PROJECT QUALITY PLAN

PROPOSED CONDOMINIUM HOUSING DEVELOPMENT ON LOT 727 PT, 5301 PT, 734 PT MK 5 AT FABER HEIGHTS (FABER CREST CONDOMINIUM)

For

M/S FABER RHINE PROPERTIES PTE LTD

Copy No.	

Prepared By: Choong C G

Authorised By: Richard Teo

Date: 14 February 2001

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SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	1090-PQP File	6 August 1997
2	Choong C G	6 August 1997

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
1/0	6 August 1997	Section 1 – 10	27	1st Issue
2/0	27 August 1998	Section 1 – 10	27	2nd Issue
3	31 December 1998	Section 1 – 10	26	3rd Issue
4	14 February 2001	Section 1 – 10	27	-

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Residential (Condominium)

Statistics of Development	
Site Area, m²	37,027
Nett Floor Area, m²	48,413.99 (net sellable area) *
Gross Floor Area, m²	51,804.70
Covered Carpark, m²	13,000
No. of Covered Carpark Lots	376
No. of Apartments/Houses	360
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	12 Blocks/4-Storey
No. of Phases	2

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	5.4	3.9	3.0	0.75	5.3	0.15				
Awarded	4.5	3.6	2.4	0.53	5.7	0.36				
Re-Awarded	3.9	3.25	2.09	0.45	4.88					

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	101.8
Awarded	-	-	93.3
Re-Awarded	-	-	76.5

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		HEATING				MEDICAL GAS			
DATA COMM.									
FLUSHFLOOR TRUNKING									

(✓ *where applicable*)

2.3.3 Submission to Relevant Authorities by Others

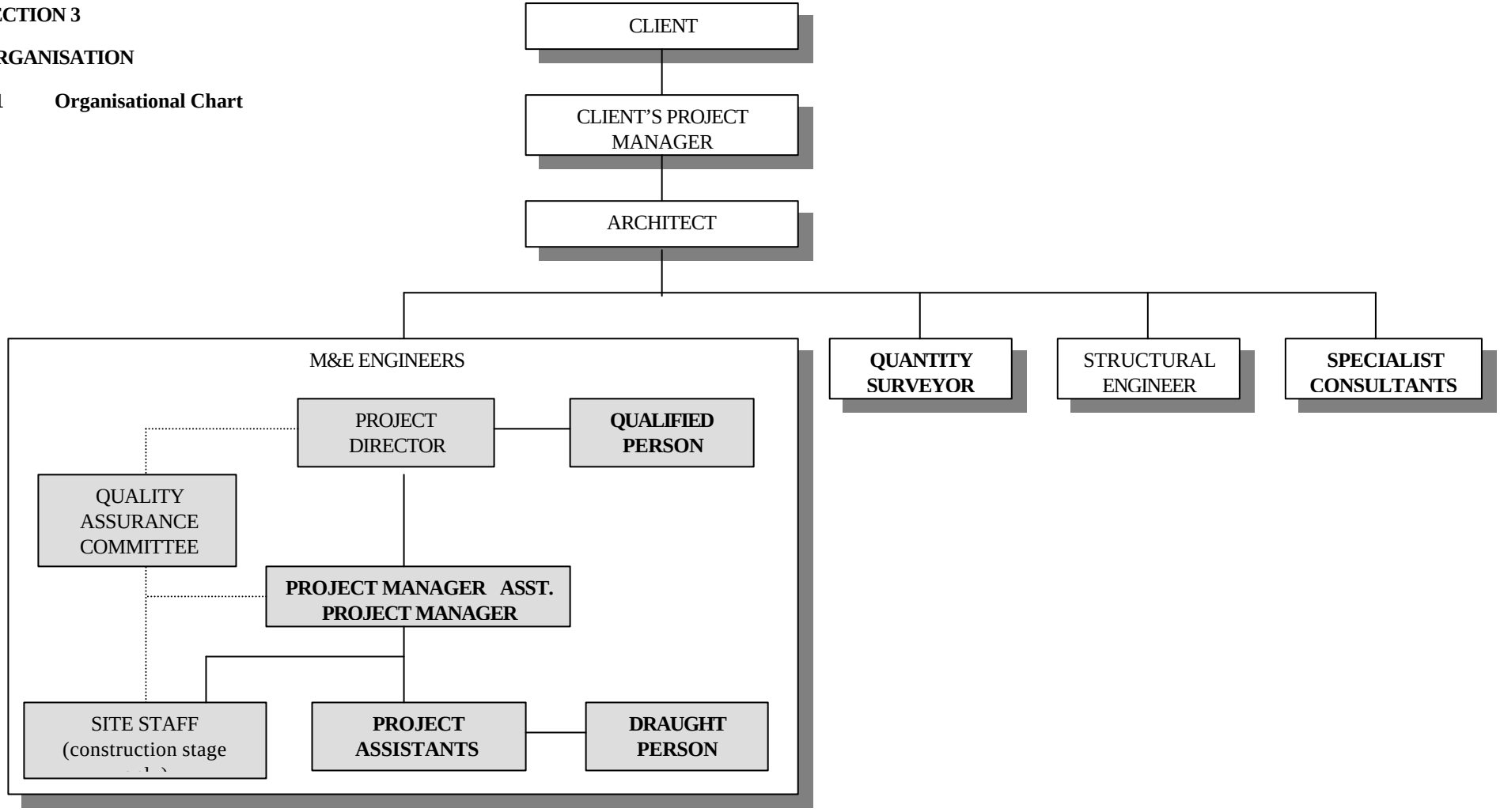
EJECTOR & DIVERTER		SUMP PUMP	✓	FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓ *where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 AEC's Project Team Member

