COEGA DEVELOPMENT CORPORATION (PTY) LTD

CONTRACT No. CDC/73/26

FOR

COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX

PROJECT DOCUMENT

BOOK 1 of 2: THE TENDER AND CONTRACT (RETURNABLE)

CLOSING DATE: 09 NOVEMBER 2026

PREPARED FOR:

COEGA DEVELOPMENT CORPORATION (PTY) LTD

CDC's Main Office,
Coega Business Centre,
Cnr. Alycon Rd and Zibuko St,
Zone 1, Coega SEZ,
GQEBERHA
6001

NAME OF BIDDER:_____

Book 1 of 2

*RESPONSIVENESS CHECKLIST

TABLE 1: COMPLIANCE AND ADMINISTRATIVE REQUIREMENTS

Bidders are required to comply with all the Compliance & Administrative requirements below:

REQUIREMENTS NO.	*DESCRIPTION*
(1)	Completed and signed **Invitation to Bid (SBD 1**). In case of a Joint Venture/Consortium, each entity **MUST** provide the CSD number in the SBD 1 form.
(2)	Completed and signed **Bidder's Disclosure Form** (**SBD4**). In the case of a JV joint Venture / Consortium, a **SEPARATE** SBD4 form in respect of each party to the JV **MUST** be completed and submitted.
(3)	Completed and signed Form **SBD 6.1** preference points claim form in terms of the Preferential Procurement Regulations 2022.
(4)	Bidders must complete and sign the Protection of Personal Information Act (POPIA): Consent Form

TABLE 2: RESPONSIVENESS ASSESSMENT – MANDATORY REQUIREMENTS

Bidders are required to comply with all the mandatory requirements below and failure to comply and complete any of the mandatory requirements will result in submissions being deemed null and void and shall be considered "non-responsive" and therefore they will not be considered.

ITEM NO.	*DESCRIPTION*
(1)	**Completed and Signed Attendance Register at the mandatory briefing meeting**. The attendance register must be completed in the name of a bidding entity. **One person cannot represent more than one bidding company**. Failure to attend the compulsory briefing meeting will lead to the bidder's elimination the bid will not be evaluated further.
(2)	Bidders shall be registered with the Construction Industry Development Board (CIDB) and should have an active CIDB Contractor grading of **7GB or higher. 6GB PE and lower are not eligible to bid**. The CDC will verify the active grading through the CIDB website.
(3)	A signed letter of intent to enter into a JV/Consortium, to be signed by all parties (Where applicable).
(4)	Completed and Signed Certificate of Authority of Signatory to be signed by all bidders. In case of a Joint Venture/ Consortium, the Authority of Lead Partner to sign JV/Consortium documents must ALSO be provided and signed by all parties in the JV. Proof of authority to sign may be submitted in a form of company resolution
(5)	Fully Completed and Signed Form of Offer.
(6)	**An original fully completed, priced and handwritten Bill of Quantities** *(including Mechanical, Electrical BoQ & SHE BoQ (where applicable),*) must be filled in clearly legible with **permanent black ink**. In cases where the P&G's is not priced the bidder must explicitly indicate as such. Failure to provide the total amount for P&G's or to state if the amount is covered elsewhere will result in immediate disqualification. The bidder must expressly state "included or elsewhere covered" for the line items that are considered to be covered elsewhere in measured works items. Non-compliance will lead to immediate disqualification. Copies of the priced BoQ, alternatively scanned copies of priced Bills of Quantities are not acceptable and may result in disqualification.
(7)	The Entity shall provide certified copies of qualifications for the proposed: (a) **Contracts Manager**, demonstrating a minimum **NQF Level 7 qualification (or higher) related to building construction.** (b) **Site Agent**, demonstrating a minimum **NQF Level 6 qualification (or higher) related to building construction.** Where qualifications were obtained outside South Africa, the Bidder must submit a valid **SAQA evaluation and verification certificate** confirming NQF equivalence. Failure to provide the SAQA certificate shall render the foreign qualification non-responsive for evaluation purposes.

ITEM NO.	***DESCRIPTION***
	Note: Figure 1 provided below – SAQA/ NQF qualifications should be used as a guide in respect of qualifications for the respective staff in listed above

Note - Failure of bidders to meet all the above mandatory requirements will result in submissions being deemed null and void and shall be considered "non – responsive" and therefore not considered for further evaluation.

		Level		
Higher Education Qualifications Sub-Framework	Doctoral Degree	**10**	•	**Occupational Qualifications Sub-Framework**
	Doctoral Degree (Professional)			
	Master's Degree	**9**	•	
	Master's Degree (Professional)			
	Bachelor Honours Degree	**8**	Occupational Certificate	
	Postgraduate Diploma			
	Bachelor's Degree			
	Bachelor's Degree	**7**	Occupational Certificate	
	Advanced Diploma			
	Diploma	**6**	Occupational Certificate	
	Advanced Certificate			
	Higher Certificate	**5**	Occupational Certificate	
General and Further Education and Training Qualifications Sub-Framework	National Certificate	**4**	Occupational Certificate	
	Intermediate Certificate	**3**	Occupational Certificate	
	Elementary Certificate	**2**	Occupational Certificate	
	General Certificate	**1**	Occupational Certificate	

Figure 1: SAQA/ NQF TABLE

TABLE 3: PROJECT SPECIFIC REQUIREMENTS/ ADDITIONAL INFORMATION

Bidders are required to submit all the information requirements below:

REQUIREMENTS NO.	***DESCRIPTION***
(1)	As per the amended construction codes, companies with less than 51% black shareholding (QSEs & Generics) are to submit a valid SANAS Accredited B-BBEE Verification Certificate (with the full applicable B-BBEE elements) QSEs with at least 51% or 100% black shareholding and EMEs with an annual turnover of R3,0 million or more are required to submit a B-BBEE verification certificate from a SANAS accredited verification agency as they have to comply with the 40% sub-minimum requirement on the QSE Skills Scorecard to avoid being discounted a level. EMEs with a turnover of less than R3,0 million are exempt from complying with the subminimum requirement and may submit an affidavit or a certificate issued by CIPC, confirming their ownership and annual turnover. In case of a Joint Venture (JV) / Consortium, a consolidated B-BBEE certificate would be required, and it must be accompanied by individual B-BBEE Certificates/affidavits of their entities to confirm the type of enterprise.
(2)	Supporting documents on project imperatives: (a) Plans for promoting and managing safety, health and environmental issues during execution of the project. (b) Plans for monitoring and applying quality assurance principles in the execution of the project. (c) Plans for addressing socio-economic issues (with specifics on numbers to be achieved) which include: (i) Maximisation of job opportunities (labour histograms); (ii) Use of local material/local suppliers; and (iii) Training of labour (non-accredited and accredited training)
(3)	Proof of available capital for the execution of this project in the form of confirmed credit line with banking institution and letters of confirmation of supplier credit. In order for Bank Letters to contribute to the score, the letter must set out a Rand value that the contractor is “good for”. An alphabetical rating only - I.e. “A” or “B” etc. will not attract a score.
(4)	Access/Ownership (availability) of plant and equipment. In case of hiring key plant, a letter confirming the willingness of the hirer to hire equipment to the bidder.
(5)	An SMME Implementation Plan – for the achievement of the set target of 13.5% SMME participation or as per commitment made on Form K. Further reference is made to ***Table A2: Item 3.0***
(6)	Provide information that covers the level of education and training, and the

REQUIREMENTS NO.	***DESCRIPTION***
	positions held of the key staff /personnel (specific to the Contracts Manager, Site Agent and Foreman including in the form of a CV. In order to determine the period of relevant experience for the purpose of allocating scores. The CV must set out, at a minimum, the start and end date of each job/ work assignment with a brief description of the work undertaken during that period.
(7)	Past Performance Reports - To qualify for points under comparable projects, bidders are required to submit past performance reports. In the case of a Joint Venture (JV), past performance reports for all JV partners must be provided. Past performance reports and/or reference letters must provide an assessment of the bidders performance, failing which, it will not be considered.
(8)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **Aluminium Installations** at PE Provincial Hospital. The quotation must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable) / Indicate supplier/specialist AAMSA registration and proof of registration.
(9)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **HVAC Installations** at PE Provincial Hospital. The quotation must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable).
(10)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **Medical Gas Installations** at PE Provincial Hospital. The quotation must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable).
(11)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **Nurse Call & ICT Installations** at PE Provincial Hospital. The quotation must:

REQUIREMENTS NO.	***DESCRIPTION***
	(a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable).
(12)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **Electrical Installations** at PE Provincial Hospital. The quotation must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable).
(13)	The Bidder shall submit a quotation from the proposed supplier or specialist subcontractor for the **Fire Detection Installations** at PE Provincial Hospital. The quotation must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable).

FUNCTIONALITY SCORING SCHEDULES

Table A1: *Functionality Score Criteria*

ITEM	FUNCTIONAL CRITERIA	SUB-CRITERIA		REQUIREMENTS FROM BIDDERS
		DESCRIPTION	MAX PTS	
1.0	Adequacy of proposed work plan	Submission of a project programme	10	Bidders should propose the main activities for the implementation of the project indicating/describing their contents, durations, major resources (personnel, plant & equipment), critical path milestones demonstrating that the project can be delivered within stated period – Detailed scheduled with key activities – listing all planning activities leading up to the site activities. Refer to section C3.1 for the scope and quality register as the proposed format for identification of programme activities. Approvals processes. Construction activities; include subcontracted works; include procurement activities; and indicate ordering of long lead items.
2.0	Methodology for executing the work, including key risk factors to be considered	Detailed approach paper for executing the work, including key risk factors to be considered	10	Bidders must provide an approach paper (methodology and technical approach) detailing the execution of the project which is consistent with the project programme. The methodology is to refer to the scope of works, planning & construction phases, approvals processes and SHEQ issues. This must also include contingency planning and management. The key risk factors affecting the project should be described with possible mitigation action.
3.0	Sub-Contracting with QSEs/EMEs	Sub-Contracting with QSEs/EMEs	10	The Tenderers are to provide Form K - Completed and signed - indicating their commitment to the Contract Participation (in %) and rand value for sub-contracting to EMEs/QSEs. The implementation of the committed percentage is outlined in the CDC SMME Specification.
4.0	Contractor's demonstrated experience (past performance) in comparable	Demonstrated experience	30	This criterion covers the experience and knowledge that the Contractor has working on other hospital/healthcare related construction projects that are comparable in terms of complexity, size, value, and construction durations. Bidders are to provide details of construction projects with the highest value that have been completed in the past 7 years from the time of closing this tender.

ITEM	FUNCTIONAL CRITERIA	SUB-CRITERIA		REQUIREMENTS FROM BIDDERS
		DESCRIPTION	MAX PTS	
	hospital/healthcare related projects e.g. refurbishments, renovations, new building projects, multistorey buildings			**Bidders MUST provide either** (a) Completion certificates **and** performance report from the previous employer or consultants or local authority that they have worked with for completed projects **OR** (b) Completion certificates **and** reference letters from the previous employer or consultants or local authority that they have worked with for completed projects. **Details of one (1) contactable references for each project listed are to be included.** **Project Details Required include** - Project name; Project location; Contract value; Project duration; Project status (must show that project is completed).
5.0	Experience of the key staff personnel that will be available to manage the execution of the project	Contracts Manager	10	The Bidder shall provide information that covers the level of experience, and the positions held of the key staff /personnel **(specific to the Contracts Manager, Site Agent, General Foreman). Form C shall be fully completed.** CVs shall be set out so that years' experience in this specific role of contracts manager, site agent or general foremen (as applicable), can be determined. Failure to do so will result in no score being allocated.
		Site Agent	10	
		Foreman	5	
6.0	Locally based service providers from the targeted areas as follows	5		The bidders must submit proof of office establishment as evidence to demonstrate locality. The evidence required should be in the form of a Title Deed in the name of the Bidder, a Valid signed Lease Agreement in the name of the Bidder (the landlord's contact number and e-mail address visible), a Municipal account not older than 3 months in the name of the Bidder, or a Municipal Billing Clearance Certificate in the name of the Bidder. Please note: CSD, CIPC registration documents, Letterheads, Search engines, Statements, etc. will not be considered as proof of office establishment.
7.0	Market Based Rates –	10		The bidder must demonstrate that their rates are market based by providing quotations for the listed

ITEM	FUNCTIONAL CRITERIA	SUB-CRITERIA		REQUIREMENTS FROM BIDDERS
		DESCRIPTION	MAX PTS	
	Provision of Quotations for Specialist Works			specialist subcontracts/work packages sourced from relevant suppliers. The quotations must: (a) Be on the supplier's/specialist subcontractor's official letterhead; (b) Clearly reference this tender/contract number or Bidder's name and the relevant scope of work; and (c) Indicate the supplier's/specialist subcontractor's CIDB grading and class of works (where applicable), for: (i) Aluminium installations (ii) HVAC installations (iii) Medical Gas installations (iv) Electrical installation (v) Nurse Call & ICT installation (vi) Fire detection installation

Note: If the combined weighted score is less than 60 points, then the tender is disqualified from further evaluation.

LOCALLY BASED SERVICE PROVIDERS

Area 1: Nelson Mandela Bay Metropolitan Municipality

Area 2: Sarah Baartman District Municipality

Area 3: Eastern Cape Province

Area 4: South Africa – Outside of the Eastern Cape Province

Table A2: *Indicators for the Scoring of Functionality Criteria*

#	FUNCTIONALITY CRITERIA	EVALUATION INDICATORS				
		NO RESPONSE (0%)	**POOR (25%)**	**SATISFACTORY (50%)**	**GOOD (75%)**	**VERY GOOD (100%)**
1.0	Adequacy of proposed work plan: Construction Work Program /scheduling	Failed to provide information	The activity schedule omits important task or the timing of the activities and the correlation among them are inconsistent with the methodology statement. There is lack of clarity	All key activities are included in the activity schedule but are not detailed. There are minor inconsistencies between timing, project deliverables and proposed methodology	The work program fits the methodology well; all important activities are indicated in the activity schedule and their timing and sequence is appropriate and consistent with project objectives. There is fair amount of detail including info on resources.	Besides meeting the "good" rating, decision points and the sequencing and timing of activities are very well defined indicating the bidder has optimized the use of resources including procurement, subcontractor, and long lead item ordering activities.
2.0	Methodology for executing the work, including key risk factors to be considered	Failed to provide information	The technical approach or methodology is poor and unlikely to satisfy project objectives or requirements. The bidder has misunderstood certain aspects of the scope of work and does not deal with the critical aspects of the project. No risk factors have been listed.	The approach is generic and not tailored to address the specific project objectives and requirements. The risk factors have been listed; however, they are generic and are not detailed	The approach is specifically tailored to address the specific project objectives ***i.e. interior specialist refurbishment,*** scope and requirements and is sufficiently flexible to accommodate changes that may occur during execution ***e.g. limited/changing access and working hours.***	Besides meeting the "good" rating, important issues are approached in an innovative and efficient way, indicating that the bidder has outstanding knowledge of state-of-the-art approaches. ***e.g. off-site fabrication***. The approach paper details ways to improve the project outcomes and quality and

#	FUNCTIONALITY CRITERIA	EVALUATION INDICATORS				
		NO RESPONSE (0%)	POOR (25%)	SATISFACTORY (50%)	GOOD (75%)	VERY GOOD (100%)
					The risk factors have been listed which are specific to the project and have sufficient detail ***e.g. existing hospital operations, souring of specialist products***	covers SHEQ. Methodology incorporates detailed programming / scheduling. Detailed information on risk and mitigation measures is provided.
3.0	Commitment to sub-contracting with QSEs/ EMEs. *Note 1: The overall Percentage on Form K will be utilized to allocate points*	No Commitment to sub-contracting to QSEs / EMEs or Failed to complete form K	Commitment to sub-contracting less than 13.4% to QSEs/ EMEs (Percentage confirmed on Form K)	Commitment to sub-contracting minimum 13.5% to QSEs / EMEs (Percentage confirmed on Form K)	Commitment to sub-contracting above 13,6% up to 30% QSEs/ EMEs (Percentage confirmed on Form K)	Commitment to sub-contracting more than 30% to QSEs / EMEs (Percentage confirmed on Form K)
4.0	Demonstrated experience (past performance) in comparable hospital/healthcare related projects e.g. refurbishments, renovations, new building projects, multistorey buildings	Failed to provide information	Minimum one hospital/healthcare related projects completed in the last 7 years with values less than R9M (incl. VAT).	Minimum two hospital/healthcare related projects completed in the last 7 years valued at R9Million (incl. VAT) or higher	Minimum three hospital/healthcare related projects completed in last 7 years valued at R9Million (incl. VAT) or higher per project	Four or more hospital/healthcare related projects completed in the last 7 years, valued at R9Million (incl. VAT) or higher per project

#	FUNCTIONALITY CRITERIA	EVALUATION INDICATORS				
		NO RESPONSE (0%)	POOR (25%)	SATISFACTORY (50%)	GOOD (75%)	VERY GOOD (100%)
5.0	**Experience of the key staff personnel that will be available to manage the execution of the project – (Averaged score for the Contracts Manager, Site Agent, General Foreman)**					
5.1	Contracts Manager	Failed to provide information	Less than 5 years' experience in construction contract management	Five (5) years or more but less than 10 years in construction contract management.	Ten (10) years or more but less than 15 years' experience in construction contract management.	15 + Years relevant experience in construction contract management
5.2	Site Agent	Failed to provide information	Less than 5 years' experience in building construction as a site agent	Five (5) years or more, but less than 10 years' experience in building construction as a site agent	Ten (10) years or more, but less than 15 years' experience in building construction as a site agent	15 + Years plus experience in building construction as a site agent
5.3	Foreman	Failed to provide information	Less than 5 years' experience in building construction as a Foreman	Five (5) years or more, but less than 10 years' experience in building construction as a Foreman	Ten (10) years or more, but less than 15 years' experience in building construction as a Foreman	15 + Years plus experience in building construction as a Foreman
6.0	Locality	Failed to provide relevant information that meets the criteria.	Outside of the Eastern Cape Province	The bidder is based within the Eastern Cape Province	The bidder is based within the Sarah Baartman District Municipality	The bidder is based within the Nelson Mandela Bay Metropolitan Municipality

#	FUNCTIONALITY CRITERIA	EVALUATION INDICATORS				
		NO RESPONSE (0%)	POOR (25%)	SATISFACTORY (50%)	GOOD (75%)	VERY GOOD (100%)
7.0	Market Based Rates – Provision of Quotations for Specialist Works	Failed to provide relevant information that meets the criteria.	Bidder provided supplier quotation/s for two (2) Specialist Work-Package	Bidder provided supplier quotation/s for three (3) Specialist Work-Packages	Bidder provided supplier quotation/s for four (4) Specialist Work-Packages	Bidder provided supplier quotation/s for five (5) Specialist Work-Packages

TENDER DOCUMENT CHECKLIST

Bidders must complete this document checklist to ensure that all information is completed in the Tender Document.

ITEMS	CHECKED BY BIDDER
CORRECT TENDER OFFER AMOUNT CARRIED FORWARD TO COVER PAGE AND FORM OF OFFER ON SECTION C1.1	
ALL PAGES REQUIRING SIGNATURES SIGNED BY THE BIDDER	
SCHEDULE OF QUANTITIES	
1 COMPLETED IN **BLACK INK** ONLY	
2 CORRECTIONS CROSSED OUT AND INITIALLED	

ALL RETURNABLE DOCUMENTS AND SCHEDULES SUBMITTED

ITEMS	CHECKED BY BIDDER
T2.1.1 FORM A: AUTHORITY FOR SIGNATORY	
T2.1.2 FORM B: SCHEDULE OF WORK CARRIED OUT BY THE BIDDER	
T2.1.3 FORM C: PROPOSED KEY PERSONNEL	
T2.1.4 FORM D: PLANT AND EQUIPMENT RESOURCES	
T2.1.5 FORM E: SCHEDULE OF PROPOSED SUB-CONTRACTORS	
T2.1.5.1 FORM E1: PARTICULARS OF ALUMINIUM INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.5.2 FORM E2: PARTICULARS OF HVAC INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.5.3 FORM E3: PARTICULARS OF MEDICAL GAS INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.5.4 FORM E4: PARTICULARS OF ELECTRICAL INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.5.5 FORM E5: PARTICULARS OF NURSE CALL & ICT INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.5.6 FORM E6: PARTICULARS OF FIRE DETECTION INSTALLATIONS SUBCONTRACTOR & SCHEDULE OF MATERIALS	
T2.1.6 FORM F: FINANCIAL REFERENCES	
T2.1.7 FORM G: ESTIMATED MONTHLY EXPENDITURE	
T2.1.8 FORM H: DETAILS OF AMENDMENTS AND QUALIFICATIONS	
T2.1.9 FORM I: PROTECTION OF PERSONAL INFORMATION: CONSENT	
T2.1.10 FORM J: OCCUPATIONAL HEALTH AND SAFETY ACT SPECIFICATIONS	
T2.1.11 FORM K: CONTRACT PARTICIPATION GOAL: EME / QSE TARGET	

T2.1.12 FORM L: RECORD OF ADDENDA TO TENDER DOCUMENTS	
T2.1.13 FORM M: FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014	
T2.1.14 FORM N: JOINT VENTURE DISCLOSURE FORM	
T2.1.15 FORM O: BBBEE PREFERENCING	
T2.1.16 FORM P: PRELIMINARY PROGRAM AND METHOD STATEMENT	
T2.1.17 FORM Q: QUALITY CONTROL MANAGEMENT PLAN	
T2.1.18 FORM R: SUPPLIER PERFORMANCE EVALUATION FORM	

SBD1: INVITATION TO BID	
SBD4: BIDDER'S DISCLOSURE FORM	
SBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022	

TABLE OF CONTENTS

SBD 1 **3**

T1.1: TENDER NOTICE AND INVITATION TO TENDER **5**

T1.2: TENDER DATA **13**

PART T2: RETURNABLE DOCUMENTS **21**

T2.1.1 FORM A: AUTHORITY FOR SIGNATORY 22

T2.1.2 FORM B: SCHEDULE OF WORK CARRIED OUT BY THE BIDDER 24

T2.1.3 FORM C: PROPOSED KEY PERSONNEL 25

T2.1.4 FORM D: PLANT AND EQUIPMENT RESOURCES 26

T2.1.5 FORM E: SCHEDULE OF PROPOSED SUB-CONTRACTORS 28

T2.1.5.1 FORM E1: PARTICULARS OF ALUMINIUM SUBCONTRACTOR 29

T2.1.5.2 FORM E2: PARTICULARS OF HVAC SUBCONTRACTOR 31

T2.1.5.3 FORM E3: PARTICULARS OF MEDICAL GAS SUBCONTRACTOR 33

T2.1.5.4 FORM E4: PARTICULARS OF ELECTRICAL SUBCONTRACTOR 35

T2.1.5.5 FORM E5: PARTICULARS OF NURSE CALL & ICT SUBCONTRACTOR 37

T2.1.5.6 FORM E6: PARTICULARS OF FIRE DETECTION SUBCONTRACTOR 39

T2.1.6 FORM F: FINANCIAL REFERENCES 42

T2.1.7 FORM G: ESTIMATED MONTHLY EXPENDITURE 43

T2.1.8 FORM H: DETAILS OF AMENDMENTS AND QUALIFICATIONS 44

T2.1.9 FORM I: PROTECTION OF PERSONAL INFORMATION: CONSENT 46

T2.1.10 FORM J: OCCUPATIONAL HEALTH AND SAFETY ACT SPECIFICATIONS 48

T2.1.11 FORM K: CONTRACT PARTICIPATION GOAL: EME / QSE TARGET FORM 52

T2.1.12 FORM L: RECORD OF ADDENDA TO TENDER DOCUMENTS 54

T2.1.13 FORM M: FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014 55

T2.1.14 FORM N: JOINT VENTURE DISCLOSURE FORM 56

T2.1.15 FORM O: BBBEE PREFERENCING 61

T2.1.16 FORM P: PRELIMINARY PROGRAMME AND METHOD STATEMENT 62

T2.1.17 FORM Q: QUALITY MANAGEMENT PLAN 63

T2.1.18 FORM R: SUPPLIER PERFORMANCE EVALUATION FORM 64

SBD 4 65

SBD 6.1 67

PART C1: AGREEMENTS AND CONTRACT DATA **71**

C1.1 FORM OF OFFER AND ACCEPTANCE 72

C1.2 CONTRACT DATA 78

C1.3. CONSTRUCTION GUARANTEE 94

C1.3.1 CONSTRUCTION GUARANTEE (PRO-FORMA) 95

C1.3.2 AGREEMENT IN TERMS OF THE OHS ACT, 1993 (ACT NO 85 OF 1993) 99
C1.3.3 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT 102

PART C2: PRICING DATA **103**
C2.1 PRICING INSTRUCTIONS 104
C2.2 PRICING SCHEDULE 110
C2.3 CERTIFICATE OF ACQUAINTANCE WITH TENDER DOCUMENTS 111
BILLS OF QUANTITIES 112

BOOK 1

THE TENDER

SBD 1

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE COEGA DEVELOPMENT CORPORATION					
BID NUMBER:	**CDC/73/26**	CLOSING DATE:	**09 NOVEMBER 2026**	CLOSING TIME:	**12:00**
DESCRIPTION	COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*
COEGA DEVELOPMENT CORPORATION (PTY) LTD CDC'S MAIN OFFICE, COEGA BUSINESS CENTRE, CNR. ALYCON RD AND ZIBUKO ST, ZONE 1, COEGA SEZ, GQEBERHA, 6001

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		**TECHNICAL ENQUIRIES MAY BE DIRECTED TO:**	
CONTACT PERSON	**SCMU HEAD: ZINE MTANDA**	CONTACT PERSON	**N/A**
TELEPHONE NUMBER	**Not allowed to phone**	TELEPHONE NUMBER	**N/A**
FACSIMILE NUMBER	**N/A**	FACSIMILE NUMBER	**N/A**
E-MAIL ADDRESS	dohtenders@coega.co.za	E-MAIL ADDRESS	dohtenders@coega.co.za

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX] ☐ Yes ☐ No

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]			
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN-BASED SUPPLIER FOR THE **GOODS /SERVICES /WORKS** OFFERED?	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS		
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES	☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES	☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES	☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES	☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES	☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION. 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.** 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS. 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS. 2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA. 2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID. 2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER. 2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED. 2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……
(Proof of authority must be submitted e.g. company resolution)

DATE: ……..

T1.1: TENDER NOTICE AND INVITATION TO TENDER

INVITATION TO TENDER

CONTRACT NO: CDC/73/26

COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX

The Coega Development Corporation (CDC) is headquartered in the City of Gqeberha, Nelson Mandela Bay Municipality, South Africa, with a strategic operational footprint in South Africa and beyond the borders on the African continent. The CDC's vision is to be the leading catalyst for the championing of socio-economic development. This it seeks to achieve through the development and operation of the 9 003-hectare Coega Special Economic Zone (SEZ), a transshipment hub and a leading investment destination in Africa, providing highly skilled competence and capacity for the execution of complex infrastructure and related projects throughout South Africa and selected markets on the African continent, and advisory on the development of industrialisation and logistics zones. The CDC's advanced capabilities are successful enablers in sustainable economic zone development and management, real assets management, infrastructure planning and development, technology integration while realising related socio-economic impact areas such as skills and SMME development. The CDC's high-performance ethos is grounded in its commitment to sustainable development, the protection of its people and the planet, and the delivery of infrastructure solutions that support a just social and economic transition to a low-carbon, resource efficient, and climate resilient future. The foundational culture of the CDC's approach, backed by its core values, is innovation and continuous improvement.

The CDC is assisting The Eastern Cape Department of Health (ECDOH) with implementation of infrastructure projects. These projects are aimed at enhancing the health infrastructure leading to developing and transferring skills and reducing poverty.

INVITATION TO TENDER

The Coega Development Corporation (CDC) is inviting capable and competent Contractors with an active CIDB Contractor Grading designation of **7GB or higher** and proven experience and track-record in the construction, equipping and commissioning of hospital or healthcare related facilities. Emerging contractors with a CIDB Contractor grading designation of 6GB PE are not eligible to make submissions and will not be considered.

The project involves the Completion of Cardiac Catheterisation Laboratory (Cath Lab) and Centralised Sterile Services Department (CSSD) project at PE Provincial Hospital in Gqeberha, Nelson Mandela Bay Metropolitan. (**Coordinates: Latitude: 33°57'30"S and Longitude: 25°35'57"E**.

The appointed service provider will be responsible for the full scope of work including refurbishment and interior construction, equipping and commissioning of a specialized medical facility. The objective is to deliver fully operational

and compliant ICU Ward and CSSD upon completion. The expected project duration is 17 months which encompasses construction, handover, close out activities and includes Builders Holidays.

SCOPE OF WORK

The scope of work for the completion contract consists of Phase 2B: Refurbishment of ICU Ward, Phase 2D: CSSD Linking Passage and Receiving Area and sundry and external works. The detailed scope of works is as below:

(a) Phase 2B: ICU Completion Works, measuring approximately 950m² and consisting of:

- (i) Internal renovations and demolitions
- (ii) Installation of doors, ceilings, sanitary fittings and joinery
- (iii) Flooring upgrades and vinyl finishes
- (iv) Fire protection systems
- (v) Bedhead services and nurse call systems
- (vi) HVAC, electrical and medical gas installations
- (vii) Painting, signage and wall protection.

(b) Phase 2D: CSSD Renovations, measuring approximately 90m² and consisting of:

- (i) Partitioning and refurbishment works
- (ii) Installation of new sanitary fittings
- (iii) Fire safety systems
- (iv) Instrument washer installation
- (v) Waterproofing, roofing and flooring repairs
- (vi) Specialist electrical and HVAC installations.

(c) Sundry & External Works

- (i) HVAC enclosure completion
- (ii) Courtyard paving and ambulance ramp
- (iii) Waterproofing and crack repairs
- (iv) External wall sealing
- (v) Remedial repairs due to water damage and tree root damage
- (vi) Deep cleaning of incomplete work areas.

Further to the above, the non-infrastructural components socio-economic deliverables also form part of the project scope and shall be achieved, namely:

(a) Experiential learning opportunities for built environment graduates in the form of internships;

(b) Employment opportunities for the members of the local community; and

(c) Participation opportunities for local SMME subcontractors in the form of construction work packages

TENDER CONDITIONS

Failure to adhere to the conditions stated hereinunder or to provide evidence where specified will render the submission non-responsive and the submission may be declared as null and void and will not be considered further.

(a) Bidders must be registered with the Construction Industry Development Board (CIDB) and must have an active CIDB Contractor grade of **7GB or higher.** Potential bidders with a grading of **6GB PE** will not be eligible for this tender.

(b) Bidders must submit proof of active registration with the Construction Industry Development Board (CIDB) under the **7GB** contractor grading designation or higher or proof demonstrating that they are eligible and capable of being registered at **7GB.** Bidders must ensure that their CIDB registration is valid and active, or that they are capable of being registered, for the required grading and class of works from the bid closing date up to and including the date of award of the contract. CDC reserves the right to verify the bidder's CIDB registration status on the CIDB website at any stage during the evaluation and adjudication process. Where a bidder is not registered with the CIDB at the bid closing date but claims to be capable of being registered, the bidder must submit, as part of its bid, proof of application for CIDB registration. Failure to maintain an active and valid CIDB registration, or to successfully obtain such registration prior to award where the bidder was only capable of being registered at closing, may result in disqualification or rejection of the bid.

(c) Entities who intend submitting a bid as a Joint Venture must ensure that their combined grading meets the required CIDB Grading.

(d) This project will be implemented under the CIDB Best Practise Project Assessment Scheme, known as the B.U.I.L.D Programme, and the successful Bidder will be required to adhere to the requirements of:

  (i) the CIDB Standard for Indirect Targeting for Enterprise Development Through Construction Works Contracts published in Gazette Notice No. 36190 of 25 February 2013; and

  (ii) the CIDB Standard for Developing Skills Through Infrastructure Contracts (March 2023).

(e) Respondents must comply with the CDC's Procurement Policy & Procedures.

(f) The following legislation shall apply:

  (i) Public Finance Management Act (PFMA);

  (ii) Preferential Procurement Policy Framework Act (5 of 2000) (PPPFA);

  (iii) The Preferential Procurement Regulations 2022;

(iv) The Construction Industry Development Board Act 38 of 2000;

(v) National Treasury Regulations.

