

CDB CONSULTING ENGINEERS LIMITED

MECHANICAL, ELECTRICAL, PIPING & PLUMBING DESIGN ENGINEERS

M&E PROJECT MANAGEMENT

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Quality & Project Plan

<p>Project Title : Design of xxx Client : CDB Project No : 209.xxx Client Project No : xxx Subject : Quality & Project Plan Scope:</p>	<p>QP Ref No: 201.020 Start Date : Xx xx 2013 Prepared by : C D Briggs Approved : C D Briggs</p>	<p>Rev : P1</p>
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HISTORY				CIRCULATION				
				Purpose of Issue / Why				
				1 For Comment				
				2 For Action				
				3 For Information				
Rev	Date	Reason for Issue	Revised by	Name	Organisation	No.	Remarks	Why
P1	xx/xx/201x	Issued for comment	CDB	client	PL			1

ACTIVITY CODES	ACTION
H Hold Point	HVAC Heating, Ventilation and Air Conditioning
APP Approval Required	Vent Ventilation
R1 100% Review of documents	CE & I Controls, Electrical and Instrumentation
R2 Sample review of documents	EM Engineering Design Manager
ACC Client Acceptance	

PLAN ACCEPTANCE	CLIENT ACCEPTANCE
By: Clive D Briggs Position Director	By: Position
Signed	Signed



APPLICABLE SPECIFICATIONS / DOCUMENTATION but not limited to :-

Reference	Description	Reference	Description
QP 201.020	CDB Engineering Quality Procedures		
Reference	Description	Reference	Description
Regulation	The Electricity at Work Regulations 1989	97/23/EEC	Pressure Equipment
Regulation	Provision and Use of Work Equipment Regulations (PUWER) 1988	Regulation	The Electrical Equipment (Safety) Regulations 1994
Regulation	The Electromagnetic Compatibility Regulations 1992	Regulation	The Control of Asbestos at Work Regulations 1988
Regulation	The Electrical Safety, Quality and Continuity Regulations 2002	Regulation	The Supply of Machinery (Safety) Regulations 1992 as amended (SMSR)
Regulation	WRAS, Water Regulations	Regulation	The Construction (Design and Management) Regulations 1994
Guides	Institute of Plumbing		
Guides	CIBSE (as applicable)		



Number	Activity	Controlling Procedure/ Specification	Verifying Document	Activity Monitoring				MD S	Remarks
				CDB		Client			
				Code	Sign & Date	Code	Sign & Date		
A.	Pre Contract Documentation/QA								
1.1.1	Design / Contract Review								
1.1.2	Design Brief Document								
1.1.3	Assessment of client information / acceptance / TQ's								
1.1.4	Work Breakdown Structure / Man-Hours								
1.1.4	Quality Programme								
1.1.5	Quality Plan								
1.1.6	Resource / Spends profile								
1.1.7	Drawing / document Register								
1.1.8	Audits / Project Management. Including Confining Scope Plan Deliverable i) Verification of Software ii) Purchase new Software Resource allocation								
1.1.8	Inaugural meeting attendance								



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1.2.0	<u>Project Reporting</u>								
1.2.1	Project programme for our works								
1.2.2	Progress Meetings								
1.2.3	Progress reports								
1.2.4	Design Review Meetings								
1.2.5	Design Review reports								
1.3.0	<u>Site Investigations</u>								
1.3.1	Inductions / Training								
1.3.2	Document Retrievals								
1.3.3	Site Survey								
1.3.4	Site Survey Report								



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B	Mechanical & PH design	AS Applicable							
2.1.0	Design Documentation								
2.1.1	Basis of Design								
2.1.2	Engineering Fault Schedule								
2.1.3	Failure Mode and Effect Analysis								
2.1.4	Availability, Reliability and Maintainability Study								
2.1.5	Design Assessment Report								
2.1.6	Capital and Whole Life Costs								
2.2.0	Calculations								
2.2.1	Room Data Sheets								
2.2.2	Ductwork /Pipework sizing								
2.2.3	Pipe FLOW Models								
2.2.4	Plant and Equip technical information								
2.2.5	Plant and Equipment sizing / selection								



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2.3.0	<u>Equipment Schedules</u>								
2.3.1	Instrument Schedule								
2.3.2	Damper Schedule								
2.3.3	Grille Schedule								
2.3.4	Equipment /plant item List								
2.3.5	Utility Schedules								
2.3.6	Valve Schedules								
2.3.7	Line List (if applicable)								
2.4.0	<u>Installation / Equipment Procurement Spec</u>								
2.4.1	Technical Specification								
2.4.2	Equipment Data Sheets								
2.4.3	Active Tie Ins method statement								
2.4.4	Design Control Plan								
2.4.5	Strip Out Document								
2.4.6	Close out and issue information /including handover file/presentation								



