PROJECT QUALITY PLAN

TAMPINES PLAZA II

For

M/S S L Prime Realty Pte Ltd

Copy No.	

Prepared By: Loh Fook Yuen

Authorised By: Richard Teo

Date: 23 June 1998

PROJECT QUALITY PLAN
Project No.: 1063
Version : 2/0
Date: 23 June 1998

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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	Richard Teo	23 June 1998
2	Andrew Loh	23 June 1998
3	Loh Fook Yuen	23 June 1998
4	Lee Wee Chong	23 June 1998
5	Swee Tong Hua	23 June 1998
6	Doreen Sim	23 June 1998

1.2 Revision Record

Version	Date of Issue	Section Reference	Page(s)	Remarks

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Commercial

Size of Development	
Site Area, m²	2,613.4
Nett Floor Area, m² *	10,155
Gross Floor Area, m²	15,307
Covered Carpark, m²	1,791
Total Built-up Area m²	-
No. of Covered Carpark Lots	100
No. of Apartments/Houses	-
No. of Guest Room	-
No. of Storeys	8
No. of Phases	-

*** Excludes Covered Carpark**

2.2 Cost Plans

M&E Services Cost Plan (S$ x 1M)									
Services	EI	ACVI	LEI	FFAI	PSI	SPFI	CP		
Estimate	2.37	2.78	1.37	0.650	0.7	-	0.06		
Awarded	1.921	2.087	1.064	0.628	0.571	-	0.035		

Total Project Construction Cost (S$ x1M)				
	Site Clearance	Piling	Sub-Structure *	Super-Structure *
Estimate			8.664	41.233
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		HEATING							
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	

2.4 Work Packages

2.4.1 M&E Services Sub-Contract

SERVICES	TYPE*
Electrical Installation (including security installation)	NSC
Lift Installation	NSC
Fire Fighting & Alarm Installation	NSC
Air Conditioning & Ventilation Installation	NSC
Plumbing & Sanitary Installation	DSC
Carparking System Installation	NSC

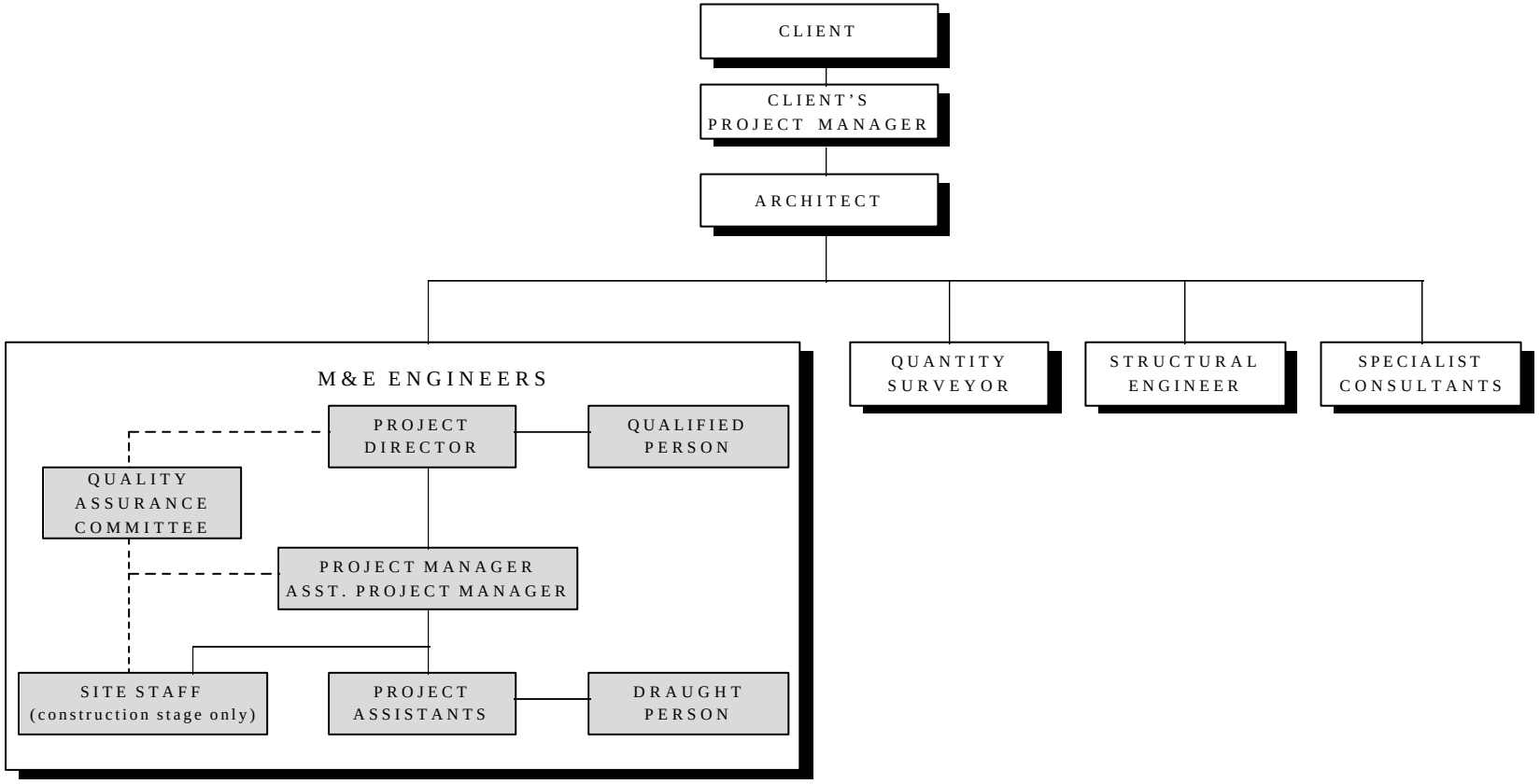
**NSC: Nominated Sub-Contract* **DC: Direct Contract*

