PROJECT QUALITY PLAN

12-STOREY MIXED DEVELOPMENT AT BENCOOLEN STREET

For

M/S MAJLIS UGAMA ISLAM SINGAPURA

Copy No.	

Prepared By: Chim Heng Leong

Authorised By: Richard Teo

Date: 23 August 2002

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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	1303-PQP File	2 January 2001
2	Chim Heng Leong	2 January 2001

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	2 January 2001	1 to 10	26	
1	23 August 2002	1 to 10	26	

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	12-Storey Mixed Development

Statistics of Development	
Site Area, m²	2,309
Nett Floor Area, m²	Residential: 6,272 Commercial: 806 Mosque: 485 Total: 7,563
Gross Floor Area, m²	Residential: 8,025 Commercial: 1,075 Mosque: 597 Total: 9,697
Covered Carpark, m²	1,600
No. of Covered Carpark Lots	-
No. of Apartments/Houses	85
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	4-Storey Podium & Carpark & 1 Apartment Block of 12-Storey High
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)									
Services	EI	ACVI	LEI	FFAI	PSI	SPFI			
Estimate	1.2	1.3	0.55	0.5	1.2	0.25			
Awarded	1.153	1.115,532	0.475	0.399,500	1.08	0.138,231			

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	18
Awarded	-	-	-

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

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

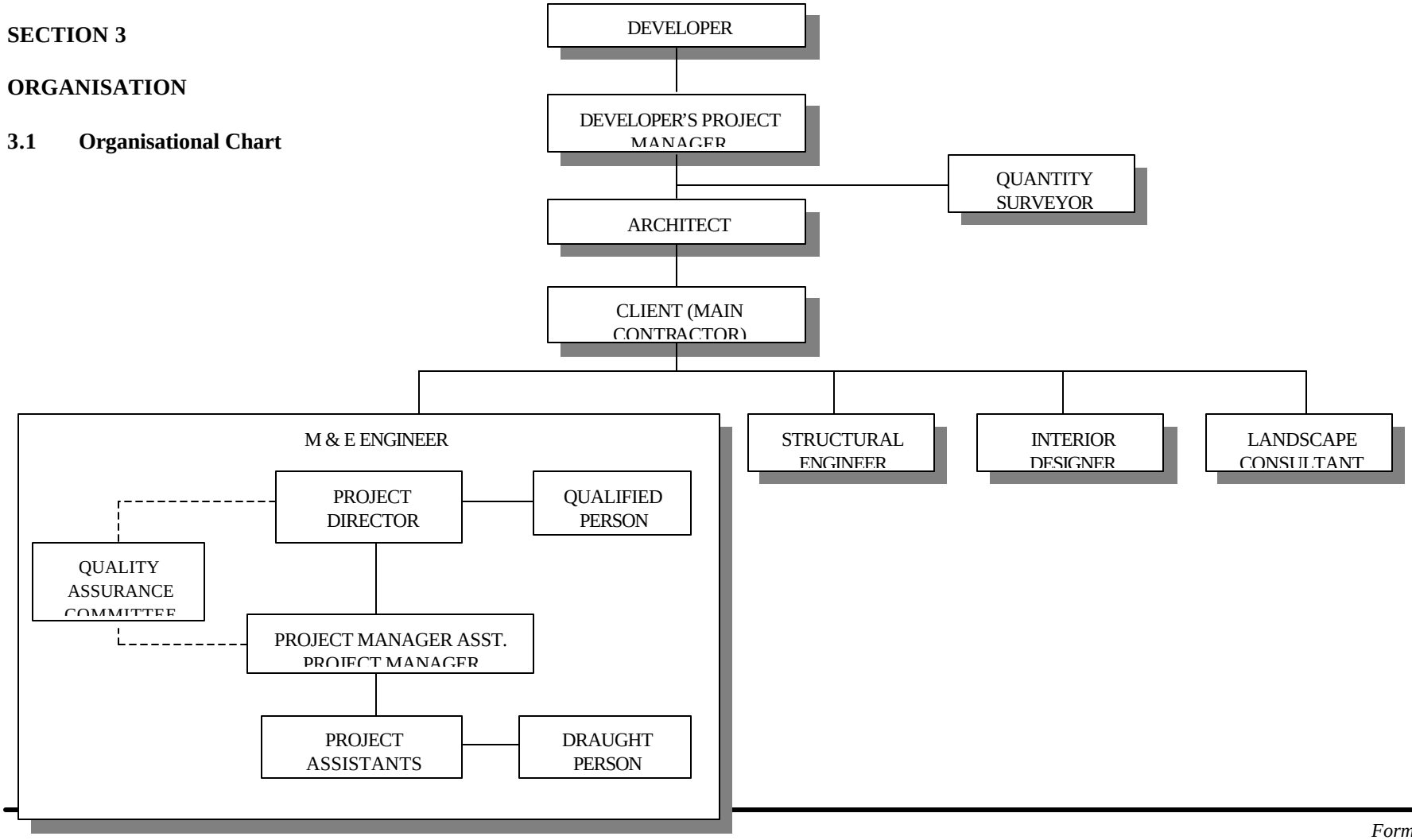
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓ *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 (RT)
Qualified Person	Mechanical	Andrew Loh (LCT)
	Electrical	Richard Teo (RT)
Project Manager		Chim Heng Leong (CHL)
Assistant Project Manager		Loh Fook Yuen (LFY)
Project Assistant (Mech)		-
Project Assistant (Elect)		James Lim (LTV)
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Developer's/Client's Representatives