(vi) Infrastructure Development Act, 2014;

(vii) National Building Regulations and Building Standards Act (103 of 1977);

(viii) The National Qualifications Framework Act (Act No. 67 of 2008)

(ix) The National Qualifications Framework Amendment Act (Act No. 12 of 2019)

(x) The Skills Development Act (Act No. 97 of 1998)

(xi) Occupational Health and Safety Act and Regulations, Act (85 of 1993);

(xii) Compensation for Occupational injuries and disease Act (130 of 1993);

(xiii) NEMA National Environmental Management Act (107 of 1998);

(xiv) Disaster Management Act 57 of 2002

(xv) The National Archives and Records Service of South Africa Act (Act No. 43 of 1996)

(xvi) Protection of Personal Information Act (Act No. 4 of 2013

(xvii) BBBEE Act Number 53 of 2003 (as amended by Act number 46 of 2013); and

(xviii) Any other applicable legislation.

(g) The 80/20 or 90/10 preference point system, as per the Preferential Procurement Regulations, 2022 shall apply. The lowest acceptable tender will determine which point systems will be used. The following scores will be applied:

(i) Price -80 or 90,

(ii) Specific Goals (B-BBEE Status level of Contribution) - 20 or 10.

(h) Bidders will be evaluated on functionality and are expected to meet the minimum of 60 points threshold to be evaluated further. The evaluation criteria for assessing functionality and weight of each criterion are provided in the RFP document;

(i) Bidders and all its Consortium/Joint Venture (JV) members, if any, must confirm their company registration with Companies and Intellectual Property Commission (CIPC) (formerly CIPRO) as CDC will not award any bid to any business that appears on the CIPC List of de-registered businesses.

(j) As per the Amended Construction Codes, all Generic entities and QSEs with less than 51% Black ownership are required to submit a valid SANAS-accredited B-BBEE Verification Certificate reflecting all applicable B-BBEE elements. QSEs with at least 51% Black ownership and EMEs with an annual turnover above R3 million must

also submit a B-BBEE Verification Certificate issued by a SANAS-accredited verification agency, as they are required to comply with the 40% sub-minimum for the Skills Development element to avoid a discounting of their B-BBEE level. EMEs with an annual turnover of less than R3 million are exempt from the sub-minimum requirement and may submit either a sworn affidavit or a certificate issued by CIPC confirming their ownership and annual turnover. In the case of a Joint Venture (JV) or Consortium, a consolidated B-BBEE certificate must be submitted. The JV certificate must be prepared and issued for this specific project. It must also be accompanied by the individual B-BBEE certificates or affidavits of each participating entity to confirm the type and status of each enterprise."

(k) Failure on the part of a Bidder to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed. The documentation required to claim points for Specific Goals will be a BBBEE Level of Contributor certificate issued by an accredited SANAS agency.

(l) An Entity that is part of a JV / Consortium is not permitted to form part of more than one bid submission in terms of the Competition Act 89 of 1998;

(m) Proof of registration with Treasury's Centralized Supplier Database (CSD) or provide a Treasury CSD registration number e.g. MAAA…

(n) CDC will only award the tender to a bidder who is tax compliant. The tax compliance status of the bidders will be verified through CSD and SARS website. The prospective Bidders must ensure that they are Tax Compliant throughout the validity period of the bid.

(o) The CDC reserves the right, in its sole discretion, to reject any bid where it appears to the employer that the bidder does not comply with any of the requirements set in these tender conditions.

(p) Bidders must be VAT registered and bids must be submitted VAT inclusive. Non-VAT vendors who submit bids for contracts that would, if successful, take their annual turnover above the threshold of R 1 million are obliged to include VAT in the prices quoted and must therefore immediately upon award of the contract register with the South African Revenue Services (SARS) as VAT vendors. The award of contract would be conditional pending the successful Bidder submitting proof of registration as a VAT vendor with SARS;

(q) The CDC will not award more than two (2) active projects to one Bidder, unless one project has reached 80% completion stage and beyond. Capacity assessment may be conducted in an event that the recommended Bidder is the only responsive service provider and has already been awarded two contracts;

(r) The performance of the Bidders on projects they have been awarded (past and current projects) shall be reviewed and evaluated on an on-going basis by the CDC Project Manager. Poor performance on awarded projects may result in a Bidder not being awarded future projects by the CDC as per the CDC Service Provider Performance Management;

(s) Bidders must complete and sign the POPI Act consent form. In case of Joint Venture/Consortium, a separate form in respect of each party to the JV must be completed;

(t) The Bidders must nominate a delegate with an authority to sign:

(i) The Tender Submissions;

(ii) Any correspondence with the CDC during the bidding process;

(iii) The Agreement to be entered into with the Successful Bidder; and

(iv) Any correspondence during the Contract Execution Phase.

(u) Public servants are prohibited from doing any form of business with organs of the state, whether in their own capacity as individuals or through companies in which they are directors. Verification will be done, and Bidders will be disqualified should they be found to be in contravention with the regulations.

(v) The Successful Bidder will be required to comply with the Occupational Health and Safety Act and Regulations, Act (85 of 1993) and Compensation for Occupational injuries and disease Act, Act (130 of 1993) and all relevant and applicable legislations. Upon appointment of the successful tenderer, it will be required to develop Occupational Health, Safety and Environmental Management Systems to comply with the SANS Norms and Standards. The Bidder shall ensure as far as is reasonably practicable, that article/substance is safe and without risk to health when properly used and that it complies with prescribed requirements. Take such steps as may be necessary to ensure that such article/substance's information is available regarding the use at work, risks to health and safety associated with and procedure to be followed is available in the case of an incident occurrence. CDC Sustainability Business Unit will manage and monitor compliance and implementation of Occupation Health and Safety, Environmental and Quality requirements for the duration of the contract.

(w) Upon award the successful Bidder will be required to appoint a Full-Time Construction Health and Safety Officer or Construction Health and Safety Manager (CHSO/CHSM) actively registered with SACPCMP. The CHSO/CHSM must have a proven record of 5 years or more. The CHSO/CHSM will take full responsibility of managing and supervising safety, health and environment throughout the construction duration. No candidate registration will be accepted

(x) In case of a JV award, the entity will be expected to provide valid proof of registration with Compensation Fund or approved Licensed Insurer specified as the JV entity for a specific duration

(y) In case of JVs/Consortia, the Bidder must include an Intent to Enter into a JV/Consortium Agreement. The actual copy of a complete and fully signed JV/Consortium Agreement would be required from the successful Bidder upon completion of the procurement process;

(z) It is incumbent upon and the responsibility of the Bidders to submit their full and correct contact details when they download the TENDER Document to enable any communication that the CDC might need to issue to all the

Prospective Bidders during the bidding process to be realized. The CDC will not be accountable for any such omission or failure by the Prospective Bidders.

(aa) Any misrepresentation of information will lead to immediate disqualification of the Bidder and its Submission will be deemed as being null and void. It is imperative that the duly authorized person conducts quality control on all the documentation to be submitted to the CDC as part of this TENDER and signs the submission as a correct and sound documentation that the CDC could put its reliance on.

(bb) Attendance of the Briefing Meeting by at least one member of the Company or JV/Consortium is compulsory. The attendance register will be used to confirm attendance. Submissions from Companies or JV/Consortium which did not attend the Compulsory Briefing Meeting will be eliminated in the Responsiveness Assessment. The attendance register must be completed in the name of a bidding entity.

(cc) The bids will be evaluated as follows:

(i) Stage 1: Timeous Submission
(ii) Stege 2: Responsiveness Assessment,
(iii) Stage 3: Functionality Assessment,
(iv) Stage 4: Quantitative Assessment, and
(v) Stage 5: Qualitative Assessment.

(dd) The tender validity period shall be twenty (20) weeks from the tender closing date.

(ee) Tenders must only be submitted on the tender document that is issued.

(ff) The CDC reserves the right, in its sole discretion, to reject any bid where it appears to the employer that the bidder does not comply with any of the requirements set out above.

The documentation for this contract can be downloaded from the CDC's website: www.coega.com or the National Treasury e-tender portal from **Friday, 02 October 2026 at 10h00**. The CDC will not take responsibility for any errors that may occur in the downloading of documents. Bidders are therefore required to ensure that they download the full pack with no missing pages

In case a bidder prefers to purchase a physical bid document, the bidder must place an order via dohtenders@coega.co.za. The bid documents can be collected 2 days after placing an order during working hours from **CDC's Main Office, Coega Business Centre, Cnr. Alycon Rd and Zibuko St, Zone 1, Coega SEZ, Gqeberha** from **Tuesday, 06 October 2026 at 10h00**, AT THE DOCUMENT CONTROL OFFICE. No documents will be available or issued at the Briefing Session and should therefore be collected timeously beforehand.

Bidders who prefer to purchase a physical bid document, a non-refundable fee of **R700.00 per document** must be deposited or payable by means of electronic transfers to Account Name: CDC ECDOH; Standard Bank, Account No:

000898813, Branch No: 000205, Branch Name: Johannesburg and proof of payment is required upon collection of the bid documents. NO CASH WILL BE ACCEPTED.

All queries relating to this TENDER may be addressed to Ms. Zine Mtanda, Unit Head: Supply Chain Management strictly via e-mail: dohtenders@coega.co.za between the period of **02 October 2026 to 22 October 2026.** No new queries received after the **22 October 2026** will be considered.

A Compulsory Site Briefing Meeting will be held at PE Provincial Hospital Buckingham Road Main Entrance Parking area inside the hospital site, Gqeberha, Nelson Mandela Bay District at **Eastern Cape** on **Friday, 09 October 2026** at **10:00.** The GPS coordinates to the site are as follows: **Latitude: 33°57'30"S and Longitude: 25°35'57"E Address: PE Provincial Hospital Buckingham Road, Gqeberha.** The briefing minutes will be shared with the bidders who have attended the briefing meeting and will also be published on the CDC website.

The closing date and time for the receipt of complete bid documents is **12h00, Monday, 09 November 2026**. One original completed bid document shall be placed in a sealed envelope clearly marked: **"CONTRACT NO. CDC/73/26: COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX"**. Documents are to be lodged and handed in at the Document Control Office, CDC's Main Office, Coega Business Centre, Cnr. Alycon Rd and Zibuko St, Zone 1, Coega SEZ, Gqeberha. The lodging register must be completed by the person delivering the tender document. Bidders using courier services are to ensure that the person delivering the tender document registers the correct bidding entity name.

Failure to provide any mandatory information required in this Bid will result in the submissions being deemed null and void and shall be considered non-responsive.

Bidders must ensure that all bid documents are submitted in a secure, sealed, tamper-proof envelope or container. The submission must be secure against any form of tampering, alteration, removal, or insertion of documents. Any bid submission received in packaging that appears to be torn, unsealed, loose papers or otherwise compromising the integrity of the contents may be deemed non-responsive and disqualified at the discretion of the CDC.

Telegraphic, telexed, tipped, facsimiled or e-mail submissions will not be accepted.

No telephonic or any other form of communication relating to this Bid with any other CDC member of staff, CDC Agent, Client, or any other role players will be permitted. All enquiries regarding this tender must be in writing only, and must be directed to:

Ms Zine Mtanda, Unit Head: Supply Chain Management; e-mail: dohtenders@coega.co.za

There shall be no disclosure, other than to the Client's legal and technical advisors of the tender amounts, method of work, terms, conditions, etc., to any other Bidder nor to any parties who have not submitted tender documents. The CDC reserves the right not to accept the lowest proposal in part or in whole or any proposal.

T1.2: TENDER DATA

The Conditions of Tender are the Standard Conditions of Tender as contained in **Annexure C** of the Construction Industry Development Board's (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts August 2019.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

ITEM	DATA / WORDING
C.1.1.1 The Employer is:	**The Employer is:** **Coega Development Corporation (Pty) Ltd** Coega Business Centre Corner Alcyon and Zibuko Street Zone 1, Coega SEZ Gqeberha 6001
C.1.1.2 Conflict of Interest	Bidders shall declare any perceived, known and potential conflict of interest under Returnable Schedule SBD 4: Bidder's Disclosure Form.
Tender Documents	**BOOK 1 OF 2** **INDEX and introductory pages** **Documents that Relate to the Tender** **PART T1: TENDERING PROCEDURES** T1.1 Tender Notice and Invitation to Tender T1.2 Tender Data **PART T2: RETURNABLE DOCUMENTS** T2.1 Returnable Schedules **Documents that Relate to the Contract** **PART C1: AGREEMENT AND CONTRACT DATA** C1.1 Form of Offer and Acceptance C1.2 Contract Data C1.3 Pro-Forma Forms to be Completed C1.3.1 Construction Guarantee C1.3.2 Construction Guarantee Pro-Forma C1.3.3 Agreement in Terms of OHS Act, 1993, (Act No 85 of 1993) C1.3.4 Certificate of Authority for Signatory in Terms of Occupational Health and Safety Act, 1993 (Act No 85 of 1993)

ITEM	DATA / WORDING
	PART C2: PRICING DATA C2.1 Pricing Instructions C2.2 Pricing Schedule **SCHEDULE OF QUANTITIES** **BOOK 2 OF 2** **PART C3: SCOPE OF WORKS** C3.1 Description of the Works **C3.2** Drawings and Spécifications **PART C4: SITE INFORMATION** C4.1 Site Location **PART C5: ANNEXURES** C5.1 Annexure A: Project Occupational Health and Safety Specifications C5.2 Annexure B: Baseline Hazard Identification and Risk Assessment C5.3 Annexure C: Project Environmental Specifications C5.4 Annexure D: Socio-Economic Deliverables – Construction Labour Management C5.5 Annexure E: SMME Specification C5.6 Annexure F: CIDB B.U.I.L.D Standard for Developing Skills Through Infrastructure Contracts (March 2023) C5.7 Annexure G: CIDB B.U.I.L.D Standard for Indirect Targeting for Enterprise Development Through Construction Works Contracts C5.8 Annexure H: Planning Specification for Contractors
Employer's representative	Ms Zine Mtanda, Email : dohtenders@coega.co.za Coega Business Centre Corner Alcyon and Zibuko Street Zone 1, Coega SEZ Gqeberha 6001
C.2.1 Eligibility	The following Bidders who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated: Only those respondents who are registered with the Construction Industry Development Board or are capable of being so registered within twenty-one (21) working days from the closing date for submission of tenders, in a contractor grading designation of **7GB**, are eligible to have their submissions evaluated. A simple way of establishing whether or not a contractor has a reasonable chance of being registered in the appropriate contractor grading designation is for the bidder to submit a copy of his/her application for CIDB registration with his or her tender submission. Contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined according to the sum tendered, or a value determined according to Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, for a CIDB Contractor grading of **7GB. 6GB PE** will not be eligible to bid for tender.

ITEM	DATA / WORDING
	Should the winning bidder be registered with the CIDB grade of **7GB**, The contractor is exempt from achieving any Contract Participation Goals (CPG) related to the engagement of targeted enterprises under this contract. The requirements established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts (published in GN 36190 of 25 February 2013) shall not apply, and no CPG submission is required. All grades above **7GB** will have to comply. Bidders must be able to demonstrate suitable prior experience in the installation of related bulk infrastructure of at least a similar scale and value to those of the tender. Bidders shall complete Returnable Document Form B: Schedule of Work Carried out by the Tender in this regard. Subject to sub regulation (1), joint ventures are eligible to submit tender offers or expressions of interest if: (i) Every member of the joint venture is registered with the CIDB; (ii) The lead partner has a contractor grading designation of not lower than one level below the required grading designation in the class of construction works under consideration and possesses the required recognition status; and (iii) The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **7GB** class of construction work; or the category of registration of the joint venture, determined in accordance with sub regulation (6) is equal to or higher than the category of registration specified in accordance with sub regulation (3).
C.2.7 Clarification Meeting	The arrangements and venue for the compulsory Tender Briefing meeting are: Venue: **PE Provincial Hospital Buckingham Road Main Entrance Parking Area; (Latitude: 33°57'30"S and Longitude: 25°35'57"E)** Time: **10h00** Date: **09 October 2026** Name: Zine Mtanda dohtenders@coega.co.za
C.2.12 Alternative Tender Offers	No alternative offers will be considered.
C.2.13 Returnable Documents	Bidders to note that the returnable document is Volume 1 (Book 1 of 2)
C.2.13 Number of copies of tender offers to be submitted to the Employer	The returnable part of the tender offer communicated on paper shall be submitted as **an original only**.
C.2.13.5 Sealing and Delivery of tender offers	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are: Location for tender lodging and submission: **Document Control Office**, **CDC's Main Office**, Coega Business Centre, Cnr. Alycon Rd and Zibuko St, Zone 1, Coega SEZ, **Gqeberha.** Identification details: **"CONTRACT NO. CDC/73/26: COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX"**.
C.2.15 Closing time of tender offers	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
C.2.16 Tender offer validity	The tender offer validity period is **twenty (20) weeks** from the tender closing date.

<table>
<tr><th>ITEM</th><th>DATA / WORDING</th></tr>
<tr><td>C.2.19 Inspections, tests and analysis</td><td>Bidders will be not able to visit the site other than as per planned Briefing Meeting</td></tr>
<tr><td>C.2.23 Certificates</td><td>All certificates as listed under Part T2: Returnable Documents.</td></tr>
<tr><td>C.2.8 & C3.1.1 Request for clarification</td><td>Working days shall be as per a normal working week, Monday to Friday between the hours of 08h00 and 17h00 and shall exclude all gazetted public holidays.</td></tr>
<tr><td>C.3.2 Issue Addenda</td><td>Change “three days” to “seven working days”.</td></tr>
<tr><td>C.3.4 Opening of tender submissions</td><td>Tender Offers will be opened in public. No more than two representatives of the tendering entity will be allowed to attend the tender opening session.</td></tr>
<tr><td>C.3.5 Two-Envelope system</td><td>A two-envelope system will not be followed.</td></tr>
<tr><td>C.3.11 Evaluation of Tender Offers</td><td>The procedure for the evaluation of responsive tenders is, Price, and Specific Goals. Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/highest acceptable tender will be used to determine the accurate system once tenders are received. The 90/10 or 80/20 preference point system will apply. Points allocation will be as follows:
Formula of Scoring for Price
<table>
<tr><th>SCORING CRITERIA</th><th>WEIGHTING FOR 80:20</th><th>WEIGHTING FOR 90:10</th></tr>
<tr><td>Price</td><td>80</td><td>90</td></tr>
<tr><td>Specific Goals (B-BBEE status level of contributor)</td><td>20</td><td>10</td></tr>
<tr><td>Total points</td><td>100</td><td>100</td></tr>
</table>
$$Ps = 80\left[1 - \frac{Pt - P\min}{P\min}\right] \quad \text{OR} \quad Ps = 90\left[1 - \frac{Pt - P\min}{P\min}\right]$$
Where:
Ps = Points scored for price of tender under consideration;
Pt = Price of tender under consideration; and
Pmin = Price of lowest acceptable tender.
The allocation of tender adjudication points for Contracts shall be as follows:
<table>
<tr><th>Area of Adjudication</th><th>Maximum Points</th></tr>
<tr><td>Tendered Price (S_P)</td><td>80 or 90</td></tr>
<tr><td>Specific Goals (B-BBEE status level of contributor) (Se)</td><td>20 or 10</td></tr>
<tr><td>Total Points (s)</td><td>100</td></tr>
</table>
In addition to price evaluation, CDC will evaluate contractors, service providers, and professionals based on their B-BBEE status achieved according to the DTI.

As per amended construction codes, companies with less than 51% black shareholding (QSEs & Generics) are to submit a valid SANAS Accredited B-BBEE Verification Certificate (with the full applicable B-BBEE elements). QSE with at least 51% or 100%</td></tr>
</table>

<table>
<tr><th>ITEM</th><th>DATA / WORDING</th></tr>
<tr><td></td><td>black shareholding and EMEs with an annual turnover of above R3 Million are required to submit a B-BBEE verification certificate from a SANAS accredited verification agency as they have to comply with the 40% sub-minimum requirement on the QSE Skills Scorecard to avoid being discounted a level. EMEs with a turnover of less than R3 Million are exempt from complying with the subminimum requirement and may submit an affidavit or a certificate issued by CIPC, confirming their ownership and annual turnover. In the case of a JV, a consolidated B-BBEE certificate must be submitted, as well as individual B-BBEE Certificates/affidavits of their entities to confirm the type of enterprise.

Note:
❖ A Trust, Consortium, or Joint venture will qualify for points for its B-BBEE Status Level as a legal entity provided that the entity submits its B-BBEE Status certificate.

❖ A Trust, Consortium, or Joint venture will qualify for points for its B-BBEE Status Level as an unincorporated entity provided that the entity submitted its consolidated B-BBEE Scorecard as if it were a group structure and that such a consolidated B-BBEE Scorecard is prepared for every separate tender.

Specific goals points shall be awarded to a bidder for attaining the B-BBEE status level of contributor according to the table below.

<table>
<tr><th>CONTRIBUTION LEVEL</th><th>NUMBER OF POINTS (90/10 SYSTEMS)</th><th>NUMBER OF POINTS (80/20 SYSTEMS)</th></tr>
<tr><td>Level One</td><td>10</td><td>20</td></tr>
<tr><td>Level Two</td><td>9</td><td>18</td></tr>
<tr><td>Level Three</td><td>6</td><td>14</td></tr>
<tr><td>Level Four</td><td>5</td><td>12</td></tr>
<tr><td>Level Five</td><td>4</td><td>8</td></tr>
<tr><td>Level Six</td><td>3</td><td>6</td></tr>
<tr><td>Level Seven</td><td>2</td><td>4</td></tr>
<tr><td>Level Eight</td><td>1</td><td>2</td></tr>
<tr><td>Non-Compliant Contributor</td><td>0</td><td>0</td></tr>
</table>

The points scored by a Bidder in respect of Price (S_P) will be added to the points scored for the Specific Goals (Se). Only the Bidder with the highest number of points may be selected, except in those instances identified in section 2(1)(f) of the Preferential Procurement Policy Framework Act (5 of 2000)</td></tr>
<tr><td>C.3.13
Acceptance of Tender Offers</td><td>The tender offer will only be accepted if the Bidder:
is registered with the Construction Industry Development Board in an appropriate contractor grading designation, refer to F.2.1;
or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;
has not abused the Employer’s Supply Chain Management System;
has met all the requirements in terms of the Mandatory Requirements;
has not failed to perform on any previous contract.

CDC to also verify with Provincial Treasury prior to the award of contracts regarding impending restrictions in addition to verifying restrictions in the Database of Restricted Suppliers/ Central Supplier Database. In the event that there is a recommended bidder who is in the process of being restricted, the CDC will consult Provincial Treasury on the manner in which the award of such bid must be finalised.</td></tr>
</table>

EXPERIENCE OF KEY PERSONNEL

The experience of assigned staff members in relation to the Scope of Work will be evaluated in accordance with the mandatory and functionality criteria.

Should any personnel change from the tender submission, their CV must be submitted and approved by the Employer's Representative, and it shall be a like-for-like candidate or better.

Note to Bidder:

A CV shall be attached to this schedule for the

(a) **Contracts Manager**
(b) **Site Agent**
(c) **Foreman**

Should more than one CV be included for Key Personnel positions, the most responsive CV will be evaluated.

EXPERIENCE AND QUALIFICATIONS OF .

Personal Particulars			
Full Name and Surname:			
ID/ Passport No.			
Age			
Tendered Post:			
Name of Professional Institution/s Registered With:			
Professional Registration Number:			
Qualifications **(Copies of all relevant qualifications and registrations must be attached to this form)**			
Education / Qualifications:		**Year Obtained:**	**Institution:**

Overview of Experience		
Date	**Organisation**	**Position Held**

Outline of Relevant Experience			
Start (MM/YYYY)	**End** (MM/YYYY)	**Client, Contract Title & Detailed Description of Contract**	**Client and Employers Representative Reference & Contact**

NOTE:
Client Implies: Coega Development Corporation.
Make additional copies of this form if required for additional projects.

Declaration by nominee for key staff position above:

I, the undersigned, declare that all the information provided above and in the forms that follow correctly describes me and my experience.

I, the undersigned, do hereby agree to present myself for an interview with the Client or a representative of the Client should further clarity be required on the information provided herein.

NAME……

SIGNATURE …… DATE: ……
(of the person named on this form)

Note to Bidder:

The Bidder shall ensure that this form is signed by the person nominated for the above key staff position and that all the information provided is true. Any inconsistency in the information provided will lead to the conclusion that the person nominated is not suitably qualified for the position and NO points will be awarded. Should this key staff member not be available for deployment to this contract upon award, only approved candidates with similar or better credentials will be considered by the employer.

SIGNATURE …… DATE: ……

PART T2: RETURNABLE DOCUMENTS

T2.1.1 FORM A: AUTHORITY FOR SIGNATORY

Indicate the status of the bidder by ticking the appropriate box hereunder. The bidder must complete the certificate set out below for the relevant category.

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation

A. Certificate for Company

I, ……., chairperson of the board of ……., hereby confirm that by resolution of the board (copy attached) taken on …… 20……., Mr/Ms ……. acting in the capacity of ……., was authorised to sign all documents in connection with this tender for **Contract No CDC/73/26** and any contract resulting from it on behalf of the company.

As witnesses:

1. …….. Chairman: …….
2. …….. Date: …….

B. Certificate for Partnership

We, the undersigned, being the key partners in the business trading as ……., hereby authorise Mr/Ms ……., acting in the capacity of ……., to sign all documents in connection with this tender for **Contract No CDC/73/26** and any contract resulting from it on our behalf.

Name	Address	Signature	Date

Note: This certificate is to be completed and signed by all key partners upon whom rests the direction of the affairs of the Partnership as a whole.

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms ……, authorised signatory of the company ……, acting in the capacity of lead partner, to sign all documents in connection with this tender for **Contract No CDC/73/26** and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

Name of Firm	Address	Authorising Name and Capacity	Authorising Signature
Lead Partner:			

D. Certificate for Sole Proprietor

I, ……, hereby confirm that I am the sole owner of the business trading as …….

As witnesses:

1. …….. Sole Owner: …….
2. …….. Date: …….

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as ……, hereby authorise Mr/Ms …… acting in the capacity of ……., to sign all documents in connection with this tender for **Contract No CDC/73/26** and any contract resulting from it on our behalf.

Name	Address	Signature	Date

Note: This certificate is to be completed and signed by all key partners upon whom rests the direction of the affairs of the Partnership as a whole.

T2.1.2 FORM B: SCHEDULE OF WORK CARRIED OUT BY THE BIDDER

The Bidder shall list below the construction contracts of a similar nature awarded to them with a value great of **R 9 million** over the last 7 years. This information is material to the adjudication of the Tender.

EMPLOYER & CONTACT DETAILS	EMPLOYERS REPRESENTATIVE & CONTACT DETAILS	PROJECT TITLE & BRIEF DESCRIPTION	VALUE OF WORK (ZAR)	DATE COMPLETED

Number of sheets, appended by the bidder to this Schedule ..... (If nil, enter NIL).

SIGNATURE: ……. **DATE:** ……

(person authorised to sign on behalf of the Bidder)

T2.1.3 FORM C: PROPOSED KEY PERSONNEL

The Bidder shall list below the key personnel, whom they propose to employ on the contract should their offer be accepted, both at their headquarters and on the Site, to direct and for the execution of the work, together with their qualifications, experience, positions held, and their nationalities. The bidder shall submit a current **curriculum vitae** in respect of each key person and an **Organogram.** Failure to complete this Schedule may result in the Tender not being considered.

DESIGNATION	NAME OF NOMINEE	SUMMARY OF QUALIFICATIONS & PROFESSIONAL REGISTRATION NUMBER	NOMINATED RESOURCE TO SIGN FOR CONSENT
Contracts Manager			
Site Agent			
Foreman			

Number of sheets, appended by the bidder to this Schedule ..... (If nil, enter NIL).

**** CVs shall be provided for these personnel**

Should any personnel change from the tender submission, their CV must be submitted and approved by the Employers Representative and it shall be a like-for-like candidate or better.

SIGNATURE: ……..……..……..…… **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

T2.1.4 FORM D: PLANT AND EQUIPMENT RESOURCES

The bidder shall state below what construction plant and equipment will be available for this Contract. The bidder shall differentiate, if applicable, between construction plant and equipment immediately available and construction plant and equipment which will become available by virtue of outstanding orders, and indicate what further construction plant and equipment will be acquired or hired for the work should he be awarded the Contract. Daily all in hire rates and daily standby rates are to be indicated for all the plant and equipment listed. **The bidder is to note that the rates contained in this schedule may be applied during the contract for the evaluation of variations and/or claims. Notwithstanding the equipment listed, the Bidder remains responsible for the suitability and adequacy of all Contractor's Equipment and for the methods proposed or adopted for the completion of the Works.**

CONTRACTORS PLANT AND EQUIPMENT IMMEDIATELY AVAILABLE

DESCRIPTION, SIZE, CAPACITY	NUMBER

CONTRACTORS PLANT AND EQUIPMENT ON ORDER (State details of arrangements made)

DESCRIPTION, SIZE, CAPACITY	NUMBER

CONTRACTOR'S PLANT AND EQUIPMENT THAT WILL BE ACQUIRED OR HIRED

DESCRIPTION, SIZE, CAPACITY	NUMBER

Number of sheets appended by the bidder to this Schedule ..... (If nil, enter NIL).

The Bidder undertakes to bring onto site without additional cost to the Employer any additional plant not listed but which may be necessary to complete the contract within the specified contract period.

SIGNATURE: ……..…… **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

T2.1.5 FORM E: SCHEDULE OF PROPOSED SUB-CONTRACTORS

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed below being approved by the Employer's Agent.

NAMES AND ADDRESSES OF PROPOSED SUB-CONTRACTORS	NATURE AND EXTENT OF WORK TO BE SUB-CONTRACTED	PREVIOUS EXPERIENCE WITH SUB-CONTRACTOR OR RECENT WORK EXECUTED BY THE SUB-CONTRACTOR	LOCAL BASED (Yes or No)	BEE Level (Indicate)

Number of sheets appended by the bidder to this Schedule ..... (If nil, enter NIL).

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.1 FORM E1: PARTICULARS OF ALUMINIUM SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Aluminium Contractor for work in this contract.

NAME OF ALUMINIUM SUBCONTRACTOR	
ADDRESS:	
REGISTRATION NUMBER AT THE ASSOCIATION OF ARCHITECTURAL ALUMINIUM MANUFACTURERS OF SOUTH AFRICA (AAAMSA)	

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: ……..…… **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

ALUMINIUM SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

The following schedule of equipment and manufacturers shall be completed in full.

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders

	EQUIPMENT	**MANUFACTURER**

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.2 FORM E2: PARTICULARS OF HVAC SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Heating Ventilation and Air Conditioning (HVAC) Contractor for work in this contract.

NAME OF HVAC SUBCONTRACTOR	
ADDRESS:	
REGISTRATION NUMBER AT SARACCA (SOUTH AFRICAN REFRIGERATION & AIR CONDITIONING CONTRACTORS ASSOCIATION):	
REQUIRED CIDB GRADING IS:	**6ME OR HIGHER**

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

HVAC SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

This schedule will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB: Only one manufacturer's name to be inserted for each item.

	MATERIAL	MAKE OR TRADE NAME	COUNTRY OF ORIGIN
1	VRV Condensers		
2	Ceiling Cassette Units		
3	Branch Selector Units		
4	Refnet Piping Kits		
5	Copper Piping		
6	Cable Tray		
7	Extraction & Supply Air Fans		
8	Diffusers		
9	Ceiling Disc Diffusers		
10	Back Draught Shutters		
11	Fire Dampers		
12	Flexible Ducting		
13	Balancing Dampers		
14	Door Grilles		

Note: Tenderers are to note that under no circumstances may materials be installed other than offered in the above material schedule, which has been approved and accepted by the contractor. Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained form the Contractor before any orders are placed.

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.3 FORM E3: PARTICULARS OF MEDICAL GAS SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Medical Gas Contractor for work in this contract.

NAME OF MEDICAL GAS SUBCONTRACTOR	
ADDRESS:	
REGISTRATION NUMBER AT NUMBER AT SACGA (SOUTHERN AFRICA COMPRESSED GASSES ASSOCIATION) OR SAGA (SOUTH AFRICAN GAS ASSOCIATION:	
REQUIRED CIDB GRADING IS:	**6ME OR HIGHER**

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: ……..……. **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

MEDICAL GAS SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules in full.

