PROJECT QUALITY PLAN

PROPOSED CONDOMINIUM HOUSING
AT BUKIT BATOK EAST AVENUE 2/HILLVIEW AVENUE

For

M/S HILLVIEW REGENCY PTE LTD

Copy No.	

Prepared By: Loh Fook Yuen

Authorised By: Richard Teo

Date: 3 March 2004

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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	1271-PQP File	16 October 2000
2	Loh Fook Yuen	16 October 2000

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	16 October 2000	1 to 10	26	
1	1 November 2001	1 to 10	26	
2	3 March 2003	1 to 10	26	
3	3 September 2003	1 to 10	26	
4	3 March 2004	1 to 10	26	

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Residential

Statistics of Development	
Site Area, m²	22737.90
Nett Floor Area, m²	
Gross Floor Area, m²	63,664.68
Covered Carpark, m²	115.09 (carpark block)
No. of Covered Carpark Lots	572
No. of Apartments/Houses	572
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	4 Blocks of 25-Storeys
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1000)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	5.3	4.3	2.5	0.87	5.4	0.5				
Awarded	3,750	3,284	1,900	0,68	4,130	0,43				

Total Project Construction Cost (S$ x1000)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	-
Awarded	-	2,900	71,600

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

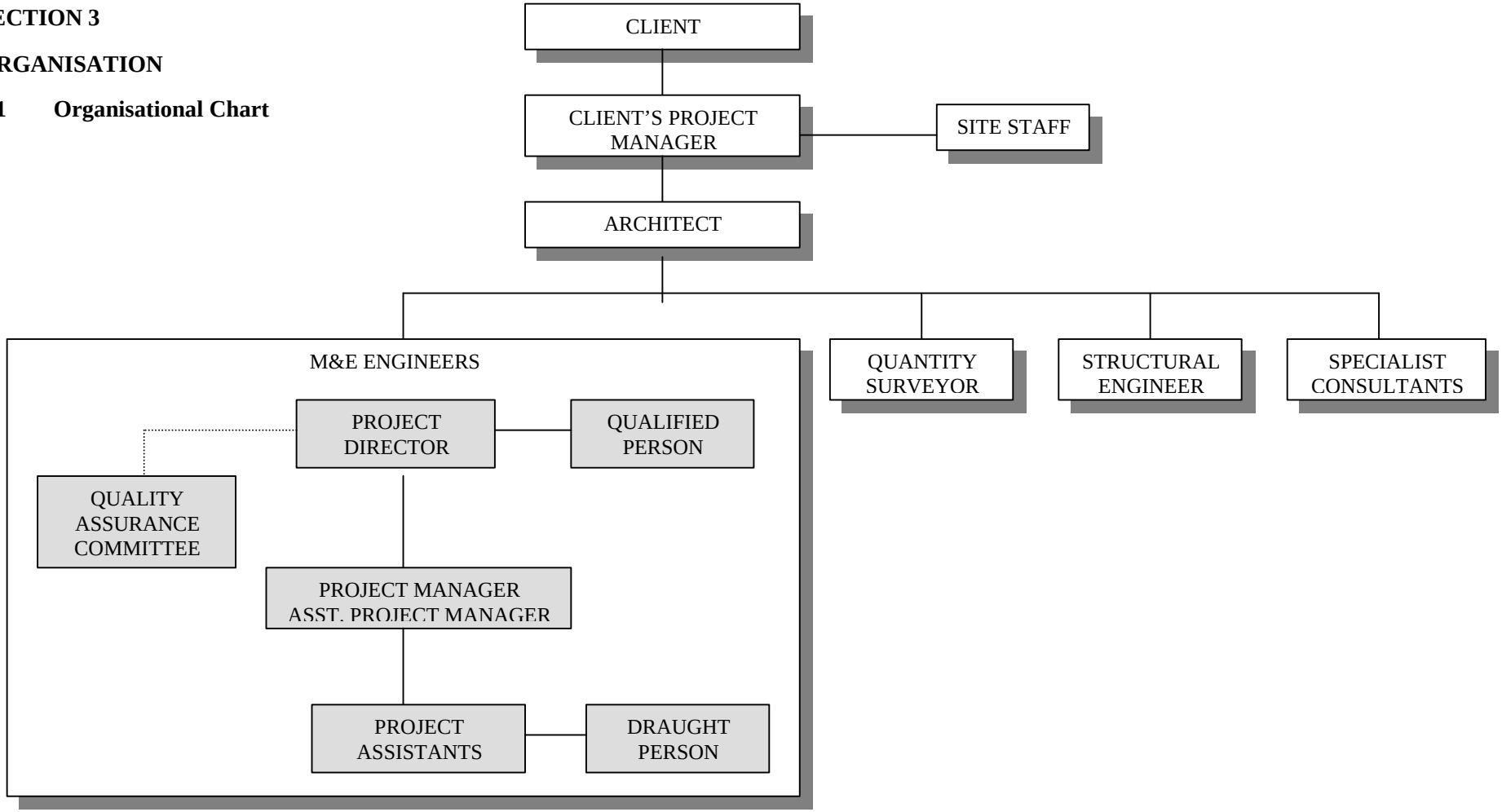
EJECTOR & DIVERTER		SUMP PUMP	✓	FUEL OIL TANK		LIFT		PRESSURE VESSEL		HOISTS		FOAM	