TITLE		NAME
Project Director		Richard Teo
Qualified Person	Mechanical	Andrew Loh
	Electrical	Richard Teo
Project Manager		Choong C G
Assistant Project Manager		Choo C N
Project Assistant (Mech)		Jonathan Hew
Project Assistant (Elect)		Gui C S
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		Francis Quek

3.3 Client/Client's Representatives

Client:- Faber Rhine Properties Pte Ltd

Address:- 36 Robinson Road #05-01,
City House, Singapore 068877

Tel:- 221 2266

Fax:- 222 2993

Client's Representatives:-

Name of Firm	Contact Person	Contact
Faber Rhine Properties Pte Ltd	Name: Lim Song King Position: Project Manager	Tel: 221 2266 Fax: 222 2993 Pager: - Handphone: - Email: sklim@cdl.com.sg
Faber Rhine Properties Pte Ltd	Name: Nelson Hah Position: Project Executive	Tel: 221 2266 Fax: 222 2993 Pager: - Handphone: - Email: nelshah@cdl.com.sg
Faber Rhine Properties Pte Ltd	Name: Tan Ban Guan Position: Resident Engineer	Tel: 777 2527 Fax: 777 1273 Pager: - Handphone: - Email: -

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect Akitek Regional	Name: Mr Tan Lye Woo Position: Project Manager	Tel: 278 3933 Fax: 273 7360 Pager: 9408 1503 Handphone: - Email: akireg@pacific.net.sg
Quantity Surveyor KPK Quantity Surveyors	Name: Ms Fiona Chor Position: Executive Quantity Surveyor	Tel: 536 3303 Fax: 536 2633 Pager: - Handphone: - Email: fionachor@kpk.com.sg
Structural Engineer KTP Consultants	Name: Mr Jonathan Ang Position: Senior Engineer	Tel: 273 5622/3/4 Fax: 273 8454 Pager: - Handphone: - Email: ktpcon@pacific.net.sg
Interior Designer Design Minako Pte Ltd	Name: Ms Talha Z Abidiu Position: -	Tel: 468 7866 Fax: 469 8532 Pager: - Handphone: - Email: -
Lighting Consultant NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Acoustic Consultant NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Landscape Consultant Site Concepts International	Name: Mr Brian McDonald Position: Principal	Tel: 221 8826 Fax: 221 8937 Pager: - Handphone: - Email: -

3.4 **Other Consultants** (Overseas)

Function / Name of Firm	Contact Person	Contact
Architect Concept Designer International Design Link Pte Ltd	Name: Mr Kiat Supattapone Position: Managing Director	Tel: 224 4473 Fax: 223 6503 Pager: - Handphone: - Email: -
M&E Consultant NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Quantity Surveyor NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Structural Engineer NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Interior Designer NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Lighting Consultant NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Acoustic Consultant NA	Name: Position:	Tel: Fax: Pager: Handphone: Email:

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor China Construction – I.R.E. J.V.	DC	Name: Mr Fu Jin Ling Position: Project Manager	Tel: 227 4537 Fax: 227 5073 Pager: 9587 2305 Handphone: 9820 8720 Email: -
Air Conditioning & Ventilation Installation Sub-Contractor Shinryo Corporation	NSC	Name: Mr Ng Yew Kong Position: Project Manager	Tel: 226 1101 Fax: 226 3100 Pager: 9235 9638 Handphone: 9751 6941 Email: -
Plumbing & Sanitary Installation Sub-Contractor Industrial Plumbing Co Pte Ltd	NSC	Name: Mr Richard Ng Position: Project Manager	Tel: 382 1322 Fax: 382 1300 Pager: 9607 3461 Handphone: 9737 5028 Email: -
Electrical Installation Sub-Contractor MecBonn Engineering Pte Ltd	NSC	Name: Mr Tan Tong Chow Position: Project Manager	Tel: 788 2933 Fax: 788 2033 Pager: 9777 8680 Handphone: Email: mecbonn@pacific.com.sg
Lift & Escalator Installation Sub-Contractor Hitachi Asia Pte Ltd	NSC	Name: Mr Nick Yap Position: Senior Project Officer	Tel: 394 2675 Fax: 295 3678 Pager: 9536 0056 Handphone: - Email: sanhuat.yap@hees.hitachi.com.sg
Fire Fighting & Alarm Installation Sub-Contractor Sprinkler Engineering Pte Ltd	NSC	Name: Mr Thang M P Position: Project Manager	Tel: 481 9255 Fax: 482 3643 Pager: 9404 3755 Handphone: - Email: -
Swimming Pool Filtration Plant Installation Sub-Contractor Aqua Works and Engineering Pte Ltd	NSC	Name: Sebastian Lim Position: Project Manager	Tel: 588 2033 Fax: 481 9261 Pager: 9490 7659 Handphone: 9625 9218 Email: -