3.1	**MEDICAL GAS PIPING**	
	Piping Material	
	Country of Origin	
	To which SANS Specification does it comply?	
3.2	**MEDICAL GAS SERVICE OUTLET VALVES**	
	Maker's Name & Model	
	Country of Origin	
	To which SANS Specification does it comply?	
3.3.	**ISOLATING VALVE CABINETS**	
	Maker's Name	
	Dimensions	
	Make & Type of Isolating Valves	
	Make & Size of Pressure Gauges	
	Do the units comply with the specification?	
3.4	**WARNING/ALARM/MONITORING PANELS**	
	Maker's Name	
	(a) Main Panels	
	(b) Slave Panels	
	Do the units comply with the specification?	

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.4 FORM E4: PARTICULARS OF ELECTRICAL SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Electrical Contractor for work in this contract.

NAME OF ELECTRICALSUBCONTRACTOR	
ADDRESS:	
REGISTRATION NUMBER AT THE ELECTRICAL CONTRACTING BOARD OF S.A.:	
REQUIRED CIDB GRADING IS:	**4EB OR HIGHER**

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: ……..……. **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

ELECTRICAL SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

The following schedule of equipment and manufacturers shall be completed in full.

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders

	EQUIPMENT	**MANUFACTURER**

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.5 FORM E5: PARTICULARS OF NURSE CALL & ICT SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Nurse Call and ICT Installation Contractor for work in this contract.

NAME OF NURSE CALL & ICT SUBCONTRACTOR	
ADDRESS:	
DATA INSTALLATION CONTRACTOR MUST BE A HP APPROVED INSTALLER ACCESS CONTROL CONTRACTOR REGISTRATION NUMBER AT PSIRA (PRIVATE SECURITY INDUSTRY REGULATORY AUTHORITY). BIDDER TO HAVE MINIMUM THREE YEARS RELEVANT EXPERIENCE IN SIMILAR WORKS.	
REQUIRED CIDB GRADING IS:	**NOT APPLICABLE**

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

NURSE CALL & ICT SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

The following schedule of equipment and manufacturers shall be completed in full.

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders

	EQUIPMENT	**MANUFACTURER**

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……
(person authorised to sign on behalf of the Bidder)

T2.1.5.6 FORM E6: PARTICULARS OF FIRE DETECTION SUBCONTRACTOR

I/We hereby notify you that it is my/our intention to employ the following Fire Detection Installation Contractor for work in this contract.

NAME OF FIRE DETECTION SUBCONTRACTOR	
ADDRESS:	
REGISTRATION NUMBER AT SAQCC-FIRE:	
REQUIRED CIDB GRADING IS:	**1ME OR HIGHER**

BIDDERS ARE REQUIRED TO PROVIDE CONTACTABLE REFERENCES AS BELOW

NAME OF EMPLOYER	NAME OF PROJECT	CONTRACT PERIOD (START AND END DATES	VALUE OF WORK	REFERENCE NAME & CONTACT NO.

SIGNATURE: …… **DATE:** ……

(person authorised to sign on behalf of the Bidder)

FIRE DETECTION SUBCONTRACTOR: SCHEDULE OF MATERIALS OFFERED

AUTOMATIC FIRE DETECTION INSTALLATIONS

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

This schedule will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB: Only one manufacturer's name to be inserted for each item.

	MATERIAL	MAKE OR TRADE NAME	COUNTRY OF ORIGIN
1	Addressable Fire Control Panel		
2	Addressable Optical Smoke Detectors		
3	Addressable Remote Light Emitting Diode (LED)		
4	Addressable Heat Detectors		
5	Linear Beams		
6	Addressable Manual Call Points		
7	Addressable Siren Combination Unit		
8	Addressable Flashing Strobe Warning Light		
9	Addressable Magnetic Door Hold Backs		
10	Line Isolators		
11	Addressable Output Relay Module		
12	Interphase Unit (Non Addressable Unit)		
13	Fibre Optic Connection		
14	Fire Repeater Panel		
15	Fire Resistant Cable		
16	Network Card		

	MATERIAL	MAKE OR TRADE NAME	COUNTRY OF ORIGIN
17	RS485		
18	GSM Unit		
19	Sprague Conduit		
20	PVC Conduit		
21	Galvanised Conduit Boxes		
22	Steel Bosal Conduit		
23	220 to 24V step Down Power Supply Unit		

Note: Tenderers are to note that under no circumstances may materials be installed other than offered in the above material schedule, which has been approved and accepted by the contractor. Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained form the Contractor before any orders are placed.

NAME OF TENDER: ……

NAME OF COMPANY: ……

SIGNATURE: …… **DATE:** ……

T2.1.6 FORM F: FINANCIAL REFERENCES

Financial Statements

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report for consideration by the Employer.

Details of the Company's Bank

I/We hereby authorise the Employer/Principal Agent to approach all or any of the following banks for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO BIDDER'S HEAD OFFICE
Name of Bank	
Branch Name	
Branch Code	
Street Address	
Postal Address	
Name of Manager	
Telephone Number	( )
Fax Number	( )
Account Number	

SIGNATURE: …… **DATE:**……
(person authorised to sign on behalf of the Bidder)

T2.1.7 FORM G: ESTIMATED MONTHLY EXPENDITURE

The Bidder shall state below the estimated value of work to be completed every month based on his preliminary programme and his tendered unit rates.
**** The amounts for Contingencies and Contract Price Adjustment must not be included.***

MONTH	AMOUNT *	TOTAL PER YEAR
1	R	
2	R	
3	R	
4	R	
5	R	
6	R	YEAR 1 TOTAL
7	R	……
8	R	
9	R	
10	R	
11	R	
12	R	
13	R	
14	R	YEAR 2 TOTAL
15	R	
16	R	……
17	R	
TOTAL		

SIGNATURE: …….. **DATE:** ……..
(person authorised to sign on behalf of the Bidder)

T2.1.8 FORM H: DETAILS OF AMENDMENTS AND QUALIFICATIONS

AMENDMENTS AND QUALIFICATIONS

I / We herewith propose the amendments and discounts as set out in the tables below:

(a) AMENDMENTS

PAGE, CLAUSE, OR ITEM NO.	PROPOSED AMENDMENT

[Notes: (1) Amendments to the Contract Data are not acceptable;
(2) The Bidder must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.]

(b) ALTERNATIVES

PROPOSED ALTERNATIVE	DESCRIPTION OF ALTERNATIVE

[Notes: (1) Individual alternative items that do not justify an alternative tender and an alternative offer for time for completion should be listed here.
(2) In the case of a major alternative to any part of the work, a separate Schedule of Quantities, programme, etc, and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.]

(c) DISCOUNTS

ITEM ON WHICH DISCOUNT IS OFFERED	DESCRIPTION OF DISCOUNT OFFERED

[Note: The Bidder must give full details of the discounts offered in a covering letter attached to his tender, failing which, the alternative offer will be prejudiced]

SIGNATURE: …… **DATE:**……

(person authorised to sign on behalf of the Bidder)

T2.1.9 FORM I: PROTECTION OF PERSONAL INFORMATION: CONSENT

The introduction of The Protection of Personal Information Act (POPIA) ensures the regulation of personal information through its entire life cycle of collection, transfer, storing and deletion.

As part of its business activities, the Coega Development Corporation (CDC) obtains and requires access to personal data from a wide range of internal and external parties, including without limitation bidders who respond to requests for proposals that are published by the CDC from time to time. The CDC confirms that it shall process the information disclosed by Bidders to evaluate and subsequently award/appoint a successful Bidder.

To comply with procurement principles set out in Section 217 of the Constitution and national procurement legislative prescripts, the names of all entities that submitted a bid, the tendered price thereof, and the subsequent award will be made public.

The CDC hereby states that it does not and will never modify, amend, or alter any personal information submitted to it by a Bidder. Unless directed to do so by an order of court, the CDC does not disclose or permit the disclosure of any personal information to any Third Party without the prior written consent of the owner of the information.

Similarly, Bidders will from time-to-time access and will be seized with information of a personal nature pertaining to the CDC. Some of the information may, because of legislative compliances be available in the public domain, whilst some is uniquely provided to bidders in pursuit of procurement or other business-related activities. In this regard, the CDC requires that Bidders who receive or have access to its personal information, process any such information in a manner compliant with the requirements of the POPIA.

AGREEMENT

1. The CDC and the Bidder (the Parties) agree and undertake that upon obtaining and having access to personal information relating to either of them, they shall always ensure that:

    a) They process the information only for the express purpose for which it was obtained.
    b) Information is provided only to designated and authorized personnel who require the personal information to carry out the Parties' respective obligations in terms of the Procurement processes.
    c) They will introduce, and implement all reasonable measures to ensure the protection of all personal information from unauthorized access and/or use.
    d) They have taken appropriate measures to safeguard the security, integrity, and authenticity of all personal information in its possession or under its control.
    e) The Parties agree that if personal information will be processed for any other purpose other than the one for which the accessing of the information was intended, explicit written consent will be obtained prior to the execution of such reason.
    f) The Parties shall carry out regular assessments to identify all reasonably foreseeable internal and external risks to the interception of personal information in its possession or under its control and shall implement and maintain appropriate controls in the mitigation of such risks.

2. The Parties agree that they will promptly return or destroy any personal data in their possession or control which belongs to the other Party once it no longer serves the purpose for which it was collected, subject to any legal retention requirements. The information will be destroyed in such a manner that it cannot be reconstructed to its original form, linking it to any individual or organisation.

3. Bidder's Obligations:

g) The Bidder is required to notify the Information Officer of CDC, in writing as soon as possible after it becomes aware of or suspects any loss, unauthorised access or unlawful use of any of the CDC's personal information.
h) The Bidder shall, at its own cost, promptly and without delay take all necessary steps to mitigate the extent of the loss or compromise of personal data.
i) The Bidder shall be required to provide the CDC with details of the persons affected by the compromise and the nature and extent of the compromise, including details of the identity (if known) of the unauthorized person who may have accessed or acquired the personal data.
j) The Bidder undertakes to co-operate with any investigation relating to security breach which is carried out by or on behalf of CDC.

On behalf of the Bidder:

…….. ……
Signature Date

…….. ……
Position Name of the Bidder

On behalf of the Client:

…….. ……
Signature Date

…….. ……
Position Name of Client Representative

T2.1.10 FORM J: OCCUPATIONAL HEALTH AND SAFETY ACT SPECIFICATIONS

The successful bidder (Service Provider - SP) will be required to comply with the Occupational Health and Safety Act and Regulations, Act (85 of 1993); Compensation for Occupational Injuries and Disease Act, Act (130 of 1993), National Environmental Management Act, Act (107 of 1998) and Disaster Management Act, Act (57 of 2002) and, all relevant legislations throughout the duration of the contract. Upon appointment of the successful bidder, the service provider will be required to develop Occupational Health, Safety and Environmental Management Systems in compliance to the CDC Norms and Standards specified below prior commencement of the intended scope of works. The SP will be expected to develop SHE File as per project SHE Specifications within the prescribed timeframe specified in the letter of appointment and submit for approval prior commencement of construction work. Below table are the minimum requirements but not limited to –

Table1

OHSSS Item No.	OHSSS Requirement	OHSA Requirement	Submission Date
A: CLIENT DOCUMENTATION			
2.3.1	Prepared Health and Safety Specification (HSS) by the Client - CR 5(1)(b)	Approved copy of HSS Specification specific to the project scope of work	**Prior commencement of construction work**.
2.3.2	Prepared Baseline Risk Assessment (BRA) by the Client - CR 5(1)(a)	Approved copy of BRA specific to the project scope of work	
2.3.3	Letters of contract appointment and form of acceptance completed by the Professional Service Providers i.e. Engineers	Completed and signed contract documentation between the Client and Engineers	
2.3.4	Legal appointment and acceptance in the form of CR 6(1)		
2.3.5	Valid proof of professional registration with statutory body or voluntary association		
2.3.6	Professional Indemnity		
2.3.7	SHE Assessments, investigation	Assessment or investigation reports with issued permits, licenses, waivers, authorization	
2.3.8	Drawing Designs	Approved drawing designs by the Authorities	
2.3.9	Mandatary agreement entered between two parties - Section 37.2	Completed and signed mandatary agreement entered between Client and Engineers	

B: PRINCIPAL CONTRACTOR (PC) DOCUMENTATION			
2.3.10	Letter of appointment/SLA and acceptance	Completed and signed contract documentation between Client and PC	**Prior commencement of construction work**
2.3.11	Appointment letters of the PC CR 5(1)(k)	Completed and signed letter between Client and PC	
2.3.12	Mandatory agreement in the form of Sec 37.2 of the OHSA	Completed and signed mandatary agreement entered between Client and PC	
2.3.13	Construction work notification to the nearest Department of Employment and Labour Centre (DoELC) in the **Contractor – CR4**	A copy of completed and signed Annexure 2 with acknowledgement certificate or stamped by the DoELC	
2.3.14	Compensation Fund or approved License Insurer in terms of Occupational Injuries and Diseases Act, Act (130 of 1993), CR 5(1)(j)	Valid registration certificate with Compensation Fund or Approved Licenced Insurer	
2.3.15	Construction work site Organogram	Designation and names of appointed persons to the relevant sections and regulations of the OHSA	
2.3.16	Appointment for construction work project activities - management and supervision	Completed and signed appointment letters of Construction Manager and Supervisor (CM & CS) on fulltime basis on site – CR 8(1) and CR 8(7). Provide profiles, copies of (ID, qualifications, short courses attended) registered with SACPCMP (where required)	
2.3.17	Appointment for construction work health and safety activities - management and supervision	Completed and signed appointment letter of Construction Health and Safety Officer or Manager (CHSO/CHSM) on fulltime basis on site to assist in the control of all SHE related aspects on site – CR 8(5). Provide profile, copies of (ID, qualifications, short courses attended) and valid registration certificate with SACPCMP	
2.3.18	Appointment of competent responsible persons as per project scope of work activities aligned with site organogram (operational)	Signed letters of designations and names of competent persons with proof of competent certificates	

2.3.19	Prepared SHE Policies – Section 7	Signed SHE policies as per Tender SHE Specifications	
2.3.20	Prepared Baseline Risk Assessment (BRA) – Hazard Identification and Risk Assessment – CR 9(1)	Signed BRA specific to the project scope of work	
2.3.21	Prepared Health, Safety and Environmental Plans (where applicable) • Health and Safety Plan (HSP) • Environmental Management Plan • Fall Protection Plan • Temporary Works plan • Demolition / Dismantling Plan • Emergency Preparedness and Response Plan • Public Safety Management Plan etc	Signed HSP's specific to the Tender SHE Specifications	
2.3.22	Prepared Environmental Method Statements read with Safe Working Procedures	Signed method statements as per Tender SHE Specifications	
2.3.23	Prepared Safe Working Procedures	Signed safe working procedures as per Tender SHE Specifications	
2.3.24	Medical examinations of all employees specific to the work to be performed by the OMP/OHNP in the form of Annexure 3 – pre, periodic and exits - CR 7(1)(g) Valid medical certificates may be subjected to verification process by CDC Health Care Centre should there be discrepancies at the cost prescribed by the Clinic (**CDC requirement**)	Proof of valid medical certificates issued by Occupational Health Practitioner with completed Annexure 3 and copies of employees' ID	
2.3.25	Documents, Training, Records and Registers – CR 7(1)(b)	Prepared registers, templates, documents, and records as per Tender SHE Specifications	

Abbreviations:

SHE: Safety, Health and Environment
CR: Construction Regulations 2014
OHSA: Occupational Health and Safety Act and Regulations, Act (85 of 1993)
OHSSS: Occupational Health and Safety Site Specification

NOTIFICATION FORM: SHE SPECIFICATION

Acknowledgement:

I,_____representing _____

_____ Contractor have satisfied with the content of the Safety, Health and Environmental Specifications and shall ensure that we comply with all relevant obligations in respect thereof. I furthermore, have fully included in my tendered rates and prices (in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the OHSA for the duration of the construction work and defects liability period.

Signature of Contractor	**Date**

T2.1.11 FORM K: CONTRACT PARTICIPATION GOAL: EME / QSE TARGET FORM

The CIDB Standard for Indirect Targeting is incorporated into this Contract. A Contract Participation Goal (CPG) of 13.5% (by value, excluding contingencies, escalation, VAT, Socio-economic deliverables, and EPWP allowances (if applicable)) is stipulated in this contract.

The Tenderer is to commit to targeted works that can be performed by EMEs/QSEs as subcontractors. The EME/ QSE targeted CPG must be calculated in relation to every entity involved in the project as defined in the CDC SMME Specification document. No Functionality Points will be scored for a commitment that is less than 13.5%.

The identification of SMME packages post-award will be done in conjunction with the CDC SMME Unit and the project team. The sourcing, procurement, appointment, mentoring, and graduating of SMMEs will be done in accordance with the CDC SMME Specification.

The overall percentage in the table below will be utilised for the allocation of points in the Functionality Assessment stage of Evaluation and will be monitored during construction for compliance. Penalties may be applied for achieving less than the committed CPG %.

Please refer to Tables A1 and A2 in the Functionality section of Volume 1 of the Tender documents for the Evaluation Indicators for scoring purposes.

CONTRACT NUMBER	:	**CDC/73/26**
CONTRACT DESCRIPTION	:	**COMPLETION OF THE CATHLAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX**
PROJECT MANAGER	:	
TENDERER/S NAME	:	

I/We tender the following targets of:

Exempted Micro Entreprises (EMEs) / SMMEs Participation		
Participation	**% Goal Tendered**	**Estimated RAND Value (R)**
SMME Packages committed	%	R
Overall % Contract Participation Goal	%	R

The SMME participation percentage of 13.5% as stated in Form K shall be regarded as the applicable and binding participation percentage for purposes of this bid. In the event of any discrepancy or inconsistency between the percentage stated in Form K and any other percentage reflected elsewhere in the bid documentation, the 13.5% participation percentage stated in Form K shall prevail and take precedence

I/We commit to achieving the above-mentioned Contract Participation Goal and to respond promptly to points of clarification regarding my/our CPGs, failing which I/we understand that my/our Tender will be deemed non-responsive on the grounds of being incomplete and not meeting the mandatory requirements as stipulated in the Tender.

Penalty on non-compliance/not achieving the committed minimum target of 13.5% participation

"The tenderers must allow for all costs application that they may feel be associated with the successful integration, development of and completion of SMME Contractors' work to the approval of the Principal Agent on this project. This includes all the costs associated with the provision of an SMME Participation as stipulated on the Form K at a minimum of 13.5% of construction costs excluding VAT, Contingencies and Escalation". The employer shall be entitled without prejudice to its other remedies under the contract, deduct from the contract price, as penalty calculated on the following formula

13.5% of PV (in monetary value -%age AV (in monetary value) = PAV (in monetary value);
where PV = Project Value,
where AV= Achieved SMME Participation Value,
where PAV = Penalty Accumulated Value

Penalty =*Target @ 13.5%-% Achieved SMME Participation* = Balance of the % not achieved *(which would be the penalty for non-compliance)*

Duly authorised to sign on behalf of: (name of tenderer)	:	

Name of Person signing	:	

Signature	:	

Date	:	

T2.1.12 FORM L: RECORD OF ADDENDA TO TENDER DOCUMENTS

1 .....We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

Addenda No.	Date	Title or Details

Number of sheets appended by the bidder to this Schedule ..... (If nil, enter NIL).

SIGNATURE: **.....** **DATE:** **…….....**
(person authorised to sign on behalf of the Bidder)

T2.1.13 FORM M: FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014

In terms of regulation 5(1)(h) of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 7 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

1 I confirm that I am fully conversant with the Regulations and that my company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations.

	(Tick)
YES	
NO	

2 Proposed approach to achieve compliance with the Regulations

	(Tick)
Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) - specify:	

3 Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CVs to be attached):

.....

.....

.....

4 Provide details of proposed training (if any) that will be undergone:

.....

.....

5 Potential key risks identified and measures for addressing risks:

.....

.....

6 I have fully included in my tendered rates and prices (in the appropriate payment items provided in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period.

	(Tick)
YES	
NO	

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS TENDER:

1 ..... ID NO: .....

2 ..... ID NO: .....

T2.1.14 FORM N: JOINT VENTURE DISCLOSURE FORM

EMPLOYER:	**COEGA DEVELOPMENT CORPORATION**
CONTRACT DESCRIPTION:	**COMPLETION OF THE CATHLAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX**
CONTRACT NUMBER:	**CDC/73/26**

Note:

1) This form need not be completed for Joint Ventures which have enterprise partners.

2) All the information requested must be filled in the spaces provided. If additional space is required, additional sheets may be attached.

3) A copy of the joint venture agreement must be attached to this form. To demonstrate the targeted enterprise partner's share in the ownership, control, management responsibilities, risks and profits of the joint venture, the proposed joint venture agreement must include specific details relating to:

i) The contributions of capital and equipment
ii) Work items to be performed by the enterprise partner's own forces.
iii) The commitment of management, supervisory and operative personnel employed by the targeted enterprise partner to be dedicated to the performance of the Contract.

4) Copies of all written agreements between partners concerning the contract must be attached to this form, including those which relate to ownership options and restrictions/limits regarding ownership and control.

5) Each enterprise partner must complete an Enterprise Declaration Affidavit.

JOINT VENTURE PARTICULARS

Name :

Postal address :

Physical address :

Telephone : Fax :

IDENTITY OF EACH ENTERPRISE PARTNER

Name :

Postal address :

Physical address :

Telephone : Fax :

Contact Person :

Name :

Postal address :

Physical address :

Telephone : Fax :

Contact Person :

Name :

Postal address :

Physical address :

Telephone : Fax :

Contact Person :

DESCRIPTION OF THE ROLE OF THE PARTNERS IN THE JOINT VENTURE.

OWNERSHIP OF THE JOINT VENTURE

a)	**Percentage Ownership in respect of**	**:**	**Enterprises**	_____	**%**	**Enterprises**	_____	**%**
b)	Profit and Loss Sharing	:	Enterprises	_____	%	Enterprises	_____	%
c)	Initial Capital Contribution	:	Enterprises	R _____		Enterprises	R _____	
d)	Ongoing Capital Contribution	:	Enterprises	R _____		Enterprises	R _____	
e)	Major Plant and Equipment Contribution	:	Enterprises			Enterprises		

RECENT CONTRACTS EXECUTED BY PARTNERS IN THEIR OWN RIGHT OR AS PARTNERS IN OTHER JOINT VENTURES

Targeted Enterprise Partners

1. :
2. : .....
3. : .....
4. : .....
5. : .....

.....

CONTROL AND PARTICIPATION IN THE JOINT VENTURE

(Identify by name and firm those individuals who are, or will be, responsible for, and have authority to engage in the relevant management functions and policy and decision-making, indicating any limitations in their authority e.g. co-signature requirements and Rand limits).

(Continue on next page)

CONTROL AND STRUCTURE OF THE JOINT VENTURE

Briefly describe the manner in which the Joint Venture is structured and controlled.

The undersigned warrants that he/she is duly authorised to sign this Joint Venture Disclosure Form and affirms that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operations of the Joint Venture and the intended participation of each partner in the undertaking

The undersigned further covenants and agrees to provide the Employer with complete and accurate information regarding actual Joint Venture work and the payment therefore, and any proposed changes in any provisions of the Joint Venture agreement, and to permit the audit and examination of the books, records and files of the Joint Venture, or those of each partner relevant to the Joint Venture, by duly authorized representatives of the Employer.

Signature : .....

Name : .....

Duly authorized to sign on behalf of : .....

Address: : .....

Telephone : .....

Fax : .....

Date : .....

T2.1.15 FORM O: BBBEE PREFERENCING

The Bidder shall attach to this page a certified copy of the BBBEE Validation Certificate issued by an accredited Verification Agency and/or financial statement in case of an EME/SMME.

In the case of Joint Ventures (JV), each JV partner must submit their BBBEE Validation Certificate.

Certified Copy attached	Yes	No

The Bidder shall attach to this page a copy of their CIDB Registration Certificate.

In the case of Joint Ventures (JV), each JV partner must submit their CIDB Registration Certificate.

Copy attached	Yes	No

SIGNATURE: ……..……..…… **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

T2.1.16 FORM P: PRELIMINARY PROGRAMME AND METHOD STATEMENT

(FOR TENDER ADJUDICATION PURPOSES ONLY)

The Bidder shall attach a preliminary programme and indicative method statements to this schedule.

This programme shall be in the form of a bar chart (Gantt chart) or similar acceptable time/activity form reflecting the proposed sequence and tempo of the various activities and the quantities that will be carried out every week under each of the elements, comprising the work for this contract. The working hours shall be indicated.

Should the bidder be able to complete the work in a shorter timer period, please indicate this in the cover letter..

The Bidder shall also take into account the requirements stated in the Scope of Work when drawing up the programme and considering his method statements for tender adjudication.

Details of the preliminary programme shall be appended to this Schedule.

Number of sheets appended by the bidder to this Schedule ..... (If nil, enter NIL).

T2.1.17 FORM Q: QUALITY MANAGEMENT PLAN

The Contractor shall propose and include for the methodology and pricing a comprehensive quality Management system (QMS) for the Employer's Agent's approval, to ensure the work is delivered without deficiencies and that the Employer's Agent is informed and/or consulted on a daily basis on all matters relating to the quality and progress of the work. The QMS shall further be developed to include clear Quality Control Procedures (QCPs) that will outline how works will be staged and where the Employer's Agent's approval will be required to sign off any work, whether in full or in stages. A clear distinction is required for verification, hold points, and approvals, as may be required.

The quality management plan will be used with the preliminary programme and method statement for the scoring of fun

Due consideration must be given to the deliverables required to execute and complete the contract and should include but not be limited to:

Item	Document to be submitted	Attached? (Y/N)
1	ISO 9001:2000 Certification	
2	Quality Manual table of contents	
3	Quality Policy	
4	Schedule / List Quality Management System Procedures	
5	Typical Project Quality Plan	
6	Typical Data Pack Indices	

The Bidder shall attach to this form a certified copy of his ISO 9001 accreditation.

SIGNATURE: ……..……..……..……. **DATE:** ……..…….....
(person authorised to sign on behalf of the Bidder)

T2.1.18 FORM R: SUPPLIER PERFORMANCE EVALUATION FORM

(TO BE USED FOR EVALUATION OF DELIVERABLES OF SERVICE PROVIDERS/CONTRACTORS)

EVALUATORS/PROJECT MANAGERS NAME:		
SERVICE PROVIDER/CONTRACTOR BEING EVALUATED:		
CLIENT		
VALUE OF CONTRACT		
REVIEW PERIOD	**FROM:**	**TO:**
REVIEW DATE		

EVALUATION ITEM - GENERIC MEASURES	**RATINGS 1-5 (SEE EXPLANATIONS BELOW) AND COMMENTS**
***Quality-Service /product deliverable*: Demonstration to meeting and exceeding specifications/ deliverables by service provider/contractor**	
***Cost-:* Ability to provide services and goods cost effectively in terms of value for money**	
***Time:* Ability to deliver products/services within the specified time period (contract duration) or within the agreed turnaround periods.**	
***Communication:* Timeous, effective and efficient exchange of information that is pertinent to the delivery of services/products**	
***Skills and Competency Availability*: refers to the actual availability and competency of staff deployed to the service/project**	
***Management*: Demonstration of sound and pro-active management practices that are geared towards the achievement of service/products required.**	

SBD 4

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and/or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. BIDDER'S DECLARATION

2.1 Is the bidder, or any of its directors, trustees, shareholders, members, partners, or any person having a controlling interest in the enterprise, employed by the state?

YES/NO

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietors, directors, trustees, shareholders, members, partners, or any person having a controlling interest in the enterprise, in the table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution?

YES/NO

2.2.1 If so, furnish particulars:

……
……

2.3 Does the bidder or any of its directors, trustees, shareholders, members, partners, or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract?

YES/NO

2.3.1 If so, furnish particulars:

……
……

3 DECLARATION

I, the undersigned, (name)…… in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and understand the contents of this disclosure;
3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium1 will not be construed as collusive bidding.
3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition, and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN SECTIONS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF SECTION 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON ENHANCING COMPLIANCE, TRANSPARENCY AND ACCOUNTABILITY IN SUPPLY CHAIN MANAGEMENT SHOULD THIS DECLARATION PROVE TO BE FALSE.

…… ……
Signature Date

…… ……
Position Name of bidder

[1] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

SBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

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1. GENERAL CONDITIONS

1.1. The following preference point systems are applicable to invitations to tender:

a) the 80/20 system for requirements with a Rand value less than R 50 000 000 (all applicable taxes included)

b) the 90/10 system for requirements with a Rand value above R 50 000 000 (all applicable taxes included)

1.2. Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3. Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

a) Price; and

b) Specific Goals.

1.4. The maximum points for this tender are allocated as follows:

	POINTS	POINTS
PRICE	80	90
Specific Goals	20	10
Total points for Price and Specific Goals	**100**	**100**

1.5. Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6. The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) "**tender**" means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
(b) "**price**" means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
(c) "**rand value**" means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
(d) "**tender for income-generating contracts**" means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
(e) "**the Act**" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1. THE 80/20 and 90/10 PREFERENCE POINT SYSTEM

A maximum of 80 or 90 points is allocated for price on the following basis:

$$Ps = 80\left[1 - \frac{Pt - P\min}{P\min}\right] \quad \textbf{OR} \quad Ps = 90\left[1 - \frac{Pt - P\min}{P\min}\right]$$

Where:
Ps = Points scored for price of tender under consideration
Pt = Price of tender under consideration
Pmin = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where the 90/10 preference point system is applicable, corresponding points must also be indicated as such.

Note to Bidders: The Bidder must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	**Number of points allocated (80/20 systems)**	**Number of points allocated (90/10 system)**	Number of points Claimed by bidder (80/20 systems)	Number of points Claimed by bidder (90/10 system)
BBBEE Level of Contributor				
1	20	10		
2	18	9		
3	14	7		
4	12	6		
5	8	4		
6	6	3		
7	4	2		
8	2	1		
Non-compliant contributor	0	0		

5. DECLARATION WITH REGARD TO COMPANY/FIRM

5.1. Name of company/firm:……

5.2. Company registration number:……

5.3. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

5.4. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;
ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;
(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
(e) forward the matter for criminal prosecution, if deemed necessary

.....

SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....

DATE: .....

ADDRESS: .....

.....

.....

PART C1: AGREEMENTS AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The **Employer**, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of a contractor for **COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CONTRACT NO. CDC/73/26**

The Bidder, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender

The Bidder, identified in the Offer signature block, has examined the draft contract as listed in the Acceptance section and agreed to provide this Offer.

By the representative of the Bidder, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the Bidder offers to perform all of the obligations and liabilities of the **JBCC Principal Building Agreement** under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VAT IS:

R (in words)

……..……..

.....

R (in figures)……

THE OFFERED COST PARAMETERS TO PROVIDE THE WORKS, EXCLUSIVE OF VALUE ADDED TAX, ARE AS SET IN THE CONTRACT DATA.

THE OFFERED STAFF RATES TO PERFORM THE SERVICES, EXCLUSIVE OF VALUE ADDED TAX ARE AS SET OUT IN THE PRICING SCHEDULE.

THE OFFERED PRICES ARE AS STATED IN THE PRICING SCHEDULE.

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the Bidder before the end of the agreed period of validity or other period as agreed, whereupon the Bidder becomes the party named as the **Contractor** in the conditions of contract identified in the Contract Data.

Signature(s)

Name(s) .....

.....

Capacity

For the Bidder .....

.....

(Insert name and address of organisation)

Name & Signature of Witness .....

Date .....

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the **Employer** identified below accepts the Bidder's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of contract identified in the Contract Data. Acceptance of the Bidder's Offer shall form an agreement between the Employer and the Bidder upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the Bidder and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

Deviations from and amendments to the draft contract as well as any changes to the terms of the Offer agreed by the Bidder and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The Bidder shall within Fourteen (14) working days of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), deliver to the Employer's agent (whose details are given in the Contract Data) proof of insurances, Safety, Health and Environmental Plans and any other documentation (except securities/ construction guarantees) to be provided in terms of the conditions of contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement by the Contractor and the Employer shall be entitled at his discretion to terminate this agreement.

The Bidder shall within Twenty-one (21) working days of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), deliver to the Employer's agent (whose details are given in the Contract Data) securities/ construction guarantees to be provided in terms of the conditions of contract identified in the Contract Data. Failure to fulfil this obligation in accordance with those terms shall constitute a repudiation of this agreement by the Contractor and the Employer shall be entitled at his discretion to terminate this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the Bidder receives one fully completed copy of this document, including the Schedule of Deviations (if any). Unless the Bidder (now Contractor) within Five (5) working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)

Name(s) .....

