PROJECT QUALITY PLAN

CONDOMINIUM AT CAIRNHILL

For

M/S PYRAMID HILL PROPERTIES PTE LTD

Copy No.	1

Prepared By: Choo Cheong Nian

Authorised By: Tan L S

Date: 8 December 2001

TABLE OF CONTENTS

SECTION	DESCRIPTION
-	**TITLE PAGE**
-	**TABLE OF CONTENTS**
1	**QUALITY PLAN CONTROL AND DISTRIBUTION**
1.1	List of Copy Holders
1.2	Revision Record
2	**PROJECT INFORMATION**
2.1	Project Description
2.2	Cost Plans
2.3	Scope of Works
3	**ORGANISATION**
3.1	Organisation Chart
3.2	Project Related Staff
3.3	Client/Client's Representative
3.4	Other Consultants
3.5	Contractor/Sub-Contractors
3.6	Authorities
4	**PROGRAMME**
4.1	Overall Programme
4.2	Authority Submission Status for M&E Services (Main Building Plan)
4.3	Authority Submission Status for M&E Services (Amendments)
4.4	Work Progress (Design and Tender Stage)

TABLE OF CONTENTS

SECTION	DESCRIPTION
5	**PROJECT RECORDS**
5.1	List of Internal File
5.2	Filing of Drawings
6	**INTERFACING**
6.1	Method of Interface
6.2	Internal Design Interface
6.3	Circulation of Documents to External Parties
7	**WORK AUTHORISATION**
8	**DESIGN INPUT AND METHODOLOGY**
8.1	List of Client's Standard, Reference Documents or Brief
8.2	List of Applicable Code of Practice and Regulation
8.3	List of Design Guide or Handbook
8.4	List of Applicable Quality System Procedures
8.5	List of Software Used
9	**CLIENT'S REQUIREMENTS**
9.1	Specific Documents/Reports required by Client
9.2	Specific Procedures required by Client
10	**LIST OF SUB-JOB**
10.1	Not Used

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	1139-PQP	6 June 1997
2	Choo Cheong Nian	8 December 2001

1.2 Revision Record

Version	Date of Issue	Section Reference	Page(s)	Remarks
1/0	6 June 1997	All	All	1st Issue
2/0	8 June 1998	All	All	2nd Issue
3	8 December 2001	1 to 10	26	-

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Condominium

Size of Development	
Site Area, m²	4,304
Nett Floor Area, m² *	10,244
Gross Floor Area, m²	12,051
Covered Carpark, m²	329
Total Built-up Area m²	-
No. of Covered Carpark Lots	92
No. of Apartments	46
No. of Storeys	20
No. of Phases	One

*** Excludes Covered Carpark**

2.2 Cost Plans

M&E Services Cost Plan (S$ x 1M)									
Services	EI	ACVI	LEI	FFAI	PSI	SPFI			
Estimate	1.8	1.9	0.95	0.3	1.78	0.15			
Awarded	1.3	1.6	0.68	0.2	0.9	0.63			

Total Project Construction Cost (S$ x1M)				
	Site Clearance	Piling	Sub-Structure *	Super-Structure *
Estimate	-	-	-	36
Awarded				

Site Clearance shall include earth work, soil improvement, service diversion and termination.

**Include provision for M&E Services*

2.3 Scope of Works

2.3.1 Scope of Consultancy Services

Conceptual/Schematic Design	✓
Detailed Design	✓
Tender Documentation	✓
Tender Evaluation	✓
Contract Supervision	✓
M&E Costing	✓
Submissions to Authority	✓

(✓ *where applicable*)

2.3.2 Scope of M&E Services

ELECTRICAL	✓	AIR CONDITIONING	✓	SPRINKLER		SANITARY	✓ SWIMMING POOL	✓
LIFT	✓	MECHANICAL VENTILATION	✓	FIRE ALARM	✓	COLD WATER	✓ STEAM BOILER	
ESCALATOR		MECHANICAL SMOKE EXTRACT		HOSEREEL	✓	HOT WATER	FUEL STORAGE	
PABX		COMPUTER A/C		WET RISER	✓	TOWN GAS	✓	
SECURITY	✓	BST CARPARK EXH	✓	DRY RISER		LPG GAS		
TELELIFT DATA COMM.		HEATING						
FLUSHFLOOR TRUNKING								

