PROJECT QUALITY PLAN

TIC TECH CENTRE

For

M/S TECK WAH PAPER PRODUCT LTD

Copy No.	

Prepared By: Tai Y C

Authorised By:

Date: 4 June 1997

PROJECT QUALITY PLAN
Project No.: 1108
Version : 1/0
Date: 4 June 1997

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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	Tai Y C	
2	Goh S H	

1.2 Revision Record

Version	Date of Issue	Section Reference	Page(s)	Remarks

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Six Storey Industrial Building

Size of Development	
Site Area, m²	19,111
Nett Floor Area, m² *	-
Gross Floor Area, m²	-
Covered Carpark, m²	933.20
Total Built-up Area m²	-
No. of Covered Carpark Lots	193
No. of Apartments/Houses	-
No. of Guest Room	-
No. of Storeys	6
No. of Phases	2

*** Excludes Covered Carpark**

2.2 Cost Plans

M&E Services Cost Plan (S$ x 1M)									
Services	EI	ACVI	LEI	FFAI	PSI	SPFI			
Estimate	4.3	4.09	1.5	1.856	0.965	-			
Awarded					0.938				

Total Project Construction Cost (S$ x1M)				
	Site Clearance	Piling	Sub-Structure *	Super-Structure *
Estimate				
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	DSC
Lift & Escalator Installation	DSC
PABX Installation	
Telelift Installation	
Security Installation	DSC
Fire Fighting & Alarm Installation	DSC
Air Conditioning & Ventilation Installation	DSC
Plumbing & Sanitary Installation	DSC
Building Automation System	
Swimming Pool Filtration Plant	

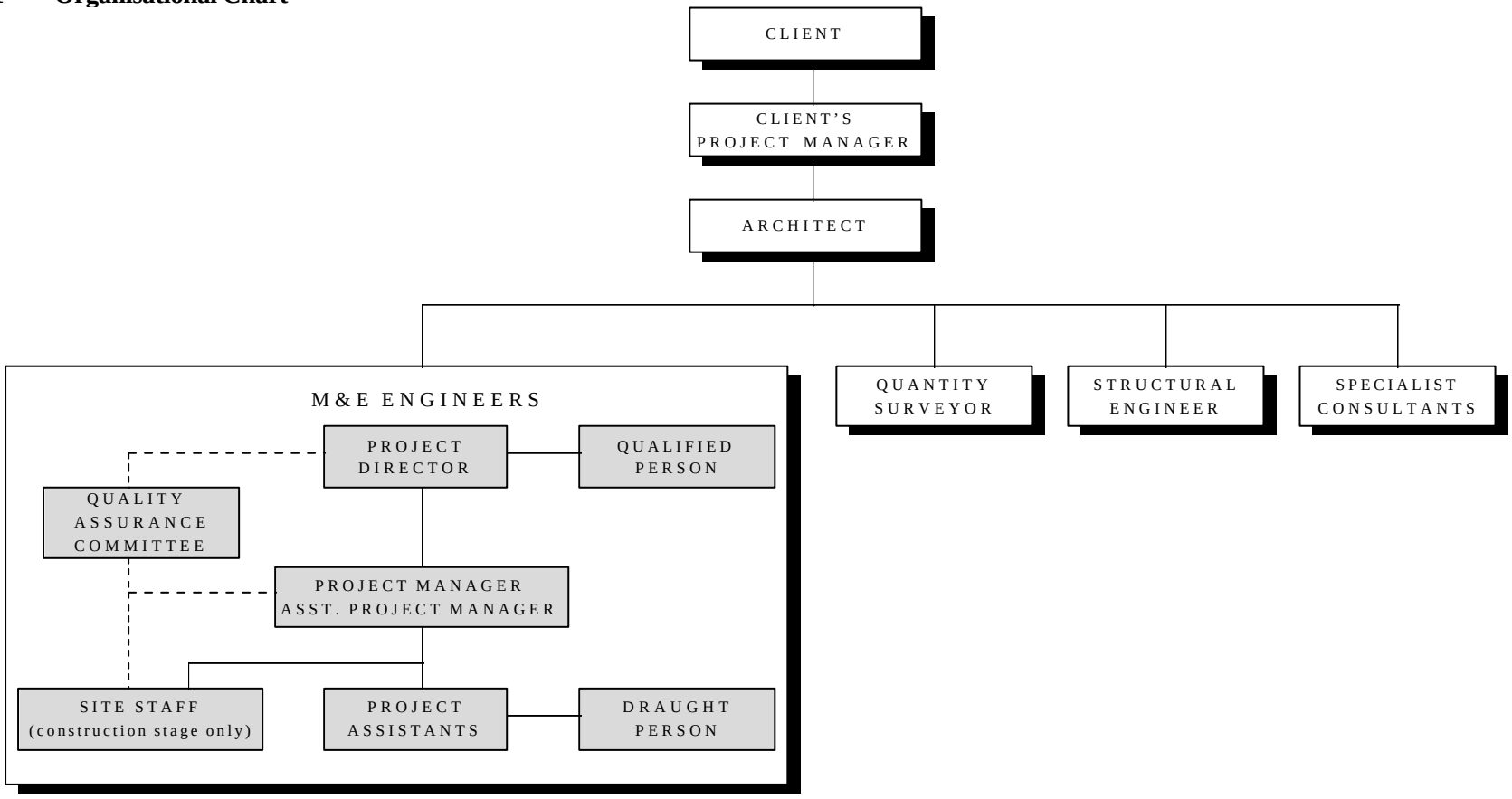
**NSC: Nominated Sub-Contract* **DC: Direct Contract*