Capacity .....

For the Employer .....

.....

(Insert name and address of organisation)

Name & Signature of Witness .....

Date .....

SCHEDULE OF DEVIATIONS

1 Subject: _____
Details: _____

---

2 Subject_____
Details: _____

---

3 Subject_____
Details: _____

---

4 Subject_____
Details: _____

---

5 Subject_____
Details: _____

By the duly authorised representatives signing this agreement, the Employer and the Bidder agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Bidder and the Employer during this process of offer and acceptance.

By the duly authorised representatives signing this agreement, the Employer and the Bidder agree to and accept the foregoing schedule of deviations as the only deviations from the draft contract, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Bidder and the Employer during this process of offer and acceptance

.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Bidder of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

Signature(s) _____

Name(s) _____

Capacity _____

For the Employer

_____ ----------

(Insert name and address of organisation) **Date**

Name and Signature of Witness _____ ----------

Signature(s) _____

Name(s) _____

Capacity _____

For the Contractor

_____ ----------

(Insert name and address of organisation) **Date**

Name and signature of Witness ---------- ----------

C1.2 CONTRACT DATA

1.2.1 CONDITIONS OF CONTRACT

The Conditions of Contract are the ***JBCC Series 2000 Principal Building Agreement (Edition 6.2, May 2018)***, published by the Joint Building Contracts Committee Inc. Copies of these documents may be obtained from the **Association of South African Quantity Surveyors (011) 315 4140, the Master Builders Association (011)205 9000, the South African Association of Consulting Engineers (011) 463 2022 or the South African Institute of Architects (011) 486 0684.**

Each item of data given below is cross-referenced to the clause in the JBCC Principal Agreement to which it mainly applies.

Part 1: Data provided by the Employer

JBCC CLAUSE	DATA	
A 1.0 [1.1]	**Works :**	
	Project Name :	**COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX**
	Reference Number:	**CDC/73/26**
	Works Description :	Refer to Part C3 - Scope of Work
A 2.0 [1.1]	**Site :**	
	Erf/ Stand Number	Refer to Part C4 – Site information
	Township/ Suburb	PE Provincial Hospital is in Mount Croix, Gqeberha
	Site Address	Refer to document C4 – Site information
	Local Authority	Nelson Mandela Bay Municipality - Gqeberha
A 3.0 [1.1]	**Employer :**	
	Official Name of Organ of State /Public Sector Body	**Coega Development Corporation (Pty) Ltd**
	Business registration number	1982/003891/07
	VAT/GST number	403 011 9947
	Country	South Africa
	Employer's representative Name	Visa Barnes
	Telephone number	N/A
	E-mail	N/A

JBCC CLAUSE	DATA		
	Mobile number	N/A	
	Postal address	Coega Business Centre, Cnr. Alcyon Rd and Zibuko St, Zone 1, Coega IDZ, Port Elizabeth	
	Physical address	Coega Business Centre, Cnr. Alcyon Rd and Zibuko St, Zone 1, Coega IDZ, Port Elizabeth	
A 4.0 [1.1]	**Principal Agent :**		
	Name	**Sakhiwo FM Consortium (Pty) Ltd represented by SVP Quantity Surveyors & Project Managers (Pty) Ltd**	
	Legal entity of above	**Sakhiwo FM Consortium (Pty) Ltd**	
	Practice number	15165607	
	Country	South Africa	
A 5.0 [1.1]	**Agent (1) :**	Discipline :	**Architect**
	Name	**B4 Architects CC**	
	Legal entity of above	B4 Architects CC	
	Practice number	2011/088028/23	
	Country	South Africa	
A 7.0 [1.1]	**Agent (2) :**	Discipline :	**Quantity Surveyor**
	Name	**SVP Quantity Surveyors & Project Managers (Pty) Ltd**	
	Legal entity of above	SVP Quantity Surveyors & Project Managers (Pty) Ltd	
	Practice number	15165607	
	Country	South Africa	
A 7.0 [1.1]	**Agent (3) :**	Discipline :	**Electrical Engineer & Mechanical Engineer**
	Name	**RNA Consulting Engineers (Pty) Ltd**	
	Legal entity of above	RNA Consulting Engineers (Pty) Ltd	
	Practice number	2021/724549/07	
	Country	South Africa	
A 8.0 [1.1]	**Agent (4) :**	Discipline :	**Civil / Structural Engineer**

JBCC CLAUSE	DATA		
	Name	**Keon Consulting Engineers**	
	Legal entity of above	Keon Consulting Engineers	
	Practice number	2017/202137/07	
	Country	South Africa	
A 9.0 [1.1]	**Agent (5) :**	Discipline :	**Health and Safety**
	Name	**Xaks Consulting (Pty) Ltd**	
	Legal entity of above	Xaks Consulting (Pty) ltd	
	Practice number	2016/517864/07	
	Country	South Africa	
A 9.0 [1.1]	**Agent (6) :**	Discipline :	**Social Facilitation**
	Name:	**Coega Development Corporation (Pty) Ltd – Human Capital Solutions**	
	Legal entity of above	**Coega Development Corporation (Pty) Ltd**	
	Practice number	1982/003891/07	
	Country	South Africa	
	Contract Person	Zola Nyamanda	

PART B - CONTRACT INFORMATION

JBCC CLAUSE	DATA			
B 1.0 [1.1]	**Definitions :**			
	Bills of quantities: System/Method of measurement	The **Bills of Quantities** were drawn up in accordance with the measurement system stated in Part C2: Pricing Data		
B 2.0 [2.1]	**Law, regulations and notices:**			
	Law applicable to the works, state country [2.1]	The governing **law** is the law of the Republic of South Africa. The parties consent to the jurisdiction of the Gqeberha (Port Elizabeth) High Court Office for the purposes of this clause.		
B 3.0 [3.2]	**Offer and Acceptance :**			
	Currency applicable to this **agreement** [3.2]	South African Rand (ZAR)		
[3.3]	**Add to the clause:** Formal signatures in the Form of Offer and Acceptance are required to render this agreement binding.			
B 4.0 [5.0] [5.2]	**Documents:**			
	The original signed **agreement** is to be held by the **principal agent** [5.2], if not, indicate by whom	Employer		
[5.6]	Number of copies of **construction information** issued to the **contractor** at no cost [5.6]	3 Sets of complete documents		
	Contract drawings	**Contract drawings** are contained in Part C3.2 (Book 1).		
B 5.0 [6.0] [6.2]	**Employer's Agent :**			
	Authority is delegated to the following **agents** to issue **contract instructions** and perform duties for specific aspects of the **works** [6.2]	Principal Agent Architect Engineers Health & Safety Consultant		
[6.3]	**Principal agent's** and **agents'** interest or involvement in the works other than a professional interest [6.3]	N/A		
B6.0 [10.0]	**INSURANCES :**			
	Insurances by **Contractor** Yes/No? Yes		Amount including **tax**	Deductible amount including **tax**

JBCC CLAUSE	DATA				
[10.1.1]	Contracts works insurance to be effected by: **CONTRACTOR**			**Contract sum** plus 20%	with deductible of 5%
[10.1.2]	Supplementary/special insurance to be effected by: **CONTRACTOR**			**Contract sum** plus 20%	with deductible of 5%
[10.1.3]	Public liability insurance to be effected by: **CONTRACTOR**			**R 10 000 000.00**	with deductible of 5%
[10.1.4]	Removal of lateral support insurance to be effected by: **Not applicable**			**N/A**	**N/A**
[10.1.5]	Other insurances to be effected by: **Not applicable**			**N/A**	**N/A**
B7.0 [12.1] [12.1.2] [12.1.2]	**Obligations of the employer:**				
	Existing premises will be in use and occupied [12.1.2]			Yes/No?	Yes
	If Yes, description	PE Provincial Hospital is a working hospital and construction will take place within these premises. The Contractor will, throughout the entire period of the works, be responsible for the proper and adequate protection of property and the public and ECDOHs personnel from damage or injury resultant from the works and for the proper security of the site at all times during the course of the works. Further, the Contractor must allow for all temporary hoardings, required by the Local Authorities, National Building Regulations. OHS Act and or demanded by his own requirements. Allowance must further be made for periodic adjustment of any hoardings and for their eventual removal and for making good. All temporary fencing hoardings etc. required must be priced for in the Preliminaries of these Bills of Quantities				
	Restriction of working hours [12.1.2]			Yes/No?	Yes
	If Yes, description	The completion of the project is urgent and work shall be executed during normal working hours i.e. 8h00 until 17h00 daily on week days. Work required to be executed outside of these hours must be arranged with the Facilities Manager and the Chief Executive of the hospital, in advance			
[12.1.3]	Natural features and known services to be preserved by the **contractor** [12.1.3]			Yes/No?	No
	If Yes, description	N/A			
[12.1.4]	Restrictions to the **site** or areas that the **contractor** may not occupy [12.1.4]			Yes/No?	Yes
	If Yes, description	Work areas and restricted areas shall be defined at Site Handover			
[12.1.10]	Supply of **free issue** [12.1.10]			Yes/No?	No
	If Yes, description	N/A			
B8.0 [14.0]	**Nominated Subcontractor's:**				
	Yes/no?	No	If yes, description of specialisation		
	Specialisation 1		N/A		

JBCC CLAUSE	DATA			
B9.0 [15.0]	**Selected Subcontractor's:**			
	Yes/no?	No	If yes, description of specialisation	
	Specialisation 1		N/A	
B10.0 [16.0]	**Direct Subcontractor's:**			
	Yes/no?	No	If yes, description of extent of works	
[12.1.11]	Extent of works [12.1.11]		N/A	
B11.0 [20.1]	**Description of sections:**			
	Sectional work completion?		No	If yes, description of sections
	Section No.1 – N/A All work can proceed		The completion of work to ICU (950m^2) and renovations to CSSD (90m^2), completion of enclosure for HVAC equipment, paving for ambulance drop-off, crack repairs in basement, repairs to floor and vinyl in passage to CSSD, sealing of external walls (ICU and Cath Lab areas), remedial work to damp wall in Cath Lab meeting room and sluice room, Electrical Installation (including Bedhead Trunking Installation)-, Nurse Call, ICT and Access Control installation, HVAC installation, Fire detection Installation and Medical Gas Installation	
	Section No.2			
	Section No.3			
	Section No. 4			
	Section No.5			
	Refer to scope of works (C3) for detailed scope and sequence of works			
B12.0 [12.1.5]	**Possession of site:**			
	Intended date of possession of the site Refer B17.0 [12.1.5; 12.2.22]		Possession of site shall be given to the Contractor after submission by the Contractor of the documents indicated in the Form of Offer and Acceptance and approval of the Contractor's Safety, Health and Environmental Plan.	
[19.0] [19.3]	**Practical Completion (Works as a whole):**			
	Yes/No?		Yes	
	Period for inspection by the **principal agent** [19.3]		**10 Working days**	
[12.2.7]	The date for **practical completion** shall be the period as indicated below from the date of possession of the **site** by the **contractor**		**17 (Seventeen) calendar months** from possession of site (including annual builders' holidays). *The contract duration includes a monthly allowance of 3 working days for adverse weather conditions [23.1.1] during which rainfall exceeds 10mm per day or excessive wind.*	

JBCC CLAUSE	DATA		
	[12.2.7; 24.1]	Bidders to take cognizance of the following conditions: Months 1-2: Conclusion of all Socio Economic & SMMe subcontractor appointments, Site Establishment Months 3-17: Construction of works Bidders to price accordingly	
[24.0] [24.1]	**Penalty:**		
	Penalty for late completion [24.1]	R 0.0175 per R100 of Contract Sum (overall)	
[19.0] [19.3]	**Practical Completion (Sectional):**		
	Yes/No?	No	
	Period for inspection by the **principal agent** [19.3]	10 working days	
[12.2.7]	The date for **practical completion** shall be the period as indicated below from the date of possession of the **site** by the **contractor** [12.2.7; 24.1]	17 Calendar months) including builders' holiday.	
[24.0] [24.1]	**Penalty: R0.0175 per R100 of the contract sum (Overall)**		
	Penalty for late completion [24.1] per section		
[12.2.7]	Criteria to achieve **practical completion** not covered in the definition of **practical completion**	N/A	
B13.0 [21.0]	**Defects liability period:**		
	Extended defects liability period: Refer B17.0 [21.13]	Yes/No	Yes
	If yes, description of applicable elements	All works	
B14.0	**Payments:**		

JBCC CLAUSE	DATA		
[25.0] [25.2]	Date of month for issue of regular **payment certificate**s [25.2]	The interim payment certificate is to be issued by the 30th day of each month	
[25.3.4;26.9.5]	Contract price adjustment / Cost fluctuations [25.3.4; 26.9.5]	The contract value shall be adjusted according to CPAP if the construction period is more than 1 year. The base month for the application of CPAP is the month of closing of the tender.	
	If yes, method to calculate	Haylett Formula	
	Employer shall pay the **contractor** within: [25.10]	Thirty (30) **Calendar days**	
B15.0 [30.0] [30.3.1;30.10]	**Dispute resolution:**		
	Adjudication [30.6.1; 30.10] Name of nominating body	Yes The parties shall appoint the adjudicator by mutual agreement	
[30.6.2]	Applicable rules for adjudication [30.6.2]	The Adjudication Rules of the Association of Arbitrators (Southern Africa) applying at the date of referral of the dispute to adjudication	
[30.7.4;30.10]	Arbitration [30.7.4; 30.10] If Yes, name of nominating body * If No, then dispute will be referred to litigation	Yes/No? Yes The dispute resolution body shall be the Association of Arbitrators (Southern Africa). Arbitration shall be applicable should Adjudication process / outcome be disputed	
[30.7.5]	Applicable rules for arbitration [30.7.5]	The Arbitration Rules of the Association of Arbitrators (Southern Africa) applying at the date of referral of the dispute to arbitration	
B16.0	**JBCC® General Preliminaries - Selections:**		
[P2.2]	Provisional bills of quantities [P2.2]	Yes/No?	Yes
[P2.3]	Availability of construction information [P2.3]	Yes/No?	Yes
[P3.1]	Previous work - dimensional accuracy - details of previous contract(s) [P3.1]	None	
[P3.2]	Previous work - defects - details of previous contract(s) [P3.2]	None	
[P3.3]	Inspection of adjoining properties - details [P3.3]	N/A	
[P4.1]	Handover of site in stages - specific requirements [P4.1]	No	

JBCC CLAUSE	DATA			
[P4.2]	Enclosure of the works - specific requirements [P4.2]		YES – Hoarding to working areas	
[P4.3]	Geotechnical and other investigations - specific requirements [P4.3]		N/A	
[P4.5]	Existing premises occupied - details [P4.5]		Working Areas will not be occupied however PEPH Hospital will remain operational hospital.	
[P4.6]	Services - known - specific requirements [P4.6]		N/A	
[P8.1]	Water [8.1]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
		By Employer - metered	Yes/No?	No
[P8.2]	Electricity [8.2]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
		By Employer - metered	Yes/No?	No
[P8.3]	Ablution and welfare facilities [8.3]	By Contractor	Yes/No?	Yes
		By Employer	Yes/No?	No
[P8.4]	Communication facilities - specific requirements [P8.4]		YES – no specific requirements	
[P11.1]	Protection of the works - specific requirements [P11.1]		YES – no specific requirements	
[P11.2]	Protection / isolation of existing **works** and **works** occupied in **sections -** specific requirements [P11.2]		YES – no specific requirements	
[P11.5]	Disturbance - specific requirements [P11.5]		N/A	
[P11.6]	Environmental disturbance - specific requirements [P11.6]		N/A	

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
1.1	**Definitions** **AGREEMENT:** The completed Form of Offer and Acceptance, the completed **JBCC®** Principal Building Agreement and **JBCC® contract data for organs of state and other public sector bodies**, the **contract drawings**, the **priced document** and any other documents reduced to writing and signed by the authorised representatives of the **parties** **CONTRACT SUM** is the total offered price inclusive of VAT as stated and agreed to in the Form of Offer and Acceptance.

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
	CONSTRUCTION PERIOD: The period commencing on the date of possession of the **site** by the **contractor** and ending on the date of **practical completion** **CONTRACT DATA FOR ORGANS OF STATE AND OTHER PUBLIC SECTOR BODIES:** The document listing the Organs of State and other Public Sector Bodies' requirements and the project specific information **INTEREST:** The interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the rate as determined by the Minister of Finance from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999), calculated as simple interest, in respect of debts owing to the State, and will be the rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No 55 of 1975), calculated as simple interest, in respect of debts owing by the State **PENALTY:** Penalty for late or non-completion (clause 24.0): For the whole works as per sub-clause 24.3: The penalty will be calculated as R0.0175 cent per 100 rand of the Contract Value per calendar day rounded up to the nearest R10. **PRINCIPAL AGENT:** The person or entity appointed by the **employer** and named in the **contract data for organs of state and other public sector bodies.** In the event of a **principal agent** not being appointed, then all the duties and obligations of a **principal agent** as detailed in the **agreement** shall be fulfilled by the employer's representative as named in the **contract data for organs of state and other public sector bodies**
3.0	**Offer and Acceptance** Amend 3.3 to read as follows: This **agreement** shall come into force on the date as stated on the Form of Offer and Acceptance and upon both Parties signing on the Form of Offer and Acceptance and shall continue to be of force and effect until the end of the **latent defects** liability period [22.0] notwithstanding termination [29.0] or the certification of **final completion** [21.0] and final payment [25.0]
5.1	Documents comprising the **agreement** Add the following: The documents forming the agreement are to be taken as mutually explanatory of one another and for the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence: (a) Form of Offer and Acceptance (b) The Schedule of Deviations (c) This Contract Data; (d) The standard JBCC building agreement Ed 6.2 May 2018. The successful tenderer (after being informed) will be required to bring along an unsigned copy of the form of contract to be signed by parties (e) The Drawings (f) The Specifications (g) The Bills of Quantities. If an ambiguity or discrepancy is found in the documents, the Principal Agent shall issue any necessary clarification or instruction
6.0	**Employer's Agents** Add the following as 6.7: In terms of the clauses listed hereunder, the **employer** has retained its authority and has not given a mandate to the **principal agent**. The **Employer** shall sign all documents in relation to clauses 4.2, 14.1.2, 14.1.4, 14.4.1, 14.6, 23.1, 23.2, 23.3, 23.7, 23.8, 26.1, 26.7, 26.12 and 28.4
9.0	**Indemnities**

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
	9.2.7: Add the following to the end of the first sentence: "…. due to no fault of the **contractor**"
10.0	**Insurances** Add the following as Other Insurances: **10.1.5.1: Hi Risk Insurance** In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable sub-surface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply: **10.1.5.1.1 Damage to the works** The contractor shall, from the date of possession of the **site** until the date of the **certificate of practical completion**, bear the full risk of and hereby indemnifies and holds harmless the **employer** against any damage to and/or destruction of the **works** consequent upon a catastrophic ground movement as mentioned above. The **contractor** shall take such precautions and security measures and other steps for the protection of the **works** as he may deem necessary When so instructed to do so by the **principal agent**, the **contractor** shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the **works** and to rebuild, restore, replace and/or repair the **works**, at the **contractor's** own costs **10.1.5.1.2 Injury to persons or loss of or damage to property** The **contractor** shall be liable for and hereby indemnifies and holds harmless the **employer** against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above The **contractor** shall be liable for and hereby indemnifies the **employer** against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property, or personal property, or property contiguous to the **site,** whether belonging to or under the control of the **employer** or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract **10.1.5.1.3** It is the responsibility of the **contractor** to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.1.5.1.1 and 10.1.5.1.2. Without limiting the **contractor's** obligations in terms of the contract, the **contractor** shall, within twenty-one (21) **calendar days** of the date of possession of the site, but before commencement of the **works**, submit to the **employer** proof of such insurance policy, if requested to do so **10.1.5.1.4** The **employer** shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the **contractor's** default of his obligations as set out in 10.1.5.1.1; 10.1.5.1.2 and 10.1.5.1.3. Such losses or damages may be recovered from the **contractor** or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the **employer** and the **contractor** and for this purpose all these contracts shall be considered one indivisible whole
11.0	**Securities** The **contractor** is to provide either a variable construction security as per clause 11.1.1 or a fixed construction security as per clause 11.1.2.

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
	New Clause 11.1.3: The fixed construction guarantee shall be accompanied by a 5% retention, to be released once the project has reached Practical Completion. Add the following to clause 11.2.1: The construction guarantee to be provided **shall not contain an expiry date.** Amend clause 11.8: The construction guarantee shall be returned within fourteen (14) calendar days of the issue of the Works Completion to the Contractor. Amend 11.10 to read as follows: There shall be no lien or right of retention held by any **contractor** in respect of the **works** executed on **site**
12.0	**Obligations of the Parties** Amend 12.1.5 to read as follows: Give possession of the **site** to the **contractor** within ten (10) **working days** of the **contractor** complying with the terms of 12.2.22 **12.2.2: Not applicable** Add the following as 12.2.22: Within fifteen (15) **working days** of the date of the **agreement** submit to the **principal agent** an acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)
17.6	**Contract Instructions** **Add new clause:** The Principal Agent shall obtain the Employer's approval before issuing an instruction to execute a Variation.
17.7	**Add new clause:** No expenditure shall be incurred under a Contingency Allowance without the written approval of the Employer.
19.0	**Practical Completion** 19.5: Delete the words "subject to the **contractor**'s lien or right of continuing possession of the **works** where this has not been waived"
21.0	**Defects Liability Period and Final Completion** Add the following as 21.13: The ninety (90) **calendar days** defects liability period for the **works** [21.1] is replaced with a period of three hundred and sixty-five (365) **calendar days** in respect of the listed applicable elements

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
24.4	**Add new clause:** In addition to penalties for late or non-completion, the employer shall be entitled to impose a penalty on the contractor for each calendar day for non-compliance with the Occupational Health and Safety Act No. 85 of 1993 (as amended), or any regulations made thereunder, where such non-compliance has been duly recorded by the principal agent or health and safety agent and remains unremedied within the prescribed time. The rate of such penalty shall be as stated below. The imposition of such penalty shall not limit the employer's rights to other remedies, including suspension or termination under the provisions of this agreement Penalty for non-compliance of the Occupational Health and Safety Act No. 85 of 2014 as determined by the Principal Agent shall be applied as follows: **Minor Non-Conformance – Fine R50/count:** 1. Non-use of basic PPE supplied; 2. No-completion of registers for plant and equipment on site; 3. Lack of OHS signage at Work Areas; 4. Tools and equipment identified in poor condition during inspections **Medium Non-Conformance – Fine R500/count and per non-conformance:** 1. PPE not supplied; 2. Principal Contractor did not sign the records; 3. Working without training or the appropriate OHS Method Statements/SWP/HIRA; 4. Non-conformances identified during the previous inspection and not addressed in the agreed time frame; 5. No Medical Certificates for Fitness for relevant workers; 6. Poor Housekeeping **Severe Non-Conformance – Fine R5000/count, per non-conformance and/or activity stoppage:** 1. Contractor working without OHS Plan approval; 2. Workers transported in contravention of the OHS Plan or legal requirements; 3. Non-provision of signage; 4. Allow people to work with no proof of Medical Fitness Certificate; 5. Threat to the OHS of persons; 6. Failure to maintain housekeeping; 7. Contractor working without Endemic/Pandemic diseases HS Plan approval
25.0	**Payment** 25.7.5: Not applicable 25.10: Delete the words "and/or **compensatory interest**" 25.14.2: Not applicable
27.0	**Recovery of Expense and/or Loss** 27.1.5: Not applicable
29.0	**Termination** Add the following after 29.1.3: or where … 29.1.4: The **contractor**'s estate has been sequestrated, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa 29.1.5: The **contractor** has engaged in corrupt or fraudulent practices in competing for or in executing the contract

B17.0	CHANGES MADE TO JBCC® DOCUMENTATION
30.6.	**Dispute Resolution** **Delete and Replace clause 30.6.4 with:** The adjudicator's determination shall be binding upon the parties unless either party submits a Notice of Dissatisfaction and refers the matter to Arbitration within 21 days of the determination. In the event that the matter is referred to Arbitration, the adjudication determination shall not be binding upon the parties and the matter shall be finally determined by means of Arbitration.
NEW	The contractor shall achieve in the performance of the contract the Contract Skills Development Goals (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts (published in GN 48491 of 28 April 2023).
NEW	The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) related to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts (published in GN 36190 of 25 February 2013**)**

C.1.2.2 Contract Data

The Conditions of Contract are the ***JBCC Series 2000 Principal Building Agreement (Edition 6.2, May 2018***), published by the Joint Building Contracts Committee Inc. Copies of these documents may be obtained from the **Association of South African Quantity Surveyors (011) 315 4140, the Master Builders Association (011)205 9000, the South African Association of Consulting Engineers (011) 463 2022 or the South African Institute of Architects (011) 486 0684.**

Each item of data given below is cross-referenced to the clause in the JBCC Principal Agreement to which it mainly applies.

Part 2: Data Provided By The Contractor

JBCC CLAUSE	DATA				
C1.0	**SECURITIES**				
[11.0]	**Guarantee for construction:** Select Option A or B			Select A or B	
[11.1.1]	Option A	**Guarantee for construction** (variable) by **contractor**			
[11.1.2]	Option B	**Guarantee for construction** (fixed) by **contractor**			
[11.5.1;11.10]	**Guarantee for payment** by **employer** - Not applicable				
[11.2.2; 11.3]	Advance payment, subject to a **guarantee for advance payment** - Not applicable				
C2.0	**Contractor's annual holiday periods during the construction period**				
	Year 1 **contractor**'s annual holiday period	Start date		End date	
	Year 2 **contractor**'s annual holiday period	Start date		End date	

JBCC CLAUSE	DATA		
C3.0	**Payment of preliminaries**		
[25.0]	**Contractor's selection:** Select Option A or B		Select A or B
	Where the **contractor** does not select an option, Option A shall apply : **Payment methods :** Option A : The **preliminaries** shall be paid in accordance with an amount prorated to the value of the **works** executed in the same ratio as the amount of the **preliminaries** to the **contract sum**, which **contract sum** shall exclude the amount of **preliminaries**. Contingency sum(s) and any provision for cost fluctuations shall be excluded for the calculation of the aforesaid ratio Option B : The **preliminaries** shall be paid in accordance with an amount agreed by the **principal agent** and the **contractor** in terms of the **priced document** to identify an initial establishment charge, a time-related charge and a final dis-establishment charge. Payment of the time-related charge shall be assessed by the **principal agent** and adjusted from time to time as may be necessary to take into account the rate of progress of the **works** **Lump sum contract :** Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations		
C4.0	**Adjustment of preliminaries** [26.9.4]		
[26.9.4]	**Contractor's selection:** Select Option A or B		Select A or B
	Provision of particulars The **contractor** shall provide the particulars for the purpose of the adjustment of **preliminaries** in terms of his selection. Where completion in **sections** is required, the **contractor** shall provide an apportionment of **preliminaries** per **section** Option A : An allocation of the **preliminaries** amounts into Fixed, Value-related and Time-related amounts as defined for adjustment method Option A below, within fifteen (15) **working days** of the date of acceptance of the tender Option B : A detailed breakdown of the **preliminaries** amounts within fifteen (15) **working days** of possession of the **site**. Such breakdown shall include, inter alia, the administrative and supervisory staff, the use of **construction equipment**, establishment and dis-establishment charges, insurances and guarantees, all in terms of the **programme**		
	Adjustment methods The amount of **preliminaries** shall be adjusted to take account of the effect which changes in time and/or value have on **preliminaries**. Such adjustment shall be based on the particulars provided by the **contractor** for this purpose in terms of Options A or B, shall preclude any further adjustment of the amount of **preliminaries** and shall apply notwithstanding the actual employment of resources by the **contractor** in the execution of the **works** Option A : The **preliminaries** shall be adjusted in accordance with the allocation of **preliminaries** amounts provided by the **contractor,** apportioned to **sections** where completion in **sections** is required Fixed - An amount which shall not be varied		

JBCC CLAUSE	DATA
	Value-related - An amount varied in proportion to the **contract value** as compared to the **contract sum**. Both the **contract sum** and the **contract value** shall exclude the amount of **preliminaries**, contingency sum(s) and any provision for cost fluctuations Time-related - An amount varied in proportion to the number of **calendar days** extension to the date of **practical completion** to which the **contractor** is entitled with an adjustment of the **contract value** [23.2; 23.3] as compared to the number of **calendar days** in the initial **construction period** [26.9.4] Option B : The adjustment of **preliminaries** shall be based on the number of **calendar days** extension to the date of **practical completion** to which the **contractor** is entitled with an adjustment of the **contract value** [23.2; 23.3] as compared to the number of **calendar days** in the initial **construction period** [26.9.4] The adjustment shall take into account the resources as set out in the detailed breakdown of the **preliminaries** for the period of construction during which the delay occurred
	Failure to provide particulars within the period stated Option A : Where the allocation of **preliminaries** amounts for Option A is not provided, the following allocation of **preliminaries** amounts shall apply: Fixed - Ten per cent (10%) Value-related - Fifteen per cent (15%) Time-related - Seventy-five per cent (75%) Where the apportionment of the **preliminaries** per **section** is not provided, the categorised amounts shall be prorate Option B : Where the detailed breakdown of **preliminaries** amounts for Option B is not provided, Option A shall apply **Lump sum contract** Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations

C1.3. CONSTRUCTION GUARANTEE

The **Contractor** shall have the right to choose the Construction Guarantee as stated in the Contract Data

The Construction Guarantee options are:

i. Variable Construction Guarantee of 10% of the Contract Sum. Yes ☐ No ☐

ii. Fixed construction guarantee (5%) and Payment Reduction (5%) Yes ☐ No ☐

A Signed letter of Intent to be submitted with the returnable document

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 35 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to below. No alterations or amendments of the wording of the pro-forma will be accepted.

The security guarantee to be provided shall not contain an expiry date.

C1.3.1 CONSTRUCTION GUARANTEE (PRO-FORMA)

GUARANTOR DETAILS AND DEFINITIONS

Guarantor means . . . . . .

Physical address . . . . . .

. . . . . .

Guarantor's signatory 1 . . . . . Capacity . . . . . .

Guarantor's signatory 2 . . . . . Capacity . . . . . .

Employer means **Coega Development Corporation (Pty) Ltd**

Contractor means . . . . . .

Principal Agent means . . . . . .

Works means. . . . . .

Site means. . . . . .

Agreement means **The JBCC Series 2000 Principal Building Agreement and Annexures**

Contract Sum means The accepted amount inclusive of tax of R……

Amount in words……..

Guaranteed Sum means The maximum aggregate amount of R ……...

Amount in words……..

Construction Guarantee (Insert Variable or Fixed)……..……..

AGREEMENT DETAILS

Sections: Total sections *(No or n/a)* ……

Last section (No / Identification or n/a…….

Principal Agent issues: Interim payment certificates, Final payment certificate, Practical completion certificate/s and Final completion certificate/s

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VARIABLE CONSTRUCTION GUARANTEE

1.1 Where a variable Construction Guarantee in terms of the Agreement has been selected this 1.0 with 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the diminishing amounts of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY

1.1.1 Maximum Guaranteed Sum (not exceeding 10.0% of the contract sum) in the amount of:

……..

Amount in words……..

PERIOD OF LIABILITY

From and including the date of issue of this Construction Guarantee and up to and including the date of the interim payment certificate certifying in excess of 50% of the contract sum

GUARANTOR'S LIABILITY

1.1.2 Reducing to the Guaranteed Sum (not exceeding 6.0% of the contract sum) in the amount of:

……

Amount in words……..

PERIOD OF LIABILITY

From and including the day after the date of the aforesaid interim payment certificate and up to and including the date of the only practical completion certificate or last practical completion certificate where there are sections

GUARANTOR'S LIABILITY

1.1.3 Reducing to the Guaranteed Sum (not exceeding 4.0% of the contract sum) in the amount of:

……

Amount in words……..

PERIOD OF LIABILITY

From and including the day after the date of the applicable practical completion certificate and up to and including the date of the only final completion certificate or last final completion certificate where there are sections

GUARANTOR'S LIABILITY

1.1.4 Reducing to the Guaranteed Sum (not exceeding 2.0% of the contract sum) in the amount of: ……

Amount in words……..