Developer:- Majlis Ugama Islam Singapura

Address:- 273 Braddell Road
Singapore 579702

Tel:- 6359 1104

Fax:- 6256 8407

Client's Representatives:-

Name of Firm	Contact Person	Contact
Majlis Ugama Islam Singapura	Name: Mr Abdul Rahman Bin Bakar Position: Project Manager	Tel: 6883 1114 Fax: 6883 1144 Pager: - Handphone: - Email: abd_rahman@warees.com
		Tel: Fax: Pager: Handphone: Email:

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect Zahidi A. R. Arkitek	Name: Mr Osman Sidek Position: Architect	Tel: 6345 5514 Fax: 6345 3676 Pager: - Handphone: - Email: osman@zarkitek.com.sg
Quantity Surveyor Davis Langdon & Seah (S) Pte Ltd	Name: Mr Lau Seek Chiang Position: Quantity Surveyor	Tel: 6239 8366 Fax: 6224 7089 Pager: - Handphone: - Email: 4264@dls.com.sg
Structural Engineer PB Merz and McLellan Pte Ltd Interior Designer Tema Colleciones International Pte Ltd	Name: Mr Neo Kong Geh Position: Senior Engineer Name: Ms Wanna Position: Designer	Tel: 6428 0632 Fax: 6438 5775 Pager: - Handphone: - Email: - Tel: 6334 4722 Fax: 6334 4691 Pager: - Handphone: - Email: tema.spore@tema-intl.com
Landscape Consultant Stephen Caffyn Landscape Design	Name: Mr Stephen Caffyn Position: Principal Landscape Architect	Tel: 6227 7152 Fax: 6423 9462 Pager: - Handphone: - Email: sjc@land-arch.net
Developer's Project Manager DTZ Debenham Tie Leung (SEA) Pte Ltd	Name: Mr Vincent Chong Position: Project Manager	Tel: 6293 3228 Fax: 6298 9328 Pager: - Handphone: - Email: vincent_chong@dtz.com.sg

3.4 Other Consultants (Overseas) – Not Applicable

NOT USED

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor LKN Construction Pte Ltd		Name: Mr Khoo Koh Seong Position: Executive Director	Tel: 6568 3137 Fax: 6897 3323 Pager: - Handphone: - Email:lknc@lkn.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor GDS Engineering Pte Ltd		Name: Mr John Lim T S Position: Senior Project Manager	Tel: 6289 1624 Fax: 6287 8430 Pager: 951 44137 Handphone: 9635 7633 Email:kimsan@kimgds.com.sg
Plumbing & Sanitary Installation Sub-Contractor Wang Kok Sewerage Construction Pte Ltd		Name: Mr William Yeo Position: Site Manager	Tel: 6280 7823 Fax: 6382 4371 Pager: 9210 6543 Handphone: - Email: wangkok@mbox4.singnet.com.sg
Electrical Installation Sub-Contractor Perita Electrical Engineering Pte Ltd		Name: Mr Low Peng Hong Position: Project Engineer	Tel: 6282 0717 Fax: 6280 6581 Pager: 9500 6799 Handphone: 96209 665 Email: peritaee@singet.com.sg
Lift & Escalator Installation Sub-Contractor Chevalier Singapore Holdings Ltd		Name: Mr Chu Chin Choon Position: Executive Manager	Tel: 6273 2266 Fax: 6747 2988 Pager: Handphone: 9732 3737 Email: -
Fire Fighting & Alarm Installation Sub-Contractor Chubb Singapore Pte Ltd		Name: Mr Kelvin Lee Position: Project Engineer	Tel: 6292 8421 Fax: 6298 7310 Pager: - Handphone: 9852 7741 Email: -
Swimming Pool Filtration Plant Installation Sub-Contractor Aquatech Products & Services Pte Ltd		Name: Mr Michael Soo Position: Managing Director	Tel: 6842 1188 Fax: 6842 0168 Pager:- Handphone: - Email: aqpspool@pacific.net.sg
Carpark System Installation Sub-Contractor N.A		Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - 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 Teo Koi Heng	Tel: 6823 8008
(b) Sub-Station	Mr Chin Yoke Fah	Tel: 6831 8556
(c) Installation		
(d) Meter Section		
(e) Road Lighting		
(f) Diversion	Mr Ho Jin Cheng	Tel: 6290 9103
Telecom:		
(a) Planning/Line Plant	Mr Gilbert Ho	Tel: 6848 5612
(b) Installation		
(c) Diversion		
BCD:		
(a) Building Plan		
FSB:		
(a) Building Plan		
(b) M&E Section	Mr Vijayarathnam	Tel: 6838 6393 / 6838 6427
PUB (Water)		
(a) Water Conservation	Mr Tham Tuck Kuan/Mr Hashim/Mr Lee Kee Seng	Tel: 6731 3557 / 6731 3575 Fax: 6731 3023
(b) Plumbing Plan	Mr Lim Chee Leong	Tel: - Fax: 6731 3023
(c) Diversion		
PowerGas:		
(a) Planning/Submission	Mr Lim Soon Huat/Mr Ben	Tel: 6831 8687
(b) Installation/Inspection		
(c) Diversion		
ENV (Sewerage):		
(a) Building Plan		
(b) M&E Section	Mr David Lim	Tel: 6731 9630 / 6731 9725
(c) Diversion		
ENV (Pollution Control)		
(a) Planning/Submission	Mr Yip Kwok Hoong	Tel: 6731 9783 / 6731 9725
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme

		2001												2002											
ID	TASK NAME	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.	Preliminary Planning																								
2.	Planning Submission																								
3.	Detail Design																								
4.	BP Submission																								
5.	BP Submission (Amendments)																								
6.	Tender Period for Piling																								
7.	Tender Period for Sub-Structure																								
8.	Tender Period for Super-Structure																								
9.	Piling Period																								
10.	Sub-Structure Construction Period																								
11.	Super-Structure Construction Period																								
12.	TOP																								
13.	CSC																								

		2003												2004											
ID	TASK NAME	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
11.	Super-Structure Construction Period																								
12.	TOP																								

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	-	28/3/01	-	-	-	-	-	-	12/4/01
Power Supply Substation	PowerGrid Pte Ltd	-	11/5/01	22/5/01	14/6/01	-	-	-	-	27/6/01
Main Single Line Diagram	Power Supply Pte Ltd	15/12/02								
Metering Layout	PowerGrid Pte Ltd	-	-	-	-	-	-	-	-	-
Sanitary Installation	ENV (Sewerage)	-	17/5/01	-	-	-	-	-	-	25/5/01
Domestic Water Supply	PUB (Water)	22/10/01	5/11/01	14/12/01	30/1/02	-	-	-	-	23/5/02
Gas Supply Installation	PowerGas Pte Ltd	22/10/01	24/10/01	5/11/01	3/12/01	-	-	-	-	7/12/02
Air Conditioning & Ventilation Inst.	Building Control Division	N.A.	-	-	-					
	Fire Safety Bureau	15/12/01	5/12/02	-	-	-	-	-	-	8/2/02
Fire Fighting & Alarm Installation	Fire Safety Bureau	15/12/01	5/12/02	-	-	-	-	-	-	11/2/02
Telephone Installation	Telecom (Broadband)	19/10/01	26/10/01	12/11/01	13/12/01	-	-	-	-	14/1/02

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	✓	-BD	✓
-PC	✓	-CC	✓
-AE	✓	-CF	✓
-AM	✓	-GC	✓
-AA	✓	-SF	
-PQP	✓	-EI *	

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-SM	✓	-SR	✓	-RVO	✓
-SC	✓	-QM		-MT	
-AI/AD	✓	-EC	✓	-DF	
-SQ/RFI	✓	-MC	✓	-EOT	
-CO	✓	-PP	✓	-TM	✓

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										
-AD										
-CF	✓	✓		✓	✓	✓				

*** EI – Employer's Instruction**

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	Chim Heng Leong
Incoming Architectural Sketches/Details	James Lim
Incoming Structural Drawings	James Lim
M&E Drawings	
- Electrical Installation	Loh Fook Yuen
- Lift & Escalator Installation	Loh Fook Yuen
- Air Conditioning & Ventilation Installation	Chim Heng Leong
- Fire Fighting & Alarm Installation	Chim Heng Leong
- Plumbing & Sanitary Installation	Chim Heng Leong
- Swimming Pool & Filtration Installation	Chim Heng Leong
Other Drawings	
- Interior Design Drawings	Chim Heng Leong
- Landscape Drawings	Chim Heng Leong

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 Applicable

Item No.	Description*	Required From	Required By	Date Required	Remarks

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

SECTION 7

WORK AUTHORISATION

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

(✓ *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			
Emergency Voice Communication System	~~BS~~	SS	~~NFPA~~		
Air Conditioning & Ventilation Installation	~~BS~~	~~AS~~	~~NFPA~~	SS	~~MS~~
Lift & Escalator Installation	~~BS~~	SS			
Sprinkler System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~LPC~~
Wet Riser System/Dry 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~~	
Boiler and Steam Supply System	~~ASME~~	~~BS~~	~~AS~~		
Mechanical Smoke Control System	~~BS~~	~~NFPA~~	~~AS~~		

(Delete where necessary)

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

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

Section	Title
A1	Documentation of Quality System Procedure
A2	Documentation of Project Quality Plan
A3	Administration Control
A4	Document Control
A5	Library Control
A6	Archive Control
A7	Purchasing Control
A8	Training Control
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	A, C
M&E Cost Estimate Report	A, C
Pre-Qualification of Tenderers	-
Tender Documents	I
Tender Report	A, C
Payment Valuation for QS	C, I
Certificates of Supervision for TOP/CSC	I

** 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 Applicable

NOT USED