation(r_s)

is equal to 0.01. This value is not significant at the 5% level. The null hypothesis is not rejected. This finding in effect means that there is no substantial evidence to suggest that a managers' job in refurbishment is totally different across levels of management. In other words, this result suggests that there is similarity in refurbishment tasks across levels of management.

Tables 31, 32 and 33 below list management skills and knowledge which senior, middle, and junior managers of the sample population perceive as fairly important in their present job.

Senior managers in this sample responded that the ability to negotiate with clients, main contractors, and subcontractors are fairly important. The reliance on domestic subcontractors quotations, as observed by Quah (1988⁴¹⁰), has a marked influence on variability of tender bids for refurbishment. To this end, the need for negotiation at high management levels, with subcontractors become important. Moreover, Quah (1988⁴¹⁰) noted that:

" The increasing important role assumed by domestic subcontractors in the pricing process, and the high variability in their quotations, underlie the need for detailed enquiry into the operational characteristics of such firms, in particular, their estimating and tendering procedures". p354

The skill and knowledge of site security is ranked fairly important by senior managers, when compared to middle and junior managers who ranked it as one of the most important skills/knowledge (Tables 29 and 30). This is not surprising since

junior managers are closer to site than are senior managers. Moreover, the site management team, is in the main, responsible for site security.

Employee training of manual labour is ranked high by junior managers. This is normally carried out on site, and involves coaching and job rotation. It is important that new recruits are trained and made to understand what is expected of them in the work they carry out, and in the way the organisation conducts its work on site.

Table 31: Skills And Knowledge Perceived As Fairly Important By Senior Managers In Managing Refurbishment Work

Job Dimensions (Skills/knowledge)	Average Scores	Fairly imp(%) N=23
Negotiate: Client	1.870	17.4
Negotiate: Main contractor	1.913	26.1
Negotiate: Subcontractor	1.957	26.1
Site security	1.957	26.1
Plant planning an control	2.043	30.4
Managing job stress	2.087	17.4
Career development/appraisal	2.130	17.4
Creativity	2.130	30.4
Decanting building	2.130	30.4
Employee training: Manual labour	2.174	30.4
Negotiate: Supplier	2.217	26.1
Market Research	2.261	21.7
Recruit/select: Manual labour	2.261	26.1
Company accounting	2.348	39.1
Property insurance	2.391	34.8
Advertising and promotion	2.435	30.4
Construction law	2.435	43.5
Organisation structure	2.435	34.8
Use of computer technology	2.435	52.2
Job analysis specification	2.478	43.5
Termination/dismissal: Subcontractor	2.522	13.0
Code of practice/working rule agreement	2.522	30.4
Sources of finance	2.522	26.1
Termination/dismissal: Supervisor/foreman	2.609	17.4
Company (Strategic) planning	2.609	43.5

Mid way down Tables 31, 32 and 33, the skill/knowledge of decanting building is considered as fairly important by all levels of management.

Decanting of a building is the term used to refer to the process whereby tenants/occupants are moved out of a building to allow repair and refurbishment work to be carried out. Although the process of decanting buildings is one normally carried out by the client, the client can, if he/she so wishes, instruct the contractor to carry out that job role. As the CIOB (1987) noted in their publication on 'Refurbishment and Modernisation - Code of Estimating Practice, "Usually it is the clients responsibility to arrange for dwellings to be decanted" p3.

Lower down Tables 31, 32 and 33, of fairly important skills/knowledge for refurbishment, are company accounting and property insurance. Perhaps these job dimensions are left to specialists at the head offices, and not frequently applied to the works by refurbishment managers.

Table 32: Skills And Knowledge Perceived As Fairly Important By Middle Managers In Managing Refurbishment Work

Job Description (Skills/knowledge)	Average score	Fairly imp(%) N=59
Recruit/select: Manual labour	1.847	15.3
Managing change	1.864	11.9
Costing and estimating	1.881	20.3
Productivity maintenance and control	1.932	20.3
Termination/dismissal: Subcontractor	1.966	25.4
Negotiate: Supplier	1.966	16.9
Termination/dismissal: Supervisor/foreman	2.000	23.7
Career development/appraisal	2.017	20.3
Organisation of communication systems	2.017	18.6
Managing job stress	2.034	18.6
Employee training: Manual labour	2.034	20.3
Plant planning and control	2.051	27.1
Creativity	2.119	23.7
Organisation structure	2.153	32.2
Company (strategic) planning	2.169	27.1
Job analysis/specification	2.186	22.0
Company accounting	2.186	32.2
Termination/dismissal: Management	2.237	32.2
Property insurance	2.237	20.3
Construction law	2.254	28.8
Code of practice/working rule agreement	2.305	30.5
Decanting buildings	2.322	35.6
Contract drafting	2.322	35.6
Sources of finance	2.339	30.5
Termination/dismissal: Manual labour	2.356	37.3

Further down Tables 31, 32 and 33, the skills and knowledge of code of practice/working rule agreement, construction law are most evident. Refurbishment tasks clearly involves the knowledge and application of codes of lawful and voluntary working practices.

Table 33: Skills And Knowledge Perceived As Fairly Important By Junior Managers In Managing Refurbishment Work

Job Dimension (Skills/knowledge)	Average Score	Fairly imp(%) N=60
Organisation of communication systems	1.900	16.7
Competitor awareness	1.933	21.7
Employee training: Manual labour	1.950	20.0
Negotiate: Main contractor	1.950	13.3
Plant planning and control	2.00	25.0
Creativity	2.017	28.3
Recruit/select: Management	2.033	16.7
Recruit/select: Manual labour	2.033	26.7
Negotiate: Subcontractors	2.050	16.7
Decanting building	2.067	28.3
Career development/appraisal	2.117	35.0
Negotiate: Supplier	2.133	21.7
Construction law	2.167	33.3
Company (strategic) planning	2.167	33.3
Company accounting	2.200	23.3
Property insurance	2.200	26.7
Contract drafting	2.250	31.7
Code of practice/working rule agreement	2.267	31.7
Employee welfare/counselling	2.283	31.7
Organisation structure	2.300	38.3
Client/consumer protection law	2.300	36.7
Negotiate: government bodies	2.333	25.0
Job analysis/specification	2.350	35.0
Employment legislation	2.350	41.7
Sources of finance	2.383	21.7

Finally, in considering the skills and knowledge which the majority of managers at each level of management perceives as not important in their present job, for refurbishment, these data are presented in Tables 34, 35 and 36. An observation of Tables 34, 35 and 36, reveals that there is agreement amongst all levels of managers as to the skills/knowledge ranked highest as not important for refurbishment. These are foreign languages, managing other national cultures, and demotion and retirement.

The study also sought the views of managers who were interviewed on the degree of importance attached to a foreign language and managing other national cultures

in their present job. Of the 22 managers, 21 (95.5%) responded that foreign languages were not important in their present job. Similarly, 18 (81.8%) of the managers considers managing other national cultures as not important. These results support the views of 142 managers who participated in the postal questionnaire of this study. Explanations were requested from the interviewed managers regarding the way they perceived the skill/knowledge of foreign languages, and managing other national cultures. The interviewed managers responded that their organisations are national contractors, carrying out refurbishment work in the UK. Their workforce is largely indigenous, and personnel do not need foreign language skills in their jobs. Moreover, being national contractors, they do not anticipate that they will bid for work abroad, and so, do not anticipate facing foreign competition, where the skills/knowledge of foreign languages, and understanding other national cultures are likely to be needed.

Table 34: Skills And Knowledge Perceived As Not Important By Senior Managers In Managing Refurbishment Work

Job dimensions (Skills/knowledge)	Average Score	Not imp(%) N=23
-----	-----	-----
Foreign language	3.652	69.6
Managing other national culture	3.348	47.8
Planning law	3.304	47.8
Demotion and retirement	3.217	43.5
Company law	2.957	26.1
Negotiate: Government bodies	2.913	26.1
Negotiate: Trade unions	2.913	34.8
Client/consumer protection law	2.870	17.4
Employee welfare/counselling	2.870	21.7
Promotion and transfer	2.826	13.0
Termination/dismissal: Manual labour	2.783	26.1
Contract drafting	2.783	21.7
Organisation culture	2.739	21.7
Termination/dismissal: Management	2.739	6.1
Employment legislation	2.609	13.0
-----	-----	-----

Table 35: Skills And Knowledge Perceived As Not Important By Middle Managers In Managing Refurbishment Work

Job Dimensions (Skills/knowledge)	Average score	Not imp(%) N=59
Foreign language	3.559	67.8
Demotion and retirement	2.966	67.8
Managing other national culture	2.797	25.4
Planning law	2.695	20.3
Company law	2.644	22.0
Use of computer technology	2.576	13.6
Employee welfare/counselling	2.559	11.9
Advertising and promotion	2.542	16.9
Organisation culture	2.525	15.3
Market research	2.525	23.7
Negotiate: Government bodies	2.525	18.6
Negotiate: trade unions	2.508	16.9
Client/consumer protection law	2.492	16.9
Employment legislation	2.407	8.5
Promotion and transfer	2.390	6.8

Table 36: Skills And Knowledge Perceived As Not Important By Junior Managers In Managing Refurbishment Work

Job dimensions (Skills/knowledge)	Average Score	Not imp(%) N=60
Foreign language	3.400	56.7
Demotion and retirement	3.067	33.3
Managing other national culture	2.767	30.0
Termination/dismissal: Management	2.767	25.0
Termination/dismissal: Manual labour	2.750	20.0
Organisation culture	2.700	18.3
Use of computer technology	2.683	23.3
Market research	2.617	23.3
Planning law	2.617	18.3
Termination/dismissal: Supervisor/foreman	2.600	18.3
Advertising and promotion	2.533	21.7
Negotiate: Trade unions	2.517	20.0
Termination/dismissal: Subcontractor	2.500	11.7
Promotion and transfer	2.417	11.7
Company law	2.400	15.0

Little recognition was given to organisational culture, and was also ranked low in importance. From discussions with training officers, this is because of the interaction between managers and site operations, which underscores the notion that there is cultural awareness and it is exercised.