PERIOD OF LIABILITY

From and including the day after the date of the applicable final completion certificate and up to and including the date of the final payment certificate where payment is due to the Contractor, whereupon this Construction Guarantee shall expire. Where the final payment certificate reflects payment due to the Employer, this Construction Guarantee shall expire upon payment of the full amount certified

1.2 For avoidance of doubt the Guarantor's liability limits set out in 1.1.1 to 1.1.4 shall apply in respect of any claim received by the Guarantor during the period in question

2.0 FIXED CONSTRUCTION GUARANTEE

2.1 Where a fixed Construction Guarantee in terms of the Agreement has been selected this 2.0 with 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY

1.1.1 Maximum Guaranteed Sum (not exceeding 5.0% of the contract sum) in the amount of:……....

Amount in words……

PERIOD OF LIABILITY

From and including the date of issue of this Construction Guarantee and up to and including the date of the only final completion certificate or the last final completion certificate where there are sections, upon which this Construction Guarantee shall expire

3.0 The Guarantor hereby acknowledges that:

3.1 Any reference in this Guarantee to the Agreement is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.

3.2 Its obligation under this Guarantee is restricted to the payment of money.

4.0 Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Principal Agent in an interim or final payment certificate has not been made in terms of the Agreement and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and that the sum certified has still not been paid therefore the Employer calls up this Construction Guarantee and demands payment of the sum certified from the Guarantor

4.3 A copy of the said payment certificate which entitles the Employer to receive payment in terms of the Agreement of the sum certified in 4.0

5.0 Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0 , the Guarantor undertakes to pay the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Construction Guarantee stating that:

5.1 The Agreement has been terminated due to the Contractor's default and that the Construction Guarantee is called up in terms of 5.0. The demand shall enclose a copy of the notice of termination; or

5.2 A business rescue, provisional sequestration or liquidation OFFICE order has been granted against the Contractor and that the Construction Guarantee is called up in terms of 5.0. The demand shall enclose a copy of the OFFICE order or Practitioner's notice of termination of business rescue or rejection of business rescue plan in terms of the Companies Act

6.0 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4.0 and 5.0 shall not exceed the Guarantor's maximum liability in terms of 1.0 or 2.0

7.0 Where the Guarantor is a registered insurer and has made payment in terms of 5.0, the Employer shall upon the date of issue of the final payment certificate submit an expense account to the Guarantor showing how all monies received in terms of the Construction Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Construction Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund

8.0 Payment by the Guarantor in terms of 4.0 or 5.0 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor

9.0 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer deems fit and the Guarantor shall not have the right to claim his release from this Construction Guarantee on account of any conduct alleged to be prejudicial to the Guarantor

10.0 The Guarantor chooses the physical address as stated above for all purposes in connection herewith

11.0 This Construction Guarantee is neither negotiable nor transferable and shall expire in terms of either 1.1.4 or 2.1, or payment in full of the Guaranteed Sum whichever is the earlier, where after no claims will be considered by the Guarantor. The original of this Construction Guarantee shall be returned to the Guarantor after it has expired

12.0 This Construction Guarantee, with the required demand notices in terms of 4.0 or 5.0, shall be regarded as a liquid document for the purpose of obtaining a OFFICE order

13.0 Where this Construction Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's OFFICEs Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's OFFICE of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's OFFICE

Signed at . . . . . Date . . . . . .

Guarantor's Signatory 1 . . . . Guarantor's Signatory 2 . . . . . .

Witness . . . . . Witness . . . . . .
Guarantor's seal or stamp

C1.3.2 AGREEMENT IN TERMS OF THE OHS ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at .....

on this the ..... day of ..... in the year ……

between Coega Development Corporation (Pty) Ltd (hereinafter called "the Employer") of the one part, herein represented by

in his capacity as .....

and .....

(hereinafter called "the Mandatory") of the other part, herein represented by .....

.....

in his capacity as .....

WHEREAS the Employer is desirous that certain works be constructed, viz "**CONTRACT NO. CDC/73/26 - COMPLETION OF CATH LAB AND CSSD AT LIVINGSTONE PE PROVINCIAL HOSPITAL COMPLEX"** and has accepted a Tender by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Mandatory shall execute the work according to the Contract Documents pertaining to this Contract.
2. This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Principal Agent requiring him to commence the execution of the Works, to either
   (a) the date of the Certificate of Practical Completion issued in terms of Sub-Clause 24.4 of the JBCC Series 2000 Principal Building Agreement (Edition 6.2 May 2018), or
   (b) the date of termination of the Contract in terms of Clause 26.6 of the JBCC Series 2000 Principal Building Agreement (Edition 6.2 May 2018).
3. The Mandatory declares himself to be conversant with the following:
   (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:

(i) Section 8 : General duties of employers to their employees;

(ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;

(iii) Section 37 : Acts or omissions by employees or mandatories, and

(iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement.

(b) The procedures and safety rules of the Employer as pertaining to the Mandatory and all their subcontractors.

4. The Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment according to the Act.

5. The Mandatory is responsible for compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.

6. The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

7. The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:

(a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.

(b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatory to the Department of Employment Labour as well as to the Employer.

(c) The Employer will further be provided with copies of all written documentation Relating to any incident

(d) The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:

WITNESS 1 ..... 2 .....

NAME 1 ..... 2 .....
(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY: .....

WITNESS 1 ..... 2 .....

NAME 1 ..... 2 .....
(IN CAPITALS)

C1.3.3 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OHS ACT (85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatory in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the Board of Directors.

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on .....

202……, Mr/Ms ..... whose

signature appears below, has been duly authorised to sign the AGREEMENT in terms of THE

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 of 1993) on behalf of

.....

SIGNED ON BEHALF OF THE COMPANY :

.....

IN HIS/HER CAPACITY AS :
.....

DATE :
.....

SIGNATURE OF SIGNATORY :
.....

WITNESS: 1 ..... 2.....

NAME (in capitals): 1 ..... 2. .....

PART C2: PRICING DATA

C2.1 PRICING INSTRUCTIONS

1. The JBCC Series 2000 Principal Building Agreement (Edition 6.2, May 2018) Conditions of Contract, the Special Conditions of Contract, the Specifications, the Model Preambles for Trades and Description of Materials and Workmanship to All Trades and the Drawings shall be read in conjunction with the Bills of Quantities.

2. The Bills of Quantities comprise items covering the Contractor's profit and costs of general liabilities and of the construction of all Temporary and Permanent Works.

   Although the Bidder is at liberty to insert a rate of his own choosing for each item in the Bills of Quantities, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Bills of Quantities.

3. Descriptions in the Bills of Quantities may differ from those in the Standardized and Project Specifications. The descriptions and specifications in the Bills of Quantities will however take preference over these specifications. No consideration will be given to any claim by the Contractor submitted on such a basis. Except for SANS 1200 A and 1200 AB all measurement and payment clauses (clause 8) of the standard specifications are deleted. The Bills of Quantities have been drawn up generally in accordance with the latest issue of Standard System of Measuring Building Work 2. Should any requirement of the measurement and payment clause of the appropriate Standardized or Project Specification(s) be contrary to the terms of the Bills of Quantities or, when relevant, to the Standard System of Measuring Building Work, the requirement of the Standard System of Measuring Building Work shall prevail.

4. Unless stated to the contrary, items are measured net in accordance with the Drawings without any allowance having been made for waste.

5. The amounts and rates to be inserted in the Bills of Quantities shall be the fully inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and

[2] The standard system of measurement of building work published by the Association of South African Quantity Surveyors.

shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.

6. An amount or rate shall be entered against each item in the Bills of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Bills of Quantities.

   The Bidder shall also fill in a rate against the items where the words "rate only" appear in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the tendered rates shall apply should work under these items actually be required.

   Should the Bidder group a number of items together and tender one sum for such group of items, the single tendered sum shall apply to that group of items and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

   The tendered rates, prices and sums shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

7. The quantities of work as measured and accepted and certified for payment in accordance with the Conditions of Contract, and not the quantities stated in the Bills of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bills of Quantities and the quantities certified for payment.

   Ordering of materials is not to be based on the Bills of Quantities, but only on information issued for construction purposes.

8. For the purposes of this Bills of Quantities, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the Standard System of Measuring Builders Work
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Bidder tenders to do the work

Amount : The quantity of an item multiplied by the tendered rate of the (same) item

Item or Sum : An amount tendered for an item or sum, the extent of which is described in the Bills of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

9. The units of measurement indicated in the Bills of Quantities are metric units. The following abbreviations may appear in the Bills of Quantities:

Item	=	1 off
No	=	Units measured in number
mm	=	millimetre
m	=	metre
km	=	kilometre
m^2	=	square metre
m^3	=	cubic metre
m^3-km	=	cubic metre-kilometre
t	=	ton (1 000 kg)
PC Sum	=	Prime Cost Sum
Prov Sum	=	Provisional Sum

10. The Bidder shall enter extended totals for each summary page and final summary in the Bills of Quantities in black ink.

11. These Bills of Quantities contain pages numbered consecutively in each Bill as indicated in the Index. Before the Contractor submits his Tender he should check the number of pages in every Bill and if any are found missing or duplicated, or the figures or writing indistinct, or the Bills of Quantities contain any obvious errors, he should apply to the Principal Agent at once and have same rectified, as no liability whatsoever will be admitted by the Principal Agent in the respect of errors in the Tender due to the foregoing.

12. No alteration, erasure or addition is to be made in the text of the Bills of Quantities. Should any alteration, erasure or addition be made, it will not be recognized but the original wording of the Bills of Quantities will be adhered to.

13. Quantities where indicated as provisional are measured provisional and are subject to re-measure on completion of the project.

14. The totals (Value Added Tax excluded) on the final summaries are to be transferred to the Final Summary of the Provisional Bills of Quantities in Volume 2 for inclusion in the Total Tender Sum.

15. Completed Bills of Quantities for all trades clearly filled in, legible and in permanent ink are to be submitted with the tender offer

16. Contract Skills Development

(a) The contract skills participation goals are specified in the Socio-economic specification. The value of the Contract skills participation goals,, expressed in Rand, shall be not be less than the contract amount multiplied by a percentage (%) factor given in **Table 2** in the Standard for Skills Development, for the applicable class of works.

(b) **Payment to the contractor to accommodate Part/ full occupational qualification and Trade qualification**: The contractor shall, in accordance with the socio-economic specification, apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using **Table 3** in the Standard and this cost will be used to determine the value in Rand and will be added to the provisions for training as provided for in the Preliminary & General section in the Bill of Quantities/ Pricing schedules/ Activity schedule.

(c) **Payment to the contractor to accommodate Work Integrated Learners and Candidates for Professional Registration:** The contractor shall apportion the cost of accommodating work integrated learners (P1 and P2 learners) and candidates for professional registration by using **Table 3** in the Standard and this cost will be used to determine the value in Rand and will be added to the provisions for training as provided for in the Preliminary & General section in the Bill of Quantities/ Pricing schedules/ Activity schedule.

Supervisors and Mentors

(d) **Payment to the contractor for supervision and mentoring Part/ Full occupational qualification and Trade qualification learners:** The employer shall make no provision for an additional payment item for the payment of the supervisor and/ or mentors for the provision of

training as provided for in the Preliminary & General section of the Bill of quantities/ Pricing schedules/ Activity schedule for the training of part time/ full time occupational learners and/ or trade qualification learners.

(e) **Payment to the contractor for supervision and mentoring Work Integrated Learners and Candidates for professional registration:** The contractor shall, in accordance with the socio-economic specification, apportion the cost of mentoring work integrated learners (P1 and P2 learners) and candidates for professional registration by using **Table 3** in the Standard and will form part of the cost as provided for in the Preliminary & General section in the Bill of Quantities/ Pricing schedules/ Activity schedules for training.

17. An analysis of the Bills of Quantities and list of specific detailed quotations as part of returnable documents will be carried out during the Compliance evaluation by the Bid Evaluation Committee with the support of the Built Environment Professional Team, to determine if the check for:

(a) Mistakes in the Pricing schedules, BOQ's, and to confirm whether the tender price submitted is market related and does not pose a commercial risk to the Client.

(b) If detailed quotations POE (Portfolio of evidence) on specific P&G (Preliminaries & General), OHS (Occupational Health & Safety) and specialist builders' items and installations were submitted in terms the Special Bid Conditions.

18. This review and analysis of the priced Bills of Quantities forms part of the process of balancing the priced Bills of Quantities received from bidders considered for award, which is a suspensive condition for award and contract signing. In the event where the analysis of the Bills of Quantities and In-Loco Inspections find inconsistencies and misrepresentation in terms of what has been declared in the Bid submission, the Bidder may be:

(a) eliminated and not be eligible to be evaluated under Stage 2 Price & Specific goals.

(b) notified of such inconsistencies and or misrepresentations in writing and allowed 7 (seven) days to rectify and or clarify such.

19. The Tender is to provide the following in respect of the following specialists subcontractor's or suppliers: Failure to provide the information will result in the tender being eliminated/ nonresponsive.

    (a) CV which includes list of their previous projects regarding the specialist's work with Contactable references.

    (b) Specialist's bodies of association/ registration if applicable

    (c) Copy of quotation from specialist subcontractor or suppliers as listed in the mandatory returnable list

20. The Successful Bidder's Priced Bills of Quantities shall be balanced and agreed with the project Quantity Surveyor, prior to signing of contract. The Bidder shall provide all required information and assistance to the Quantity surveyor to complete the "Balanced Bills of Quantities, that will form part of the Contract documents.

C2.2 PRICING SCHEDULE

See Schedule of Quantities:

C2.3 CERTIFICATE OF ACQUAINTANCE WITH TENDER DOCUMENTS

Name of Company_____

I/We_____

Hereby certify that I/we acquainted ourselves with the Health and Safety Act 85 of 1993 as well as the Construction Regulations, 2014 and all conditions contained herein as laid down by the State for the carrying out of construction work for which I/We submit our response.

I/We further agree that the State shall recognise no claim from me/us for relief based on allegations that I/We overlooked any tender requirements or failed to take into account the purpose of completing the documentation as required.

Signed at_____On this _____ Day of_____20 _____

_____ _____

WITNESS (signature) *NAME IN BLOCK LETTERS*

_____

For and on behalf of Contractor

_____ _____

Contractor Signature *ID of Signatory*

BILLS OF QUANTITIES

Item No		Quantity	Rate	Amount

SECTION No. 1: PRELIMINARIES

BILL No 1: PRELIMINARIES

BUILDING AGREEMENT AND PRELIMINARIES

The **JBCC** Principal Building Agreement (Edition 6.2 - May 2018) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described

The **JBCC** Principal Building Agreement **contract data** form an integral part of this **agreement**

The **JBCC** General Preliminaries (May 2018) published by the Joint Building Contracts Committee for use with the **JBCC** Principal Building Agreement (Edition 6.2 - May 2018) shall be deemed to be incorporated in these **bills of quantities**, amended as hereinafter described

The **contractor** is deemed to have referred to the above mentioned documents for the full intent and meaning of each clause

The clauses in the above mentioned documents are hereinafter referred to by clause number and heading only

Where any item is not relevant to this **agreement** such item is marked N/A signifying "not applicable"

Where standard clauses or alternatives are not entirely applicable to this **agreement** such amendments, modifications, corrections or supplements as will apply are given under each relevant clause heading and such amendments, modifications, corrections or supplements shall take precedence notwithstanding anything to the contrary contained in the above mentioned documents

Carried Forward R

Brought Forward		R	

PREAMBLES FOR TRADES

The General Preambles for Trades 2017 published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these **bills of quantities** and no claims arising from brevity of description of items fully described in the said General Preambles will be entertained

Supplementary preambles and/or specifications are incorporated in these **bills of quantities** to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles

The **contractor's** prices for all items throughout these **bills of quantities** shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications

If any discrepancy in any of the documents forming part of the contract is found, then the contract data and or amendments within the special conditions of contract and herein shall prevail in cases of conflict between any of the documents

STRUCTURE OF THIS PRELIMINARIES BILL

Section A : A recital of the headings of the individual clauses in the aforementioned **JBCC** Principal Building Agreement

Section B : A recital of the headings of the individual clauses in the aforementioned **JBCC** General Preliminaries

Section C : Any special clauses to meet the particular circumstances of the project

Carried Forward		R	

Section No. 1
Bill No. 1
PRELIMINARIES AND GENERAL
Q535B

Brought Forward R

PRICING OF PRELIMINARIES

Contractors are required to price all individual items in the preliminary and general section of the bill of quantities and should not lump the items into a single sum or amount. This fully priced schedule must be included as part of the priced bill of quantities returnable with tender submission

In the event that the contractor, due to causes of his own making, fails to achieve the targets set out in his construction programme and his performance is not in accordance with the contract, payment of the time related Preliminaries will be paid in proportion to the value of the monthly progress payment and not in accordance with the projected cash flow for this item. The principal agent shall review the status quo and revert to paying the contractor in accordance with the contract once the contractor has demonstrated improvement of their performance and the principal agent is satisfied that the contractor is performing diligently.

Similarly the full amount of the fixed portion of the Preliminaries will be paid only once the successful contractor has fully complied with deliverables under this section

Should the **contractor** select Option A in the **contract data** for the adjustment of **preliminaries**, the amounts entered against the relevant items in these **preliminaries** are to be divided into one or more of the three categories provided namely fixed (F), value related (V) and time related (T)

SECTION A: PRINCIPAL BUILDING AGREEMENT

Interpretation (A1-A7)

A **Clause 1.0 - Definitions and interpretation**

Pricing of bills of quantities

Carried Forward R

Brought Forward		R	
The **contractor** is to allow opposite each item for all costs in connection therewith. All prices to include, unless otherwise stated, for all materials, fabrication, conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting, fitting and fixing in position, cutting and waste (except where to be measured in accordance with the standard system of measurement), patterns, models and templates, plant, temporary works, returning of packaging, duties, taxes (other than Value Added Tax), imposts, establishment charges, overheads, profit and all other obligations arising out of this **agreement**. Value Added Tax (VAT) is to be separately stated on the summary page of these **bills of quantities**			
Items left unpriced will be deemed to be covered in prices against other items throughout these bills of quantities and no claim for any extras arising out of the contractor's omission to price any item will be entertained			
Prices for all construction equipment, temporary works, services and other items shall include for the supply, maintenance, operating cost and subsequent removal and making good as necessary			
Contractors are reminded that some of the works are to be undertaken under restrictive site conditions, over steep terrain, in dense vegetation, protected environments etc.			
In addition to the usual rates priced for standard measured items in the bills of quantities, contractors shall provide for all additional plant, labour, equipment, temporary works, temporary access ways and any additional supervision, transport, security, special plant and equipment to navigate restrictive site conditions and all things necessary for the completion of the works within this bills of quantities. The rates or amounts tendered for these items shall also include for the contractors management, attendance, profit, costs for removal and reinstatement of the ground conditions, vegetation, etc. in the state and condition prior to the works being undertaken.			
In addition to the usual rates priced for compliance with law and regulation in relation to inspections, warranties,			
Carried Forward		R	

Brought Forward			R	
guarantees, tests, analysis, commissioning and all things necessary for compliance, the contractor is expected to include in the rates, prices and the tendered total of the prices for all inspections, warranties, guarantees, tests, analysis, commissioning and all things necessary for compliance, payable by the contractor. Such items include but are not limited to: - Electrical Compliance Certificate - Plumbing Compliance Certificate - Structural Steel Compliance Certificate - Lightning Certificate - Soil Protection Certificate - Concrete test results and cube certificates - Compaction Test results and certificates - Waterproofing guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Roof covering certificate - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Any other requirement as per the latest National Building Regulation Contractors are reminded and hereby given the opportunity to allow for and price all costs related to the abnormal working conditions referred to herein as no claims for additional costs will be entertained for any omission on the part of contractor Clause 3.9 amended to read 'The priced document shall not be used as a specification for material and goods and the quantities should not be used for procurement purposes. All procurement of material will be based on actual site measurements and not on drawings, specifications or the bill of quantities **Abbreviated descriptions**				
Carried Forward			R	

	Brought Forward		R	
	The items in these **bills of quantities** utilise abbreviated descriptions. It is the intention that the abbreviated descriptions be fully described when read with the applicable measuring system and the relevant preambles and/or specifications. However, should the full intent and meaning of any description not be clear, the **contractor** shall, before submission of his tender, call for a written directive from the **principal agent**, failing which it shall be assumed that the **contractor** has allowed in his pricing for materials and workmanship in terms of international best practice			
	Legal status of contractor			
	If the **contractor** constitutes a joint venture, consortium or other unincorporated grouping of two or more persons then:			
	1. These persons are deemed to be jointly and severally liable to the **employer** for the performance of this **agreement**			
	2. These persons shall notify the **employer** of their leader who has assigned authority to bind the **contractor** and each of these persons			
	3. The **contractor** shall not alter its composition or legal status without the prior written consent of the **employer**			
A	F:..... V:..... T:.....	Item		
B	Clause 2.0 - **Law**, regulations and **notices**			
	F:..... V:..... T:.....	Item		
C	Clause 3.0 - Offer and acceptance			
	F:..... V:..... T:.....	Item		
D	Clause 4.0 - Cession and assignment			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Clause 5.0 - Documents**			
	Value Added Tax			
	Provision is made in the summary page of these **bills of quantities** for the inclusion of Value Added Tax (VAT)			
	Priced document as specification			
	Clause 5.4 is deemed to be deleted			
	The **principal agent** shall decide which portion of the **priced document** may be used as a specification of **materials and goods** or methods, if any			
B	**Electronic issue of drawings**			
	Some drawings for this project will be issued electronically and the **contractor** shall be deemed to have received such drawings on the date that such drawings have been dispatched electronically [5.6]			
	F:..... V:..... T:.....	Item		
C	**Clause 6.0 - Employer's agents**			
	Delegated authority			
	The authority of the **principal agent** to issue **contract instructions** [17.1] and perform duties for specific aspects of the **works** is delegated to **agents** as follows [6.2]. This does not preclude the **principal agent** from issuing such **contract instructions**:			
	1. Architect			
	1.1 Duties [6.2] :			
	The architect is responsible for the architectural design, functional design and quality inspection of the **works**			
	1.2 **Contract instructions** [6.2; 17.1] :			
	Carried Forward		R	

	Brought Forward		R	
1.2.1	Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement			
1.2.2	Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**			
1.2.3	The **site** [13.0]			
1.2.4	Compliance with the **law**, regulations and bylaws [2.1]			
1.2.5	Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**			
1.2.6	Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]			
1.2.7	Removal or re-execution of work			
1.2.8	Removal or substitution of any **materials and goods**			
1.2.9	Protection of the **works**			
1.2.10	Making good physical loss and repairing damage to the **works** [23.2.2]			
1.2.11	Rectification of **defects** [21.2]			
1.2.12	A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**			
	Carried Forward		R	

Brought Forward		R	
1.2.13 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**			
1.2.14 Appointment of a **subcontractor** [14.0; 15.0]			
1.2.15 Work by **direct contractors** [16.0]			
1.2.16 On suspension or termination, protection of the **works**, removal of **construction equipment** and surplus **materials and goods** [29.0]			
2. Quantity surveyor			
2.1 Duties [6.2] :			
The quantity surveyor is responsible for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions of the **works**			
2.2 **Contract instructions** [6.2; 17.1] :			
2.2.1 No **contract instructions** delegated to the quantity surveyor			
3. Civil and structural engineer			
3.1 Duties [6.2] :			
The civil and structural engineer is responsible for all aspects of civil and structural engineering design and quality inspection of the **works**			
3.2 **Contract instructions** [6.2; 17.1] :			
3.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement			
Carried Forward		R	

Brought Forward		R	
3.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**			
3.2.3 The **site** [13.0]			
3.2.4 Compliance with the **law**, regulations and bylaws [2.1]			
3.2.5 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**			
3.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]			
3.2.7 Removal or re-execution of work			
3.2.8 Removal or substitution of any **materials and goods**			
3.2.9 Protection of the **works**			
3.2.10 Making good physical loss and repairing damage to the **works** [23.2.2]			
3.2.11 Rectification of **defects** [21.2]			
3.2.12 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**			
3.2.13 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**			
4. <u>Mechanical engineer</u>			
Carried Forward		R	

Brought Forward		R	
4.1 Duties [6.2] : The mechanical engineer is responsible for all aspects of mechanical engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the mechanical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions 4.2 **Contract instructions** [6.2; 17.1] : 4.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement 4.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works** 4.2.3 Compliance with the **law**, regulations and bylaws [2.1] 4.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works** 4.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2] 4.2.6 Removal or re-execution of work 4.2.7 Removal or substitution of any **materials and goods** 4.2.8 Protection of the **works** 4.2.9 Making good physical loss and repairing damage to the **works** [23.2.2] 4.2.10 Rectification of **defects** [21.2]			
Carried Forward		R	

Brought Forward		R	
4.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**			
4.2.12 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**			
5. Electrical/Electronics engineer			
5.1 Duties [6.2] :			
The electrical engineer is responsible for all aspects of electrical and electronics engineering design and quality inspection of the **works** and, where appointed by the **employer** for quantity surveying services in respect of the electrical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions			
5.2 **Contract instructions** [6.2; 17.1] :			
5.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the **agreement** other than in the **JBCC** Principal Building Agreement			
5.2.2 Alteration to design, standards or quantity of the **works** provided that such **contract instructions** shall not substantially change the scope of the **works**			
5.2.3 Compliance with the **law**, regulations and bylaws [2.1]			
5.2.4 Provision and testing of samples of **materials and goods** and/or of finishes and assemblies of elements of the **works**			
5.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]			
5.2.6 Removal or re-execution of work			
Carried Forward		R	

Brought Forward		R	
5.2.7 Removal or substitution of any **materials and goods**			
5.2.8 Protection of the **works**			
5.2.9 Making good physical loss and repairing damage to the **works** [23.2.2]			
5.2.10 Rectification of **defects** [21.2]			
5.2.11 A **list for practical completion** specifying outstanding or defective work to be rectified to achieve **practical completion**, a **list for completion** and a **list for final completion** specifying outstanding or defective work to be rectified to achieve **final completion**			
5.2.12 Expenditure of **budgetary allowances**, **prime cost amounts** and **provisional sums**			
6. Health and safety consultant			
6.1 Duties [6.2] :			
The health and safety consultant is responsible for all aspects of health and safety of the **works**. Without derogating from the generality thereof, the health and safety consultant will perform the following specific functions and duties in respect of the health and safety aspects of the **works**. He shall:			
6.1.1 Act as the **employer's agent** in terms of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended			
6.1.2 Prepare and update the health and safety specification for the **works**			
6.1.3 Agree with the **contractor** the health and safety plan for the **works**			
6.1.4 Carry out regular audits to ensure adherence to the safety plan and compliance with the act and regulations			
Carried Forward		R	

	Brought Forward		R	
A	6.1.5 Stop the execution of the **works** where the agreed specification or plan is not adhered to			
B	F:..... V:..... T:.....	Item		
C	Clause 7.0 - Design responsibility			
	F:..... V:..... T:.....	Item		
	Insurances and securities (A8-A11)			
D	Clause 8.0 - **Works** risk			
	F:..... V:..... T:.....	Item		
E	Clause 9.0 - Indemnities			
	F:..... V:..... T:.....	Item		
F	Clause 10.0 - Insurances Clause 10.1.1 - Contracts Works Insurance 'the contractor shall be responsible for effecting and maintaining the contract works insurance for the full duration of the contract period. The insured amount for the full scope of works shall be 120% of the contract amount Clause 10.1.2 - Supplementary Insurance Clause 10.1.3 - Public Liability Insurance Clause 10.1.4 - Removal of Lateral Support Insurance - N/A Clause 10.1.5 - Other Insurances - N/A			
	F:..... V:..... T:.....	Item		
	Clause 11.0 - Securities			
G	**Clause 11.1 - Guarantee for construction**			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
	The contractor **shall** provide to the employer a **guarantee for construction** within fifteen (15) working days of acceptance of the contractor's tender.			
	Clause 11.5 - Guarantee for payment			
A	The employer shall not provide to the contractor a **guarantee for payment**. The contractor shall waive his lien or right of continuing possession of the works [11.10]			
	F:..... V:..... T:.....			
	Extension of waiver of lien			
B	The **contractor** shall ensure that a waiver of lien is included in all subcontracts and that the **works** executed on the **site** are kept free of all liens and other encumbrances at all times [11.10]			
	F:..... V:..... T:.....	Item		
	Execution (A12 - A17)			
C	**Clause 12.0 - Obligations of the parties**			
D	**Office accommodation**			
	The **contractor** shall provide, maintain and remove on **practical completion** air conditioned office accommodation to accommodate 15 people, with table tables and chairs for meetings to be held on the **site** at each facility. Such offices shall be kept clean and fit for use at all times [12.2.18]			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Notice board** The **contractor** shall erect in a position approved by the **principal agent**, maintain and remove on **practical completion** a notice board recommended by the South African Institute of Architects and as approved by the **principal agent** listing the names and logos of the **employer**, the **contractor** and the professional consultant at each facility. No subcontractor or supplier notice boards may be erected unless permission is granted by the **principal agent** for such notice boards to be erected [12.2.18]			
	F:..... V:..... T:.....	Item		
	Statutory and other notices			
B	The **contractor** shall submit and/or comply with all statutory and other notices that may be required by any local or other authority in order not to cause any delay to the commencement of the **works** by the **contractor**. The **contractor** shall pay all deposits or fees in this regard			
	F:..... V:..... T:.....	Item		
C	It is, however, specifically recorded that the **employer** shall be responsible for the timeous approval of building plans by any local or other authorities and the payment of any fees or charges related thereto			
	F:..... V:..... T:.....	Item		
D	Clause 13.0 - Setting out			
	F:..... V:..... T:.....	Item		
E	Clause 14.0 - Nominated **subcontractors**			
	F:..... V:..... T:.....	Item		
F	Clause 15.0 - Selected **subcontractors**			
	F:.....V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Clause 16.0 - Direct contractors**			
	In respect of **direct contractors** the **contractor** shall:			
B	1. Designate an area for the **direct contractor** to establish a temporary office and workshop and storage of equipment and materials			
	F:..... V:..... T:.....	Item		
C	2. Allow the use of personnel welfare facilities, where provided			
	F:..... V:..... T:.....	Item		
D	3. Provide water, lighting and single phase electric power to a position within 50m of the place where the direct contract work is to be carried out, other than fuel or power for commissioning of any installation			
	F:..... V:..... T:.....	Item		
E	4. Permit the **direct contractor** to use erected scaffolding, hoisting facilities, etc. provided by the **contractor**, in common with others having the like right, while it remains erected on the **site** [16.1]			
	F:..... V:..... T:.....	Item		
F	Clause 17.0 - **Contract instructions**			
	Site instructions			
	Instructions issued on **site** are to be recorded in a site instruction book which is to be supplied and maintained on **site** by the **contractor**			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
	Completion (A18 - A24)			
A	Clause 18.0 - Interim completion	N/A		
B	Clause 19.0 - **Practical completion**			
	F:..... V:..... T:.....	Item		
C	Clause 20.0 - Completion in **sections**			
	F:..... V:..... T:.....	Item		
D	Clause 21.0 - **Defects** liability period and **final completion**			
	The maintenance period shall be 12 months.			
	F:..... V:..... T:.....	Item		
E	Clause 22.0 - **Latent defects** liability period			
	F:..... V:.....T:.....	Item		
F	**Clause 23.0 - Revision of the date for practical completion**			
	Adverse weather conditions			
	The contract duration includes a monthly allowance of 3 working days for adverse weather conditions [23.1.1] during which rainfall exceeds 10mm per day or excessive wind. These days shall be reflected on the critical path of the construction programme. Where the programmed delays for adverse weather conditions exceed the actual delays incurred the date for practical completion will not be adjusted. Where the actual delays incurred for adverse weather conditions exceed the programmed delays and such delays have impacted on the critical path of the construction programme, the date for practical completion will be adjusted should the requirements of Clause 23.0 be satisfied			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Substitution of materials and goods** The removal or substitution of any **materials and goods** which do not conform to the specification or the **contract drawings** shall not constitute grounds for the extension of the **construction period** nor for the adjustment of the **contract value** [17.1.8; 23.1 & 2] F:..... V:..... T:.....	Item		
B	Clause 24.0 - **Penalty** for late or non-completion F:..... V:..... T:.....	Item		
	Payment (A25 - A27)			
C	**Clause 25.0 - Payment**			
D	**Prices submitted** Where prices are submitted by the **contractor** or **subcontractor** during the progress of the **works** in respect of **contract instructions** or in regard to a claim under the terms of this **agreement** and notwithstanding the fact that such prices may be used in an interim **payment certificate**, there is to be no presumption of acceptance. Should the **principal agent** wish to accept any such prices prior to the issue of the **certificate of final completion**, it shall be in writing Clause 25 amended to read 'The employer shall pay to the contractor the amount certified in interim payment certificate within thirty (30) calendar days of the date of issue of the payment certificate or the contractors tax invoice whichever is the later date' Materials and goods stored off site shall not be included in the amount authorised for payment unless the requirements for an Advanced Payment Guarantee are met F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 26.0 - Adjustment of the **contract value** and **final account**			
	F:..... V:..... T:.....	Item		
B	**Fluctuations in costs**			
	All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the **contractor** [26.9.5]			
	F:..... V:..... T:.....	Item		
	Tenant installation/user requirements delayed			
	There is a possibility that certain works related to tenant installation/user requirements may have to be delayed and may consequently not be executed prior to **practical completion**			
	Should the **contractor** be instructed to do so he shall execute this work under the conditions pertaining to this **agreement** on the basis that a separate amount for **preliminaries** appurtenant to this work (if applicable) is agreed to between the **contractor** and the **principal agent** and on condition that instruction to proceed with such work is given to him within a period of three (3) calendar months after the date of **practical completion** of the **works**			
	The contractor shall not receive any mark-up for overheads and profit on any omission of tenant installation work or tenant installation work by others. Claims of loss of profit shall not be considered			
	The **employer** reserves the right to omit such work without compensation to the **contractor** for loss of profit or any other loss which the **contractor** may suffer as a result of such omission			
	Carried Forward		R	