(✓ *where applicable*)

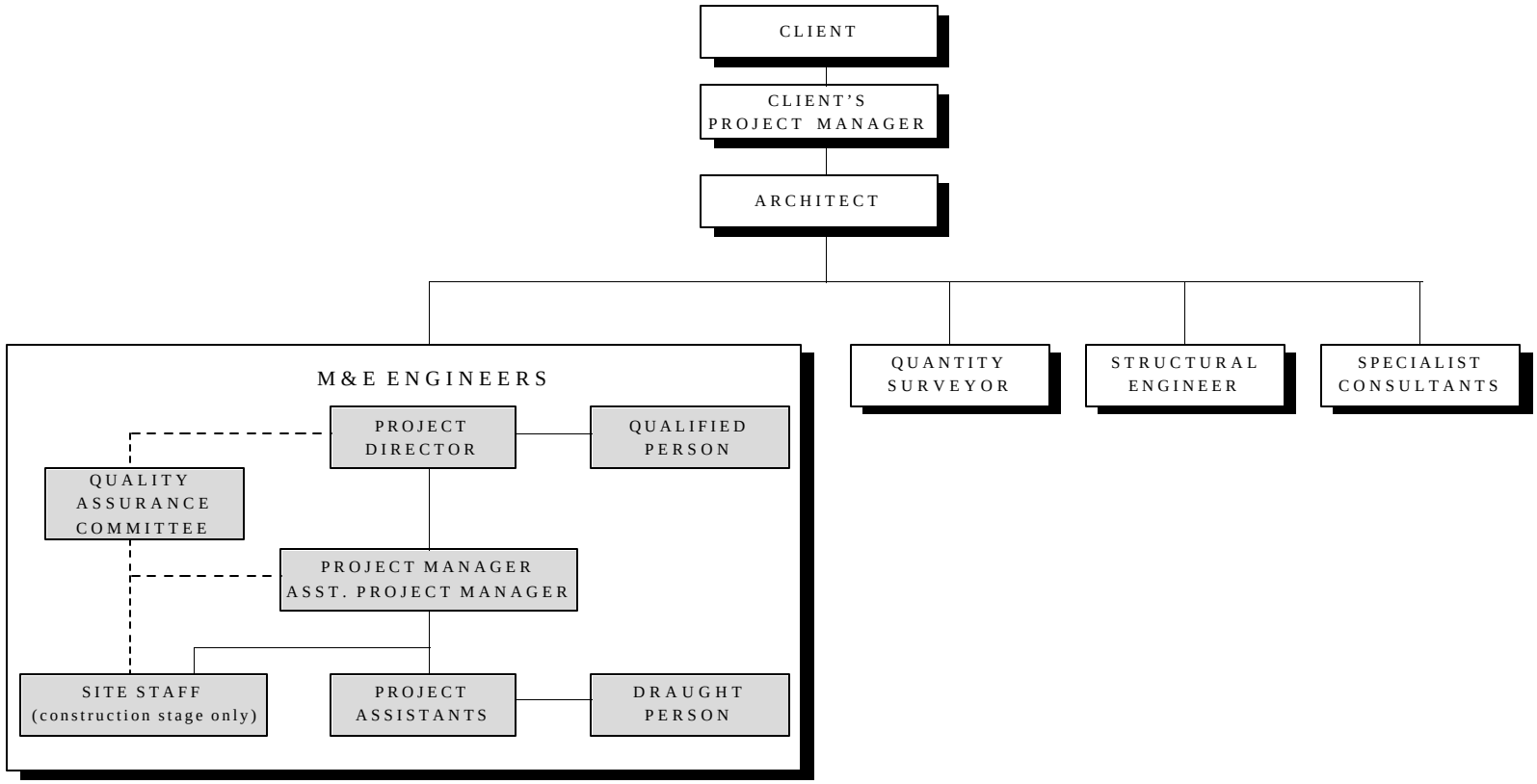
2.3.3 Submission to Relevant Authorities by Others