Middle and junior managers indicate that the use of computer technology is not important, whilst for senior managers, it is considered to be fairly important. Perhaps, being, in the main, office based, senior managers have computers more readily at their disposal.

Middle and junior managers in the sample claim that market research, and advertising & promotion are not important. This is not surprising given the fact that senior managers perceive these job dimensions fairly important in their present job. If experts are hired to undertake the tasks associated with market research, and advertising & promotion for the organisation, this may explain the relatively low importance attached to them by the managers.

6.5. Perceived Importance Of Management Skills/Knowledge Across Types Of Refurbishment Organisations

The study took another dimension, by exploring the relative importance of skills/knowledge for refurbishment across two types of refurbishment organisations, i.e. specialist and general refurbishment organisations. As a result of question 1 of the postal questionnaire: 'Is your firm a refurbishment specialist'? (see questionnaire in appendix A), it was possible to target and isolate the responses of managers from both specialist and general refurbishment organisations.

Data on the relative importance of management skills/knowledge for refurbishment, by managers from both types of refurbishment organisations, are presented in Table 37. Only managers' responses on the 30 most important skills/knowledge are presented. The categories 'Very important' and 'Important' are combined to form the 'Most' important skills/knowledge. As mean score increases, this signifies less importance attached to skill/knowledge in manager's present job.

An observation of Table 37 shows that leadership, communication (oral/written), motivation of others and health & safety are perceived as the four most important skills/knowledge by managers from both types of organisations. Supervision, forecasting & planning, and site organisation are also ranked highly by managers from both types of organisations.

As for Decision making, it is ranked 5th by managers from specialist refurbishment organisations, when compared to managers from general refurbishment organisations who ranked it 14th. As refurbishment demands firm and quick decision making to cater for the unexpected, it is not surprising that managers from specialist refurbishment organisations attach 'more' importance to decision making. Majority of the work carried out by specialist refurbishment organisations are refurbishment work.

Table 37: Perceived Importance Of Management Skill/Knowledge Across Types Of Refurbishment Organisations (Specialist And General)

Rank	Specialist Organisation		General Organisations	
	Job Dimensions (skills/knowledge)	Average Score	Job Dimensions (skills/knowledge)	Average Score
1	Communication (oral/written)	1.213	Leadership	1.118
2	Leadership	1.222	Communication(oral/written)	1.147
3	Motivation of others	1.231	Motivation of others	1.176
4	Health and safety	1.241	Health & safety	1.265
5	Decision making	1.296	Supervision of others	1.353
6	Forecasting and planning	1.361	Forecasting and planning	1.353
7	Budgetary control	1.407	Site organisation	1.353
8	Site organisation	1.407	Team building	1.382
9	Supervision of others	1.435	Manpower planning and control	1.412
10	Team building	1.435	Budgetary control	1.412
11	Quality control and assurance	1.528	Materials planning and control	1.471
12	Managing time	1.565	Setting objectives and goals	1.471
13	Materials planning and control	1.574	Managing time	1.471
14	Recruit/select:supervisor/foreman	1.583	Decision making	1.471
15	Manpower planning and control	1.611	Employee training: Supervisor/foreman	1.500
16	Managing conflict/crisis	1.611	Quality control and assurance	1.529
17	Conducting meetings	1.620	Conducting meetings	1.559
18	Delegating responsibilities	1.630	Tenant welfare	1.588
19	Setting objectives and goals	1.630	Managing conflict/crisis	1.588
20	Programme maintenance (update)	1.639	Competitive tendering	1.618
21	Analysis of project risk/uncertainty	1.667	Public relations	1.618
22	Identifying personal strength/weakness	1.667	Delegating responsibilities	1.647
23	Recruit/select: subcontractor	1.667	Costing and estimating	1.647
24	Public relations	1.694	Programme maintenance (update)	1.647
25	Tenant welfare	1.704	Site security	1.735
26	Programme design	1.704	Negotiate: subcontractor	1.735
27	Competitive tendering	1.713	Productivity maintenance & control	1.735
28	Negotiate: client	1.731	Employee training: management	1.735
29	Employee training:supervisor/foreman	1.741	Programme design	1.735
30	Employee training management	1.741	Recruit/select: subcontractor	1.735

Analysis of project risk/uncertainty, and recruit/select: supervisor/foremen appear on the list of the 30 most important skills/knowledge as perceived by managers of specialist organisations, but not cited by managers of general refurbishment organisations. It would appear that organisations mainly involved in refurbishment work attach a greater degree of importance to these two skills/knowledge.

A closer observation, however, of Table 37, reveals that 26 of the 30 (86.6%) skills/knowledge perceived as most important by managers of specialist organisations, are also cited as most important by their counterparts in the general refurbishment organisations, with some variation in the relative positions of the skills/knowledge.

This result suggests that in the main managers from both specialist and general refurbishment organisations are in agreement as to the most important skills/knowledge. Putting it differently, refurbishment managers jobs, as defined by their application of skills/knowledge are, on the whole, homogenous, with some overlap across types of organisations.

By testing the null hypothesis that there is no significant correlation between the degree of importance of management skills/knowledge for refurbishment, and types of organisations, Spearman's Coefficient of Correlations(r_s) is - 0.06. This value is not significant at the 5% level. The null hypothesis is not rejected. This in effect means that there is no substantial evidence to suggest that the skills/knowledge which specialist organisations perceived as important are different from those perceived as important by general refurbishment organisations. This finding dispels the view that management tasks, as defined by skills/knowledge perceived as important, are totally different across types of organisations within the same sector.

In summary, a skills and knowledge inventory for managing refurbishment work has been established, based on the degree of importance attached to management skills and knowledge. The inventory which is devised from the analysis of majority

frequencies and decreasing average scores, gives some indication as to the tasks and responsibilities associated with each level of refurbishment management.

The inventory developed clearly shows the similarity which exists in refurbishment tasks across all levels of management, as depicted by management skills and knowledge. It would appear from the data, that there are skill/knowledge that increase relatively across levels of management, such as financial control, and securing jobs for the organisation. The skills/knowledge which are associated with programming the construction phase of projects are considered more important at lower levels than at higher levels of management. There is every indication of overlap across management levels.

These results support Young's (1988⁵¹⁰) study on the similarity in construction management skills/knowledge across management levels, and that managers' skills/knowledge in construction are relatively homogenous. The results of the study also lend support to Mintzberg's (1980³⁵⁶) theory of the nature of management work, that there is similarity in managers' work across all levels of management. Also, the findings of the present study support the proposition by segmented labour analysts, Doeringer and Piore (1971¹⁶⁴) on the specificity of skills to an industry based on the premise that they are both similar and transferable. The results of the study, however, do not support the views of researchers and writers who argue that managers work is totally different across all levels of management as championed by Stewart (1976⁴⁶⁴).

The findings of the present study would suggest that refurbishment managers attach high importance to those skills/knowledge associated with their day to day job activities, by virtue of their positions within the management hierarchy. An extension of this line of thought being that refurbishment managers attach value and meaning to the work they carry out.

6.6. Management Skills And Knowledge: Comparison With Other Studies In Construction

As the management of refurbishment work is relatively unresearched (Quah, 1988⁴¹⁰), and since no study has yet been conducted specifically on the relative importance of management skills and knowledge for refurbishment, a comparative analysis with studies of a similar nature in the area of refurbishment is not feasible. There have, however, been some studies conducted in the general area of construction management skills and knowledge. Comparisons with some of these studies will be made.

The selection of studies for comparative purposes will be based on one, two or all of the following three criteria:

- i. Compatibility with the methodology of present study
- ii. Similarity in research objectives
- iii. Compatibility in statistical representation

Studies which have evaluated the relative importance of construction management skills and knowledge include the Construction Industry Training Board (CITB, 1988b¹³⁰), Construction Industry Institute, USA. (CII, 1990¹²⁵), and Fryer, 1979²⁰⁷.

The CITB (1988b¹³⁰) study included face to face interviews as well as interviews conducted by telephone with company representatives in senior positions. In addition, two sets of postal questionnaires were designed, each having different research objectives. One set of questionnaires was sent out to individual managers and supervisors, in order to elicit their views on the degree of importance they attach to their job activities. The other set of questionnaires requested the company's view on training needs of their managers.

For comparative purposes with the present study, data obtained from 180 usable questionnaires (response rate is 25.7%) completed by managers and supervisors will form the basis for discussions. The respondents of the CITB study were from 55 companies of the following activity group:-

Building	27.4%
Civil Engineering	25.7%
Heating & Ventilation	16.2%
Electrical	13.4%
Building & Civil Engineering	10.1%
Other	7.3%

From a wide range of skills for managerial and supervisory staff (see CITB 1988b¹³⁰, Vol II, appendices), respondents were requested to indicate, according to each job activity, if they thought it was 'not applicable', 'vital', 'very', 'moderately' or of 'little importance'. Table 38 shows those job activities which the respondents considered

to be vital, or very important at the senior, middle and junior positions. Note that sample sizes are omitted, they vary with each skill. See CITB main report (vol 1) for detail. The CITB study lists each of the job activities, as well as the corresponding percentage of those to whom it is applicable.

From the original list of 23 job activities in the CITB study, there are 18 activities of which more than 60% of senior managers perceived their jobs as very or vitally important. This represents 78% of senior management tasks being significantly important.

Similarly, for middle and junior managers, this denotes 65% and 47% of the proportion of their tasks perceived by 60% of middle and junior management as very or vitally important. There are differences in the perception managers have in the job they carry out at each level of the management hierarchy.