**DSC: Domesticated Sub-Contract* **NS: Nominated Supplier*

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 Project Related Staff

TITLE		NAME
Project Director		Richard Teo
Qualified Person	Mechanical	Andrew Loh
	Electrical	Richard Teo
Project Manager		Loh Fook Yuen
Assistant Project Manager		Lee Wee Chong
Project Assistant (Mech)		Swee Tong Hua
Project Assistant (Elect)		Doreen Sim
Draughtsperson		Common Pool
Resident Engineer		Jaya Menon
Assistant Resident Engineer		Loy Chong Chew
Clerk-of-Work		Ng Hong Tat

3.3 Client/Client's Representatives

Client:- S L Prime Realty Pte Ltd

Address:- 5 Shenton Way #02-11
UIC Building, Singapore 068808

Tel:- 222 9312

Fax:- 225 1004

Client's Representative Related Staff:-

NAME	POSITION	DID/TEL NO.	REMARKS
Yip Yuen Leong	Project Manager	222 9312	

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person and Position	Telephone/ Fax/Pager Nos.
Architect Architects 61 Pte Ltd	David Lee Project Architect	Tel: 737 5977 Fax: 732 5439
Quantity Surveyor Rider Hunt Levett & Bailey	Hor F G Quantity Surveyor	Tel: 339 1500 Fax: 339 1521
Structural Engineer T Y Lin (SEA) Pte Ltd	K Surendram Engineer	Tel: 437 3525 Fax: 533 2622
Interior Designer		
Lighting Consultant		
Acoustic Consultant		
Client's Project Manager	Yip Yuen Leong	Tel: 222 9312 Fax: 225 1004
Other Specialist		

3.5 Contractors/Sub-Contractors

Function / Name of Firm	* Type	Contact Person and Position	Telephone/Fax/Pager Nos.
1. Main Contractor Obayashi Corporation		Neo Soon Teck	Tel: 260 1776 Fax: 260 0391
2. Air Conditioning & Ventilation Installation Sub-Contractor Kurihara Kogyo Pte Ltd	NSC	David Guan Project Manager	Tel: 271 9863/4 Fax: 278 4475
3. Plumbing & Sanitary Installation Sub-Contractor	DSC	Chan Peng Yong/Tay Gek Seng Project Manager	Tel: 454 2388 Fax: 455 3222
4. Electrical Installation Sub-Contractor Leun Wah Electric Co Pte Ltd	NSC	Raymond Tan Project Manager	Tel: 475 8266 Fax: 475 2038
5. Lift Installation Sub-Contractor Fujitec Singapore Corporation Ltd	NSC	Roger Tan Project Engineer	Tel: 246 6222 Fax: 444 7626
6. Fire Fighting & Alarm Installation Sub-Contractor Chubb Singapore Pte Ltd	NSC	Tenon Ong Project Manager	Tel: 292 8421 Fax: 298 7310
7. Swimming Pool Filtration Plant Installation Sub-Contractor			
8. Carpark System Installation Sub-Contractor	NSC	David Poh Sales Engineer Johnson Tan Department Manager	Tel: 471 1466 Fax: 474 9225/479 9104

** 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 No:/Fax No:
PowerGrid/Power Supply:		
(a) Customer Supply		
(b) Sub-Station	Mr Francis Chang	831 8555
(c) Installation		
(d) Meter Section		
(e) Road Lighting		
(f) Diversion		
Telecom:		
(a) Planning/Line Plant	Mr Goh Soon Huat	838 3742
(b) Installation		
(c) Diversion		
BCD:		
(a) Building Plan	Mr Liu Jian Bin	222 1211
(b) Air-Cond & Vent Plan		
FSB:		
(a) Building Plan		
(b) M&E Section	Ms Nancy Ang/Mr Vijay	732 0566, 838 6393
PUB (Water)		
(a) Water Conservation		
(b) Plumbing Plan	Mr Ng Guan Chai	731 3598
(c) Diversion		
PowerGas:		
(a) Planning/Submission		
(b) Installation/Inspection		
(c) Diversion		
ENV (Sewerage):		
(a) Building Plan	Mr Benedict Aw	732 7733
(b) M&E Section		
(c) Diversion		
ENV (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