*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		Andrew Loh
Qualified Person	Mechanical	Andrew Loh
	Electrical	Tan L S
Project Manager		Tai Y C
Assistant Project Manager		Goh S H
Project Assistant (Mech)		-
Project Assistant (Elect)		Tracy Koh
Draughtsperson		K L Tay
Resident Engineer		-
Assistant Resident Engineer		-
Clerk-of-Work		-

3.3 Client/Client's Representatives

Client:- Teck Wah Paper Products Ltd

Address:- 108 International Road
Singapore 629173

Tel:-

Fax:-

Client's Representative Related Staff:-

NAME	POSITION	DID/TEL NO.	REMARKS
Mr Ng Nai Ping	Director	266 8181	

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person and Position	Telephone/ Fax/Pager Nos.
Architect Lee Sian Teck Chartered Architects	Arthur Aw Kiki Tan Jasmine Tan	Tel: 220 2544 Fax: 225 5781
Quantity Surveyor Rider Hunt Levett & Bailey	Lam Chye Shin	Tel: 339 1500 Fax: 339 1521
Structural Engineer Chong & Lee	Wei Yuning	Tel: 222 0669 Fax: 222 0979
Interior Designer Chez Design Pte Ltd	Martin Lek	Tel: 225 6922 Fax: 225 8722
Lighting Consultant		
Acoustic Consultant		
Client's Project Manager Hyder Consulting Pte Ltd	Lee Kah Chan	Tel: 334 3880 Fax: 334 3887
Other Specialist		

3.5 Contractors/Sub-Contractors

Function / Name of Firm	* Type	Contact Person and Position	Telephone/Fax/Pager Nos.
1. Main Contractor Chieng-Chuang Construction	DC	Albert Quek - Director/Genel Manager	Tel: 272 4733 Fax: 272 1472
2. Air Conditioning & Ventilation Installation Sub-Contractor			
3. Plumbing & Sanitary Installation Sub-Contractor Industrial Plumbing	DSC	Leong Weng Yein - Senior Project Manager	Tel: 382 1322 Fax: 382 1300
4. Electrical Installation Sub-Contractor			
5. Lift & Escalator Installation Sub-Contractor Fujitec Singapore	DSC	Chan Man Kin - Project Executive	Tel: 241 6222 Fax: 444 7625
6. Fire Fighting & Alarm Installation Sub-Contractor			
7. Swimming Pool Filtration Plant Installation Sub-Contractor			
8. Carpark System Installation Sub-Contractor			
.....			