EJECTOR & DIVERTER		SUMP PUMP	✓	FUEL OIL TANK		LIFT & ESCALATOR		PRESSURE VESSEL		HOISTS		FOAM	

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 Project Related Staff

TITLE		NAME
Project Director		Tan L S
Qualified Person	Mechanical	Andrew Loh
	Electrical	Tan L S
Project Manager		Choo Cheong Nian
Assistant Project Manager		Choong Choon Guan
Project Assistant (Mech)		Jonathan Hew
Project Assistant (Elect)		-
Draughtsperson		Common pool
Resident Engineer		Lim Keng Ban
Assistant Resident Engineer		-
Clerk-of-Work		Fong Keng Lit

3.3 Client/Client's Representatives

Client:- Pyramid Hill Properties Pte Ltd

Address:- 60 Admiralty Road West
#03-01
Singapore 759947

Tel:- 754 6678

Fax:- 758 9891

Email:- wongcs@sembcorpenc.com

Client's Representative Related Staff:-

NAME	POSITION	DID/TEL NO.	REMARKS
Mr Wong Chee Seng	Project Manager	754 6678	
Mr Wilson Loh	Assistant Manager	849 7672	

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person and Position	Telephone/ Fax/Pager Nos.
Architect RDC Architects Pte Ltd	Neo Sei Hwa Project Architect	Tel: 338 1816 / 434 9348 (DID) Fax: 336 3117
Quantity Surveyor KPK Quantity Surveyors	Lee Soon Guan Project Manager	Tel: 220 2573 Fax: 225 4353
Structural Engineer Ove Arup & Partners Singapore	Jonathan C Y Sze Project Manager	Tel: 298 3033 Fax: 296 0541
Landscape Consultant Sitetectonix	Helen Smith-Yeo Project Manager	Tel: 324 6476 Fax: 324 6484
Marketing Consultant Edmund Tie & Company	Ho Tian Lam Director	Tel: 293 3228 / 393 2338 (DID) Fax: 298 9328
Interior Designer -	-	-
Lighting Consultant -	-	-
Acoustic Consultant Acviron Acoustics Consultants Pte Ltd	Lee Heng Soon Project Manager	Tel: 273 5426 Fax: 270 5700
Client's Project Manager -	-	-
Other Specialist -	-	-

3.4 Other Consultants (Overseas)

Function / Name of Firm	Contact Person and Position	Telephone/ Fax/Pager Nos.
Architect Moshe Safdie and Associates Inc. (USA)	Isaac Franco Principal	Tel: 617/629 2100 Fax: 617/629 2406 Email: Safdieb@ msafdie.com.
M&E Consultant -	-	-
Quantity Surveyor -	-	-
Structural Engineer -	-	-
Interior Designer -	-	-
Lighting Consultant -	-	-
Acoustic Consultant -	-	-
Other Specialist -	-	-

3.5 Contractors/Sub-Contractors

Function / Name of Firm	* Type	Contact Person and Position	Telephone/Fax/Pager Nos.
1. Main Contractor SembCorp Engineers and Constructors Pte Ltd	MC	Lau King Siu Project Manager	Tel: 836 4107 Fax: 887 4712
2. Air Conditioning & Ventilation Installation Sub-Contractor ACE Daikin (Singapore) Pte Ltd	WC	Sonny Chuah General Manager	Tel: 583 8888 Fax: 484 0140
3. Plumbing & Sanitary Installation Sub-Contractor Wang Kok Sewerage Construction Pte Ltd	WC	Johnny Foong Project Manager	Tel: 280 7823 Fax: 382 4371
4. Electrical Installation Sub-Contractor Double Lion Electrical Pte Ltd	WC	Seet H A Executive Director	Tel: 747 8633 Fax: 748 1183
5. Lift & Escalator Installation Sub-Contractor Ryoden Singapore Pte Ltd	WC	Tony Chia Project Engineer	Tel: 842 5678 Fax: 748 2292
6. Fire Fighting & Alarm Installation Sub-Contractor Chubb Singapore Pte Ltd	WC	Paul Cheok General Manager	Tel: 292 8421 ext. 840 Fax: 298 7310
7. Swimming Pool Filtration Plant Installation Sub-Contractor Venus Enterprises Pte Ltd	NSC	Noel Choo Project Manager	Tel: 472 0020 Fax: 476 0012
8. Carpark System Installation Sub-Contractor	-	-	-

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*
- *MC (Management Contractor)*
- *WC (Works Contractor)*