To commence the assessment of the importance of the job activities shown in Table 38, quality control is an activity which managers at all levels of management perceive as very or vitally important. Although the majority percentages differs across management levels, in the main, there is general agreement on its importance.

Table 38: 'Very' Or 'Vitaly' Important Job Activities In Construction Management And Supervision.

Senior Management Job Activity	% Response	Middle Management Job Activity	% Response	Junior Management Job Activity	% Response
Financial planning/control	93.5	Quality control	93.9	Quality control	94.0
Managing people	91.9	Progress control of work	92.2	Managing people	90.9
Industrial relations	92.3	Managing people	89.7	Planning/programming of work	90.4
Employee recruitment/dismissal	90.6	Planning/programming of work	89.7	Progress control of work	87.0
Tendering	90.0	Negotiate:supplier/subcontractor	84.6	Negotiate:supplier/subcontractor	86.0
Quality control	89.7	Control of health & safety	84.4	Control of Health & safety	86.3
Employee training	87.5	Financial planning/control	78.6	Materials management/control	78.4
Progress control of work	86.2	Forecasting staff/labour	78.1	Financial planning/control	73.7
Planning/programming of work	83.3	Materials management/control	68.3	Forecasting staff/labour	70.6
Forecasting staff/labour	81.3	Employee training	66.1	Cost estimating	58.9
Cost estimating	80.8	Employee recruit/dismissal	65.0	Negotiate all sources of finance	60.0
Measurement:valuation/bonus pay	80.0	Industrial relations	65.5		
Negotiate:supplier/subcontractor	80.0	Tendering	65.0		
Employee Ass./design pay schemes	76.0	Cost estimating	63.8		
Materials management/control	76.2	Measurement:valuation/bonus pay	61.7		
Sales and marketing	72.4				
Negotiate all sources of finance	66.7				
Control of Health & safety	65.5				

Source: CITB (1988b)¹³⁰ Survey Of Supervisory And Management Training Needs In The UK Construction Industry. Main Report, Vol. 1.

Managing people received a high rating by 90% or more of the respondents at each level of management. Managing people includes such tasks as leadership, motivation and supervision. In the present study, leadership, motivation, and supervision of others, are listed as separate skills/knowledge, and over 93% of managers at each level of management ranked each of these skill/knowledge as most important for refurbishment work. Thus both studies confirm the value attached to the behavioral aspects of management in a construction environment.

In the CITB study, 93% of senior management reported financial planning/control to be very or vitally important in construction management, when compared to 64% and 60% of middle and junior management respectively. In the present study, 100% of senior and middle refurbishment managers reported budgetary control to be of most importance for refurbishment, when compared to 91.6% of junior managers. This result lends support to the view that managers in the senior management positions, perceive the skills/knowledge associated with financial management to be 'more' important in their jobs than managers in the junior management positions. Financial management activities, it would appear, are more akin to senior than junior management positions.

An inspection of Table 38 reveals that planning/programming of the works is perceived to be important by 90% of junior and middle management, in comparison with 83% of senior management. In the present study, 78.2% of senior refurbishment managers ranked programme maintenance (update) as most important, compared with 86.4% and 86.8% of middle and junior managers

respectively. Thus both studies confirm that operational activities are considered 'more' important by junior management than by senior management.

It is also evident from Table 38, that the majority of respondents perceive health and safety to be significantly important. Sixty-five (65%) of senior management, 84% of middle management and 86% of managers at the junior management positions responded to health and safety. This is comparatively low when compared to the present study, where 95.6% of senior, 100.0% of middle and 96.7% of junior refurbishment managers ranked the skill/knowledge associated with health and safety as most important for refurbishment. The fact that refurbishment work is dangerous, with a relatively high incidence of fatal accidents (HSE, 1988), explains to some extent, the relatively high level of importance attached to health & safety issues by managers at all levels in the present study.

Surprisingly, the skills/knowledge of site organisation was not ranked as very or vitally important in the CITB study, even at junior management level.

It is also important to mention, that the skills and knowledge associated with forecasting & planning, analysis of project risk/uncertainty, managing conflict/crisis, team building, and tenant welfare, which are ranked highly in importance in the present study, were not considered to be very or vitally important in the CITB study. Perhaps, this is a reflection of the nature of refurbishment work, and the skills/knowledge that it demands.

In summary, despite the differences in perception across levels of management, there is general agreement as to the tasks that are very or vital or most important in managing in a construction environment. By comparing the CITB study with the present study, it has been shown that managers tend to attach greater importance to the tasks that are more akin to their job roles by virtue of their positions in the management hierarchy. The comparative analysis has also shown that although there are similarities in managing tasks in a construction environment, there are also differences, not only in perceptions across management levels, but also across types of construction sectors, e.g refurbishment sector.

In 1990, the Construction Industry Institute, USA (CII, 1990¹²⁵), conducted a study on 'The acquisition of skills and traits amongst construction personnel'. Apart from establishing 'benchmark' data on current and future needs for education in construction, the study sought to establish the skills/traits required as being of value or important for construction.

In the CII (1990¹²⁵) study, postal questionnaires were sent out to contractors, owners, and educators who are knowledgeable about construction work. In all, 266 usable questionnaires (response rate of 33.5%) formed the basis for data analysis. Table 39 below presents information on the positions of respondents in the CII (1990¹²⁵) study as well as types of organisations who participated in the study.

Table 39: Data On Positions Of Respondents And Types Of Organisations In The CII Study

<u>Positions of Respondents</u>	<u>No of Construction Personnel</u>	<u>% Response</u>	<u>Types of Organisations of Personnel</u>	<u>% Response</u>
Senior executive	24	9.0	Union contractors	35.0
Mid-level executive	54	20.0	Merit shop contractors	26.0
Project managers	86	32.0	Owners	30.0
Project engineers	47	18.0	Engineering	4.0
Estimators	12	4.5	Academic institutions	4.0
Site superintendents	18	7.1		
Field engineers	6	2.2		
Field superintendents	10	3.7		
Foremen	5	2.0		
Journeyman	4	1.5		

Source: Construction Industry Institute (CII, 1990¹²⁵). "The Acquisition Of Skills And Traits Among Construction Personnel". Document 54, July.

From a list of ten skills/traits, respondents were asked to rank in order of value/importance, each of the skill/trait to effective performance in their positions. Respondents indicated whether skills/traits were 'very important', 'important', 'useful', or 'not a factor'.

For comparative purposes, only data from respondents from four positions will be discussed. These positions are senior executives, mid-level executives, project managers, and site superintendents. The present author attempted to combine data from senior and mid-level executives, in order to obtain one set of data representing construction personnel in senior positions. The limited amount of information available, and not knowing the make-up of mid-level executives in terms of individuals and their job roles, made this impossible. However, this temporary set back did not prevent a meaningful comparative exercise to be undertaken with the

present study. Data from respondents in each of the four positions are presented in Table 40. The skills/traits on all four positions are listed in decreasing order of importance.

An observation of Table 40 shows that interpersonal skills i.e. communication (oral) and leadership are the most valued or important skills/traits for all levels of construction personnel involved in managing construction work. In relationship to the current study, these skills are ranked as the most important skills by refurbishment managers at all levels. Interestingly, Table 40 reveals that oral communication is ranked higher than either written or graphic communication. In the present study, no distinction is made between oral and written communication. However, the higher ranking of oral communication when compared to written and graphic communication can to some extent be explained by the fact that in oral or verbal communication, information relayed can be quickly received and readily applied or put into effect. The fact that oral/verbal communication can involve gestures from either or both parties involved, adds impetus to the value of the issue being relayed. Oral and verbal communication also allows for quick clarification of issues under discussions by different use of words or examples. In construction a quick and clear mode of communication is vital.

Table 40: Relative Ranking Of Skills/Traits By Importance/Value Across Various Positions/Functions

Senior Executives	Mid Level Executives	Project Managers	Site Superintendents
1. Oral communication	1. Oral communication	1. Oral communication	1. Oral communication
2. Leadership	2. Leadership	2. Leadership	2. Leadership
3. Personnel	3. Personnel	3. Written communication	3. Personnel
4. Financial management	4. Ethical decision making	4. Planning & control	4. Planning & control
5. Ethical decision making	5. Written communication	5. Ethical decision making	5. Ethical decision making
6. Written communication	6. Financial management	6. Personnel	6. Graphic communication
7. Planning & control	7. Planning & control	7. Financial management	7. Written communication
8. Numerical (Maths)	8. Numerical (Maths)	8. Graphic communication	8. Financial management
9. Graphic communication	9. Graphic communication	9. Numerical (Maths)	9. Manual
10. Manual	10. Manual	10. Manual	10. Numerical (Maths)

Source: Construction Industry Institute (CII, 1990¹²⁵): "The Acquisition Of Skills And Traits Among Construction Personnel". Document 54, July. p25

An inspection of Table 40 also shows that the relative degree of importance attached to financial management increases with increasing levels of management. Financial management is ranked 4th, 6th, 7th and 8th by senior executives, mid-level executives, project managers and site superintendents respectively. The present study also confirms the relative increase in importance attached to financial management skills/knowledge as the management hierarchy is ascended. Similarly, the CII (1990¹²⁵) study and the present study are in agreement as to the relative importance attached to operational skills i.e. planning & control increases as the management hierarchy is descended. Whilst planning & control is ranked 4th by site superintendents and project managers (Table 40), it is placed lower down in 7th position by mid-level and senior executives. These findings further validates the results of the present study.

