PROJECT QUALITY PLAN

KAKI BUKIT INDUSTRIAL PARK - PLOT A

For

M/S KAKI BUKIT INDUSTRIAL PARK PTE LTD

Copy No.	

Prepared By: Goh Soon Huat

Authorised By: Tan Lai Siong

Date: 29 December 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	1025(A)-PQP File	1 October 1998
2	Goh Soon Huat	1 October 1998

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
1/0	1 October 1998	Section 1 to Section 9	24	1st Issue of PQP
2	29 December 1998	Section 1 to Section 10	26	2nd Issue of PQP

SECTION 2

PROJECT INFORMATION

2.1 Project Description*

Type of Development	Industrial

Size of Development	
Site Area, m²	11,505
Nett Floor Area, m²	-
Gross Floor Area, m²	24,070
Covered Carpark, m²	10,000
Total Built-up Area m²	-
No. of Covered Carpark Lots	-
No. of Apartments/Houses	88 (Factory)
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	1 Block of 4/5 Storeys with 1 Basement
No. of Phases	-

2.2 Cost Plans*

M&E Services Cost Plan (S$ x 1M)									
Services	EI	ACMV	LI	FFAI	PSI				
Estimate	2.6	0.9	1.35	0.9	1.2				
Awarded	1.799	1.0	1.35	0.695	1.04				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling	Main Contract
Estimate	-	-	-
Awarded	-	-	34.6

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*)

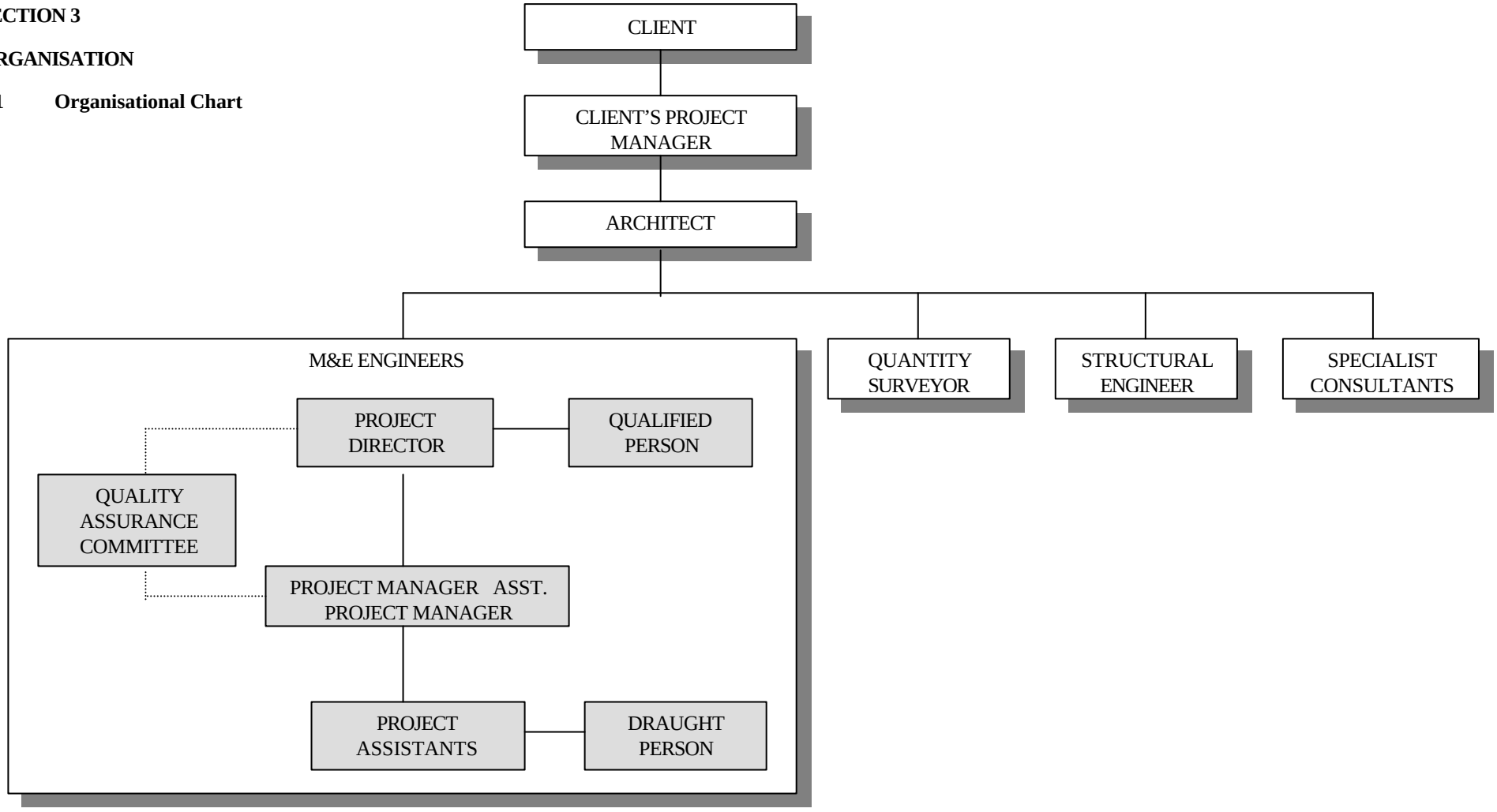
2.3.3 Submission to Relevant Authorities by Others