3.6 Authorities

Authorities/Department	Contact Person	Tel No:/Fax No:
PowerGrid/Power Supply:		
(a) Customer Supply	Mr Lee Chi Ming/	Tel: 831 8281
(b) Sub-Station	Mr Chin Yoke Fah	Tel: 831 8553
(c) Installation	Mr Loh Park Wan	Tel: 277 7063
(d) Meter Section		
(e) Road Lighting (f) Diversion / Termination	Mr Seah How Puey	Tel: 290 9109
Telecom:		
(a) Planning/Line Plant	Mr Gilbert Ho	Tel: 838 2867 (DID)
(b) Installation		
(c) Diversion		
BCD:		
(a) Building Plan	Mr Tan Chong Ee	
(b) Air-Cond & Vent Plan	-	
FSB:		
(a) Building Plan	Mr Chan Hong Meng	Tel: 838 6402
(b) M&E Section	Ms Kwan Lian Sian	Tel: 848 1455 (DID)
PUB (Water)		
(a) Water Conservation	Mr Tham Tuck Kuan	Tel: 731 3575
(b) Plumbing Plan	Mr Ang Wui Seng	Tel: 731 3548
(c) Diversion	Mr Hsieh Jing	Tel: 731 3569
PowerGas:		
(a) Planning/Submission	Mr Liew Khee Boon	Tel: 823 8662
(b) Installation/Inspection		
(c) Diversion	Mr Ng Koh Pek	Tel: 831 8641
ENV (Sewerage):		
(a) Building Plan	Mr David Lim	Tel: 731 9629 (DID)
(b) M&E Section	Mr Chow Yew Meng	Tel: 731 9630 (DID)
(c) Diversion	Mr Teo Gee Chee	Tel: 731 9649 (DID)
ENV (Pollution Control)		
(a) Planning/Submission	Mr David Lim	Tel: 731 9629 (DID)
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme

ID	TASK NAME	MONTHS	1997 J	F	M	A	M	J	J	A	S	O	N	D	1998 J	F	M	A	M	J	J	A	S	O	N	D	1999	2000	2001
1.	Preliminary Planning	7		■	■	■	■	■	■	■																			
2.	Planning Submission	4					■	■	■	■																			
3.	Detail Design	3									■	■	■																
4.	BP Submission / Approval	7											■	■	■	■	■	■	■										
5.	BP Submission (Amendments)	-																											
6.	Demolition Tender Period/ Completion for Demolition Works	2									■	■																	
7.	Tender Period/Completion for Piling	))																	■										
8.	Tender Period for Sub-Structure	) 1)																	■										
9.	Tender Period for Super-Structure	))																	■										
10.	Sub-Structure Construction Period	} } 22																										Mar 2000 to Jan 2002	
11.	Super-Structure Construction Period	} }																											
12.	TOP																												Mar 2002
13.	CSC																												June 2002

Note: (a) The Employer negotiated on Design & Build Contract between August 1997 to April 1998. The result is unsuccessful.
(b) The Employer decided to call tender in May 1998.

SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services (Main Building)

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	Power Supply Pte Ltd		* 13/3/97	8/3/97						
Form CS/1	Power Supply Ltd		1/9/97	9/9/97						9/9/97
Power Supply Substation	PowerGrid Pte Ltd	15/7/97	4/11/97	10/11/97	13/1/98	21/1/98				21/1/98
Main Single Line Diagram	Power Supply Pte Ltd	Oct 98								13/4/00
Consumer Switchroom Layout	PowerGrid Pte Ltd	-								
Metering Layout	PowerGrid Pte Ltd	Feb 99								
Sanitary Installation	ENV (Sewerage)	15/9/97	2/1/98	4/2/98	9/2/98	16/4/98	22/4/98	13/5/98		13/5/98
Domestic Water Supply	PUB (Water)	Sept 98	5/11/01	23/11/01						
Gas Supply Installation	PowerGas Pte Ltd	Oct 98	6/8/01	24/08/01	11/1/02					
Air Conditioning & Ventilation Inst.	Building Control Division	-								
	Fire Safety Bureau	Nov 01								
Fire Fighting & Alarm Installation	Fire Safety Bureau	Nov 01								
Telephone Installation	Telecom (Broadband)	Nov 01								
	Telecom (TDCS)	-								
	Telecom (Domestic Operation)	-								
Fuel Storage	Fire Safety Bureau									
Swimming Pool Filtration Plant	Pollution Control Department	RDC	12/11/97	10/12/97	12/1/98	4/2/98	16/2/98	21/4/98		21/4/98