(✓ *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
Qualified Person	Mechanical	Loh Chew Thong
	Electrical	Richard Teo
Project Manager		Loh F Y
Assistant Project Manager		Tay W C
Project Assistant (Mech)		Liaw S F
Project Assistant (Elect)		James Lim
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client:- Hillview Regency Pte Ltd

Address:- 14 Scotts Road #06-00
Far East Plaza
Singapore 228213

Tel:- 6235 2411

Fax:- 6235 3316

Client's Representatives:-

Name of Firm	Contact Person	Contact
Hillview Regency Pte Ltd	Name: Mr Lim Wei Ping Position: Project Manager	Tel: 6235 2411 Fax: 6733 9071 Pager: - Handphone: 9824 0051 Email: limwp@fareast.com.sg
Hillview Regency Pte Ltd	Name: Mr Michael Cheng Position: Resident Engineer	Tel: 6665 0594 Fax: 6665 9101 Pager: - Handphone: 9863 0847 Email: hillviewregency@fareast.com.sg
Pemcon	Name: Ms Nah Bee Luan Position: Quantity Surveyor	Tel: 6235 2411 Fax: 6733 9071 Pager: - Handphone: - Email: nahbeeluan@fareast.com.sg

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect RDC Architects Pte Ltd	Name: Mr Alex Tang Position: Architect	Tel: 6278 8878 Fax: 6278 7727 Pager: - Handphone: - Email: a.tang@rdca.com.sg
Quantity Surveyor KPK Quantity Surveyors	Name: Mr Jihari Tanamas Position: Quantity Surveyor	Tel: 6536 3303 Fax: 6536 2633 Pager: - Handphone: - Email: t.jihari@kpkqs.com.sg
Structural Engineer KTP Consultants Pte Ltd	Name: Mr Ng Kai Sing Position: Engineer	Tel: 6273 5622 Fax: 6273 8454 Pager: - Handphone: - Email: ngks@ktp.com.sg
Interior Designer BY Design Pte Ltd	Name: Mr Liew Pui Yen Position: Designer	Tel: 6324 3211 Fax: 6324 3277 Pager: - Handphone: - Email: by.design@pacific.net.sg
Lighting Consultant N.A.	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
Acoustic Consultant N.A.	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
Landscape Architect OTLA Design Partnership	Name: Ms Nor Ashikin Mohd Yashin Position: Designer	Tel: 07 241 6761 Fax: 07 241 6762 Pager: - Handphone: - Email: otladp@yahoo.com

3.4 Other Consultants (Overseas)

NOT USED

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor Poh Lian Construction Pte Ltd	DC	Name: Mr Bobby Lim Position: Project Manager	Tel: 6665 0594 Fax: 6665 9345 Pager: - Handphone: - Email: -
Air Conditioning & Ventilation Installation Sub-Contractor Leong Hum Engineering Pte Ltd	NSC	Name: Mr Prasad Position: Project Manager	Tel: 6296 8473 Fax: 6296 0213 Pager: - Handphone: 9488 7549 Email: lhepl@starhub.net.sg
Plumbing & Sanitary Installation Contractor Santa Trading Pte Ltd	DSC	Name: Mr Paul Ang Position: Site Co-ordination	Tel: 6382 3018 Fax: 6382 2347 Pager: - Handphone: - Email: -
Electrical Installation Sub-Contractor Leong Hum Engineering Pte Ltd	NSC	Name: Mr Patrick Leong Position: Director	Tel: 6296 8473 Fax: 6296 0213 Pager: - Handphone: 9616 1067 Email: lhepl@starhub.net.sg
Lift & Escalator Installation Sub-Contractor Schindler Lifts (Singapore) Pte Ltd	NSC	Name: Mr Daryl Ng Position: Project Engineer	Tel: 6748 8611 Fax: 6846 2212 Pager: - Handphone: - Email: -
Fire Fighting & Alarm Installation Sub-Contractor Sprinkler Engineering Pte Ltd	NSC	Name: Mr Tan T H Position: Project Engineer	Tel: 6453 1488 Fax: 6453 7656 Pager: - Handphone: 9780 0452 Email: spkeng@singnet.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor Aquatech Products & Services Pte Ltd	NSC	Name: Mr Don Wong Position: Project Engineer	Tel: 6842 1188 Fax: 6842 0168 Pager: - Handphone: - Email: aqpspool@pacific.net.sg
Carpark System Installation Sub-Contractor -	-	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
_____	-	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
SP PowerGrid:		
(a) Sub-Station	Mr Chin Yoke Fah	6823 8556
(b) Diversion	Mr Tay Chin Liang	6660 9304
SP Services:		
(a) Customer Supply	Mr Teo Koi Heng	6823 8282
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) Planning/Line Plant	Mr Wong Yin Hong	6838 2861
(b) Installation		
(c) Diversion		
BCD:		
(a) Building Plan		
FSSD:		
(a) Building Plan		
(b) M&E Section	Mr Kwan Lian Sian	6848 1455
PUB (Water)		
(a) Water Conservation		
(b) Plumbing Plan	Mr Ang Wui Seng	6731 3548
(c) Diversion		
PUB (Sewerage):		
(a) Building Plan	Mrs Tan Kian Hong	6731 9628
(b) M&E Section		
(c) Diversion		
CityGas:		
(a) Planning/Submission	Mr Liew K B	6586 8846
(b) Installation/Inspection	Mr Lim Teck Seng	6586 8872
PowerGas:		
(a) Diversion		
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme (Note: Architect's programme dated 9 October 2000 is superseded and will be reviewed)