** 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	Lee Chi Ming	831 8282
(b) Sub-Station	Chin Yoke Fah	831 8556 / 831 8564
(c) Installation	Tan Kok Ann	279 9534 / 279 9533
(d) Meter Section		
(e) Road Lighting	Law Geuk Meng	359 4925 / 253 6223
(f) Diversion		
Telecom:		
(a) Planning/Line Plant	Low Chee Kiong	838 2866
(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		
(b) Plumbing Plan		
(c) Diversion		
PowerGas:		
(a) Planning/Submission		
(b) Installation/Inspection		
(c) Diversion		
ENV (Sewerage):		
(a) Building Plan	Lui Kean Hoong	731 9629 / 731 9725
(b) M&E Section		
(c) Diversion		
ENV (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

PROGRAMME

4.1 Overall Programme

			1997											1998										
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 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	2												
	Design Review	1												
	Draughting	4												
	Specification	1												
	Design Check	1												
	Tender	2												
11.	Air Conditioning & Ventilation Installation													
	Detail Design	4												
	Design Review	1												
	Draughting	6												
	Specification	1												
	Design Check	1												
	Tender	3												
12.	Fire Fighting & Alarm Installation													
	Detail Design	3												
	Design Review	1												
	Draughting	4												
	Specification	1												
	Design Check	1												
	Tender	3												
13.	Electrical Installation													
	Detail Design	3												
	Design Review	1												
	Draughting	4												
	Specification	1												
	Design Check	1												
	Tender	3												
14	Lift Installation													
	Detail Design	1												
	Design Review	1												
	Draughting	1												
	Specification	1												
	Design Check	1												
	Tender	3												

SECTION 4

PROGRAMME

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

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	Power Supply Pte Ltd		23/8/96							4/2/97
Power Supply Substation Main Single Line Diagram	PowerGrid Pte Ltd Power Supply Pte Ltd		17/1/96 3/6/97	29/1/97						 4/2/97
Consumer Switchroom Layout	PowerGrid Pte Ltd		23/8/96	29/1/97	31/1/97					
Metering Layout	PowerGrid Pte Ltd		4/6/97							
Sanitary Installation	ENV (Sewerage)	22/4/97	24/4/97	6/5/97	13/6/97					
Domestic Water Supply	PUB (Water)	16/6/97								
Gas Supply Installation	PowerGas Pte Ltd									
Air Conditioning & Ventilation Inst.	Building Control Division									
	Fire Safety Bureau	12/7/97								
Fire Fighting & Alarm Installation	Fire Safety Bureau	5/7/97								
	Telecom (Broadband)		17/1/97							
Telephone Installation	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						25	
2.	Preliminary Design Completed	25%						
		50%						
		75%						
		100%						
3.	Detailed Design Completed	25%		22/5/97				
		50%						
		75%				2/6/97		
		100%					21/3/97	
4.	Tender Document Completed	25%						
		50%				2/6/97		
		75%						
		100%	30/5/97		31/12/96			
5.	TENDER							
	Tender Date		20/5/97		By M.C.			
	Tender Evaluation Report						NA	
	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					
-G	▤	▤	▤	▤	▤						
-Q											
-VO											
-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	Tracy Koh
Incoming Architectural Sketches/Details	Tracy Koh
Incoming Structural Drawings	Tracy Koh
M&E Drawings	
- Electrical Installation	Tracy Koh
- Lift & Escalator Installation	Tracy Koh
- Air Conditioning & Ventilation Installation	Tai Y C
- Fire Fighting & Alarm Installation	Tai Y C
- Plumbing & Sanitary Installation	Tai Y C
Other Drawings	
Interior Designer's Drawings	Tracy Koh

INTERFACING

6.1 Method of Interface

Description	Method of Interface
Client's Review & Approval	Through Main Contractor
Interface With External Design Teams	Meetings, Fax, Letters
Interface Between Internal Design Teams	Discussion

SECTION 6

INTERFACING

6.2 Internal Design Interface

Item No.	Description*	Required From	Required By	Date Required	Remarks
1.	Electrical power requirements for Mechanical Services	Tai Y C	Goh S H	End May	

** 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	Main contractor
1.	**Letters/Fax:**						
a.	Project Design						C
b.	Project Administration						
c.	Project Cost Estimate/Contract Cost)						C
2.	**Drawings**						
a.	Outline Design Drgs.			C	C		I
b.	Sketch Design Drgs.			C	C		I
c.	Final Design Drgs.			I	I		I
d.	Shop Drawings						
e.	As Built Drgs.						
3.	**Other Document**						
a.	Specification						
b.	Tender Document						
c.	Tender Evaluation Report						
d.	Design Report						C
e.	Progress Report						
f.	Financial Report						

g.	Minutes of Meeting						
h.	Inspection Report						
i.	Testing & Comm. Report						
j.	O & M Manual						

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

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	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
AutoHan	-	Hong Kong Productivity Council	Chinese character Input System
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		
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)*

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

Sub Job No	Description	Allocation Details