** Pre-consultation*

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments)

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	Power Supply Pte Ltd									
Power Supply Substation	PowerGrid Pte Ltd									
Main Single Line Diagram	Power Supply Pte Ltd									
Consumer Switchroom Layout	PowerGrid Pte Ltd									
Metering Layout	PowerGrid Pte Ltd									
Sanitary Installation	ENV (Sewerage)	Mar 02								
Domestic Water Supply	PUB (Water)									
Gas Supply Installation	PowerGas Pte Ltd									
Air Conditioning & Ventilation Inst.	Building Control Division									
	Fire Safety Bureau									
Fire Fighting & Alarm Installation	Fire Safety Bureau									
	Telecom (Broadband)									
Telephone Installation	Telecom (TDCS)									
	Telecom (Domestic Operation)									
Fuel Storage	Fire Safety Bureau									
	Pollution Control Department									

SECTION 4

PROGRAMME

4.4 Work Progress - Design and Tender Stage

M&E Services

	SERVICES		EI	ACVI	LEI	FFAI	PSI	SPFI
1.	Number of Drawings		15	12	3	7	33	3
2.	Preliminary Design Completed	25%	4/97	4/97	4/97	4/97	4/97	4/97
		50%	5/97	5/97	5/97	5/97	5/97	5/97
		75%	6/97	6/97	6/97	6/97	6/97	6/97
		100%	8/97	8/97	8/97	8/97	8/97	8/97
3.	Detailed Design Completed	25%	6/97	6/97	6/97	6/97	6/97	6/97
		50%	8/97	8/97	8/97	8/97	8/97	8/97
		75%	2/98	2/98	10/97	2/98	2/98	2/98
		100%			11/97	5/98	4/98	
4.	Tender Document Completed	25%	3/98	3/98	9/97	3/98	1/98	1/98
		50%	4/98	4/98	10/97	4/98	2/98	2/98
		75%	6/98	6/98	11/97	4/98	3/98	3/98
		100%			1/12/97	5/98	4/98	
5.	TENDER							
	Tender Date				1/12/98	1/6/98	8/5/98	
	Tender Evaluation Report				20/1/98			
	Tender Award				Pending			

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
-CM	✓	-QSP	✓
-PC	✓	-BD	✓
-AE	✓	-CC	✓
-AM	✓	-GC	✓
-PQP	✓	-CF	✓
-AA	✓		

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-SM	✓	-SR	✓	-ET/MT	✓
-SC	✓	-QM		-Q	✓
-AI	✓	-EC	✓	-DF	✓
-SQ	✓	-MC	✓	-EOT	✓
-CO	✓	-P	✓	-VO	✓

Service Files to be initiated by PM as and when required

	Service									
File Ref:	ACVI	FFAI	PSI	EI	LI	SPFP	IB6	FG		
-G	✓	✓	✓	✓	✓	✓	✓	✓		
-Q										
-VO										
-PP										
-AI										
-AD/ED	✓	✓	✓	✓	✓	✓	✓	✓		
-CF	✓	✓	✓	✓	✓	✓	✓			

SECTION 5

PROJECT RECORDS

5.2 Filing of Drawings

The following team members shall take charge of filing of drawings, stamping "SUPERSEDED" drawings, etc.

Description	Team Member
Incoming Architectural Floor Plans	Choo Cheong Nian
Incoming Architectural Sketches/Details	Choo Cheong Nian
Incoming Structural Drawings	Choo Cheong Nian
M&E Drawings	
- Electrical Installation	Choo Cheong Nian
- Lift & Escalator Installation	Choo Cheong Nian
- Air Conditioning & Ventilation Installation	Jonathan Hew
- Fire Fighting & Alarm Installation	Jonathan Hew
- Plumbing & Sanitary Installation	Jonathan Hew
Other Drawings	
Landscape drawings	Choo Cheong Nian