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
PowerGrid/Power Supply:		
(a) Customer Supply	Mr Lee Chin Ming	831 8281
(b) Sub-Station	Mr Chin Yoke Fah	831 8556 / 831 8564
(c) Installation	-	
(d) Meter Section	-	
(e) Road Lighting	-	
(f) Diversion	-	
Telecom:		
(a) Broadband Network Division	Mr Low Chee Kiong	838 2866 / 733 9895 / 9306 0047
(b) Domestic Telephone Operation Division	Mr Raymond Chong	838 2583 / 732 8428
(c) Diversion	-	
BCD:		
(a) Building Plan	-	
FSB:		
(a) Building Plan	-	
(b) M&E Section	Mr Vijayaratnam	838 6455/838 6427
PUB (Water)		
(a) Water Conservation	Mr David Loh	731 3518/731 3023
(b) Plumbing Plan	Ms Wong Wai Cheng	731 3546/731 3023
(c) Diversion	-	
PowerGas:		
(a) Planning/Submission	Mr Ivan Lim/Mr Liew Khee Boon	823 8687/823 8662/823 8699
(b) Installation/Inspection	Mr Lim Teck Seng	823 8693/823 8699
(c) Diversion	-	
ENV (Sewerage):		
(a) Building Plan	Mr Maurice Neo	731 9565/731 9699
(b) M&E Section	Ms Gina Tan	731 9783/731 9725
(c) Diversion	-	
ENV (Pollution Control)		
(a) Planning/Submission	-	
(b) Inspection	-	

SECTION 4

PROGRAMME

4.1 Overall Programme

See attached

SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services - 1st Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	Power Supply Pte Ltd		10/5/96	22/5/96	24/7/96	27/7/96	2/8/96	-		19/8/96
Power Supply Substation	PowerGrid Pte Ltd	30/10/96	11/10/96	28/10/96	20/11/96	2/12/96	6/12/96	18/12/96	26/12/96	7/1/97
Main Single Line Diagram	Power Supply Pte Ltd	1/6/97								
Consumer Switchroom Layout	PowerGrid Pte Ltd									
Metering Layout	PowerGrid Pte Ltd									
Sanitary Installation	ENV (Sewerage)	9/9/96	13/9/96	11/12/96	13/5/97	25/6/97	4/7/97			20/8/97
Domestic Water Supply	PUB (Water)	30/4/97	1/8/97							13/8/97
Gas Supply Installation	PowerGas Pte Ltd	30/4/97	1/8/97	15/8/97	12/1/98		14/9//00			11/10/00
Air Conditioning & Ventilation Inst.	Fire Safety Bureau	15/12/96	26/12/96							14/1/97
Fire Fighting & Alarm Installation	Fire Safety Bureau	30/5/97	2/6/97							5/9/97
Telephone Installation	Telecom (Broadband)	-	30/12/96							16/1/97
	Telecom (TDCS)									
	Telecom (Domestic Operation)	-	30/12/96							29/1/97
Fuel Storage	Fire Safety Bureau									
	Pollution Control Department									
Odour Control Unit	ENV (Sewerage)	-	11/10/00							2/11/00

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) - 2nd Submission

NOT USED

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

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

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-SM	✓	-SR	✓	-ET/MT	✓
-SC	✓	-QM		-MT	
-AI	✓	-EC	✓	-DF	✓
-SQ	✓	-MC	✓	-EOT	✓
-CO	✓	-PP	✓	-VO	✓
-EI	✓	-PR	✓	-SF	✓