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2.5.0	<u>Design Drawings</u>								
2.5.1	P&ID / Schematics								
2.5.2	VFD /UFD								
2.5.3	Plant room Layouts								
2.5.4	Single Line								
2.5.5	Active Tie In								
2.5.6	Double Line Layouts								
2.5.7	Support Details								
2.5.8	Building / Civil penetrations								
2.5.9	Sampling & filter monitoring (If Applicable)								
2.5.10	Detailed Connection and Phasing Drawings								
2.5.11	Service System diagram (SSD)								
2.5.12	Piping Isometric / Material list								



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C	<u>Electrical Design</u>								
3.1.0	<u>Design Documentation</u>								
3.1.1	CE+I Basis Design								
3.1.2	Control Philosophy Document								
3.1.3	Environmental Monitoring Philosophy Document								
3.1.4	Operation and Maintenance Procedures								
3.1.5	SIDD								
3.1.6	Instrument data sheets								
3.2.0	<u>Calculations</u>								
3.2.1	Cable								
3.2.2	Cable schedule								
3.2.3	Lighting /Levels								
3.2.4	Emergency lighting								
3.2.5	Electrical load schedule								



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3.3.0	<u>Installation/Equipment Procurement</u>								
3.3.1	Technical Specification								
3.4.0	<u>Drawings</u>								
3.4.1	Control Block Diagram (s)								
3.4.2	Single Line Diagram (s)								
3.4.3	Earthing Block Diagram								
3.4.4	Equipment Layouts								
3.4.5	Installation Details								
3.4.6	Cable Routes								
3.4.7	Panel GA								
3.4.8	Panel Details								
3.4.9	Small power Layout								
3.4.10	Interconnection Diagram								
3.4.11	Instrument Loop Diagram								
3.4.12	Instrument Piping Hook Up								



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3.4.13	Configuration Drawing								
3.4.14	Configuration Review								
3.4.15	Lighting Layout								
3.4.16	Fire alarm system layout								
3.4.17	Building security system layout								
3.4.18	Emergency lighting layout								



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<u>D</u>	<u>Project Works</u>								
4.1.0	<u>CDM</u>								
4.1.1	EMC certification (Technical File)								
4.1.2	Designers Risk Assessment								
4.1.3	Designers Method Statement								
4.1.4	Hazard Inventory								
4.1.5	Outline Installation Method Statement (OIMS)								
4.2.0	<u>Design Review Process and Update</u>								
4.2.1	Single Discipline Design Review								
4.2.2	SDDR and Update documentation/drawings SDDR								
4.2.3	Multi-Discipline Design Review								
4.2.4	MDDR and Update documentation/drawings								
4.2.5	HAZOP 1 –Design RA Safety Case Review								
4.2.6	HAZOP 1 update documentation / drawings								



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4.2.9	Close out and issue information/including handover file/presentation								
5.0	<u>Commissioning</u>								
5.1.0	<u>Commissioning Documentation</u>								
5.1.1	System Performance demonstration documentation								
5.1.2	Active Commissioning Plan								
5.1.3	Active Commissioning Schedule								
5.1.4	Operators Instructions								
5.1.5	Commissioning Schedules								
5.1.6	PATs, FATs & LATs								
5.1.7	Method Statements								
5.1.8	Risk Assessments								



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5.1.9	Operating Procedure and Instructions for Start up, Routine Operations								
5.2.0	<u>Decommissioning Documentation</u>	(If Applicable)							
5.2.1	Decommissioning Plan								



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<u>E</u>	<u>Procurement/Installation Support</u>								
<u>6.1.0</u>	<u>Procurement Support</u>								
6.1.1	Prepare tender documentation								
6.1.2	Support tender during tender period (TQ's etc)								
6.1.3	Technical Assessment report of tender returns								
<u>6.2.0</u>	<u>Manufacture / Works Support</u>								
6.2.1	Works testing Documentation								
6.2.2	Approval of manufacturers drwgs								
6.2.3	Approval of manufacturers documentation								
6.2.4	Attendance at manufacturers works								
6.2.5	Works acceptance report								



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6.3.0	<u>Site support/ documentation</u>								
6.3.1	Installation draft programme								
6.3.2	Site supervision								
6.3.3	Site support for design (TQ's)								
6.3.4	Witness testing								
6.3.5	Witness pressure testing								
6.3.6	Witness commissioning								
6.3.7	Progress and site meeting attendance								
6.3.8	Permit to work								
6.3.9	Installation Risk Assessments (approval / checking)								
6.3.10	Installation Method statements (approval / checking)								
6.3.11	Approval of contractors documentation								
6.3.12	Approval of contractors drawings								
6.3.13	Ductwork Cleaning documentation								
6.3.14	As Fitted drawings								



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6.3.15	Operation & maintenance Manuals								
6.3.16	Balancing documentation								
6.3.17	Close out reports								
6.3.18	Handover / close out meeting with client								
6.3.19	Final account								



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<u>F</u>	<u>CLOSE OUT /REVIEWS</u>								
<u>7.1.0</u>	<u>Close out</u>								
7.1.1	Print Sign and Approval of all documentation								
7.1.2	Formally complete all information including auditable trail								
7.1.3	Present and handover package with job completion note								