Fryer's (1979²⁰⁷) study which has been cited earlier in this chapter, produced five important skills which 29 site and contracts managers perceived as important for project management. The five skills established by Fryer (1979²⁰⁷) after discussions with these managers are ranked below in decreasing order of importance. Increasing mean rank signifies less importance of the skill for project management

<u>Management Skills</u>	<u>Mean Ranking</u>
Social skills	1.7
Decision making	2.1
Handling problems	2.6
Recognising opportunities	3.5
Managing change	4.1

With so few skills/knowledge options to choose from, variation in rank order of importance is minimal. The narrowness of choice of management skills/knowledge prevents comparative analysis with the present study.

The comparative analyses so far have been conducted on construction studies which have evaluated the importance of management skills and knowledge. Other studies have evaluated the skills and knowledge which are required for construction management. These include Young (1988⁵⁰¹), Finnigan et al (1987¹⁹⁵) and Faulkner and Wearne (1979¹⁸⁷, 1984¹⁸⁸). For reasons associated with compatibility with the methodology of the present study and statistical representation, comparative analysis will only be made with Young's (1988⁵¹⁰) study.

Young's (1988⁵¹⁰) study which has been cited earlier, and some of her findings highlighted throughout the text, requested production managers from three small, six medium, and two large UK building and/or civil engineering contractors, to indicate from a list of 56 job dimensions (skills/knowledge), those which they require in their present job, for construction management. In all, seventy-three managers (senior, middle and junior) responded whether they 'Never', 'Occasionally', 'Often', or 'Very' frequently required the skills/knowledge. The four categories 'Never', 'Occasionally', 'Often' and 'Very' were coded 0, 1, 2, and 3 respectively. Average scores were computed from ordinal coding of data. Decreasing mean score signifies less skill/knowledge requirement in manager's job.

For comparative analysis, only data concerning the most required skills and knowledge, at each level of management will be discussed. These are presented in Table 41. The categories 'Often' and 'Very frequently' in Young's (1988⁵¹⁰) study are combined to form the 'Most' required skill/knowledge.

An inspection of Table 41 shows that the interpersonal skills, i.e. communication, motivation and leadership are the most required skills/knowledge for construction management. This largely corresponds to the skills/knowledge which managers perceived as most important for refurbishment in the present study. A visual description, for comparison of the most required skills/knowledge for construction management, and the most important skills/knowledge for managing refurbishment work across management levels is provided in Figures 10, 11 and 12. There is a noticeable similarity in the results of the two studies.

The skills/knowledge which are mostly required for managing in a construction environment appears to be the most important skills/knowledge as detailed in the present study. An observation which Young (1988⁵¹⁰) also made in her study.

Table 41: Skills And Knowledge Most Required By Senior, Middle And Junior Construction Managers

Senior Managers			Middle Managers			Junior Managers		
Job dimensions (skills/knowledge)	Average score	% Freq (N=20)	Job dimensions (skills/knowledge)	Average score	% Freq (N=22)	Job dimensions (skills/knowledge)	Average score	% Freq (N=31)
Communication	2.75	95	Communication	2.68	100	Supervision of others	2.92	100
Motivation of others	2.75	95	Motivation of others	2.59	96	Communication	2.84	100
Supervision of others	2.75	95	Leadership	2.59	91	Motivation of others	2.80	96
Leadership	2.70	95	Supervision of others	2.59	91	Leadership	2.60	92
Competitive tendering	2.55	90	Programme construction	2.27	90	Organisation/site	2.50	92
Budgetary control	2.50	90	Organisation/site	2.20	86	Health & safety law	2.28	84
Costing & estimating	2.50	85	Programme maintenance	2.18	77	Programme construction	2.24	84
Analysis of project risks	2.35	80	Budgetary control	1.95	77	Programme maintenance	2.20	80
Health & safety law	2.05	65	Management of quality assurance	1.95	68	Management of quality assurance	2.12	80
Programme construction	2.00	75	Manpower planning	1.90	72	Manpower planning	2.00	84
Company (strategic) planning	1.88	60	Negotiate/suppliers	1.90	63	Programme stock/materials distribution	1.96	72
Public relations	1.70	60	Negotiate/subcontractor	1.81	73	Negotiate suppliers	1.76	64
Recruit/select/Man./professionals	1.65	60	Health & safety law	1.77	68	Budgetary control	1.76	60
Negotiate/client	1.65	55	Programme design	1.77	59	Organisation of communication systems	1.68	52
Negotiate/subcontractor	1.65	55	Recruit/select:subcontractor	1.72	64	Negotiate/plant hire	1.60	60
Programme design	1.55	55	Analysis of project risks	1.68	54	Costing & estimating	1.44	52
Employee training:Man./professionals	1.55	50	Negotiate/plant hire	1.68	55	Public relations	1.40	48
Contract drafting	1.50	50	Costing & estimating	1.63	63	Negotiate/subcontractor	1.16	40
Manpower planning	1.50	50				Analysis of project risks	1.12	40
Appraisal/career development	1.50	50				Programme design	1.00	32
Programme maintenance	1.45	50						
Recruit/select:Supervisor/foreman	1.15	45						
Employee training:Supervisor/foreman	1.10	35						

Source: Young, B.A (1988¹⁰) Career Development In Construction Management, PhD Thesis, UMIST. UK.

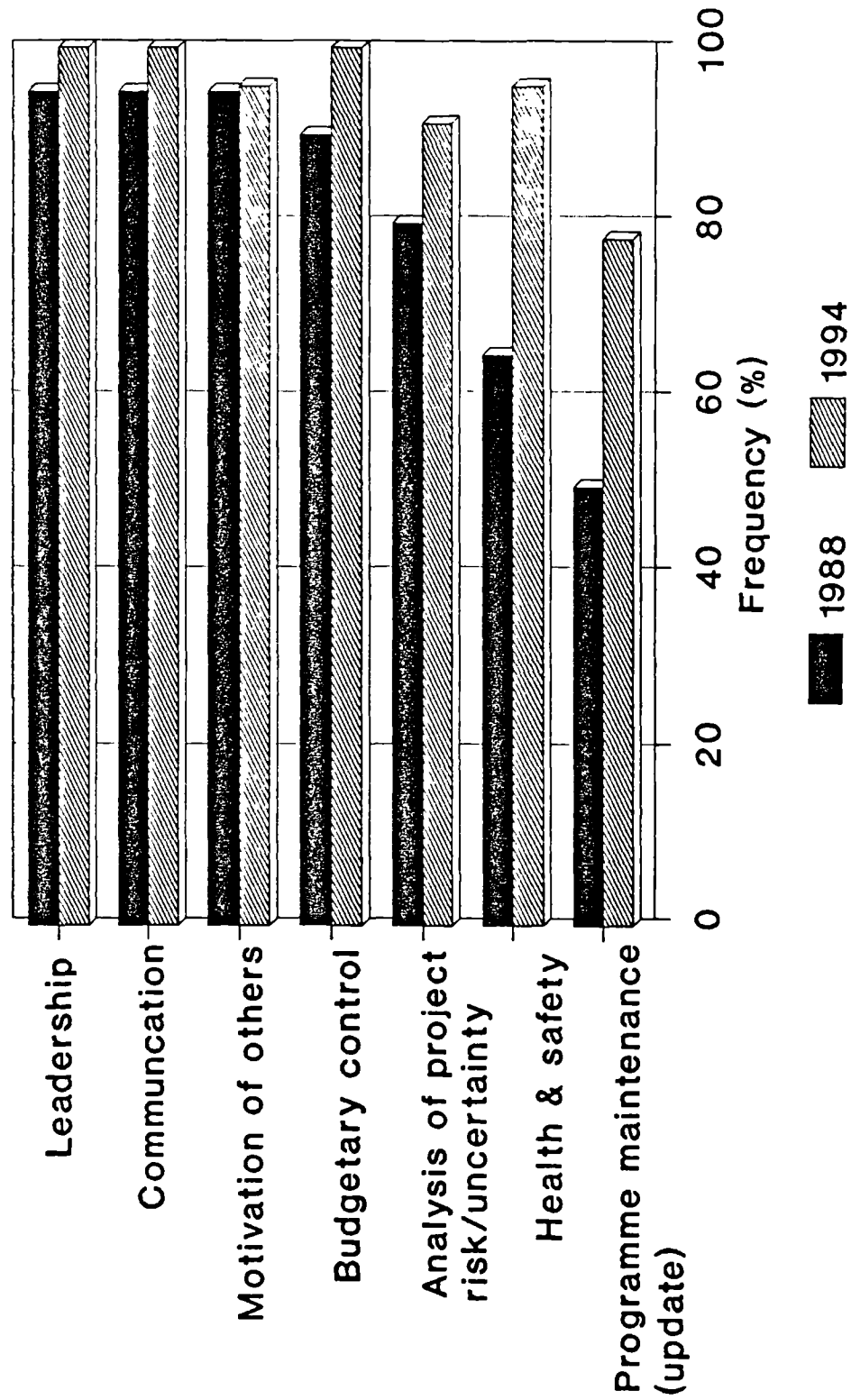
Figures 10, 11 and 12 show visually the high degree of requirement and importance attached to interpersonal skills by managers at all levels in both studies. Similarly, Figures 10, 11 and 12 shows that the relative degree of importance and level of requirement attached to skills/knowledge concerning financial planning/control i.e. budgetary control increases as management hierarchy is ascended. For operational tasks, e.g. programme maintenance (update), both studies show that the relative degree of importance and level of requirement increases as the management hierarchy is descended. These results further validates the findings of the present study.

Figures 10, 11 and 12 also show some interesting results. Although the relative importance and level of requirement attached to budgetary control decreases as the management hierarchy is descended, it can be observed from Figure 12, that junior managers (91.6%) involved in the present study ranked budgetary control highly in importance when compared to junior managers (60%) in Young's study who indicated that it was often or very frequently required. Young's respondents are managers who are in the main, involved in new build, and from building and/or civil engineering contractors. The nature of refurbishment work, with high levels of risks, uncertainty, and costs likely to escalate at very short notices, explains to some extent the high degree of importance attached to budgetary control by junior refurbishment managers. Junior refurbishment managers would need to be aware of financial matters, especially as it involves cash flows, the achievement of equitable payment for work undertaken, i.e. bonus payment, considerations of the consequences of financial matters before decisions are taken, and profitability relating to site works.