	Brought Forward		R	
A	**Cost of claims** All costs incurred by the **contractor** in the preparation of claims shall be borne by the **contractor**. This provision shall not preclude an adjudicator or an arbitrator appointed in terms of this **agreement** [30.6 & 7] from making a determination on costs F:..... V:..... T:.....	Item		
B	**Claims from subcontractors** The **contractor** shall review, assess and adjudicate any claims received by him from any **subcontractor** and thereafter submit same to the **principal agent** with a recommendation in order to assist the **principal agent** in adjudicating the claim [26.6] F:..... V:..... T:.....	Item		
C	Clause 27.0 - Recovery of expense and/or loss F:..... V:..... T:.....	Item		
	<u>Suspension and termination (A28 - A29)</u>			
D	Clause 28.0 - Suspension by the **contractor** F:..... V:..... T:.....	Item		
E	Clause 29.0 - Termination F:..... V:..... T:.....			
	<u>Dispute resolution (A30)</u>			
F	Clause 30.0 - Dispute resolution F:..... V:..... T:.....	Item		
G	**<u>Agreement</u>**			
	Carried Forward		R	

	Brought Forward		R	
A	The required information of the **parties** and the amount of the **contract sum** shall be inserted in the **agreement** for signature of the **agreement** by the **parties**			
	F:..... V:..... T:.....	Item		
B	**Contract data**			
	Tenderer's selections			
C	Before submission of his tender the **contractor** is to complete the tenderer's selections in the **contract data**			
	F:..... V:..... T:.....			
	SECTION B: GENERAL PRELIMINARIES			
	Definitions and interpretation (B1)			
D	Clause 1.1 - Definitions			
	F:..... V:..... T:.....	Item		
E	Clause 1.2 - Interpretation			
	F:..... V:..... T:.....	Item		
	Documents (B2)			
F	Clause 2.1 - Checking of documents			
	F:.....V:..... T:.....	Item		
G	Clause 2.2 -Provisional **Bills of quantities** **Yes**			
	F:..... V:..... T:.....	Item		
H	**Multiple procurement**			
	A portion of the works are also measured in SMME Packages as a separate Section.			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 2.3 - Availability of **construction information**			
	F:..... V:..... T:.....	Item		
B	Clause 2.4 - Ordering of **materials and goods**			
	F:..... V:..... T:.....	Item		
	Previous work and adjoining properties (B3)			
C	Clause 3.1 - Previous work - dimensional accuracy			
	F:..... V:..... T:.....	Item		
D	Clause 3.2 - Previous work - **defects**			
	F:..... V:..... T:.....	Item		
E	Clause 3.3 - Inspection of adjoining properties			
	F:..... V:..... T:.....	Item		
	The site (B4)			
F	Clause 4.1 - Handover of **site** in stages			
	F:..... V:..... T:.....	Item		
G	Clause 4.2 - Enclosure of the **works**			
	Hoarding will be required to isolate areas; this hoarding has been allowed for in the Bills of Quantities.			
	F:..... V:..... T:.....	Item		
H	Clause 4.3 - Geotechnical and other investigations			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 4.4 - Encroachments The contractor shall notify the principal agent if any encroachments of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachment F:..... V:..... T:.....	Item		
B	Clause 4.5 - Existing premises occupied F:..... V:..... T:.....	Item		
C	Clause 4.6 - Services - known F:..... V:..... T:.....	Item		
	Management of contract (B5)			
D	Clause 5.1 - Management of the **works** F:..... V:..... T:.....	Item		
E	Clause 5.2 - Progress meetings F:..... V:..... T:.....	Item		
F	Clause 5.3 - Technical meetings F:.....V:..... T:.....	Item		
	Samples, shop drawings and manufacturer's instructions (B6)			
G	Clause 6.1 - Samples of materials F:..... V:..... T:.....	Item		
H	Clause 6.2 - Workmanship samples F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 6.3 - Shop drawings			
	F:..... V:..... T:.....	Item		
B	Clause 6.4 - Compliance with manufacturer's instructions			
	F:..... V:..... T:.....	Item		
	Deposits and fees (B7)			
C	Clause 7.1 - Deposits and fees			
	F:..... V:..... T:.....	Item		
	Temporary services (B8)			
D	Clause 8.1 - Water			
	F:..... V:..... T:.....	Item		
E	Clause 8.2 - Electricity			
	F:.....V:..... T:.....	Item		
F	Clause 8.3 - Ablution and welfare facilities			
	Clause 8.3 - Ablution and welfare facilities in compliance to the provisions of the Construction Regulations 2014 issued in terms of the Occupational Health and Safety Act, 1993 as amended: Section (30): Sub-section (1)(a) - Shower facilities after consultation with the employees or the employees representatives, or at least one shower facility for every 15 persons; Sub-section (1)(b) - at least one sanitary facility for each sex and for every 30 workers; Sub-section (1)(c) - changing facilities for each sex and Sub-section (1)(d) - sheltered eating areas			
	F:..... V:..... T:.....	Item		
G	Clause 8.4 - Communication facilities			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
	Prime cost amounts (B9)			
A	Clause 9.1 - prime cost amounts			
	F:..... V:..... T:.....	Item		
	Attendance on subcontractors (B10)			
B	Clause 10.1 - General attendance			
	F:..... V:..... T:.....	Item		
C	Clause 10.2 - Special attendance			
	F:..... V:..... T:.....	Item		
	General (B11)			
D	Clause 11.1 - Protection of the **works**			
	F:.....V:..... T:.....	Item		
E	Clause 11.2 - Protection/isolation of existing **works** and **works** occupied in **sections**			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 11.3 - Security of the **works** The contractor shall be briefed on the restrictions of movement, servitudes, access control, buildings in use, security requirements and security clearances and working hours, due to being occupied and under the employers control at all times. The contractor shall not extend his operations into any restricted or undefined areas. Work shall be carried out during normal working hours. Any extended times or approval or overtime work shall be considered and approved by the PA. The contractor shall comply with the employers rules for the control of delivery of materials and goods into the site and for the removal of such items from the site. The Contractor will be responsible for ensuring the security and protection of all material, hand tools, power tools, plant, equipment, machinery, etc. stored on the site. The Contractor will be required to make arrangements with the Employer, through the Principal Agent, for the use of and reimbursement for the security measures currently in force and operational on the site F:..... V:..... T:.....	Item		
B	Clause 11.4 - Notice before covering work F:..... V:..... T:.....	Item		
C	**<u>Clause 11.5 - Disturbance</u>**			
	Carried Forward		R	

	Brought Forward		R	
A	**Disturbance** All work is to be carried out in such a manner as to cause no unacceptable or unreasonable dust, noise, vibrations, nuisance, inconvenience, annoyance and the like to the public, others, other properties and traffic in so far as they exceed the permissible limitations set by government legislation or by the local authority. Any delays, stoppages and the like arising from or in order to comply with the above will not constitute grounds for an adjustment to the **construction period** or **contract value** whatsoever F:..... V:.....T:.....	Item		
B	**Clause 11.6 - Environmental disturbance**			
C	**Controlling all forms of pollution** The **contractor** shall be responsible for and take all precautions in controlling by whatever means necessary all forms of pollution emanating from the **site** during the **construction period** due inter alia to noise, artificial light, wind-blown sand, dust, deposits of mud, etc. F:..... V:.....T:.....	Item		
D	The **contractor** is to ensure that all roads which border the **site** and are used by the **contractor** during the execution of the **works** are kept clean and free of any dirt or debris caused by the execution of the **works** F:..... V:.....T:.....	Item		
E	Clause 11.7 - **Works** cleaning and clearing F:..... V:..... T:.....	Item		
F	Clause 11.8 - Vermin F:..... V:..... T:.....	Item		
G	Clause 11.9 - Overhand work F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Clause 11.10 - Tenant installations			
	F:..... V:..... T:.....	Item		
B	Clause 11.11 - Advertising			
	F:..... V:..... T:.....	Item		
	SECTION C: SPECIFIC PRELIMINARIES			
C	**Warranties for materials and workmanship**			
	Where warranties for materials and/or workmanship are called for, the **contractor** shall obtain a written warranty, addressed to the **employer**, from the entity supplying the materials and/or executing the work and shall deliver same to the **principal agent** on **final completion** of the contract			
	The warranty shall state that workmanship, materials and installation are warranted for a specific period from the date of **practical completion** and that any **defects** that may arise during the specified period shall be made good at the expense of the entity supplying the materials and/or doing the work, upon written **notice** to do so			
D	The warranty will not be enforced if the work is damaged by **defects** in the execution of the **works**, in which case the responsibility for replacement shall rest entirely with the **contractor**			
	F:..... V:..... T:.....	Item		
E	**Overtime**			
	Should overtime be required to be worked for any reason whatsoever, the cost of such overtime is to be borne by the **contractor** unless the **principal agent** has specifically authorised, prior to execution thereof, that costs for such overtime are to be borne by the **employer**			
	F:..... V:.....T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Cooperation of the contractor for cost management** It is specifically agreed that the **contractor** accepts the obligation of assisting the **principal agent** in implementing proper cost management. The **contractor** will be advised by the **principal agent** of all cost management procedures which will be implemented to ensure that the **contract value** does not exceed the budget F:..... V:.....T:.....	Item		
B	**Health and safety**			
C	Without limiting the generality of the provisions of clause 2.0, the contractor's attention is drawn to the provisions of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended. It is specifically stated that the employer shall prepare a documented health and safety specification for the works and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price the Pricing schedule for Health, Safety and Environment as per the pricing schedule on **Section 1 Bill no. 2** Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is made under this clause and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained. F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**The contractor shall:**			
	1. Comply with the health and safety specification for the **works**			
	2. Prepare and agree with the health and safety consultant the health and safety plan for the **works**			
	3. Cooperate with the health and safety consultant in all respects			
	4. Manage the compliance of all subcontractors with the regulations and with the health and safety plan and specification			
	5. Conform to the conditions contained in the **employer's** health and safety specification			
	F:..... V:..... T:.....	Item		
B	Reporting by the Contractor			
	The **Contractor** is required to complete a **CONTRACTOR'S MONTHLY REPORT** which is to be submitted together with the **Contractor's** payment claim.			
	Payment of the **Contractor** is conditional on this information being accurate and timeously provided.			
	Payment shall be subject to the **Contractor** giving the **Emplopyer** a tax invoice for the amount due.			
	The **Contractor** is to take note of the following requirements -			
	At the bottom of the **CONTRACTOR MONTHLY REPORT**, the **Site Agent**, **Clerk of Works**, **CLO** or **Contractor** must sign the document as proof that the people indicated have worked the number of days.			
	F:..... V:.....T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	Advertising rights The **employer** may elect to contract with advertising agencies for the erection of advertising hoardings, banners, wraps or the like for the duration of the contract. The **contractor** shall not prevent such an arrangement and will assist in the facilitation of same. The position and type of advertising structure to be agreed with the **principal agent** so as not to hinder the **contractor** in meeting his obligations under this **agreement** F:..... V:.....T:.....	Item		
B	**Confidentiality** The **contractor** undertakes to maintain in confidence any and all information regarding this project and shall obtain appropriate similar undertakings from all **subcontractors** and suppliers. Such information shall not be used in any way except in connection with the execution of the **works** No information regarding this project shall be published or disclosed without the prior written consent of the **employer** F:..... V:.....T:.....	Item		
C	**Media releases** All rights of publication of articles in the media, together with any advertising relating thereto or in any way connected with this project, shall vest with the **employer** The **contractor** together with his **subcontractors** shall not, without the prior written consent of the **employer**, cause any statement or advertisement connected with this project to be printed, screened or aired by the media F:..... V:.....T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**Socio-Economic Deliverables** The Tenderer must allow for **all costs** (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns, Training of Local Labour, Students **as applicable** and included in this tender document (refer **PROVISIONAL SUMS** section). No additional claims in this regard shall be entertained. F:..... V:.....T:.....	Item		
B	**SMME Contractors as Sub-Contractors to the Principal Contractor** The Tenderer must allow for all costs applicable that they may feel will be associated with the successful integration, development of and completion of **SMME Sub-contractors'** work to the approval of the Principal Agent on this project. A portion of the building work is allocated to SMME Sub-contractors (refer **SMME PACKAGES** section). Contractors will be required to supply verified monthly statements/schedules (verified by their auditors) indicating the **%** achieved for that month. A cumulative schedule also needs to be maintained for each month that has passed. The Tenderer must also note that some SMME Packages as specified in the **SMME PACKAGES** section may consist of various smaller SMME sub-contractors within each specified package (split per link), the cost for this must be included in this item. Any additional costs that the Tenderer may deem applicable due to the use of SMME Sub-contractors, should be allowed for in this item (Preliminaries, OHS, Profit and Attendance, etc.), as no claim for any additional costs attributable to the incorporation and development of SMME Sub-contractors on this project will be entertained after the tenders are submitted. F:..... V:.....T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
A	**SMME Monitoring** Provision for pricing for the employment, on a full time basis for the duration of the contract, SMME Monitoring. All costs associated with the completion of the SMME Monitoring duties, provision of office facilities and tools of trade are deemed to be priced hereunder. No additional claims in this regard shall be entertained. The above is in strict accordance with the Specification for the Employment of SMME Sub-contractors and all costs should be included in this item for the employment for Monitoring. F:..... V:.....T:.....	Item		
	SOCIO-ECONOMIC DELIVERABLES			
B	It is required that the contractor shall adhere to all Socio-Economic Deliverables as set out in the C3.6 Provision for pricing of all the main contractor's costs as stipulated in the deliverables L1.1, L1.2, L1.3, L1.4, L1.5, L1.6, L2, L3, L4, L5.1, L5.2, L5.3, L5.4, L6.1, L6.2, L7, L8, L9, L10, L11, L12 and L13 excluding the items covered under Section 6, Bill no. 2 Socio-Economic Deliverables, is made under this clause and are deemed to be priced hereunder and no additional claims in this regard shall be entertained F:..... V:..... T:.....	Item		
	Carried Forward		R	

	Brought Forward		R	
	EMPLOYMENT OF SMME SUB-CONTRACTORS AS A CONDITION OF TENDER			
A	It is required that the contractor shall sub-contract 13.5% of the contract value (Excluding VAT, Escalation, Contingencies, HT equipment provisions and Socio-Economic provisions) of the contract including labour and material to EME's and QSE's as stipulated in Volume 2: Form K - SMME Target form Provision for pricing of all the main contractor's costs as stipulated in Form K - SMME Target form is made under this clause and are deemed to be priced hereunder and no additional claims in this regard shall be entertained			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	

Brought Forward R

OCCUPATIONAL HEALTH AND SAFETY ACT

A The contractor shall comply with all the requirements set out in the Construction Regulations, 2014 issued under the Occupational Health and Safety Act, 1993 (Act no.85 of 1993)

It is required of the contractor to thoroughly study the Health and Safety Specification and Bills of Quantities in C3.3 Health and Safety Specification that must be read together with and is deemed to be incorporated under this Section of the Bills of Quantities / lump sum document

The contractor must take note that compliance with the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is compulsory. In the event of partial or total non-compliance, the principal agent, notwithstanding the provisions of clause A31.0 of Section A or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the contractor provides satisfactory proof of compliance. The contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment.

Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and safety Specification is made under this clause and it is explicitly pointed out that all requirements of the aformentioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained.

F:..... V:..... T:..... Item

Carried Forward R

	Brought Forward			R
	ENVIRONMENTAL HEALTH AND SAFETY			
A	The contractor shall comply with all the requirements set out in the Environmental Health and Safety Specification It is required of the contractor to thoroughly study the Environmental Health and Safety Specification in C3.3 The contractor must take note that compliance with the Environmental Health and Safety is compulsory. Provision for pricing of the Environmental Health and Safety is made under this clause and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained.			
	F:..... V:..... T:.....		Item	
	SUMMARY OF CATEGORIES			
	PRELIMINARIES AND GENERAL			
	Category : Fixed R.....			
	Category : Value R.....			
	Category : Time R.....			
	TOTAL PRELIMINARIES AND GENERAL - AMOUNT CARRIED TO FINAL SUMMARY: R.....			
	Carried Forward to Summary of Section No. 1			R

Item No		Quantity	Rate	Amount

SECTION No. 1: PRELIMINARIES

BILL No 2: HEALTH AND SAFETY

SUPPLEMENTARY PREAMBLES

Supplementary preambles and/or specifications are incorporated in these bills of quantities to satisfy the requirements of this project.Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles.

The contractor's prices for all items throughout these bills of quantities shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications.

Prior to pricing the principal contractor must familiarize him/herself with the Occupational Health and Safety Act No. 85 Of 1993 read with Construction Regulations 2014, other relevant Regulations and Standards as well as project specific Health & Safety specifications including any latest amendments.

The items in this Bill do not contain quantities hence the Contractor must insert his own quantities based on his individual requirements to comply with the Health and Safety obligations and demands of the Occupational Health and Safety Act No. 85 of 1993, Construction Regulations 2014, other relevant Regulations and Standards as well
as project specific Health & Safety Specifications.

The costs included herein must incorporate Community Liaison Officer (CLO).

Carried Forward R

	Brought Forward			R	
	Important note to Principal Contractor **Prior to pricing the principal contractor must familiarize him/herself with the Occupational Health and Safety Act and Regulations, (Act 85 of 1993), read with Construction Regulations 2014, other relevant Regulations, It is imperative for the Contractor to familiarize him/herself on the Client's project specific requirements defined in the Project Specific Health and Safety Specifications when pricing the works. Specific requirements are defined in the Project Specific Health and Safety Specifications Pricing schedule for Health, Safety, Environmental Management**				
	OCCUPATIONAL HEALTH AND SAFETY				
	General:				
A	One full time Construction Health and Safety Officer or Manager (CHSO/M) Full time attendance on site of a SACPCMP-registered CHSO/M from the start of construction until the end of project handover and provisions of telecommunications Price per month - No of months = 17	No	17		
B	Competent Health and Safety Representative appointed for the site pending the number of employees working on the site Price per month - No of months = 17	No	17		
C	Competent first aider should be appointed for the site pending the number of employees working on site Price per month - No of months = 17	No	17		
	Carried Forward			R	

				R	
	Brought Forward				
A	Competent fire fighter should be appointed for the site.				
	Price per month - No of months = 17	No	17		
B	Provision for Health and Safety Management Plans and File	No	1		
C	Provision for fall protection plan and implementation		Item		
D	Allow for the necessary Workman's Compensation Fund or approved Insurer contributions for the duration of the project with and including renewals		Item		
E	Employee medical certificates of fitness				
	Medical examination to include height work assessment.				
	Annual and exit medicals to be included.		Item		
F	Emergency Equipment based on the risk exposure and emergency rescue, stretchers, neck brace, first aid kits, fire fighting equipment		Item		
G	Mandatory training such as risk assessments, OHS Act, awareness, first aider, working at heights		Item		
	Provide, supply and maintenance for each worker the following SANS approved personal protective equipment & clothing as per the site-specific risk assessments:				
H	Hard Hats		Item		
I	Overall/work suit (100% Cotton)		Item		
J	Safety boots/shoes (Steel-Toe)		Item		
K	Ear Plugs/Muffs		Item		
L	Dust Mask FFP2		Item		
M	Safety goggles		Item		
	Carried Forward			R	

				R	
	Brought Forward				
A	Hand gloves		Item		
B	Reflector vests		Item		
C	Safety harness		Item		
D	Construction information, warning signage, posters, construction work permit number sign		Item		
E	Allow for fire extinguishers and fire fighting equipment		Item		
F	Safe lifting equipment for lifting and lowering pipes, lifting tackles and slings		Item		
	BIOLOGICAL RISK				
G	Provision for appropriate PPE		Item		
H	Provision for signage		Item		
I	Provision for additional hand washing stations		Item		
	ENVIRONMENTAL				
J	Dust control measure for the prevention of dust nuisance				
	Price per month - No of months = 17	No	17		
K	Provision for spill kits, drip trays		Item		
L	Housekeeping – provide for the waste bins, safe collection and disposal of waste material from site by an approved method				
	Price per month - No of months = 17	No	17		
	Carried Forward			R	

Brought Forward		R	
BREAKDOWN OF TOTAL COST FOR HEALTH AND SAFETY			
Category : Fixed R.....			
Category : Time R.....			
Carried Forward to Summary of Section No. 1		R	

Section No. 1
Bill No. 2
HEALTH AND SAFETY
Q535B

SECTION SUMMARY - SECTION 1 PRELIMINARIES AND GENERAL & HEAL

Bill No		Page No		Amount
1	PRELIMINARIES AND GENERAL	37		
2	HEALTH AND SAFETY	42		

Carried to Final Summary R

Section No. 1
Q535B

Item No			Quantity	Rate	Amount
	SECTION NO. 2				
	COMPLETION OF RENOVATIONS TO HIGH CARE / CICU UPGRADE - 2ND FLOOR (PROVISIONAL)				
	This section consists of the following locations:				
	Block A: High Care/CICU				
	Block B: SMME packages				
	BILL NO. 1				
	RENOVATIONS				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
	FLOORS AND FLOOR FINISHES				
A	Break up and remove existing screed / grano approximately 30mm thick from concrete surface bed and prepare latter to receive new screed (measured elsewhere) A : 963 B : 0	m2	963		
B	Break up and remove existing reinforced concrete plinth, not exceeding 120mm thick A : 2 B : 0	m2	2		
C	Saw cut opening, size 300 x 300mm into existing concrete slab, not exceeding 120mm thick A : 1 B : 0	No	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	Saw cut 50 x 50mm recess along sides of 300 x 300mm opening into existing concrete slab, not exceeding 120mm thick A : 1 B : 0	m	1		
	WALLS AND WALL FINISHES				
B	Hack off and remove existing white glazed tiles including plaster backing from brick walls in patches and prepare the surface to receive new tiles (elsewhere measured) A : 6 B : 0	m2	6		
C	Hack off and remove internal plaster from brick walls, concrete columns and beams and prepare to receive new plaster (measured elsewhere), including all necessary cleaning A : 80 B : 0	m2	80		
D	Break down and remove existing half brick wall A : 25 B : 0	m2	25		
E	Break down and remove existing one brick wall A : 22 B : 0	m2	22		
F	Break opening 200 x 200mm hrough 270mm walls A : 8 B : 0	No	8		
	DOORS				
	Take out and remove existing door frames and doors from walls to be replaced with new doors and frame				
G	Take out and remove existing timber door and timber frame, size 900 x 1900mm high including fanlight size 900 x 385mm high from half brick wall and prepare opening to receive new timber door and timber frame (elsewhere measured) A : 2 B : 0	No	2		
H	Take out and remove existing timber door and timber frame, size 900 x 2035mm high including fanlight size 900 x 385mm high from half brick wall and prepare opening to receive new timber door and timber frame (elsewhere measured) A : 2 B : 0	No	2		
	Carried Forward			R	

				R	
	Brought Forward				
	Take out and remove existing door frames and doors from walls to be replaced with new doors and frame				
A	Take out and remove existing timber door and timber frame, size 1676 x 2035mm high with fanlight size 1676 x 385mm high from half brick wall and prepare opening to receive new timber door and timber frame (elsewhere measured) A : 2 B : 0	No	2		
B	Take out and remove existing timber door and timber frame, size 1723 x 2032mm high from half brick wall and prepare opening to receive new timber door and timber frame size 1723 x 2032mm (elsewhere measured) A : 2 B : 0	No	2		
C	Take out and remove existing timber fire escape door and timber frame, size 1680 x 2400mm high from one and a half brick wall and prepare opening to receive new aluminium door and frame size 1680 x 2400mm (elsewhere measured) A : 1 B : 0	No	1		
D	Take out and remove existing timber sliding door and timber frame, size 1360 x 2050mm high from half brick wall and prepare opening to receive new timber door and timber frame (elsewhere measured) A : 2 B : 0	No	2		
	Break out and remove existing doors and frames and brick up openings				
E	Break out timber frame and timber door, size approximately 813 x 2032 high, with lock, etc, from half brick wall, prepare top of existing brickwork and brick up opening with brickwork in cement mortar, finish off with plaster to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, neat flush intersections of new to existing finishes, etc. A : 2 B : 0	No	2		
	Carried Forward			R	

Section No. 2
Bill No. 1
Renovations
Q535B

				R	
	Brought Forward				
A	Break out timber frame and timber door, size approximately 813 x 2032 high, with lock, etc, from one brick wall, prepare top of existing brickwork and brick up opening with brickwork in cement mortar, finish off with plaster to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, neat flush intersections of new to existing finishes, etc. a A : 2 B : 0	No	2		
B	Break out timber frame and timber door, size approximately 1676 x 2032 high, with lock, etc, from half brick wall, prepare top of existing brickwork and brick up opening with brickwork in cement mortar, finish off with plaster to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	Take out and remove existing doors from existing frames to be replaced with new doors				
C	Take out and remove existing timber door, size 813 x 2032mm high from existing frame and prepare frame to receive new timber door size 813 x 2032mm (elsewhere measured) A : 2 B : 0	No	2		
	Break opening through half brick wall for new door				
D	Break opening, size 500 x 2032 high, through half brick wall for new steel frame (measured elsewhere), repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 2 B : 0	No	2		
	Carried Forward			R	

				R	
	Brought Forward				
A	Break opening, size 813 x 2032 high, through half brick wall for new timber frame (measured elsewhere), repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	Break opening through one brick wall for new door				
B	Break opening, size 2573 x 2400 high, through one brick wall for new aluminium door (measured elsewhere), repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
C	Break opening, size 4025 x 2400mm high, through one brick wall for new aluminium door (measured elsewhere), repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	Break opening through half brick				
D	Break opening, size 930 x 2100 high, through half brick wall, repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	Break opening, size 1424 x 2100 high, through half brick wall, repair reveals and lintels with brickwork in cement mortar as well as plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	Openings through existing walls				
B	Altering opening in half brick wall where 813 x 2032mm high single timber door and timber frame is removed (elsewhere measured), to form opening size 1350 x 2100mm high overall including necessary precast concrete lintol including plastered finish to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support , neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1		
	WINDOWS				
	Break out and remove existing steel window and brick up opening				
C	Break out steel window, size approximately 1100 x 1350mm high, from 340 brick wall, including sills, lintels, etc. with plaster on external and repair plastered finish to internal in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, preparation of top of existing brick work to receive new brickwork, cutting toothing, neat flush intersections of new to existing finishes, etc. (plant room) A : 2 B : 0	No	2		
	Carried Forward			R	

				R	
	Brought Forward				
	Take out and remove existing steel windows to be replaced				
A	Take out and remove existing galvanised mild steel window opening and fixed sections, leaving the existing GMS frame fixed in the wall. All cuts to be finished off neatly and cold galvanised. Remove all existing sealant around the frame, both internally and externally and allow for the scraping down and remove all old paint to bare metal. Wash with sugar soap and rinse. All surfaces to be sanded smooth and existing paint edges to be sanded smooth to approval and prepare opening to receive new uPVC window of same size (uPVC window elsewhere measured), overall size approximately 600 x 1350mm high, from 480mm cavity wall.	No	9		
	A : 9 B : 0				
B	Ditto, but overall size approximately 1100 x 1350mm high	No	43		
	A : 43 B : 0				
C	Ditto, but overall size approximately 1100 x 1600mm high	No	28		
	A : 28 B : 0				
	Break out and remove existing window sill				
D	Break out and remove existing internal Terazzo window sill approximately 200mm wide, from one brick wall	m	2		
	A : 2 B : 0				
	TIMBER FITTINGS				
E	Remove existing stainless steel worktop with timber cupboard below overall size 1084 x 600 x 910mm high overall, from plastered wall and repair wall faces	No	3		
	A : 3 B : 0				
	METALWORK				
F	Take down and and remove existing steel security gate and burglar proofing overall size 2200 x 2100mm high plugged to plastered brick walls and repair wall faces	No	1		
	A : 1 B : 0				
	Carried Forward			R	

				R	
	Brought Forward				
	PLUMBING AND DRAINAGE				
A	Cut through, take off and remove existing galvanised or copper piping not exceeding 50mm diameter, including fittings and brackets from roof space, plastered walls, etc., cut back and seal off piping into walls and repair finished faces A : 60 B : 0	m	60		
B	Cut through, take off and remove existing 40mm PVC piping, including fittings and brackets from plastered walls, and repair finished faces where necessary A : 46 B : 0	m	46		
C	Ditto, but for 50mm pipes A : 19 B : 0	m	19		
D	Ditto, but for 110mm pipes A : 23 B : 0	m	23		
E	Ditto, but for 110mm Bent access pan connector A : 11 B : 0	No	11		
F	Take off and remove from plastered brick walls existing vitreous china wash hand basin, complete with fittings, taps, traps, pipes (sealed off into walls or floors), etc. and repair finished faces A : 2 B : 0	No	2		
G	Ditto, but existing sink A : 1 B : 0	No	1		
	TEMPORARY HOARDING				
H	Provide temporary Hoarding internally by means of closing off passages, doorways, etc. with softboard and timber frames, to create working areas within hospital complex A : 45 B : 0	m2	45		
	DEEP CLEAN AND DISINFECT WORKING AREA				
	Carried Forward			R	

				R
	Brought Forward			
	The contractor will call for quotations from firms approved by Representative/Agent in accordance with the conditions of contract and in conjunction with the Representative /Agent (at least three responsive quotations are required)			
A	Allow the Amount of R250,000.00 (Two Hundred and Fifty Thousand Rand) to deep clean and disinfect internal working area, including removal of bird droppings, dead birds, all existing building rubble, rubbish, etc. and dispose at an approved spoil site		Item	250,000.00
B	Profit on above item		Item	
C	Attendance on ditto		Item	
	BUDGETARY ALLOWANCE			
D	Allow R300,000.00 (Three Hundred Thousand Rand) for work or cost which cannot be entirely foreseen, defined or detailed at tender stage. This amount shall be used at the discretion of the Implementing Agent/Project Manager if required		Item	300,000.00
	CREDIT FOR OLD MATERIAL			
E	The contractor to allow herein for credit for all old materials from the alteration described to become the property of the contractor.	No	-1	
	Carried Forward to Summary of Section No. 2			R

Item No		Quantity	Rate	Amount
	SECTION 2			
	BILL NO 2			
	CONCRETE FORMWORK AND REINFORCEMENT			
	PREAMBLES			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	TRADE NAMES			
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"			
	SUPPLEMENTARY PREAMBLES			
	Type of cement			
	All cement used in concrete work is to be OPC cement, no cement containing fly ash will be allowed			
	Cost of tests			
	The costs of making, storing and testing of concrete test cubes shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Representative/Agent. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Representative/Agent. (Test cubes are measured separately)			
	Breeze concrete			
	Breeze concrete shall consist of twelve parts clean dry furnace ash, free from coal or other foreign matter, to one part cement (1:12); the ash graded up to particles which will pass a 16,5mm ring from a minimum which fails to pass a 4,75mm mesh. The finer materials from the screening are to be first mixed with the cement into a mortar and the ash added afterwards and thoroughly incorporated			
	Carried Forward		R	