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

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 Project Related Staff

TITLE		NAME
Project Director		Tan Lai Siong
Qualified Person	Mechanical	Andrew Loh
	Electrical	Tan Lai Siong
Project Manager		Goh Soon Huat
Assistant Project Manager		Chong Lai Meng
Project Assistant (Mech)		Aw Geok Hui
Project Assistant (Elect)		Wong Tack Chow
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-

3.3 Client/Client's Representatives

Client:- Kaki Bukit Industrial Park Pte Ltd

Address:- 62 Kaki Bukit Industrial Terrace
Singapore 416142

Tel :- 844 0811

Fax :- 844 0822

Client's Representative Related Staff:-

Name of Firm	Contact Person	Contact
Kaki Bukit Industrial Park Pte Ltd	Name: Mr Ong Cheong Meng Position: Director	Tel: 844 0811 Fax: 844 0822 Pager: - Handphone: - Email: -
-	Name: Position:	Tel: Fax: Pager: Handphone: Email:
-	Name: Position:	Tel: Fax: Pager: Handphone: Email:

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect DP Architects Pte Ltd	Name: Mr Song Yew Kee Position: Senior Associate	Tel: 338 3988 Fax: 337 9989 Pager: - Handphone: - Email: -
Quantity Surveyor KPK Quantity Surveyors	Name: Mr Loh Kwi Leong Position: Director Name: Mr John Bosh Position: -	Tel: 536 3303 Fax: 536 2633 Pager: - Handphone: - Email: kpkqs@singnet.com.sg
Structural Engineer Loh Consultants Pte Ltd	Name: Mr Teoh Chee Keong Position: Senior Engineer	Tel: 735 6028 Fax: 735 6005 Pager: - Handphone: - Email: -
Interior Designer -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Lighting Consultant -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
Acoustic Consultant -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
_____ -	Name: Position:	Tel: Fax: Pager: Handphone: Email:
_____ -	Name: Position:	Tel: Fax: Pager: Handphone: Email:

3.4 Other Consultants (Overseas)

NOT USED

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor S.A. Shee Co. Pte Ltd	Lump Sum Contract	Name: Mr Chwee Meng Chong Position: -	Tel: 392 5311 Fax: 392 5233 Pager: - Handphone: - Email: -
Air Conditioning & Ventilation Installation Sub-Contractor MillWright Automation System Pte Ltd	NSC	Name: Mr Foo Say Han Position: -	Tel: 552 1218 Fax: 552 2913 Pager: - Handphone: - Email: -
Plumbing & Sanitary Installation Sub-Contractor Gibson Engineering (S) Pte Ltd	NSC	Name: Mr Foo Say Sing Position: Director	Tel: 552 1218 Fax: 552 2913 Pager: - Handphone: - Email: -
Electrical Installation Sub-Contractor Electrical Power Equipment (Pte) Ltd	NSC	Name: Mr Foo Ming Yann Position: Director	Tel: 481 9554 Fax: 482 5237 Pager: - Handphone: - Email: -
Lift Installation Sub-Contractor Skyline Elevator (S) Pte Ltd	DSC	Name: Mr Vincent Chan Position: Director	Tel: 536 1649 Fax: 536 1657 Pager: - Handphone: - Email: -
Fire Fighting & Alarm Installation Sub-Contractor Chubb Singapore Pte Ltd	NSC	Name: Mr Toh Kian Tiong Position: -	Tel: 292 8421 Fax: 298 7310 Pager: - Handphone: - Email: -
Swimming Pool Filtration Plant Installation Sub-Contractor -		Name: Position:	Tel: Fax: Pager: Handphone: Email:
Carpark System Installation Sub-Contractor -		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 Yusup Ab Rahman Al-Haj	Tel: 831 8281
(b) Sub-Station	Mr Francis Chang	Tel: 831 8555 Fax: 831 8564
(c) Installation	Mr Loh Park Woon	Tel: 277 7063 Fax: 277 7044
(d) Meter Section	Mr Koh Ah Mun	Tel: 277 7002 Fax: 277 7008
(e) Road Lighting	-	-
(f) Diversion	-	-
Telecom:		
(a) Planning/Line Plant	Mr Lee Him Buan	Tel: 838 2847 Fax: 733 9895
(b) Installation	-	-
(c) Diversion	-	-
BCD:		
(a) Building Plan	-	-
(b) Air-Cond & Vent Plan	-	-
FSB:	-	-
(a) Building Plan	-	-
(b) M&E Section	-	-
PUB (Water)		
(a) Water Conservation	Mr David Loh	Tel: 731 3518 Fax: 731 3023 E-mail: pubweb@pub.gov.sg
(b) Plumbing Plan	Mr Kuang Kim Yaw	Tel: 731 3544 Fax: 731 3023 E-mail: pubweb@pub.gov.sg
(c) Diversion	-	-
PowerGas:		
(a) Planning/Submission	-	-
(b) Installation/Inspection	-	-
(c) Diversion	-	-
ENV (Sewerage):	-	-
(a) Building Plan	-	-
(b) M&E Section	Mr Anselm Peter Gonsalves	Tel: 731 9725 Fax: 731 9631
(c) Diversion	-	-
ENV (Pollution Control)		
(a) Planning/Submission	-	-
(b) Inspection	-	-