Further inspection of Figures 10, 11 and 12, reveals that the analysis of project risk/uncertainty is ranked highly by refurbishment managers when compared to managers in Young's study who are in the main, of new build background. Whilst only 40% of junior managers (Figure 12) in Young's study ranked analysis of project risk/uncertainty as most required skill/knowledge, over 88% of junior refurbishment managers in the present study ranked it as most important in their present job. The skills/knowledge needed to contend with the issues arising from the high levels of risks and uncertainty associated with refurbishment work is vital.

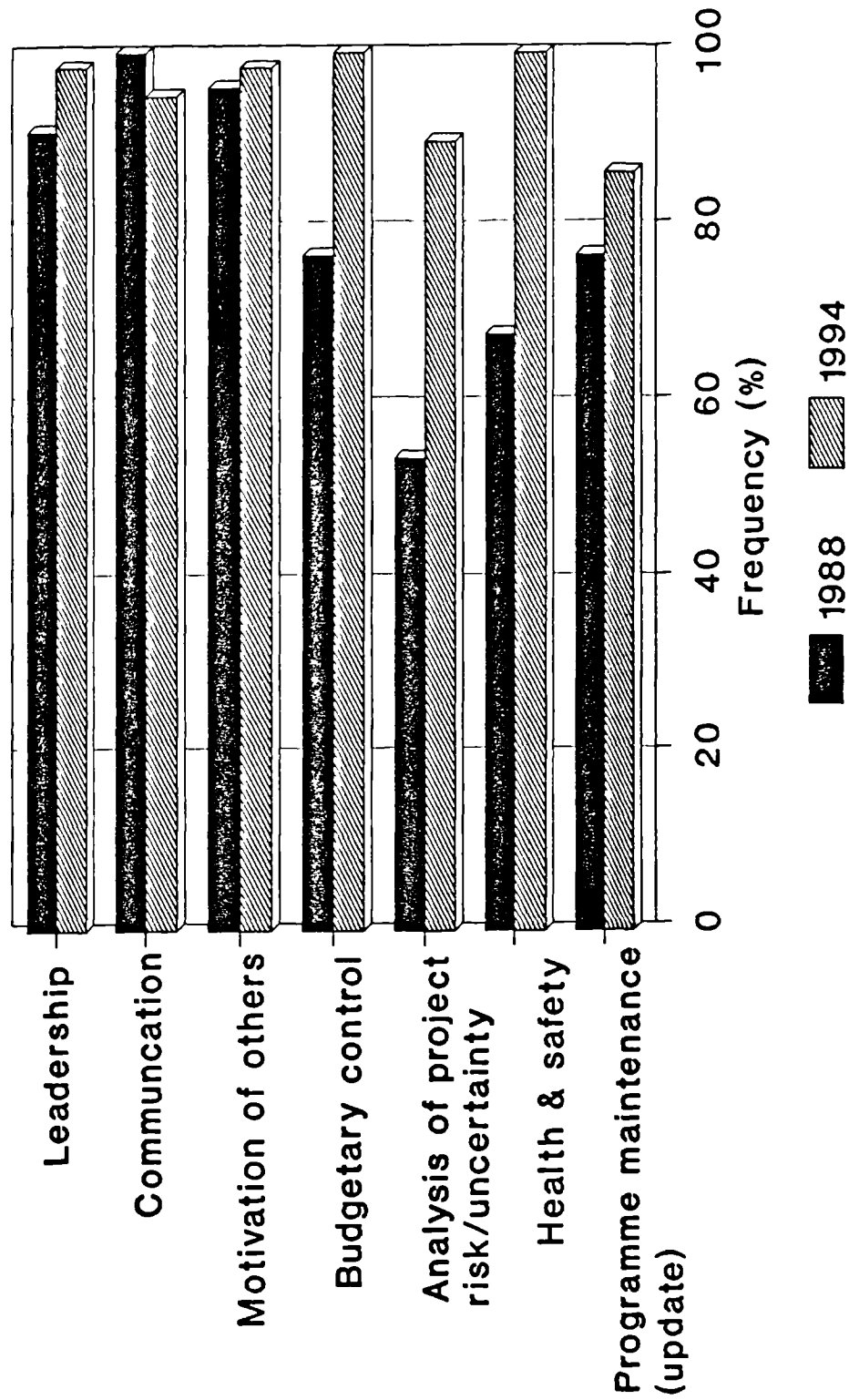
Health and safety receives a relatively higher response, especially by senior managers in the present study when compared to managers in Young's study. Two explanations can be offered for this result. The dangerous nature of refurbishment work, and the increased safety precautions associated with demolition work, and strengthening of building elements, mean that the health & safety issue is of paramount importance in managing in a refurbishment environment. Also, as Young's study was conducted in 1988, the passage of time and improved awareness of construction issues, including liability and prosecution for default, could in part explain the higher responses from managers in the present study.

Figure 10: A Comparison Of Skills/Knowledge Most Required For Construction Management With Skills/Knowledge Most Important For Managing Refurbishment : Senior Management



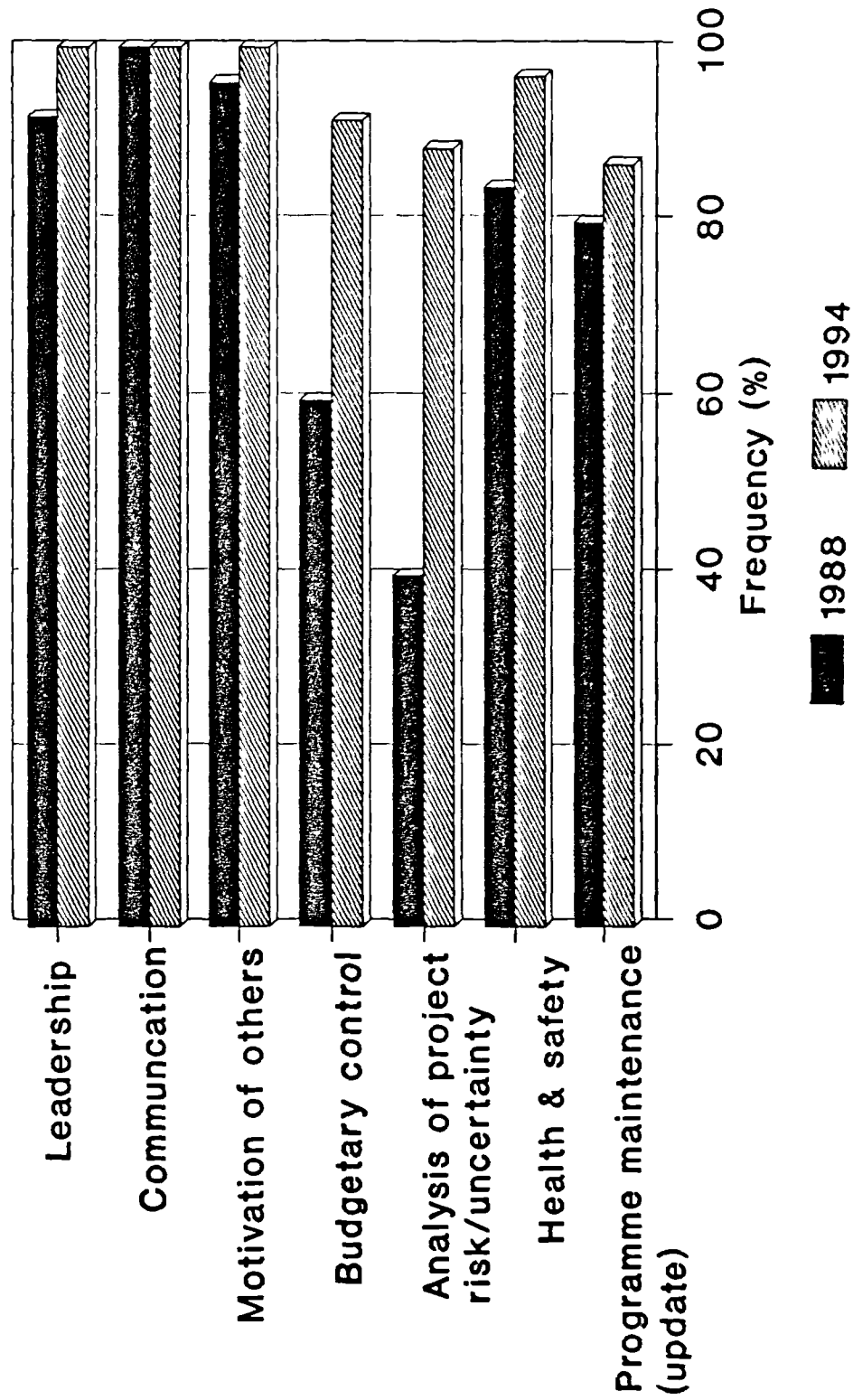
1988 - Young, Career Development In Construction Management
 1994 - The Present Study

Figure 11: A Comparison Of Skills/Knowledge Most Required For Construction Management With Skills/Knowledge Most Important For Managing Refurbishment: Middle Management



1988 - Young, Career Development In Construction Management
 1994 - The Present Study

Figure 12: A Comparison Of Skills/Knowledge Most Required For Construction Management With Skills/Knowledge Most Important For Managing Refurbishment: Junior Management



1988 ■ Young, Career Development In Construction Management
 1994 ■ The Present Study

In the present study, there are five noticeable skills/knowledge, namely:

- i. Forecasting and planning
- ii. Managing conflict/crisis
- iii. Tenant welfare
- iv. Decision making
- v. Team building

which refurbishment managers cited as being of most important (see Tables 28, 29 and 30) in their present job, and which do not appear as most required skills and knowledge in Young's study.