Service Files to be initiated by PM as and when required

	Service										
File Ref:	ACVI	FFAI	PSI	EI	LI	SPFP					
-G	✓	✓	✓	✓	✓	✓					
-Q											
-VO											
-PP	✓	✓	✓	✓	✓	✓					
-AI											
-EI	✓										
-AD											
-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	Jonathan Hew
Incoming Architectural Sketches/Details	Jonathan Hew
Incoming Structural Drawings	Jonathan Hew
M&E Drawings	
- Electrical Installation	Gui C S
- Lift & Escalator Installation	Gui C S
- Air Conditioning & Ventilation Installation	Jonathan Hew
- Fire Fighting & Alarm Installation	Jonathan Hew
- Plumbing & Sanitary Installation	Jonathan Hew
- Swimming Pool & Filtration Installation	Jonathan Hew
Other Drawings	
NA	

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface	
Client's Review & Approval	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	
Interface With External Design Teams	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	
Interface Between Internal Design Teams	Telephone	✓
	Email	✓
	Internal Project Team Meeting	✓
	Circulation of Information	✓

(✓ *where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface

NOT USED

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,I	NA	A,C,I	I	I	
b.	Project Administration	A,C,I	NA	A,C,I	I	I	
c.	Project Cost Estimate/Contract Cost	A,C,I	NA	C,I		I	
2.	**Drawings**						
a.	Outline Design Drgs.	A,C,I	NA	A,C,I	I		
b.	Sketch Design Drgs.	C,I	NA	C,I	I	I	
c.	Final Design Drgs.	I	NA	C,I	I	I	
d.	Shop Drawings	I	NA	C,I	I	I	
e.	As Built Drgs.	I	NA				
3.	**Other Document**						
a.	Specification	C,I	NA	C,I		C,I	
b.	Tender Document	C,I	NA	C,I		C,I	
c.	Tender Evaluation Report	A,C	NA	C,I		I	
d.	Design Report	A,C	NA	C			
e.	Progress Report	I	NA	I		I	
f.	Financial Report	A,C	NA	I			
g.	Minutes of Meeting	I	NA	I			
h.	Inspection Report	I	NA	I			
i.	Testing & Comm. Report	I	NA	I			
j.	O & M Manual	I	NA	I			

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	SS
General Correspondences with Client	✓		✓	NA
General Correspondences with Other Consultants	✓		✓	NA
M&E Cost Estimate Report	✓		✓	NA
M&E Design Report	✓		✓	NA
Check Prints	✓		✓	NA
Tender Drawing Approval	✓		✓	NA
Tender Specification Approval	✓		✓	NA
List of Tenderers	✓			NA
Tender Questionnaires	✓		✓	NA
Tender Reports	✓			NA
Draft Letter of Award	✓		✓	NA
Review of Contractor's Shop Drawing	✓		✓	NA
Review of Contractor's Technical Submittal	✓		✓	NA
Review of Contractor's Sample Submittal	✓		✓	NA
Contractor's Request for Deviation	✓		✓	NA
Progress Payment Valuation Form	✓			NA
Final Account Valuation	✓			NA
Draft Variation Order	✓		✓	NA
Engineer/Architect's Instruction/Direction	✓		✓	NA
Site Instruction/Direction	✓		✓	NA
Correspondence/Submission to Authorities		✓		NA

(✓ *where authorised*)

Key to abbreviations:-

PD : Project Director
QP : Qualified Person
PM : Project Manager/Assistant Project Manager
SS : AEC Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

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

ITEM	KEPT BY
NA	NA

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			
Sprinkler System	BS	SS	~~NFPA~~	~~AS~~	~~LPC~~
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~~	

(Delete where necessary)

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Applicable Quality System Procedures

Alpha Engineering Consultant's Quality System Procedures

Section	Title
A1	Documentation of Quality System Procedure
A2	Documentation of Project Quality Plan
A3	Administration Control
A4	Document Control
A5	Not Used
A6	Archive Control
A7	Not Used
A8	Not Used
A9	Feedback Reporting
A10	Computer Control
B1	Preparation of Consultancy Offer
B2	Project Commission and Service Agreement
B3	Design Control
B4	Design Change Control
B5	Drawing Control
B6	Specification Control
B7	Tender Process and Evaluation
C1	Construction Process Control
C2	Testing and Commissioning
D1	Quality System Audit

8.5 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	2.30	Philips	Lighting design	
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	✓
Gensize 2	2.1	Onan	Generator sizing	
Lift Traffic	-	Alpha Engineering	Lift traffic calculation	
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	
Fault Level Calculation	-	Alpha Engineering	Calculation of voltage drop and fault level	✓

(✓ *where applicable*)

SECTION 9

CLIENT'S REQUIREMENTS

9.1 List of Output Required by Client:-

Item	* Remarks
M&E Design Report	C
M&E Cost Estimate Report	C, Re
Pre-Qualification of Tenderers	A
Tender Documents	I
Tender Report	A
Payment Valuation for QS	To be submitted by 30th of each month
Certificates of Supervision for TOP/CSC	I, Re

* *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)*

- None -

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

NOT USED