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface
Client's Review & Approval	1. Brief Design Report 2. M&E Cost Estimate 3. Client/Consultants Meetings
Interface With External Design Teams	1. Client/Consultants Meetings 2. Consultants Technical Meetings 3. Letters, Faxes, E-mails
Interface Between Internal Design Teams	1. Adhoc project team meetings 2. Circulation of notes of meetings, letters, faxes etc. 3. Discussion between team members

SECTION 6

INTERFACING

6.2 Internal Design Interface

Item No.	Description*	Required From	Required By	Date Required	Remarks
1.	P/S equipment load	CTT	FYC	April 98	
2.	FP equipment load	CTT	FYC	April 98	
3.	ACMV equipment load	CTT	FYC	May 98	
4.	Pool Filtration Plant	CTT	FYC	June 98	

** Information required by INTERNAL DESIGN TEAM MEMBERS*

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

	Code: A - Approval Required C - For Comments I - For Information Only	Client/ Client Rep.	Client's Project Manager	Architect	Structural Engineer	Quantity Surveyor	
1.	**Letters/Fax:**						
a.	Project Design	A	-	C & A	C & A	-	
b.	Project Administration	I	-	C & A	I	C	
c.	Project Cost Estimate/Contract Cost)	A	-	I	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	-	A	C	I	
b.	Sketch Design Drgs.	I	-	A	C	-	
c.	Final Design Drgs.	I	-	A	C	I	
d.	Shop Drawings	I	-	C	C	-	
e.	As Built Drgs.	I	-	I	-	-	
3.	**Other Document**						
a.	Specification	A	-	C	-	C	
b.	Tender Document	A	-	C	I	C	
c.	Tender Evaluation Report	A	-	C	I	I	
d.	Design Report	A	-	C	I	I	
e.	Progress Report	I	-	I	-	-	
f.	Financial Report	I	-	I	-	C	
g.	Minutes of Meeting (M&E Technical Meeting)	I	-	I	I	I	
h.	Inspection Report	I	-	I	I	I	
i.	Testing & Comm. Report	I	-	I	-	-	
j.	O & M Manual	I	-	I	-	-	

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	SS
Checklists			✓	
Client Correspondence/Fax			✓	
Other Consultants Correspondence/Fax			✓	
Contractor's Drawing. Review			✓	✓
Contractor's Technical Submittals			✓	
Contract Correspondence			✓	
Contract Payment Certificates			✓	
Final Account Certificates			✓	✓
Site Instruction/Direction			✓	
Architect Instruction/Direction			✓	
Site Progress Reports			✓	✓
Design Drawing. Approval			✓	
Design Drawing. Checking			✓	
Local Authority Correspondence/Submission		✓		

* *Tick where authorised.*

Key to abbreviations:-

PD : Project Director

QP : Qualified Person

PM : Project Manager/Assistant Project Manager

SS : (Designated) Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief

ITEM	KEPT BY
Client's Design Brief dated 27 February 1997	Office File

8.2 List of Applicable Code of Practice and Regulations

Electrical Wiring	BS	SS	IEE	~~NFPA~~	
Lightning Protection System	BS	SS			
Air Conditioning & Ventilation Installation	BS	~~AS~~	~~NFPA~~	SS	~~MS~~
Lift & Escalator Installation	BS	SS			
Wet Riser System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Automatic Fire Alarm System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Sanitary System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Plumbing System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Town Gas/LPG Supply System	BS	SS	~~NFPA~~	~~AS~~	

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Applicable Quality System Procedures

Alpha Engineering Consultant's Quality System Procedures

8.5 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.
Lift Traffic	-	Alpha Engineering	Lift traffic calculation
Fault Level Calculation	-	Alpha Engineering	Calculation of voltage drop and fault level

SECTION 9

CLIENT'S REQUIREMENTS

9.1 Specific Documents/Reports Required by Client:-

Item	Date Required	* Remarks
M&E Design Report	August 1997	A
Preliminary Tender Documents		
Tender Report		
Progress Report		
Payment Valuation for QS		
O&M Manuals		
As-Built Drawings		
List of M&E Tenderers	October 1997	A

** Remarks*

A: for approval C: for comment I: for Information Re: for record

Other purposes and for action: please specify.

9.2 Specific Procedures Required By Client *(If applicable)*

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

NOT USED