In an environment, like the refurbishment environment, where the total content of the works cannot be ascertained until work is commenced, and where there is high level of variation/change orders to the works, and also with high level of uncertainty, the skills/knowledge associated with forecasting and planning, and managing conflict/crisis become necessary. Refurbishment managers would also need to take firm and impromptu decisions, especially as it relates to variation orders to the works.

Working as a team in refurbishment is necessary. There is a need for a closer relationship, not only between the design and construction team, but amongst managers at all levels of management. If the issues arising from variations, and cost escalation are to be addressed speedily to the satisfaction of the client and contractor, then the client's and contractor's quantity surveyors would need to work much more closely together.

Tenants in occupation, and the issues arising from their occupation in construction, are characteristics of refurbishment work, and not new build work. It is therefore not surprising that the skill/knowledge of tenant welfare does not appear as a required skill/knowledge in Young's (1988⁵¹⁰) study. The five skills/knowledge listed above would appear to be akin to managing in refurbishment, rather than in a new build environment.

The comparison of both studies have further confirmed that there are similarities in management tasks in a construction environment. It has also shown that there appears to be a positive relationship between the skills/knowledge which managers require in their job and the degree of importance they attach to their jobs. In addition, the comparative analysis has shown that interpersonal skills are the most required skills not only in construction, but in the general management discipline. Both Young's and the present study support the works of Whetten and Cameron (1991⁴⁹⁵) and Cox and Cooper (1984¹⁴¹) in the general management field. These two studies have been cited earlier in this chapter, and show that interpersonal skills are most important for management.

The comparative analysis also confirms the view that although construction management tasks are similar, there are differences in perception across management levels and across construction sectors, on the importance of management skills/knowledge. The implication of this is that there are skills that are common to all construction management activities, and that there are skills that are needed, and considered of high importance, by virtue of the sector of construction management activity e.g. refurbishment. From the comparative studies, it can be

seen that for refurbishment, the skills/knowledge of:

- i. Forecasting & planning
- ii. Managing conflict/crisis
- iii. Tenant welfare
- iv. Team building
- v. Decision making

are needed, over and above the skills/knowledge for construction management.

6.7. Qualities And Attributes Associated With Effective Management Of Refurbishment Projects

A considerable amount of effort has been devoted to searching for relationships between personal qualities/attributes, and various forms of managerial success and effectiveness (Jurgensen, 1966²⁸⁶; Campbell et al, 1970⁸⁷; Burgoyne, 1976⁷⁹; England, 1966¹⁸⁰, 1967¹⁸¹; Piotrowski and Rock, 1963⁴⁰²). Burgoyne (1976⁷⁹) notes that "In general, this body of research has shown beyond any reasonable doubt that such relationships do exist, but so far no universal set of qualities describing the effective manager has emerged" p 19.

In an attempt to ascertain qualities and attributes associated with management success, Jurgensen (1966²⁸⁶) asked 210 personnel men and executives to sort 120 adjectives which describe 'the type of person most likely to succeed as a key executive in top management'. Jurgensen's (1966²⁸⁶) study revealed a dozen adjectives most descriptive of successful key executives. These are presented below in decreasing order of importance:

- i. Decisive
- ii. Aggressive
- iii. Self-starting

- iv. Productive
- v. Well informed
- vi. Determined
- vii. Energetic
- viii. Creative
- ix. Intelligent
- x. Responsible
- xi. Enterprising
- xii. Clear-thinking

Similarly, from various lists of 'desirable' managerial traits gleaned from many studies, Campbell et al (1970⁸⁷) provide a summary of personal qualities said to be necessary for managerial effectiveness. These are shown below:

Able to sustain defeat	Extroverted
Alert	Fearful of failure
Ambitious : achievement-oriented	Group-oriented
Assertive	Honest
Capable of good judgement	Intelligent
Competitive	Mentally healthy
Concrete	Optimistic and confident
Creative	Pragmatic
Decisive	Predictable
Dedicated	Reality-oriented
Dynamic	Self-controlled but defensive
Emotionally stable	Tolerant of frustration
Energetic	

These studies on qualities associated with management success are in the main, conducted in the general management field. The present study attempted to ascertain the qualities and attributes that managers need to possess in order to successfully accomplish a refurbishment project. To this end, the twenty managers who were interviewed as part of the study, were asked 'What qualities/ attributes would you say a manager needs to possess, in order to effectively accomplish a refurbishment project, at a given cost, time and quality ?' (see interview sheet,

appendix A). As can be noted from the question asked, effective accomplishment of a refurbishment project is defined in terms of a manager being successfully able to carry out a project to a stipulated time, cost and quality.

Table 42 below, lists, in decreasing order of importance, those qualities and attributes managers claim are associated with effective management of refurbishment projects. In all, sixteen qualities and attributes are presented.

An observation of Table 42 reveals that ability to relate and work with people, and patience are the two most ranked qualities and attributes associated with the successful accomplishment of refurbishment projects. As refurbishment work, especially in housing refurbishment, can involve tenants/ occupants with varying temperament, and of different social, religious and political beliefs, it is therefore not surprising that relating with people and patience are ranked most highly.

Table 42: Qualities And Attributes Associated With Successful Accomplishment Of Refurbishment projects

Qualities and attributes	Rank order of importance
Ability to relate and work with people	1
Patience	2
Visionary/forward thinking	3
Flexible/adaptable	4
Logical thinking	5
Innovative/creative	6
Lateral thinking	7
Persuasiveness	8
Tactfulness/diplomacy	9
Problem solving	10
Charisma	11
Methodical with records	12
Pragmatism	13
Ability to take quick decisions	14
Have a good sense of humour	15
Open mindedness	16

Forward thinking, flexibility/ adaptability and logical thinking are the qualities and attributes that are needed to cope with crisis, conflict, and an uncertain and changing environment. Innovation/creativity which appears as one of the qualities in both Jurgensen's (1966²⁸⁶) and Campbell et al (1970⁸⁷) studies, is also cited by refurbishment managers in the present study. Pragmatism which is cited in the study by Campbell et al (1970⁸⁷), is also cited by refurbishment managers in the present study.

Refurbishment managers are also expected to be tactful in the way they carry out their jobs, apart from being problem solvers. As Lionel Producers (1989⁴⁰⁶), a director of a large UK Facilities and Property management firm pointed out about refurbishment managers, "When a building is in progress, the day to day management can be troublesome. The manager has to be a 'mother hen' to some and a disciplinarian to others" p105.

Ability to take quick decisions over issues such as variations/change orders to the works, and also, having a good sense of humour are attributes associated with successful management of refurbishment projects.

The findings from the present study supports a recent exploratory study in the United States by Sanvido and Riggs (1993⁴³⁷) on managing successful retrofit projects. They noted that the key behavioral traits of members of a successful refurbishment team include cohesiveness, good chemistry, flexibility and decisiveness.

The results of the present study have implications for organisations, especially as it relates to the selection and recruitment of their managers for refurbishment work. In addition to the requisite management skills and knowledge for refurbishment, organisations would need to ascertain if managers to be recruited/selected for refurbishment, have the necessary qualities/attributes associated with successful accomplishment of refurbishment projects. Apart from being able to fit into managing in a refurbishment environment, managers with the relevant skills/knowledge, as well as the needed qualities/attributes are more likely to work better as a team.

In further discussions with the 22 refurbishment managers, 20 (90.91%) also noted that manager's interest in refurbishment, and the 'feel' for refurbishment are very important, especially since the nature of the works can lead to frustration and low morale. Even with the skills/knowledge necessary for refurbishment, and the attributes and qualities managers for refurbishment need to possess, all the 22 managers interviewed, contend that in the construction industry, refurbishment work is regarded as 'filthy', and 'second class work', and that refurbishment managers are seen as 'second rate' when compared to their new build counterparts. This, according to the views of those interviewed, explains to some degree, why managers shy away from refurbishment work. To this end, there is therefore, a need for a concerted effort from all those involved in the construction industry, especially those connected with refurbishment work, to improve the image of this substantial sector of the industry.

The next section of this chapter considers the degree of difficulty associated with handling management tasks in refurbishment, as defined by skills and knowledge. The purpose being to establish the relative degree of difficulty associated with each task for refurbishment, and how they are perceived across management levels.

6.8. Degree Of Difficulty In Handling Management Skills And Knowledge (Job Dimensions) In Refurbishment

Like the procedure adopted for the importance of management skills/knowledge in the earlier part of this chapter, managers who participated in the postal questionnaire of the study were asked to indicate the degree of difficulty (very difficult, difficult, fairly difficult, and not difficult), in handling a list of management skills/knowledge (job dimensions), in their present job. See questionnaire in appendix A. Similarly, like the analysis of data on degree of importance of skills/knowledge, data on degree of difficulty of handling management skills/knowledge for refurbishment are reported by majority frequencies.

The categories 'very difficult', 'difficult', 'fairly difficult', and 'not difficult' are coded 1, 2, 3 and 4 respectively. Average scores are computed from ordinal coding of these data. As the mean score increases, the degree of difficulty which refurbishment managers attach to handling skills/knowledge decreases.

Table 2 in appendix B shows the full list, and aggregate percentage response of the degree of difficulty in handling management tasks in refurbishment.

Within the text of this chapter, only the tasks which refurbishment managers perceive as most difficult to handle will be presented. The categories 'very difficult' and 'difficult' skills/knowledge are combined to form the most difficult tasks for refurbishment.

To begin the analysis of the tasks which respondents perceive as most difficult, data will be presented at the aggregate level. Evaluation at senior, middle and junior management will follow.