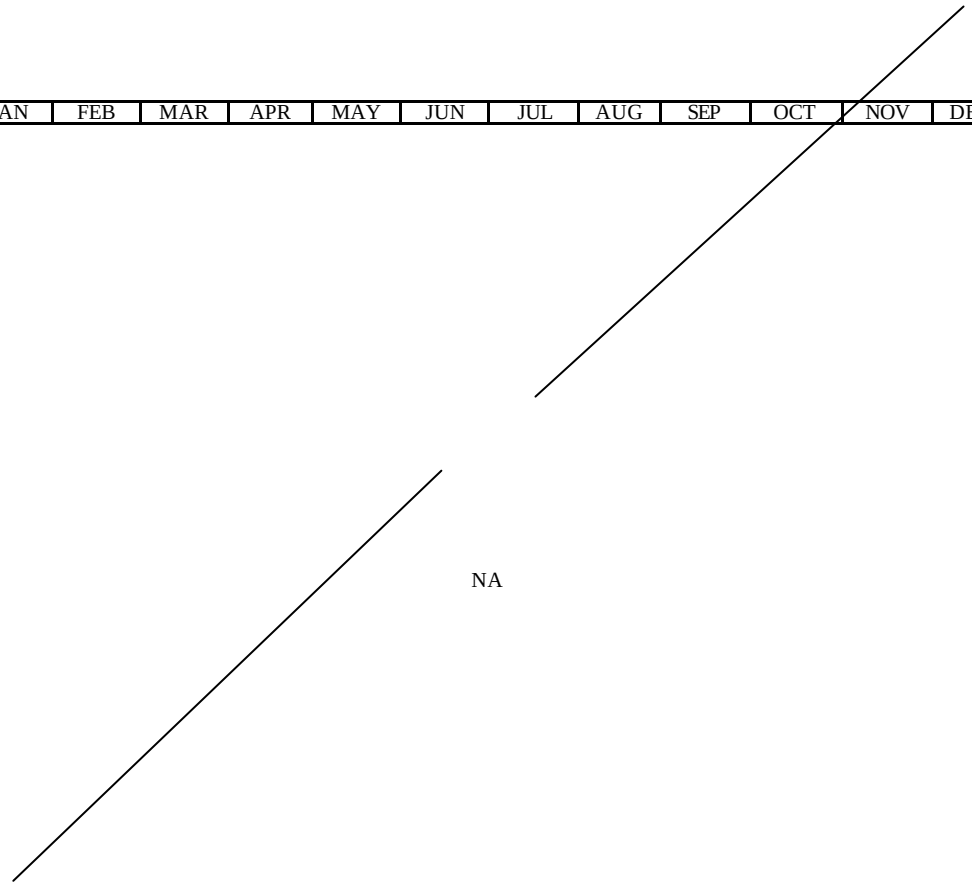
4.1 Overall Programme

			1996	1997												1998											
ID	TASK NAME	MONTHS	D	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																										

SECTION 4 - PROGRAMME

4.2 Overall Internal Programme

ID	TASK NAME	WEEKS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.	First Project Meeting													
2.	Project Quality Plan													
3.	Conceptual Design													
4.	Design Review													
5.	M&E Design Brief													
6.	Riser Duct/Core Layout													
7.	Reflected Ceiling Plan													
8.	Coordinated Services Plan													
9.	Design Review Meeting													
10.	Plumbing & Sanitary Installation													
	Detail Design													
	Design Review Draughting													
	Specification													
	Design Check													
	Tender													
11.	Air Conditioning & Ventilation Installation													
	Detail Design													
	Design Review													
	Draughting													
	Specification													
	Design Check													
	Tender													
12.	Fire Fighting & Alarm Installation													
	Detail Design													
	Design Review													
	Draughting													
	Specification													
	Design Check													
	Tender													
13.	Electrical Installation													
	Detail Design													
	Design Review													
	Draughting													
	Specification													
	Design Check													
	Tender													
14	Lift Installation													
	Detail Design													
	Design Review													
	Draughting													
	Specification													
	Design Check													
	Tender													



SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Main Building) - Plaza II

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 (P18)	PowerGrid Pte Ltd		31/7/96							13/8/96
Main Single Line Diagram (P18)	Power Supply Pte Ltd		13/1/97	23/1/97	4/2/97					18/2/97
Consumer Switchroom Layout	PowerGrid Pte Ltd									
Metering Layout	PowerGrid Pte Ltd		26/8/96	30/9/96	28/10/96					
Sanitary Installation	ENV (Sewerage)		4/10/96	4/11/96	26/11/96					31/1/97
Domestic Water Supply	PUB (Water)									3/2/97
Gas Supply Installation	PowerGas Pte Ltd		25/2/97	14/3/97	20/5/97					
Air Conditioning & Ventilation Inst.	Building Control Division		24/3/97							30/5/97
	Fire Safety Bureau		13/1/97	20/1/97	27/1/97		19/6/97			9/5/97
Fire Fighting & Alarm Installation	Fire Safety Bureau		25/2/97		29/5/97					12/2/97
	Telecom (Broadband)									
Telephone Installation (P8)	Telecom (TDCS)									
	Telecom (Domestic Operation)									
Fuel Storage	Fire Safety Bureau									
	Pollution Control Department									

SECTION 4

PROGRAMME

4.4 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 Main Single Line Diagram	PowerGrid Pte Ltd Power Supply Pte Ltd								
Consumer Switchroom Layout	PowerGrid Pte Ltd								
Metering Layout	PowerGrid Pte Ltd								
Sanitary Installation	ENV (Sewerage)								
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

4.5 Work Progress - Design and Tender Stage

M&E Services

	SERVICES		EI	ACVI	LEI	FFAI	PSI	SPFI
1.	Number of Drawings							
2.	Preliminary Design Completed	25%						
		50%						
		75%						
		100%						
3.	Detailed Design Completed	25%						
		50%						
		75%						
		100%						
4.	Tender Document Completed	25%						
		50%						
		75%						
		100%						
5.	TENDER							
	Tender Date							
	Tender Evaluation Report							
	Tender Award							

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
-CM	✓	-QSP	
-PC	✓	-BD	✓
-PUB/TAS	✓	-CC	✓
-BCD/FSB/ENV	✓	-GC	✓
-PQP	✓	-CF	✓

Project Files to be initiated by PM as and when required

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

Service Files to be initiated by PM as and when required

	Service										
File Ref:	ACVI	FFAI	PSI	EI	LI	SPFP	CP				
-G	✓	✓	✓	✓	✓						
-Q											
-RVO	✓	✓	✓	✓	✓						
-P	✓	✓	✓	✓	✓						
-AI	✓	✓	✓	✓	✓		✓				
-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	Swee Tong Hua
Incoming Architectural Sketches/Details	Swee Tong Hua
Incoming Structural Drawings M&E Drawings	Swee Tong Hua
- Electrical Installation	Doreen Sim
- Lift Installation	Doreen Sim
- Air Conditioning & Ventilation Installation	Swee Tong Hua
- Fire Fighting & Alarm Installation	Swee Tong Hua
- Plumbing & Sanitary Installation	Swee Tong Hua
Other Drawings	
- Interior Design	Swee Tong Hua

INTERFACING

6.1 Method of Interface

Description	Method of Interface
Client's Review & Approval	1. Brief Design Report 2. M&E Cost Estimate 3. Discussion in Client/Consultnat Meetings
Interface With External Design Teams	1. Communication via faxes and letters 2. Discussion during Technical Meetings and Consultant Meetings
Interface Between Internal Design Teams	1. Memo or circulation of design requirements 2. Adhoc meetings

SECTION 6

INTERFACING

6.2 Internal Design Interface

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		C	C		
b.	Project Administration	I		C	I	I	
c.	Project Cost Estimate/Contract Cost)	A		I		I	
2.	**Drawings**						
a.	Outline Desig n Drgs.	A		C	C		
b.	Sketch Design Drgs.	I		C	C		
c.	Final Design Drgs.	I		C	C		
d.	Shop Drawings	I		C	C		
e.	As Built Drgs.	I					
3.	**Other Document**						
a.	Specification	A		I			
b.	Tender Document	I		I		C	
c.	Tender Evaluation Report	A		I		I	
d.	Design Report	A		C			
e.	Progress Report	I		I			
f.	Financial Report	I		I		C	
g.	Minutes of Meeting	I		I			
h.	Inspection Report	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
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 Installation	~~BS~~	SS			
Sprinkler System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~LPC~~
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~~	
Boiler and Steam Supply System	~~ASME~~	~~BS~~	~~AS~~		
Mechanical Smoke Control System	~~BS~~	~~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
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

SECTION 9

CLIENT'S REQUIREMENTS

9.1 Specific Documents/Reports Required by Client:-

Item	Date Required	* Remarks
M&E Design Report		
Preliminary Tender Documents		
Tender Report		
Progress Report		
Payment Valuation for QS	20th of each month	
O&M Manuals		
As-Built Drawings		

* *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)*