SECTION 4

PROGRAMME

4.1 Overall Programme

ID	TASK NAME	1998												1999											
		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 (Main Building) - 1st Submission

Service	Authority	Original Submission		Comments/Resubmission		Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	
Application for Electricity Supply	Power Supply Ltd	-	-	-	-	10 April 1995
PowerGrid Substation	PowerGrid Ltd	N.A.				
Main Single Line Diagram	Power Supply Ltd	-	28 July 1998	-	-	31 July 1998
Metering Layout	PowerGrid Pte Ltd	-	6 August 1998	-	-	
Sanitary Installation	ENV (Sewerage)	-	15 July 1998	-	-	5 September 1997
Domestic Water Supply	PUB (Water)	-	16 October 1997	18 December 1997	21 April 1998	19 June 1998
Gas Supply Installation	PowerGas Pte Ltd	N.A.				
Mechanical Ventilation Inst.	Fire Safety Bureau	November 1998	-			
Smoke Control System	Fire Safety Bureau	N.A.				
Fire Fighting & Alarm Installation	Fire Safety Bureau	November 1998				
Telephone Installation	Telecom (Broadband)	-	29 July 1997			8 August 1997

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: 1025(A)		File Ref: 1025(A)	
-CM	✓	-QSP	-
-PC	✓	-BD	✓
-AE	✓	-CC	✓
-AM	✓	-CF	✓
-AA	✓	-GC	✓
-PQP	✓		

Project Files to be initiated by PM as and when required

File Ref: 1025(A)		File Ref: 1025(A)		File Ref: 1025(A)	
-SM	✓	-SR	✓	-ET	-
-SC	-	-QM	-	-MT	-
-AI	✓	-EC	✓	-DF	-
-SQ	✓	-MC	-	-EOT	-
-CO	✓	-PP	✓		

Service Files to be initiated by PM as and when required

	Service										
File Ref: 1025(D)	ACVI	FFAI	PSI	EI	LI						
-G	✓	✓	✓	✓	✓						
-Q	-	-	-	-	-						
-VO	-	-	-	-	-						
-PP	✓	✓	✓	✓	✓						
-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	Goh Soon Huat
Incoming Architectural Sketches/Details	Goh Soon Huat
Incoming Structural Drawings	Goh Soon Huat
M&E Drawings	
- Electrical Installation	Goh Soon Huat
- Lift Installation	Goh Soon Huat
- Air Conditioning & Ventilation Installation	Chong Lai Meng
- Fire Fighting & Alarm Installation	Chong Lai Meng
- Plumbing & Sanitary Installation	Chong Lai Meng
Other Drawings	Goh Soon Huat

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	C	-	C	C	-	
b.	Project Administration	I	-	C	I	I	
c.	Project Cost Estimate/Contract Cost	A	-	I	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	C	-	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	C	-	I	-	-	
b.	Tender Document	I	-	I	-	-	
c.	Tender Evaluation Report	C	-	I	-	C	
d.	Design Report	C	-	C	-	I	
e.	Progress Report	I	-	I	-	-	
f.	Financial Report	I	-	I	-	-	
g.	Minutes of Meeting	I	-	I	-	C	
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
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 Questionaires	✓		✓	
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
NIL	-

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			
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~~
Mechanical Smoke Control System	~~BS~~	~~NFPA~~	~~AS~~	SS	

(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
A1	Documentation of Quality System Procedure
A2	Documentation of Project Quality Plan
A3	Administration Control
A4	Document Control
A6	Archive 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	Contruction Process Control - Not Applicable except for Clause 3, 8 & 9
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	Not Required
M&E Cost Estimate Report	C
Pre-Qualification of Tenderers	Not Required
Tender Documents	C/I
Tender Report	A
Payment Valuation for QS	Re
Certificates of Supervision for TOP/CSC	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)*

N.A.

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

NOT USED