An inspection of Table 43, the most difficult job dimensions to handle in refurbishment, reveals that forecasting & planning, and analysis of project risks/uncertainty are the two most difficult management tasks, being ranked 1st and 2nd respectively, by over 82% of the sample population. This clearly suggests that refurbishment work is risky, uncertain, and difficult to plan and forecast. These results lend support to the views of Quah (1988⁴¹⁰), Bennett (1983³³) and Chapman (1980¹⁰²), that refurbishment work is difficult to predict, with high elements of risks and uncertainty.

These findings have implications to contractors and their managers. Contractors would need to pay particular attention to the job dimensions of forecasting & planning, and analysis of project risks & uncertainty. There might be a need for more management staff input to cater for these difficult job dimensions. Also, having experienced managers with the requisite skills/knowledge to handle these job dimensions is of utmost importance. For contractors and individual managers involved in refurbishment work, they would need to have a clear and effective risk

management approach for the works, and one in which they believe in.

Competitive tendering and budgetary control, the job dimensions associated with winning contracts are also considered to be highly difficult, and ranked 3rd and 4th respectively by 75.5% and 66.2% of the sample managers. As refurbishment work is characterised by high elements of risks/uncertainty, with the total work content difficult to ascertain prior to commencement, putting in a realistic and competitive bid with expectation of winning a refurbishment contract, is one fraught with difficulty. It is therefore not surprising that managers ranked the way they did.

Quality control, Health and safety, and managing conflict/crisis also received high ranking in terms of most difficult job dimensions.

Mid way down Table 43, managers indicate difficulty in handling tasks associated with costing and estimating, manpower planning, and supervision of others. In recognising the difficulty associated with costing and estimating refurbishment work, and the need for good estimating practice, the Chartered Institute of Building (CIOB, 1987¹⁰⁷), December 1987, published a code of estimating practice for refurbishment. The CIOB (1987¹⁰⁷) pointed out in their publication, that "In refurbishment work, the estimator will require additional skills and knowledge to those used for new work" p 14. The estimator will need to be knowledgeable and conversant with the most economic ways of marrying new materials with those existing. Also, in situations where existing materials are unavailable or expensive, alternatives acceptable to the client would need to be found.

Table 43: Skills And Knowledge Perceived As Most Difficult In Managing Refurbishment Work: Refurbishment Managers

<u>Job Dimension (Skills/knowledge)</u>	<u>Average Score</u>	<u>Very diff/diff(%) N=142</u>
Forecasting and planning	1.782	82.3
Analysis of project risk and uncertainty	1.852	82.4
Competitive tendering	1.894	77.5
Budgetary control	2.155	66.2
Managing time	2.162	64.8
Quality control and assurance	2.218	62.6
Health and safety	2.232	59.2
Site security	2.338	54.9
Use of computer technology	2.345	57.0
Managing conflict/crisis	2.352	54.9
Motivation of others	2.358	59.2
Tenant welfare	2.366	55.6
Communication (oral/written)	2.373	55.6
Costing and estimating	2.373	54.9
Manpower planning and control	2.380	57.0
Recruit/select: Management	2.401	53.5
Recruit/select: Subcontractor	2.430	53.5
Recruit/select: Supervisor/foreman	2.430	51.4
Supervision of others	2.444	55.0
Employee training: Supervisor/foreman	2.444	54.3
Materials planning and control	2.444	53.5
Programme design	2.451	51.4
Negotiate: client	2.458	53.5
Employee training: Management	2.486	52.2
Construction law	2.486	46.5
Leadership	2.507	51.4
Productivity control & maintenance	2.514	51.4
Setting objectives and goals	2.521	46.5
Managing change	2.521	45.8
Managing job stress	2.528	47.9
Negotiate: Government bodies	2.535	47.9
Decanting buildings	2.549	50.0
Public relations	2.556	46.5
Site organisation	2.563	48.6
Programme maintenance (update)	2.563	46.5

Lower down Table 43, job dimensions in negotiation with government bodies, decanting buildings, and maintaining and updating construction programmes are evident. With high incidence of variations in refurbishment work, construction programmes would have to be updated regularly.

In considering data on Tables 44, 45 and 46, job dimensions perceived as being most difficult by senior, middle and junior managers, it is clear that managers at all levels are in agreement that forecasting & planning, and analysis of project risks/uncertainty are very difficult tasks to handle.

Site security is ranked very highly by junior managers in terms of difficulty, when compared to middle and senior managers. Site managers are close to the work face, and they are directly responsible for site security. The issue of site security is heightened when refurbishment work is carried out in sensitive premises such as Ministry of Defence Buildings (MOD), banks, airports and prisons; and with businesses still in operation.

Whilst costing and estimating is ranked 8th by 78.3% of senior managers, 52.5% of middle and 48.4% of junior managers ranked it 19th and 20th respectively. The job dimension of costing and estimating are more akin to senior managers, than to middle or junior managers. Since senior managers frequently carry out this task by virtue of their positions, they are more likely to encounter the difficulties associated with the costing and estimation of refurbishment works.

Table 44: Skills And Knowledge Perceived As Most Difficult By Senior Managers

<u>Job Dimensions (Skills/knowledge)</u>	<u>Average Score</u>	<u>Very diff/diff(%) N = 23</u>
Forecasting and planning	1.783	87.0
Managing time	1.826	86.9
Analysis of project risk/uncertainty	1.826	86.9
Budgetary control	1.913	87.0
Quality control and assurance	1.913	78.2
Health and safety	1.913	73.9
Competitive tendering	2.000	73.9
Costing and estimating	2.043	78.3
Managing change	2.043	82.6
Communication (oral/written)	2.087	69.6
Managing conflict/crisis	2.087	69.5
Productivity control and maintenance	2.174	73.9
Manpower planning and control	2.217	65.2
Programme maintenance (update)	2.261	60.8
Programme maintenance (update)	2.304	65.2
Motivation of others	2.304	60.8
Supervision of others	2.348	65.2
Employee training: Supervisor/foreman	2.348	65.2
Decision making	2.348	65.2
Materials planning and control	2.348	65.2
Employee training: Management	2.348	60.9
Tenant welfare	2.348	56.5
Site security	2.348	52.1
Leadership	2.435	56.5
Negotiate: Client	2.435	52.1
Managing job stress	2.478	56.5
Use of computer technology	2.478	56.5
Recruit/select: Supervisor/foreman	2.478	52.1
Negotiate: Main contractor	2.522	47.8
Creativity	2.565	56.5
Recruit/select: Management	2.565	52.2
Recruit/select: Subcontractor	2.565	47.8
Employee training: Manual labour	2.565	43.5
Team building	2.565	43.4
Negotiate: Subcontractor	2.565	39.1

Table 45: Skills And Knowledge Perceived As Most Difficult By Middle Managers

<u>Job Dimensions (Skills/knowledge)</u>	<u>Average score</u>	<u>V.diff/diff(%) N = 59</u>
Analysis of project risk/uncertainty	1.678	85.0
Forecasting and planning	1.797	81.4
Competitive tendering	1.881	79.7
Managing time	2.085	67.8
Quality control and assurance	2.119	64.4
Budgetary control	2.136	67.8
Health and safety	2.169	61.0
Manpower planning and control	2.237	64.4
Managing conflict/crisis	2.237	59.3
Use of computer technology	2.271	55.9
Recruit/select: Supervisor/foreman	2.288	61.1
Motivation of others	2.288	59.3
Recruit/select: Management	2.288	57.6
Tenant welfare	2.356	57.7
Materials planning and control	2.356	57.6
Construction law	2.356	54.2
Competitor awareness	2.373	57.7
Client/consumer protection law	2.390	55.9
Costing and estimating	2.390	52.5
Supervision of others	2.407	52.5
Recruit/select: Subcontractor	2.424	56.0
Negotiate: Subcontractor	2.424	54.3
Negotiate: government bodies	2.424	50.8
Managing change	2.441	47.5
Employee training: Supervisor/foreman	2.458	54.3
Communication (oral/written)	2.458	50.8
Company accounting	2.458	47.4
Termination/dismissal: Supervisor/foreman	2.458	47.4
Leadership	2.475	52.6
Negotiate: Client	2.475	50.9
Site security	2.475	47.4
Company (strategic) planning	2.492	49.2
Employee training: Management	2.508	50.9
Programme design	2.508	49.1
Site organisation	2.525	52.6

Table 46: Skills And Knowledge Perceived As Most Difficult By Junior Managers

<u>Job Dimensions (Skills/knowledge)</u>	<u>Average score</u>	<u>V.diff/diff(%) N = 60</u>
Forecasting and planning	1.767	81.6
Competitive tendering	1.867	76.6
Analysis of project risk/uncertainty	2.033	78.3
Site security	2.200	63.3
Budgetary control	2.267	56.6
Supervision of others	2.317	53.3
Setting of objectives and goals	2.350	58.3
Use of computer technology	2.367	58.4
Managing time	2.367	53.3
Tenant welfare	2.383	53.4
Recruit/select: subcontractor	2.383	53.3
Communication (oral/written)	2.400	55.0
Health and safety	2.417	51.7
Quality control and assurance	2.433	55.0
Motivation of others	2.450	59.4
Negotiate: Client	2.450	56.7
Recruit/select: Management	2.450	50.0
employee training: Supervisor/foreman	2.467	50.0
Programme design	2.467	50.0
Costing and estimating	2.483	48.4
Employee training: Management	2.517	50.0
Public relations	2.517	48.3
Managing job stress	2.517	45.0
Decanting buildings	2.533	51.7
Construction law	2.533	43.4
Productivity maintenance and control	2.550	48.3
recruit/select: Manual labour	2.550	46.6
Contract drafting	2.550	43.3
Recruit/select: Supervisor/foreman	2.550	41.7
Company (strategic) planning	2.550	38.3
Leadership	2.567	48.4
Negotiate: Government bodies	2.567	48.4
Managing conflict/crisis	2.567	45.0
Site organisation	2.567	45.0
Materials planning and control	2.567	45.0

Similarly, junior managers ranked tenant welfare 10th in terms of the most difficult job dimensions, when compared to middle and senior managers who ranked it 14th and 22nd respectively. Site managers are close to the work face, and are expected to encounter the difficulties associated with carrying out refurbishment work with tenants still in occupation.