ID	TASK NAME	MONTHS	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 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	-	16/5/00							23/5/00
Power Supply Substation	PowerGrid Pte Ltd	-	28/11/00	12/12/00	24/7/01					07/08/01
Main Single Line Diagram	Power Supply Pte Ltd	29/10/01	-							-
Consumer Switchroom Layout	PowerGrid Pte Ltd	-	-							-
Metering Layout	PowerGrid Pte Ltd									
Sanitary Installation	ENV (Sewerage)	-	07/11/02							12/11/02
Domestic Water Supply	PUB (Water)	-	11/7/01	06/8/01	17/09/01	12/10/01	21/12/01			10/01/02
Gas Supply Installation	CityGas Pte Ltd	08/10/01	29/01/02	05/02/02	19/06/02	01/07/02	24/10/02			15/11/02
Air Conditioning & Ventilation Inst.	Fire Safety Bureau	02/10/01	01/03/02							02/03/02
Fire Fighting & Alarm Installation	Fire Safety Bureau	03/10/01	01/03/02							02/03/02
Telephone Installation	Telecom (Broadband)	-	-							-
	Telecom (TDCS)	-	-							-
	Telecom (Domestic Operation)	12/11/01	06/02/02	(06/03/02)	18/03/02					15/04/02
Fuel Storage	Fire Safety Bureau									
	Pollution Control Department									

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:	
-AE	✓	-AM	✓
-BD	✓	-CC	✓
-CM	✓	-GC	✓
-PC	✓		

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-AA	✓	-PP	✓		
-CF	✓	-EOT	✓		
-SM	✓	-SF	✓		
-SC	✓	-PQP	✓		
-AI/AD	✓				
-SQ	✓				
-CO	✓				
-SR	✓				
-EC/MC	✓				

Service Files to be initiated by PM as and when required

	Service										
File Ref:	ACVI	FFAI	PSI	EI	LI	SPFP					
-G	✓	✓	✓	✓	✓	✓					
-PP	✓			✓							
-VO			✓	✓							
-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	James Lim
Incoming Architectural Sketches/Details	James Lim
Incoming Structural Drawings	James Lim
M&E Drawings	
- Electrical Installation	James Lim
- Lift & Escalator Installation	James Lim
- Air Conditioning & Ventilation Installation	Liaw S F
- Fire Fighting & Alarm Installation	Liaw S F
- Plumbing & Sanitary Installation	Liaw S F
- Swimming Pool & Filtration Installation	Liaw S F
Other Drawings	
- Interior Design	James Lim
- Landscape/Waterscape	James Lim

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

* When issue also relates to the respective Consultant

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
-	-

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 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	~~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

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
M4	Design Change Control
M7	Construction Process Control
M8	Testing and Commissioning
S1	Document Control
S2	Documentation of Quality Management System Procedure
S3	Documentation of Project Quality Plan
S6	Archive Control
S8	Drawing Control
S9	Administration Control
Q2	Feedback Reporting

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
M&E Cost Estimate Report	A
Pre-Qualification of Tenderers	-
Tender Documents	I
Tender Report	I
Payment Valuation for QS	By 13th of each month
Certificates of Supervision for TOP/CSC	-

** 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)*

- **Not Used**

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

NOT USED