Brought Forward		R	

Lightweight concrete

Lightweight concrete shall have a density of 600kg/m^3 for the top 50mm and 400kg/m^3 for the remaining thickness. The minimum thickness at outlets, channels, etc shall be 50mm

Formwork

Descriptions of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Formwork to soffits of solid slabs etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described

Formwork to soffits of slabs, beams, etc shall be deemed to be propped up exceeding 1,5m and not exceeding 3,5m high unless otherwise described

Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

REINFORCED CONCRETE

***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*

Carried Forward		R	

	Brought Forward			R	
	30 MPa/19 mm concrete in				
A	Slabs (over duct) A : 2 B : 0	m3	2		
	CONCRETE SUNDRIES				
	Finishing top surface of concrete smooth with a wood float in				
B	Slabs, etc A : 22 B : 0	m2	22		
	FORMWORK				
	***NOTE**: The following items shall be deemed to fall into Work Group No 111 for JBCC CPAP purposes*				
	ROUGH FORMWORK (DEGREE OF ACCURACY II)				
	Rough formwork to soffits of:				
C	Slabs not exceeding 250mm thick, propping exceeding 3,5m high and not exceeding 5m high A : 22 B : 0	m2	22		
	REINFORCEMENT				
	***NOTE**: The following items shall be deemed to fall into Work Group No 114 for JBCC CPAP purposes*				
	High tensile steel rod reinforcement to structural concrete work				
D	10mm Diameter bars A : 0.014 B : 0.000	t	0.014		
E	16mm Diameter bars A : 0.340 B : 0.000	t	0.340		
	REMEDIAL WORK TO DUCT CLOSURE				
	***NOTE**: The following items shall be deemed to fall into Work Group No 134 for JBCC CPAP purposes*				
	Carried Forward			R	

				R
	Brought Forward			
	Angle sections, plates, etc.			
A	50 x 50 x 5mm Angle section recessed into existing concrete slab A : 2 B : 0	m	2	
B	300 x 300 x 12mm Mild steel plate A : 1 B : 0	No	1	
C	6mm Concrete screws drilled 35mm into concrete A : 8 B : 0	No	8	
	Fabric reinforcement			
	***NOTE**: The following items shall be deemed to fall into Work Group No 114 for JBCC CPAP purposes*			
D	Type 311 fabric reinforcement welded to bottom of mild steel plate A : 1 B : 0	m2	1	
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*			
E	38mm thick fibre cement layer sprayed onto fabric reinforcement mesh to provide a 2 hour fire rating A : 1 B : 0	m2	1	
	Carried Forward to Summary of Section No. 2			R

Section No. 2
Bill No. 2
Concrete, formwork and reinforcing
Q535B

Item No		Quantity	Rate	Amount
	SECTION 2			
	BILL NO. 3			
	MASONRY			
	PREAMBLES			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	TRADE NAMES			
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"			
	SUPPLEMENTARY PREAMBLES			
	Sizes in descriptions			
	Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick			
	Wall ties			
	Descriptions of solid walls (except if built in English bond) and cavity walls shall be deemed to include metal wall ties complying with SABS 28 and of the butterfly or of the modified PWD type, of the required length with each end built at least 75mm deep into brickwork, spaced at not more than 1m centres alternatively to every third course of brickwork			
	Cavity walls etc			
	Descriptions of cavity walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole			
	Face bricks			
	Bricks shall be ordered timeously to obtain uniformity in size and colour			
	Carried Forward		R	

				R
	Brought Forward			
	Pointing			
	Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc			
	***NOTE**: The following items shall be deemed to fall into Work Group No 116 for JBCC CPAP purposes*			
	SUPERSTRUCTURE			
	Brickwork of clay bricks in 6:1 cement mortar			
A	Half brick walls A : 29 B : 0	m2	29	
B	Half brick wall lining to be bonded onto existing brickwork at end including tie-inns every 2nd course A : 60 B : 0	m2	60	
C	One brick walls A : 28 B : 0	m2	28	
	BRICKWORK SUNDRIES			
	Brick reinforcement			
D	75mm Wide reinforcement built in horizontally A : 349 B : 0	m	349	
E	150mm Wide reinforcement built in horizontally A : 125 B : 0	m	125	
	Prestressed concrete lintels			
F	115mm Wide lintels in lengths not exceeding 3m A : 11 B : 0	m	11	
	Carried Forward to Summary of Section No. 2			R

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 4				
	WATERPROOFING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	DAMP-PROOFING OF WALLS AND FLOORS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	JOINT SEALANTS, ETC				
A	All joints/surrounds to wash hand basin to be sealed with Sikaflex -11 FC+ (colour white) A : 48 B : 0	m	48		
	DAMP-PROOFING OF FLOORS				
	Two coats Vaporite moisture barrier to substrate and allow to dry, evenly apply a slurry coat consisting of equal parts by volume of Bondite Primer and Levelite F30 using a broom or brush and allow to dry, all in accordance with manufacturer's specifications				
B	Floors A : 918 B : 0	m2	918		
	SEALING COMPOUND AROUND WINDOWS				
C	Rake out and existing sealant and re-seal by applying Dow Sil 813C neutral cured joint sealant A : 794 B : 0	m	794		
	Carried Forward to Summary of Section No. 2			R	

Item No		Quantity	Rate	Amount

SECTION 2

BILL NO 5

CARPENTRY AND JOINERY

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Descriptions

The term "planted on" shall mean the nailing of one timber member to another

The term "screwed on" shall mean the countersunk screwing of one timber member to another

The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screws sunk and pelleted

The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete

Carried Forward R

	Brought Forward			R	
	The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screws sunk and pelleted				
	Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing				
	Descriptions of floors, ceilings, joinery, etc shall be deemed to include for all square cutting				
	Descriptions of items given in lineal metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc				
	Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc shall be deemed to include for angles, ends, etc				
	Timber				
	All softwood to be South African Pine				
	***NOTE**: The following items shall be deemed to fall into Work Group No 126 for JBCC CPAP purposes*				
	DOOR FRAMES, ETC FIXED TO BRICKWORK				
	Wrought Meranti				
A	44 x 12mm Architrave A : 388 B : -368	m	20		
B	19mm Quadrant A : 15 B : -13	m	2		
C	108 x 32mm Rebated door frame including 62 x 12mm beading A : 10 B : -9	m	1		
D	114 x 32mm Rebated door frame including 69 x 12mm beading A : 5 B : -4	m	1		
	Carried Forward			R	

				R
	Brought Forward			
A	140 x 32mm Rebated door frame including 94 x 12mm beading A : 172 B : -163	m	9	
B	155 x 32mm Rebated door frame A : 8 B : -7	m	1	
C	270 x 32mm Rebated door frame A : 7 B : -6	m	1	
	SUNDRIES			
	SA Pine			
D	200 x 200mm Timber joists (Duct) A : 7 B : 0	m	7	
E	22mm Thick shutterboard (Duct) A : 2 B : 0	m2	2	
	DOORS, ETC			
	Solid heavy duty laminated flush door with Hardboard on both sides (with concealed edges)			
F	44mm Door 536 x 2032mm high A : 5 B : -1	No	4	
G	44mm Door 813 x 2032mm high A : 8 B : -7	No	1	
H	44mm Door 850 x 2032mm high A : 18 B : -17	No	1	
I	44mm Double door 1000 x 2032mm high in two equal leaves A : 2 B : -1	No	1	
J	44mm Double door 1200 x 2032mm high in two equal leaves A : 2 B : -1	No	1	
K	40mm Double door 1360 x 2032mm high in two unequal leaves A : 6 B : -4	No	2	
	Carried Forward			R

				R
	Brought Forward			
A	44mm Double door 1690 x 2032mm high in two equal leaves A : 2 B : -1	No	1	
B	44mm Double door 1800 x 2032mm high in two equal leaves A : 2 B : -1	No	1	
	Extra for openings in solid flush panel doors for viewpanels and louvres			
C	Extra for 120 x 750mm opening for aluminium framed glazed view panel (view panel elsewhere measured) A : 12 B : -10	No	2	
D	Extra for 300 x 300mm opening for stainless steel louvre (louvre measured elsewhere) A : 25 B : -24	No	1	
	Take out of storage existing Class B Bitcon Industries rebated single duct door with Class B single rebated grade 316 stainless steel (brushed finish) frame, install in position (material from previous contract) - to be installed as per manufacturer's details			
E	Take out of storage and install 48mm Thick Single Door and frame size 600 x 1862mm high with 120 minute fire rating (bought by previous contractor) **all in accordance with Drawing CR-00-DRS-FD03 annexed at back of Bills of Quantities** A : 4 B : 0	No	4	
F	Take out of storage and install 48mm Thick Single Door and frame size 900 x 1872mm high with 120 minute fire rating (bought by previous contractor) **all in accordance with Drawing CR-00-DRS-FD04 annexed at back of Bills of Quantities** A : 5 B : 0	No	5	
	Carried Forward			R

	Brought Forward			R	
	Take out of storage existing Class D Bitcon Industries rebated meeting styles double door with Class D single rebated grade 316 stainless steel (brushed finish) frame install in position (material from previous contract) - to be installed as per manufacturer's details				
A	Take out of storage and install 48mm Thick Double Door and frame size 1690 x 2032mm high with 120 minute fire rating (bought by previous contractor) **all in accordance with Drawing CR-00-DRS-FD01 annexed at back of Bills of Quantities**	No	1		
	A : 1 B : 0				
B	Take out of storage and install 48mm Thick Double Door with two unequal leaves and frame size 1424 x 2032mm high with 120 minute fire rating (bought by previous contractor) **all in accordance with Drawing CR-00-DRS-FD02 annexed at back of Bills of Quantities**	No	1		
	A : 1 B : 0				
	Class D Bitcon Industries rebated meeting styles double door with Class D single rebated grade 316 stainless steel (brushed finish) frame installed in position to be installed as per manufacturer's details				
C	48mm Thick Double Door and frame size 1690 x 2032mm high with 120 minute fire rating **all in accordance with Drawing CR-00-DRS-FD01 annexed at back of Bills of Quantities**	No	1		
	A : 1 B : 0				
	PURPOSE MADE COUNTERS, DESKS, CUPBOARDS AND WORK TOPS				
	All internal shelves to be 16mm Melawood Folkstone Grey (Peen finish), fixed into position. Exposed edges to be finished with 2mm High Impact Edging (Colour: White). All doors and casework to be 16mm thicknes.				
	Sink and WHB Units: All casework and shelving to be BISON BOARD V313 as a substrate.				
	All Doors to be 16mm Melawood Folkstone grey (Peen finish) edged on all sides with 2mm high impact edging. (Colour: to match door face). All				
	Carried Forward			R	

Brought Forward		R	
doors to be hung on 35mm concealed cabinet hinges, 2 per door.			
All casework and drawer fronts to be 16mm Melawood Folkstone Grey with 2mm high impact edging to all exposed edges.			
All cupboards to be lockable with UNION 452-25PL (brass cylinder cupboard locks or similar approved. Uppermost drawer in drawer units to be lockable with UNION 452-25PL (brass) cylinder cupboard locks or similar approved.			
All drawers to be fitted with UTA 45mm full extension ball bearings slides (1.2mm thick steel; load capacity 35kg per on 450mm wide drawer), or similar approved.			
Backing board to cupboard to be 16mm Melawood Folkstone Grey (Peen finish)			
Where joinery is fixed against drywall, wall to be braced with suitable nog-ins.			
Low Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into door. All edges to be deburred.			
High Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into door. All edges to be deburred.			
All bases to be solid SA Pine, treated for moisture resistance prior to fixing with intermediary studs at max 450ccs. Bases to be painted 1 coat Plascon pink wood primer (UC2) prior to installation.			
All countertops to be 32mm FORMICA LIFESEAL WORKTOPS with 3mm radius edge. Colour: Malbacco. All exposed edges to be finished with POST FORMED END TRIM in colour to be confirmed.Skirting: Refer to detail.			
All internal cutouts to accommodate plumbing and/or electrical or other services to be cut neat and square/ rectangular / circular and to be closed up			
Carried Forward		R	

	Brought Forward			R	
	neatly with 4mm white faced Masonite board cut to square around penetration.				
	All junctions between unit and wall to be closed with appropriate continuous spacers – NO POSTFORM JOINERS MAY BE USED -No gaps / holes				
	Seal between all worktops, sanitary ware, tiling and wall with SIKAFLEX FC – 11 (for sanitary ware and/or wet areas) and SIKASIL –C everywhere else.				
	Floor cupboards				
A	3465 x 600 x 900mm High floor cupboard with five sets of double doors, comprising bottom panel, side panel, one fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR-000/JDT-201**	No	1		
	A : 1 B : 0				
B	2765 x 600 x 900mm High floor drop-in cupboard (sink measured elsewhere) with three pairs of double doors and four drawers, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melamine faced board, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, complete with all painting all in accordance with **Drawing CR-000 JDT 202a & 202b**	No	1		
	A : 1 B : 0				
	Wall cupboards				
C	1294 x 391 x 950mm High wall cupboard with two pairs of double doors, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR000-JDT-202a & 202b**	No	1		
	A : 1 B : 0				
	All internal shelves to be 16mm BISONLAM SUPER WHITE (Peen finish), fixed into position. Exposed edges to be finished with 2mm High Impact Edging (Colour: White). All doors and casework to be 16mm thicknes.				
	Carried Forward			R	

Brought Forward		R	
Sink and WHB Units: All casework and shelving to be BISON BOARD V313 as a substrate.			
All Doors to be 16mm melamine faced board edged on all sides with 2mm high impact edging. (Colour: to match door face). All doors to be hung on 35mm concealed cabinet hinges, 2 per door.			
All casework and drawer fronts to be 16mm Melamine faced board with 2mm high impact edging to all exposed edges.			
All cupboards to be lockable with UNION 452-25PL (brass cylinder cupboard locks or similar approved. Uppermost drawer in drawer units to be lockable with UNION 452-25PL (brass) cylinder cupboard locks or similar approved.			
All drawers to be fitted with UTA 45mm full extension ball bearings slides (1.2mm thick steel; load capacity 35kg per on 450mm wide drawer), or similar approved.			
Backing board to cupboard to be 16mm BISONLAM SUPER WHITE.			
Where joinery is fixed against drywall, wall to be braced with suitable nog-ins.			
Low Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into door. All edges to be deburred.			
High Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into door. All edges to be deburred.			
All bases to be solid SA Pine, treated for moisture resistance prior to fixing with intermediary studs at max 450ccs. Bases to be painted 1 coat Plascon pink wood primer (UC2) prior to installation.			
All countertops to be 32mm FORMICA LIFESEAL WORKTOPS with 3mm radius edge. All exposed edges to be finished with POST FORMED END TRIM in colour to be confirmed.Skirting: Refer to detail.			
Carried Forward		R	

	Brought Forward			R	
	All internal cutouts to accommodate plumbing and/or electrical or other services to be cut neat and square/ rectangular / circular and to be closed up neatly with 4mm white faced Masonite board cut to square around penetration.				
	All junctions between unit and wall to be closed with appropriate continuous spacers – NO POSTFORM JOINERS MAY BE USED -No gaps / holes				
	Seal between all worktops, sanitary ware, tiling and wall with SIKAFLEX FC – 11 (for sanitary ware and/or wet areas) and SIKASIL –C everywhere else.				
	Floor cupboards				
A	1366 x 600 x 900mm High floor cupboard with one pair of double doors and one single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-222**	No	1		
	A : 1 B : 0				
B	1900 x 700 x 760mm High floor cupboard with one pair of double doors and one single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 700 x 32mm Life seal Formica finished post formed worktop on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-224a & 224b**	No	1		
	A : 1 B : 0				
C	2690 x 600 x 900mm High floor cupboard with three pairs of double doors and one single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-206**	No	1		
	A : 1 B : 0				
	Carried Forward			R	

	Brought Forward			R	
A	2633 x 370 x 900mm High floor cupboard with three pairs of double doors, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-238** A : 1 B : 0	No	1		
B	3000 x 400 x 2450mm High floor cupboard with four pairs of double doors, comprising bottom panel, side panel, three fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-223** A : 1 B : 0	No	1		
C	3400 x 600 x 1100mm High floor cupboards with no doors (open cupboards), comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-210a & 210b** A : 1 B : 0	No	1		
D	3426 x 600 x 1100mm High floor cupboards with no doors (open cupboards), comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-213a & 213b** A : 1 B : 0	No	1		
E	3546 x 400 x 900mm High floor cupboard with four pairs of double doors, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR-000/JDT-209** A : 1 B : 0	No	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	4135 x 450 x 900mm High floor cupboards with no doors (open cupboards), comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-218** A : 1 B : 0	No	1		
B	7408 x 600 x 1100mm High floor cupboards with no doors (open cupboards), comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-217a & 217b** A : 1 B : 0	No	1		
C	9385 x 600 x 1100mm High floor cupboards with no doors (open cupboards), comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-207a & 207b** A : 1 B : 0	No	1		
	Desks				
D	2000 x 760 x 760mm High Desk consisting of worktop with one set of three drawers and one cupboard with single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 760 x 32mm Life seal Formica finished post formed worktop all in accordance with **Drawing CR-000/JDT-220a & 220b** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	2000 x 760 x 760mm High Desk consisting of worktop with one set of three drawers and one cupboard with single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 760 x 32mm Life seal Formica finished post formed worktop all in accordance with **Drawing CR-000/JDT-219a & 219b**	No	1		
	A : 1 B : 0				
B	3276 x 750 x 750mm High Desk consisting of worktop, with three cupboards with single doors, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 750mm wide x 12mm thick Dupont Basic Surfaces worktop on 32mm backing structure all in accordance with **Drawing CR-000/JDT-224a & 224b**	No	1		
	A : 1 B : 0				
	Open storage shelves				
C	1060 x 350 x 748mm High open storage shelves attached to wall comprising bottom panel, side panel, two fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR-000 JDT-216**	No	1		
	A : 1 B : 0				
D	4135 x 350 x 748mm High open storage shelves attached to wall comprising bottom panel, side panel, one fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR-000 JDT-218**	No	1		
	A : 1 B : 0				
	Wall cupboards				
E	1500 x 416 x 1350mm High wall cupboard with two pairs of double doors, comprising bottom panel, side panel, two fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR000-JDT-208**	No	1		
	A : 1 B : 0				
	Carried Forward			R	

	Brought Forward			R	
A	1500 x 416 x 1350mm High wall cupboard with two pairs of double doors, comprising bottom panel, side panel, two fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR000-JDT-221** A : 1 B : 0	No	1		
B	3000 x 416 x 1050mm High wall cupboard with three pairs of double doors and one single door, comprising bottom panel, side panel, two fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing CR000-JDT-215** A : 1 B : 0	No	1		
	Worktops				
C	1628 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-227** A : 1 B : 0	No	1		
D	2800 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-228** A : 1 B : 0	No	1		
E	3350 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-229** A : 1 B : 0	No	1		
F	3350 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-230** A : 1 B : 0	No	1		
G	3050 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-231** A : 1 B : 0	No	1		
H	2535 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-232** A : 1 B : 0	No	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	2820 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-233** A : 1 B : 0	No	1		
B	2977 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-234** A : 1 B : 0	No	1		
C	1800 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-235** A : 1 B : 0	No	1		
D	1800 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-236** A : 1 B : 0	No	1		
E	2600 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-239** A : 1 B : 0	No	1		
F	2980 x 300 x 1146mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-240** A : 1 B : 0	No	1		
G	1800 x 300 x 1144mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-241** A : 1 B : 0	No	1		
H	1800 x 300 x 1144mm High worktop fixed to wall with timber brackets, all in accordance with **Drawing CR000-JDT-242** A : 1 B : 0	No	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	2419 x 600 x 1100mm High worktop on 50mm diameter stainless steel posts and 40mm stainless steel stub posts epoxy grouted into floor, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-210a & 210b** A : 1 B : 0	No	1		
B	3276 x 510 x 350mm High raised worktop and side size size 3275 x 950mm high including frame consisting, side panels from 16mm Melawood faced board with 2mm PVC high impact edging, with 510 x 12mm thick horizontal Dupont Basic Surfaces worktop and 950 x 12mm thick vertical Dupont Basic Surfaces worktop on 32mm backing structure all in accordance with **Drawing CR-000/JDT-224a & 224b** A : 1 B : 0	No	1		
C	4547 x 600 x 1068mm High worktop on 50mm diameter stainless steel posts and 40mm stainless steel stub posts epoxy grouted into floor, with 600 x 32mm Life seal Formica finished post formed worktop with 90 degree bullnose edging on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing CR000-JDT-213a & 213b** A : 1 B : 0	No	1		
	Nurses Counter and cupboard combination				
D	Counter overall size 4919mm long x 750mm wide including cupboards, drawings and worktops all in accordance with **Drawing CR-000 JDT- 237a and 237b** attached to the back of these bills of quantities) A : 1 B : 0	No	1		
E	Counter overall size 15100mm long x 750mm wide including cupboards and worktops all in accordance with **Drawing CR-000 JDT- 226a, 226b, 226c** attached to the back of these bills of quantities) A : 1 B : 0	No	1		
	Carried Forward			R	

Section No. 2
Bill No. 5
Carpentry and Joinery
Q535B

	Brought Forward			R	
	Slatted seating				
A	Open slatted seat formed of five 32 x 69mm hardwood slats with rounded 6mm arris, and one 32 x 96mm hardwood slat, ends fixed with self-tapping screws, countersunk, plugged and pelleted to galvanised steel sections (measured elsewhere), including holes through steel **all in accordance with Drawing JDT-214 annexed to the back of the Bills of Quantities**	m	1		
	A : 1 B : 0				
	SHELVING				
	22mm thick Melamine faced board (executive finish – White Log 140), edged all round with 2mm PVC high impact edging in matching colour (white) all in accordance with Drawing CR000-JDT-203, 204, 205, 211a & 211b, 212 and 225				
B	22mm Shelving and divisions	m2	34		
	A : 34 B : 0				
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 5
Carpentry and Joinery
Q535B

Item No		Quantity	Rate	Amount

SECTION 2

BILL NO 6

CEILINGS, PARTITIONS AND ACCESS FLOORING

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Descriptions

Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete

Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere

***NOTE**: The following items shall be deemed to fall into Work Group No 129 for JBCC CPAP purposes*

SUSPENDED CEILINGS

Note:

Electrical light fittings, diffusers, panels, etc generally are "lay in" units of the same dimensions as the suspension grid described and allowance must be made accordingly for their support inclusive of any flexibility insetting out that may be required (ceiling panels have not been deducted and pricing is to take cognisance thereof)

Carried Forward R

				R	
	Brought Forward				
	600 x 600 x 12.5mm Thick OWAdek vinyl faced reveal edged gypsum ceiling panels, face covered with white embossed vinyl. Ceiling tiles laid on and including Donn T38 FR QRC fire rated main tees and Donn T38 FR QRC (600) cross tees. Suspension system including Donn Fire Notches and Donn Hangar straps. All to be installed as per manufacturer's instructions:				
A	Ceilings suspended not exceeding 1m below concrete slab A : 151 B : -144	m2	7		
	600 x 600 x 20mm Thick OWAcoustic Sinfonia db Premium biologically absorbable mineral wool ceiling tiles CAC Value 41dB, with reveal edge and white painted finish Ceiling tiles to be laid in Donn T38 FR QRC fire rated main tees and Donn T38 FR QRC (600) cross tees Suspension system to include Donn Fire Notches and Donn Hangar straps. All to be installed as per manufacturer's instructions. All tiles which require cutting to be cut using the approved OWA cutting tool, together with OWA approved chalk to ensure all edges to tiles match in profile and finish				
B	Ceilings suspended not exceeding 1m below concrete slab A : 620 B : -589	m2	31		
	595 x 595 x 6mm Thick Nutec embossed white vinyl ceiling tiles (Code 366-222) in Donn T38 FR QRC fire rated main tees and Donn T38FR QRC (600) cross tees. Suspension system including Donn Fire Notches and Donn Hangar straps. All to be installed as per manufacturer's instructions:				
C	Ceilings suspended not exceeding 1m below concrete slab A : 63 B : -60	m2	3		
	CORNICES				
D	'Donn LSM 25 Shadowline' cornices, plugged A : 742 B : -705	m	37		
	SKIMMED CEILINGS				
	Carried Forward			R	

				R	
	Brought Forward				
	Gyproc Rhinoboard 6.4mm thick plasterboard ceiling consisting of steel branders fixed at 400mm centresin one direction onto which Rhinoboard is fixed, printed side up, at right angles to the roof structure. All joints to be covered with Gyproc Rhino Tape and then plastered with a 3-6mm coat of Gyproc Rhinolite or Gyproc Cretestone plaster applied as per manufacturer's instructions. All joints finished off with 48mm wide strips of suitable tape fixed over joints and the whole finished with minimum 3mm and maximum 6mm thick coat of gypsum skim plaster trowelled to smooth polished finish all as per manufacturer's instructions complete with SABISA certificate				
A	Ceilings suspended not exceeding 1m below concrete slab A : 2 B : 0	m2	2		
	9.5 x 45 x 35mm Flush plaster trim cornice				
B	Angle cornice plugged to walls A : 39 B : -37	m	2		
	SUSPENDED PLASTERED GYPSUMBOARD BULKHEADS				
	9mm Thick Gyproc Rhinoboard plasterboard ceiling consisting of steel brandering fixed at 400mm centres in one direction onto which Rhinoboard is fixed, printed side up at right angles to the roof structure. All joints to be covered with Gyproc Rhino Tape and then plastered with a 3-6mm coat of Gyproc Rhinolite or Gyproc Cretestone plaster applied as per manufacturer's specifications complete with SABISA certificate. Colour to Architect's approval.				
C	Soffits of horizontal bulkheads, suspending not exceeding 1.5m below concrete soffits A : 38 B : 0	m2	38		
	Carried Forward			R	

	Brought Forward			R	
	12mm Thick Supawood board on drywall stud subframe for support fixed to underside of existing slab				
A	Sides of horizontal bulkheads, suspending not exceeding 1.5m below concrete soffits A : 53 B : 0	m2	53		
B	38 x 38mm Timber brandering fixed to concrete beam with 12mm Supawood board fixed to brandering A : 33 B : 0	m	33		
	Aluminium angle				
C	White powder coated aluminium angle to finish bulkhead corner and skimming of adjacent ceiling to edge of angle A : 68 B : 0	m	68		
	PARTITIONING SYSTEMS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 138 for JBCC CPAP purposes*				
	Drywall gypsum board partition systems				
	Drywall partitioning shall comprise galvanised steel top and bottom tracks and natural anodised aluminium head channel, vertical studs at maximum 600mm centres, friction fitted or pop-riveted to top and bottom tracks and covered on both sides with 12,5mm gypsum plasterboard, screwed to studding with 25mm Drywall screws at maximum 220mm centres				
	Boards are to have staggered butt joints and the joints are to be finished with 48mm wide tape and two coats jointing compound applied in strict accordance with the manufacturer's instructions				
	All screw heads are to be spotted and all areas of jointing compound shall receive one coat plaster primer before finishing				
	Finishes to partitioning are measured elsewhere				
	Carried Forward			R	

	Brought Forward			R
	Partitions are to be constructed of Gypsum plasterboard fixed to steel framing as per Rhino Drywall System 3, using 2 layer plasterboard to each side of studding. All studding, fixing and boarding to be in accordance with the manufacturer's instructions as detailed. It is essential that suitable 230 x 50mm SA Pine framing pieces be fixed between studs where required for the fixing of sanitary fittings etc. All services are to be fitted inside the partitions before the cladding to the second face is fitted in position. Showers and any other wet work areas to be covered with moisture resistant boards and fire walls to be covered with Rhino fire stop boards. Allowance to be made for additional timber for fixing of services inside and outside of partitions			
	<u>Gyprox X Roc" Drywall steel stud partitioning</u>			
A	Drywall 3000mm high 2 x 12.5mm boards either side of 63.5mm studs A : 5 B : 0	m	5	
B	Extra over partition 3000mm high for vertical abutment A : 4 B : 0	No	4	
	Carried Forward to Summary of Section No. 2			R

Item No		Quantity	Rate	Amount
	SECTION 2			
	BILL NO 7			
	FLOOR COVERINGS, WALL LININGS, ETC			
	PREAMBLES			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	TRADE NAMES			
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"			
	***NOTE**: The following items shall be deemed to fall into Work Group No 130 for JBCC CPAP purposes*			
	VINYL SHEETING			
	Polyflor Mystique PuR or equal approved life long polish free homogeneous vinyl floor sheeting 2,0mm thick, laid in acrylic adhesive spread with a notched trowel, joints welded with a fully flexible coloured Polyflor Welding Rod to provide a smooth, hygienic sealed finish and rolled with 68kg articulated floor roller, on well prepared cement screed (elsewhere) to match required level with a hygrometer reading showing a moisture content of less than 70% – all installed strictly to manufacturers specifications (Polyflor 011-609 3500) – Sheet and welding rod colours to Architects approval.			
A	Seamless vinyl floor sheets on floors A : 853 B : 0	m2	853	
	Carried Forward		R	

				R	
	Brought Forward				
	2mm Thick heavy duty safety vinyl floor sheeting, Polysafe Vogue, as manufactured by Polyflor, or equal approved containing silicone carbide, aluminium oxide granules and coloured quartz through its entire thickness, to provide a non-skid surface, sustainable for the life of the product , fixed with an approved contact adhesive (The back of the sheet MUST be primed with a specific Pu primer [QAN 439A applied by Smooth trowel or Short haired roller]) prior to any installation where contact adhesive will be used, and joints hot welded & glazed with matching welding rod to provide a continuous finished surface including rolling with a 68kg three part metal roller on completion				
A	Seamless vinyl safety floor sheets to falls and currents A : 55 B : 0	m2	55		
	SKIRTINGS, NOSINGS, ETC				
	Cappings, cove formers, etc				
B	"Polyflor Polycove CF 20" cove former, size 20mm high x 20mm wide A : 723 B : 0	m	723		
C	Extra over "Polyflor Polycove PC20" taper end piece, size 20mm high x 150mm long A : 723 B : 0	No	723		
D	"Polyflor Clip-Top" two component (CS-48) vinyl capping strip with top edge of skirting to be sealed with SIKA Sikacryl-S A : 723 B : 0	m	723		
	Seamless polyutherane reinforced fully flexible vinyl coved skirting fixed with and including adhesive				
E	Polyflor Mystique PuR or equal approved 2mm Thick x 200mm high with 200mm wide border bottom edge vinyl skirting with integral coved corner, including welding bottom edge to floor covering (floor covering elsewhere) including all formed internal and external corners A : 659 B : 0	m	659		
	Carried Forward			R	

	Brought Forward			R	
A	Polyflor Polysafe Vogue flooring or equal approved 2mm Thick x 200mm high with 200m mm wide (400mm girth) border bottom edge safety vinyl skirting with integral coved corner, including welding bottom edge to floor covering (floor covering elsewhere) including all formed internal and external corners A : 64 B : 0	m	64		
	SEALERS				
	Two coats floor dressing as recommended by the manufacturer of the floor coverings on vinyl flooring (stripping and sealing)				
B	On floors A : 908 B : 0	m2	908		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 7
Floorcovering
Q535B

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 8				
	IRONMONGERY				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 132 for JBCC CPAP purposes*				
	IRONMONGERY TO DOORS				
	All locks to be on a master and grand master key system - 2 keys to be provided for each lock				
	The following ironmongery are measured according to the type (combination) to be used - all in accordance with Ironmongery schedule annexed at the back of the Bills of Quantities				
	The following in type 01				
	Approved type				
A	2040-200 x 44 Sinkless Hinge anodised or powder coated A : 0.5 B : 0.0	Pairs	0.5		
B	1040-100 x 44 Sinkless Hinge anodised or powder coated A : 1.0 B : 0.0	Pairs	1.0		
	Carried Forward			R	

				R	
	Brought Forward				
A	Non hold open cam action slide channel door closer, max door width 1100mm, closing force EN 2-4V, adjustable strength, hydraulic speed control, push-side door leaf fixing and pull-side transom fixing (Angle bracket included). Door closer compliant with EN 1154, door closer is CERTI FIRE approved (Certificate no. CF 119) for door types ITT 120, MM/IMM 240 (TS92G AB-SL) A : 1.0 B : 0.0	Sets	1.0		
B	382 x 32mm D shaped offset Tubular pull handle BTB (Code DPH 215BTB SS) A : 1.0 B : 0.0	Pairs	1.0		
C	Cylinder Deadlock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm. (Code D037D SS) A : 1 B : 0	No	1		
D	43mm five pin Euro-profile Single Cylinder Master Keyed (Code DSC154301 MK (43mm) A : 1 B : 0	No	1		
E	Round Cylinder escutcheon (Code DCE-002 S.S) A : 0.5 B : 0.0	Pairs	0.5		
F	Wall Buffer (Code DDH-SS-020) A : 1 B : 0	No	1		
	The following in type 02				
	Approved type				
G	102 x 75 x 3mm Two ball bearing butt hinge (DBB-SS-009) A : 12.0 B : 0.0	Pairs	12.0		
H	Lever handle on 1.2mm thick 170x210mm Grade 304 Stainless Steel Backplate with 85mm pitch and Euro profile cylinder cutout (Code TH120 BP Cyl S.S 85mm pitch) A : 8.0 B : 0.0	Pairs	8.0		
	Carried Forward			R	