The study also sought to investigate the relative degree of difficulty attached to management tasks (job dimensions) across types of refurbishment organisations.

Data on the relative degree of difficulty of handling management tasks, from managers of both specialist and general refurbishment organisations are presented in Table 47. As mean score increases, the degree of difficulty attached to management task decreases.

Table 47: The Relative Degree Of Difficulty Of Handling Refurbishment Management Tasks Across Specialist And General Organisations

Rank	Specialist Organisation		General Organisations	
	Job Dimensions (skills/knowledge)	Average Score	Job Dimensions (skills/knowledge)	Average Score
1	Forecasting and planning	1.843	Forecasting and planning	1.588
2	Analysis of project risk/uncertainty	1.852	Competitive tendering	1.824
3	Competitive tendering	1.917	Analysis of project risk/uncertainty	1.853
4	Budgetary control	2.222	Managing time	1.941
5	managing time	2.231	Budgetary control	1.941
6	Health & safety	2.241	Quality control and assurance	2.000
7	Quality control and assurance	2.287	Materials planning and control	2.088
8	Communication (oral/written)	2.306	Manpower planning and control	2.176
9	Site security	2.324	Managing job stress	2.176
10	Recruit/select: management	2.370	Leadership	2.206
11	Costing and estimating	2.370	Health & safety	2.206
12	Use of computer technology	2.370	Tenant welfare	2.206
13	Managing conflict/crisis	2.389	Managing conflict/crisis	2.235
14	Motivation of others	2.389	Motivation of others	2.235
15	Recruit/select: subcontractor	2.389	Negotiate: government bodies	2.235
16	Recruit/select: supervisor/foreman	2.407	Site organisation	2.265
17	Tenant welfare	2.417	Supervision of others	2.265
18	Employee training: supervisor/foreman	2.444	Programme design	2.265
19	Manpower planning and control	2.444	Use of computer technology	2.265
20	Employee training: management	2.472	Negotiate: client	2.294
21	Construction law	2.481	Public relations	2.353
22	Supervision of others	2.500	Productivity maintenance and control	2.382
23	Negotiate : client	2.509	Costing and estimating	2.382
24	Programme design	2.509	Site security	2.382
25	Setting objectives and goals	2.537	Creativity	2.441
26	Managing change	2.546	Employee training: supervisor/foreman	2.441
27	Productivity maintenance and control	2.556	Client/consumer protection law	2.441
28	Materials planning and control	2.556	Managing change	2.441
29	Company (strategic) planning	2.556	Negotiate: subcontractor	2.471
30	Decanting building	2.574	Programme maintenance (update)	2.471

It can be seen from Table 47, that managers from both types of organisations are in agreement as to the five most difficult tasks to handle, although the ranking positions vary. The five most difficult tasks to handle in refurbishment are:

Forecasting and planning
 Analysis of project risk/uncertainty
 Competitive tendering
 Managing time
 Budgetary control

Table 47 also shows that there are some differences in the perceptions of managers from both organisations, as to the difficult tasks in refurbishment. Health & safety which is ranked 6th by managers from specialist organisations, in terms of the most difficult task, is ranked 11th by managers from general organisations. Since the majority of the works carried out by specialist refurbishment organisations are refurbishment, their managers are more likely to find a greater occurrence of problems and difficulties associated with health & safety issue in their jobs.

Materials planning/control is placed 7th and 28th respectively by managers of specialist and general refurbishment organisations respectively. Similarly, site security is ranked 9th and 24th by managers of specialist and general refurbishment organisations. Managers who are more involved in refurbishment work are more likely to face in their jobs the problems and difficulties associated with site security. This is especially so, on sensitive premises, such as MOD buildings, airports, prisons; and in occupied buildings where valuable goods and documents are housed.

Costing & estimating is ranked 11th and 23rd by managers of specialist and general refurbishment organisations respectively. This demonstrates that costing and estimation of refurbishment work is difficult. Those who are more involved in refurbishment work are more likely to be confronted with the difficulty and problems associated with costing and estimating the works.

A closer observation of Table 47, however, reveals that 21 of the 30 (70.0%) management tasks perceived as most difficult by managers of specialist organisations, are also cited as most difficult by their counterparts in general

refurbishment organisations, although with variation in ranking positions. This result suggests that to a large extent, managers from both types of organisations are in agreement as to the most difficult management tasks in refurbishment.

In summary, the relative degree of difficulty associated with handling management tasks in refurbishment has been established. Forecasting and planning, and analysis of project risk/uncertainty are the most difficult tasks to handle. The similarities and difficulties in perception, associated with the degree of difficulty of refurbishment tasks across management levels have also been established. Managers tend to attach higher level of difficulty to those tasks which are more akin to their positions in the management hierarchy. Being frequently involved in a particular task, there is a high tendency of being confronted with the difficulties associated with that task.

By establishing the degree of difficulty associated with managing refurbishment tasks, contractors and managers can direct more management efforts to the most demanding and difficult tasks. The results of this study could assist training officers in validating areas that managers need training, when used in conjunction with information from a training needs analysis exercise.

6.9. Conclusions And Recommendations

This chapter considered management skills and knowledge which are important for refurbishment. The purpose of which is to assist refurbishment organisations in recruiting and selecting the 'right' calibre of managers, and to reduce mis-matching of skills and jobs. For individual managers, it could help advance career prospects.

The relative importance of management skills/knowledge across management levels, and across types of refurbishment organisations were also investigated.

The attributes and qualities associated with successful accomplishment of refurbishment projects were also considered in this chapter. For refurbishment organisations and organisations that anticipate entering into the refurbishment sector, the recruitment and selection of managers with the 'right' attributes and qualities are vital. These managers are more likely to fit into managing in a refurbishment environment, and are also likely to work together as a team.

The relative degree of difficulty in handling refurbishment tasks was investigated. Similarity versus dissimilarity in handling refurbishment tasks across management levels, and types of refurbishment organisations also received attention. The conclusions and recommendations that follow from this study are:

- i. An appropriate body of management skills and knowledge has been established, a skills/knowledge inventory. The six most important management skills/knowledge for refurbishment are:-

- * Leadership
- * Communication (oral/written)
- * Motivation of others
- * Health & safety
- * Decision making
- * Forecasting and planning

- ii. There is sufficient evidence to show that there is similarity in refurbishment tasks across levels of management, and types of refurbishment organisations. Refurbishment managers job as defined by their application of skills/knowledge are, on the whole, homogenous, with some overlap across levels of management, and types of organisations. This dispels the view that management tasks are totally different across levels of management, and types of organisations.
- iii. Refurbishment managers tend to attach 'more' importance to the tasks associated with their day to day job activities by virtue of their (managers) positions in the management hierarchy.
- iv. The relative degree of importance attached to financial management skills/knowledge, e.g. budgetary control, tends to increase with seniority.
- v. The relative degree of importance attached to operational management skills/knowledge, e.g. programme maintenance (update), tends to increase at lower management levels.
- vi. When the results of the present study on the relative importance of skills/knowledge were compared to similar studies in construction

management, it was observed that for refurbishment, the skills and knowledge of:

- * Forecasting & planning
- * Managing conflict and crisis
- * Tenant welfare
- * Team building
- * Decision making

are needed, over and above the skills/knowledge required for construction management. For contractors, individual managers, and training officers involved in refurbishment, the acquisition of these skills/knowledge are vital for refurbishment work.

- vii. The attributes and qualities associated with successful accomplishment of refurbishment projects have been established. The six most important attributes/qualities are:

- * Ability to relate and work with people
- * Patience
- * Visionary/forward thinking
- * Flexibility/adaptability
- * Logical thinking
- * Innovative

Further research is needed to establish, not only the qualities/attributes, but also skills/knowledge that are associated with successful management of refurbishment work, across types of refurbishment projects, as well as across industrial sectors. This should assist organisations in resourcing refurbishment operations with the 'right' calibre of managers for the 'right' type of project in the different industrial sectors where refurbishment work is carried out.

viii. The relative degree of difficulty in handling refurbishment tasks has been established. The six most difficult refurbishment tasks to handle are:-

- * Forecasting and planning
- * Analysis of project risks and uncertainty
- * Competitive tendering
- * Budgetary control
- * Managing time
- * Quality control and assurance

ix. There is substantial evidence to suggest that, in the main, managers across management levels, and types of organisations are in agreement as to the most difficult management tasks in refurbishment.

The study is of benefit to contractors, managers and training officers. Contractors and their managers would need to pay particular attention to the most demanding and difficult tasks. There might be a need for more staffing, or contractors would need to resource their work in such a way that the more experienced and skilled managers are put in place to manage the most demanding and difficult job dimensions.

The results on the degree of difficulty of handling refurbishment tasks could assist training officers in validating areas for which managers need training, when used in conjunction with a training needs analysis exercise.

Following the results on the degree of difficulty of handling refurbishment tasks, research is needed into both forecasting/planning; and the risk analysis techniques which refurbishment contractors adopt in carrying out refurbishment work. Such a study should aim to produce guidelines for best practices for forecasting and

planning, and risk evaluation and assessment of refurbishment work. This could help in better monitoring of costs for the works, and also in improving the time for project completion.

- x. Evidence from the study suggests that there is closer involvement of all parties associated with refurbishment work, and that managers at all levels are close to site. It is recommended that research be carried out to establish the degree of involvement and contributions of the client, contractors and the rest of the design and construction teams, especially managers at all levels, to the success of refurbishment projects.