				R
	Brought Forward			
A	ISEO Infilare 291 Stainless Steel Mortice lock with European profile cylinder. Double throw. 85mm pitch and 70mm backset (Code 291105702) A : 8 B : 0	No	8	
B	63mm five pin Euro-profile DEC-150 Double Cylinder Master Keyed (Code DDC106301 MK (63mm)) A : 8 B : 0	No	8	
C	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 8 B : 0	No	8	
	The following in type 03			
	Approved type			
D	102 x 75 x 3mm Two ball bearing butt hinge (DBB-SS-009) A : 1.5 B : 0.0	Pairs	1.5	
E	NON HOLD OPEN Cam action slide channel door closer. Max door width 1100mm. Closing Force EN 2-4V. Adjustable strength. Hydraulic speed control. Push-side door leaf fixing (Standard), Pull side transom fixing.(Angle bracket included). Door closer compliant with EN 1154. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS92G - AB - SL) A : 1.0 B : 0.0	Sets	1.0	
F	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with no cylinder cutout. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL -SF 150X300) A : 1 B : 0	No	1	
G	150 x 300 x 1.2mm thick Grade 430 stainless steel plate. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL -SF 150X300) A : 1 B : 0	No	1	
	Carried Forward			R

				R
	Brought Forward			
A	Single electromagnetic lock with 600 lbf (2669 N) holding force, surface-mounted, with lock status sensor and red/green LED indicator (19860501) (Code EMC 600 ALH) A : 1.0 B : 0.0	Sets	1.0	
B	L+Z Bracket for EMC 600 ALH (19860524) (Code L+Z Bracket 600) A : 1.0 B : 0.0	Sets	1.0	
C	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 1 B : 0	No	1	
	The following in type 06			
	Approved type			
D	2040 - 200 x 44 Sinkless Hinge Anodised or Powder Coated to Match Aluminium Colour (Code 2040-44) A : 1.5 B : 0.0	Pairs	1.5	
E	1040 - 100 x 44mm Sinkless Hinge Anodised or Powder Coated to Match Aluminium Colour (Code 1040-44) A : 3.0 B : 0.0	Pairs	3.0	
F	Lever handle on rose - Latch (Code CR001 Latch S.S) A : 3.0 B : 0.0	Sets	3.0	
G	Cylinder Sash Lock. Case dimensions (mm) 116.5H x 78D. Forend dimension D036S SS (Code D036S SS) A : 3 B : 0	No	3	
H	63mm five pin Euro-profile Double Cylinder DEC150 Master Keyed (Code DDC106301 MK (63mm)) A : 3 B : 0	No	3	
I	Round Cylinder escutcheon (Code DCE-002 S.S) A : 3.0 B : 0.0	Pairs	3.0	
J	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 3 B : 0	No	3	
	The following in type 07			
	Carried Forward			R

				R
	Brought Forward			
	Approved type			
A	120 x 40mm Rectangular Flush Pull Handle (Code DFP-SS-025) A : 9 B : 0	No	9	
B	Cylinder Deadlock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm (Code D037D SS) A : 9 B : 0	No	9	
C	43mm five pin Euro-profile Single Cylinder Master Keyed (Code DSC154301 MK (43mm) A : 9 B : 0	No	9	
D	Round Cylinder escutcheon (Code DCE-002 S.S) A : 4.5 B : 0.0	Pairs	4.5	
E	Adjustable roller bolt (Code DBC - SS-022) A : 9 B : 0	No	9	
	The following in type 08			
	Approved type			
F	NON HOLD OPEN Co-ordinated door closer system for rebated doors between 1350-1900mm. Closing Force EN 3. Hydraulic speed control. Max door width 950mm per leaf. Pull-side fixing. Door closer compliant with EN 1154. Door co-ordinators tested to EN 1158. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS91B GSR) A : 1.0 B : 0.0	Sets	1.0	
G	Plate to be fabricated from 3mm thick aluminium plate with 8mm diamater predrilled holes positioned according to the relevant drawings. All corners to receive 5mm radius fillet (Code TS91 EN3 FP) A : 2 B : 0	No	2	
H	Patent fixing screws for door closers A : 8 B : 0	No	8	
I	L+Z Bracket for EMC 600 ALH (19860524) (Code L+Z Bracket 600) A : 1.0 B : 0.0	Sets	1.0	
	Carried Forward			R

				R	
	Brought Forward				
A	Single electromagnetic lock with 600 lbf (2669 N) holding force, surface-mounted, with lock status sensor and red/green LED indicator (19860501) (Code EMC 600 ALH) A : 1.0 B : 0.0	Sets	1.0		
B	Three point locking panic bar - Double door - Door leaf 1000mm wide x 2270mm high (2101. 2104. 2104. 2201. PHX02. PHX04) (Code PHA3 S DD) A : 1.0 B : 0.0	Sets	1.0		
	The following in type 09				
	Approved type				
C	102 x 75 x 3mm Two ball bearing butt hinge (DBB-SS-009) A : 4.0 B : 0.0	Pairs	4.0		
D	120x40mm Rectangular Flush Pull Handle (Code DFP-SS-025) A : 4 B : 0	No	4		
E	Rebate conversion kit for Euro profile locks D036S, 037D (Code D038R-NP) A : 2 B : 0	No	2		
F	153mm Manual flush bolt with heel (Code DFB-SC-180) A : 2 B : 0	No	2		
G	Adjustable Roller Bolt (Code DBC-SS022) A : 4 B : 0	No	4		
H	150x150mm FIRE HOSE REEL sign (Code DSS-145 FHR) A : 2 B : 0	No	2		
I	150x150mm FIRE EXTINGUISHER sign (Code DSS-146 FE) A : 2 B : 0	No	2		
	The following in type 10				
	Carried Forward			R	

				R
	Brought Forward			
	Approved type			
A	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 3.0 B : 0.0	Pairs	3.0	
B	EN 2-4 Parallel Arm DELAYED ACTION Door Closer. Push Side Fixing (Parallel Arm Bracket Included) EN2 750-850, EN3 850-950, EN4 950-1100 (Code TS73V PA DC - PA SL) A : 2.0 B : 0.0	Sets	2.0	
C	325 x 25mm Straight Tubular Pull Handle Flange Fixing (Code DPH301B SS) A : 4 B : 0	No	4	
D	Disabled WC indicator (Red & White) and turnknob for physically impaired (Code DWC-006 SS) A : 2.0 B : 0.0	Sets	2.0	
E	Bathroom Deadlock. Case dimensions (mm) 38H x 76D. Forend dimensions (mm) 78H x 22.5W. Backset 55mm (Code DMWC-SS008) A : 2 B : 0	No	2	
F	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 2 B : 0	No	2	
G	150x150mm DISABLED PERSONS sign (Code DSS-133 P) A : 2 B : 0	No	2	
	The following in type 11			
	Approved type			
H	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 8.0 B : 0.0	Pairs	8.0	
I	Lever handle on rose - Latch (Code CR001 Latch S.S) A : 8.0 B : 0.0	Sets	8.0	
	Carried Forward			R

				R
	Brought Forward			
A	Disabled WC indicator (Red & White) and turnknob for physically impaired (code DWC-006SS) A : 8.0 B : 0.0	Sets	8.0	
B	Bathroom Sash Lock. Case dimensions (mm) 102H x 78D. Forend dimensions (mm) 155H x 22W. Backset 57mm. Centres 57mm (Code D035S SS) A : 8 B : 0	No	8	
C	Hat and Coat Hook with rubber buffer (Code DHC-SS-031B) A : 8 B : 0	No	8	
	The following in type 13			
	Approved type			
D	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 4.5 B : 0.0	Pairs	4.5	
E	150 x 300 x 1.2mm thick Grade 430 stainless steel plate with cylinder cutout left. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-CL - SF 150 X 300) A : 3 B : 0	No	3	
F	EN 2-4 Regular Arm DELAYED ACTION Door Closer. Pull Side Fixing EN2 750-850, EN3 850-950, EN4 950-1100 (Code TS73V DCSL) A : 3 B : 0	No	3	
G	DPH301C Pull Handle BT fixed on a 150 x 300 x 1.2mm thick Grade 430 stainless steel plate with cylinder cutout right. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430CR-SF 150 X 300) A : 3 B : 0	No	3	
H	Cylinder Deadlock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm (Code D037D SS) A : 3 B : 0	No	3	
I	63mm five pin Euro-profile Double Cylinder (DEC150) Master Keyed (Code DDC106301 MK (63mm)) A : 3 B : 0	No	3	
	Carried Forward			R

				R
	Brought Forward			
A	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 3 B : 0	No	3	
	The following in type 14			
	Approved type			
B	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 4.0 B : 0.0	Pairs	4.0	
C	120x40mm Rectangular Flush Pull Handle (Code DFP-SS-025) A : 2 B : 0	No	2	
D	Cylinder Deadlock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm (Code D037D SS) A : 2 B : 0	No	2	
E	43mm five pin Euro-profile Single Cylinder (DEC150) Master Keyed (Code DSC154301 MK (43mm)) A : 2 B : 0	No	2	
F	Round Cylinder escutcheon (Code DCE-002 S.S) A : 1.0 B : 0.0	Pairs	1.0	
G	153mm Manual flush bolt with heel (Code DFB-SC180) A : 4 B : 0	No	4	
H	Adjustable Roller Bolt (Code DBC-SS022) A : 2 B : 0	No	2	
I	150x150mm ELECTRICAL sign (Code DSS-136 EL) A : 2 B : 0	No	2	
J	Emergency Key Box (Code EKB) A : 2 B : 0	No	2	
	The following in type 15			
	Carried Forward			R

				R
	Brought Forward			
	Approved type			
A	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 9.0 B : 0.0	Pairs	9.0	
B	Lever handle on rose - Latch (Code CR001 Latch S.S) A : 3.0 B : 0.0	Sets	3.0	
C	Cylinder Sash Lock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm. Centres 61mm (Code D036S SS) A : 3 B : 0	No	3	
D	43mm five pin Euro-profile Single Cylinder (DEC150) Master Keyed (Code DSC154301 MK (43mm)) A : 3 B : 0	No	3	
E	Round Cylinder escutcheon (Code DCE-002 S.S) A : 1.5 B : 0.0	Pairs	1.5	
F	Alufab metal flushbolt 150mm long (Code M1519) A : 6 B : 0	No	6	
G	Dust Proof Strike (Code DPS-SS032) A : 3 B : 0	No	3	
H	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 6 B : 0	No	6	
	The following in type 16			
	Approved type			
I	Standard Continuous Geared Hinge - 2100mm (Code DCH-ALS21) A : 4 B : 0	No	4	
J	ED 100 Swing door operator including Arm and Basic Cover with Eye Tech 1 Safety Sensors (350mm) and Eye Tech 5 Safety Sensors (700mm) complete with Clearwave push button A : 4.0 B : 0.0	Sets	4.0	
	Carried Forward			R

				R
	Brought Forward			
A	Double electromagnetic lock with 600 lbf (2669 N) holding force per magnet, surface-mounted, with lock status sensor and red/green LED indicator (19860503) (Code EMC 600-2 ALH) A : 2.0 B : 0.0	Sets	2.0	
B	L+Z Bracket for EMC 600 ALH (19860524) (Code L+Z Bracket 600) A : 2.0 B : 0.0	Sets	2.0	
C	Roller-safe finger guard. Roller blind style for hinged or pivot door protection. 2025mm case (Code 5402146) A : 4 B : 0	No	4	
D	Clear wave push button A : 2 B : 0	No	2	
	The following in type 17			
	Approved type			
E	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 1.5 B : 0.0	Pairs	1.5	
F	NON HOLD OPEN Cam action slide channel door closer. Max door width 950mm. Closing Force EN 3. Hydraulic speed control. Pull-side door leaf fixing (Standard), Pushside transom fixing. Door closer compliant with EN 1154. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (TS91B - SL) A : 1 B : 0	No	1	
G	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with no cylinder cutout. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL -SF 150X300) A : 1 B : 0	No	1	
H	150x300x1.2mm thick Grade 430 stainless steel plate. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL -SF 150X300) A : 1 B : 0	No	1	
	Carried Forward			R

				R
	Brought Forward			
A	Single electromagnetic lock with 600 lbf (2669 N) holding force, surface-mounted, with lock status sensor and red/green LED indicator (19860501) (Code EMC 600 ALH) A : 1.0 B : 0.0	Sets	1.0	
B	L+Z Bracket for EMC 600 ALH (19860524) (Code L+Z Bracket 600) A : 1.0 B : 0.0	Sets	1.0	
C	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 1 B : 0	No	1	
	The following in type 18			
	Approved type			
D	Dormakaba ES200 Easy Automated sliding door drive system, equipped with Dorma powerdrive technology to ensure safe and reliable operation, tested and certified to 1,000,000 operation cycles. Complete with 5 functional programmes, integrated power for an extra powerful motor gives dynamic acceleration/deceleration, control capability all in accordance with manufacturers' specifications A : 13.0 B : 0.0	Sets	13.0	
E	Clear wave push button A : 13 B : 0	No	13	
	The following in type 19			
	Approved type			
F	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 6.0 B : 0.0	Pairs	6.0	
G	EN 2-4 Regular Arm DELAYED ACTION Door Closer. Pull Side Fixing EN2 750-850, EN3 850-950, EN4 950-1100 (Code TS73V DC SL) A : 2 B : 0	No	2	
	Carried Forward			R

				R
	Brought Forward			
A	382x32mm D Shaped Offset Tubular Pull Handle BTB (BTB Fixing Sets included) (Code DPH215 BTB) A : 2.0 B : 0.0	Pairs	2.0	
B	Single electromagnetic lock with 600 lbf (2669 N) holding force, mortise-mounted, with lock status sensor (19860502) (Code EMC 600 AM) A : 2.0 B : 0.0	Sets	2.0	
C	Alufab metal flushbolt 150mm long (Code M1519) A : 4 B : 0	No	4	
D	Dust Proof Strike (Code DPS-SS032) A : 2 B : 0	No	2	
E	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 2 B : 0	No	2	
F	300mm long flexible armoured door loop (Code CN22) A : 2 B : 0	No	2	
	The following in type 22			
	Approved type			
G	ELECTRO MECHANICAL HOLD OPEN Co-ordinated door closer system for rebated doors between 1350-1900mm. Closing Force EN 3. Hydraulic speed control. Max door width 950mm per leaf. Pull-side fixing. Door closer compliant with EN 1154. Door co-ordinators tested to EN 1158. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (CodeTS91B GSR EMF 1) A : 1.0 B : 0.0	Sets	1.0	
H	Plate to be fabricated from 3mm thick aluminium plate with 8mm diamater predrilled holes positioned according to the relevant drawings. All corners to receive 5mm radius fillet (Code TS91 EN3 FP) A : 2 B : 0	No	2	
I	Door closer patent M5 fixing screws for door closers A : 8 B : 0	No	8	
	Carried Forward			R

				R
	Brought Forward			
A	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with no cylinder cutout. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL -SF 150X300) A : 2 B : 0	No	2	
B	150x300x1.2mm thick Grade 430 stainless steel plate. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL -SF 150X300) A : 2 B : 0	No	2	
C	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 2 B : 0	No	2	
	The following in type 23			
	Approved type			
D	NON HOLD OPEN Co-ordinated door closer system for rebated doors between 1350-1900mm. Closing Force EN 3. Hydraulic speed control. Max door width 950mm per leaf. Pull-side fixing. Door closer compliant with EN 1154. Door co-ordinators tested to EN 1158. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS91B GSR) A : 1.0 B : 0.0	Sets	1.0	
E	Plate to be fabricated from 3mm thick aluminium plate with 8mm diamater predrilled holes positioned according to the relevant drawings. All corners to receive 5mm radius fillet (Code TS91 EN3 FP) A : 2 B : 0	No	2	
F	Patent fixing screws for door closers (M5) A : 8 B : 0	No	8	
G	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with cylinder cutout right. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430CR-SF 150X300) A : 1 B : 0	No	1	
	Carried Forward			R

				R
	Brought Forward			
A	150x300x1.2mm thick Grade 430 stainless steel plate with cylinder cutout left. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-CL - SF 150X300) A : 1 B : 0	No	1	
B	Cylinder Deadlock. Case dimensions (mm) 116.5H x 78D. Forend dimensions (mm) 168H x 22W. Backset 57mm (Code D037D SS) A : 1 B : 0	No	1	
C	63mm five pin Euro-profile Double Cylinder (DEC150) Master Keyed (Code DDC106301 MK (63mm)) A : 1 B : 0	No	1	
D	153mm Manual flush bolt with heel (Code DFB-SC180) A : 2 B : 0	No	2	
E	Dust Proof Strike (Code DPS-SS032) A : 1 B : 0	No	1	
F	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 2 B : 0	No	2	
	<u>The following in type 24</u>			
	<u>Approved type</u>			
G	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 1.5 B : 0.0	Pairs	1.5	
H	NON HOLD OPEN Cam action slide channel door closer. Max door width 950mm. Closing Force EN 3. Hydraulic speed control. Pull-side door leaf fixing (Standard), Pushside transom fixing. Door closer compliant with EN 1154. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS91B - SL) A : 1 B : 0	No	1	
	Carried Forward			R

				R
	Brought Forward			
A	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with no cylinder cutout. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL -SF 150X300) A : 1 B : 0	No	1	
B	150x300x1.2mm thick Grade 430 stainless steel plate. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL -SF 150X300) A : 1 B : 0	No	1	
C	150x150mm MALE sign (Code DSS-132 M) A : 1 B : 0	No	1	
	The following in type 25			
	Approved type			
D	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 1.5 B : 0.0	Pairs	1.5	
E	NON HOLD OPEN Cam action slide channel door closer. Max door width 950mm. Closing Force EN 3. Hydraulic speed control. Pull-side door leaf fixing (Standard), Pushside transom fixing. Door closer compliant with EN 1154. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 900 (Code TS91B - SL) A : 1 B : 0	No	1	
F	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 stainless steel plate with no cylinder cutout. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL -SF 150X300) A : 1 B : 0	No	1	
G	Disabled WC indicator (Red & White) and turnknob for physically impaired (Code DWC-006) A : 1.0 B : 0.0	Sets	1.0	
H	150x300x1.2mm thick Grade 430 stainless steel plate. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL -SF 150X300) A : 1 B : 0	No	1	
	Carried Forward			R

				R	
	Brought Forward				
A	Bathroom Deadlock. Case dimensions (mm) 38H x 76D. Forend dimensions (mm) 78H x 22.5W. Backset 55mm (Code DMWC-SS008) A : 1 B : 0	No	1		
B	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 1 B : 0	No	1		
C	150x150mm FEMALE sign (Code DSS-132 F) A : 1 B : 0	No	1		
	The following in type 26				
	Approved type				
D	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames A : 1.5 B : 0.0	Pairs	1.5		
E	Dormakaba Lever handle on rose - Latch (Code CR-001-SS) A : 1.0 B : 0.0	Sets	1.0		
F	Disabled WC indicator (Red & White) and turnknob for physically impaired (Code DWC-006 -SS) A : 1.0 B : 0.0	Sets	1.0		
G	Dormakaba Bathroom sashlock. Case dimensions (mm) 102H x 78D. Forend dimensions (mm) 155H x 22W. Backset 57mm (Code D035S-SS) A : 1 B : 0	No	1		
H	Dormakaba floor mounted door stop (Code DDS-SS-017) A : 1 B : 0	No	1		
I	Dormakaba Hat and coat hook (Code DHC-SS-030A) A : 1 B : 0	No	1		
	The following in type B (fire escape door at staircase) all in accordance with ironmongery as per Drawing CR-000-ARC-215 annexed to Bills of Quantities				
	Carried Forward			R	

				R
	Brought Forward			
	Approved type			
A	100mm Aluminium sinkless hinge, centre pin with standard alignment grooving for easy fitment (Code 1040) A : 1.0 B : 0.0	Pairs	1.0	
B	Alufab 2040, 200mm aluminium sinkless hinges, centre pin, anodised (Code 2040) A : 2 B : 0	No	2	
C	Three point locking panic bar - Double door - Door leaf 1000mm wide x 2270mm high (2101. 2104. 2104. 2201. PHX02. PHX04) (Code PHA3 S DD) A : 1.0 B : 0.0	Sets	1.0	
	DOOR PROTECTION			
	STAINLESS STEEL DOOR CLADDING			
	1.6mm Thick Grade 430 stainless steel with brushed finish for shaped / formed corners			
D	1.6mm Thick Grade 430 stainless steel door edge protector U-shaped around leading edge of door and extended 40mm on each face, drilled and screw fixed to door, 2032mm long A : 26 B : 0	No	26	
E	1.6mm Thick Grade 430 stainless steel L-shaped door edge protector fitted to heel of door with one side extending 40mm on the face of the door and other side extending 20mm, drilled and screw fixed to door, 2032mm long A : 26 B : 0	No	26	
F	1.6mm thick grade 430 stainless steel "U" shaped door frame protectors size 44 x 12 x 12mm to fit timber architrave 2032mm high A : 66 B : 0	No	66	
G	1.6mm thick grade 430 stainless steel "L" shaped door frame protectors size 95 x 23mm to fit timber doorframe 2032mm high A : 38 B : 0	No	38	
	Carried Forward			R

				R	
	Brought Forward				
	1.2mm Thick Grade 430 stainless steel with brushed finish for sheet areas				
A	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 810 x 300mm high A : 19 B : 0	No	19		
B	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 813 x 300mm high A : 14 B : 0	No	14		
C	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 500 x 750mm high A : 3 B : 0	No	3		
D	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 400 x 1100mm high A : 5 B : 0	No	5		
E	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 810 x 1100mm high A : 3 B : 0	No	3		
F	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 810 x 1100mm high with 300 x 300mm cut out for vent louvre (louvre elsewhere measured) A : 20 B : 0	No	20		
G	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 813 x 1100mm high A : 5 B : 0	No	5		
H	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 850 x 1100mm high A : 5 B : 0	No	5		
I	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 900 x 750mm high A : 3 B : 0	No	3		
	Carried Forward			R	

				R
	Brought Forward			
	BATHROOM FITTINGS			
A	Kimberly Clark Professional REFLEX rolled towel dispenser (code: 426125) in stainless steel, 395 x 330 x 270mm high A : 32 B : 0	No	32	
B	Kimberly Clark Professional stainless-steel disposer (code: 426135), 390 x 350 x 285mm high A : 29 B : 0	No	29	
C	Serra Hi-Scrub liquid soap dispenser (code: SD1261), 295 x 70 x 290mm A : 9 B : 0	No	9	
D	Kimberly Clark Professional AQUARIUS hand cleanser dispenser, 1 litre, white (code: 6955) A : 25 B : 0	No	25	
E	Kimberly Clark Professional MR2 bath tissue dispenser in stainless steel (code: 426130), 270 x 145 x 140mm high) A : 11 B : 0	No	11	
F	Brabantia or other approved brushed stainless steel 12L capacity pedal bin A : 3 B : 0	No	3	
	WALL AND CORNER PROTECTION			
G	Gradus WGS 200, 200mm high PVC-u Wall guard fixed against brick walls A : 167 B : 0	m	167	
H	Gradus endcaps to fit WGS 200 Wall guard A : 150 B : 0	No	150	
I	Gradus WGS 125, 125mm high PVC-u Wall guard fixed against brick walls A : 95 B : 0	m	95	
J	Gradus endcaps to fit WGS 125 Wall guard A : 66 B : 0	No	66	
K	Gradus WGR200E rubber wall guard against brick walls A : 8 B : 0	m	8	
	Carried Forward			R

				R
	Brought Forward			
A	Gradus WGR107D rubber wall guard against brick walls A : 8 B : 0	m	8	
B	2mm Thick Gradus Sure Protect Endure PVC-u Protective sheet, 200mm wide against brick walls behind sliding doors A : 9 B : 0	m	9	
C	25 x 25mm 90 degree Gradus Standard PVC-u surface mounted corner guard 1100mm high A : 20 B : 0	No	20	
D	50 x 50mm 90 degree Gradus Standard PVC-u surface mounted corner guard corner guard 950mm high A : 27 B : 0	No	27	
E	50 x 50mm 90 degree Gradus Standard PVC-u surface mounted corner guard 2000mm high (Code CGS5090N) A : 41 B : 0	No	41	
	GRABRAILS			
F	Railman Grabrails straight rail (code: SR5), size 500 x 50mm A : 4 B : 0	No	4	
G	Franke CNTX700A angle bar 135 degree grab rail, diameter 32mm, height 256mm, width 618mm and depth 91mm in stainless steel 18/10 satin finish, with screws and dowels as per manufacturer's specification A : 2 B : 0	No	2	
H	Franke CNTXPAR angle bar 135 degree grab rail, diameter 32mm, height 300mm, width 300mm and length 640mm and depth 96mm in stainless steel 18/10 satin finish, with screws and dowels as per manufacturer's specification A : 1 B : 0	No	1	
I	Franke CNTX BR Cistern back rail grab rail, diameter 32mm, width 750mm and depth 260mm in stainless steel 18/10 satin finish, with screws and dowels as per manufacturer's specification A : 1 B : 0	No	1	
	PINNING BOARDS			
	Carried Forward			R

				R	
	Brought Forward				
	Vitrex System 2300 (011 826 6549) or equally approved pin boards with"Flortime Premier" carpet to pinning board				
A	Standard 1500mm x 1000mm pin board all installed strictly to manufacturer's specifications, plugged A : 12 B : 0	No	12		
	WRITING BOARDS				
	Vitrex System 2200 (011 826 6549) white board				
B	Standard 1500mm x 1000mm white board all installed strictly to manufacturer's specifications, plugged A : 10 B : 0	No	10		
	VINYL DECALS				
C	Allow the Amount of R10,000.00 (Ten Thousand Rand) for vinyl decals on white boards		Item		10,000.00
D	Profit on above item		Item		
E	Attendance on ditto		Item		
	LOCKERS				
F	1800 x 300 x 450mm deep double door steel lockers (each with three doors) on 150 x 32mm SA pine bearers as skirting, fixed to wall with 10mm diameter stainless steel rawlbolt at max 200mm centres A : 18 B : 0	No	18		
	STAINLESS STEEL WALL BENCH				
G	Franke Model W wall bench manufactured from Grade 304 stainless steel 1.2mm thick with a 150mm integral splash back at the back and 50 x 10mm turn down on the remaining sides. The underside sprayed with vermin proof bitumastic sound deadening and supported with a 30 x 30 x 3mm framework and galvanised mild steel backing sheet. Unit fixed 900mm high from the top of the front apron to the finish floor level with anchor bolts overall size 1500 x 650mm (Code 2620114) with additional extra stainless steel solid undershelf A : 3 B : 0	No	3		
	Carried Forward			R	

				R	
	Brought Forward				
	GABLER RAILS				
A	600mm Long Gabler rails fitted to walls as by Gabler medical (Code HU-MER-W-01) with wall mounted gabler profile (20kg) complete with reducer bush to suit 25mm diameter equipment pole and 3 spacers and anchors per metre (Gabler shape) A : 10 B : 0	No	10		
	CURTAIN TRACKS, DRIP RAIL, ETC				
	Hospi-shadowline cubicle bedscreen rails (Code SK/Cfix) formed of natural anodised extruded profile H/S/43353 formed to accommodate bed closures complete with 12 runners per metre and end stops fixed direct to ceiling including timber supports of 50 x 38mm pine, with and including Hospi-track bedscreen curtains (Code H/T/BSN100/9) standard height, manufactured in a poly-cotton/nylon non-iron non-stain fully washable material at a ratio of 1:25 to length of rail				
B	Hospital cubicle curtain track including gliders, hangers, brackets, bedscreen curtain, etc A : 120 B : 0	m	120		
C	Extra for end plugged A : 24 B : 0	No	24		
D	Extra for stop end A : 7 B : 0	No	7		
E	Extra for 90° bend A : 17 B : 0	No	17		
F	Extra for 45° bend A : 7 B : 0	No	7		
G	Extra for joint at bend A : 24 B : 0	No	24		
H	Extra for T-junction A : 7 B : 0	No	7		
	Carried Forward			R	

	Brought Forward			R	
	Hospi-track Cubicle Curtains (Code: H/T/BS/N100/9). Curtains to be Non-iron, non-stain, shrink free, flame retardant, nylon free, fully washable up to 65 degree. Air-vented netting composition to be aluminium thread inserted 2040mm AFFL to underside of ceiling. The height above floor level to underside of curtain will be 200mm and the curtain will be 1840mm from underside to mosquito Gauze netting. Curtains standard with a ratio of 1:25 to length of cubicle rail				
A	Additional bedscreen curtains A : 36 B : 0	m	36		
	LETTERS, NAMEPLATES, ETC				
	4mm Thick perspex sheeting with white lettering on a grey background. Lettering to be vinyl sticker to back of perspex (between perspex and door once sign is mounted. Letters to be self adhesive letters of 15mm height. Plate to be screwed to doors with two domeheaded countersunk stainless steel screws per plate. Lettering to be cased as indicated as follow:				
B	75 x 20mm high door number plate with three numerals A : 72 B : 0	No	72		
	4mm Thick perspex sheeting with white lettering on a grey background. Lettering to be self adhesive letters of 25mm height. Lettering to be vinyl sticker to back of perspex (between perspex and door once sign is mounted). Plate to be screwed to doors with two domeheaded countersunk stainless steel screws per plate. Lettering to be cased as indicated as follow:				
C	"VISITORS WAITING ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1		
D	"CLEAN LINEN STORE" sign plate size 275 x 40mm high A : 1 B : 0	No	1		
	Carried Forward			R	

				R
	Brought Forward			
A	"STAFF BREAK ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
B	"HIGH CARE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
C	"TECHNICIAN'S OFFICE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
D	"TECHNICIAN'S STORE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
E	"ASSISTED ABLUTIONS" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
F	"STAFF ABLUTIONS" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
G	"ISOLATION" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
H	"SLUICE ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
I	"DIRTY UTILITY" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
J	"MANAGER'S OFFICE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
K	"RESPIRATORY STORE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
L	"ICU EQUIPMENT STORE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
M	"CICU WARD" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
	Carried Forward			R

				R
	Brought Forward			
A	"EQUIPMENT STORE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
B	"STAFF CHANGE ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
C	"WARD KITCHEN" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
D	"ON-CALL ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
E	"STORE" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
F	"DOCTOR'S OFFICE" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
G	"CLEANERS ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
H	"DISABLED WC" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
I	"PUBLIC ABLUTIONS" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
J	"CONSULTATION ROOM" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
K	"RECEPTION" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
L	"VISITORS ABLUTIONS" sign plate size 275 x 40mm high A : 1 B : 0	No	1	
M	"ISOLATION" sign plate size 275 x 40mm high A : 8 B : 0	No	8	
N	"ICU" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
O	"FHR" sign plate size 275 x 40mm high A : 2 B : 0	No	2	
	Carried Forward			R

				R	
	Brought Forward				
	2mm Thick ABS plastic with photo luminescent pictogram on a dark grey background to approved SABS standards in a natural anodized aluminium frame with plastic corner pieces. Where plate to be screwed to doors or walls, plate to be fixed with two domeheaded countersunk stainless steel screws per plate. Hanging signage on suspension system conical clip with steel wire. **Pictograms indicated as follow - please refer to Fire Signage Schedule on Drawing 305-016- ARC-213 at the back of the Bills of Quantities**				
A	304 x 150mm Sign plate with Pictogram Type E3 (suspended from ceiling) A : 7 B : 0	No	7		
B	304 x 150mm Sign plate with Pictogram Type E1 (suspended from ceiling) A : 3 B : 0	No	3		
C	304 x 150mm Sign plate with Pictogram Type E2 (suspended from ceiling) A : 3 B : 0	No	3		
D	150 x 150mm Sign plate with Pictogram Type E15 with two signs hanging back to back (suspended from ceiling) A : 3 B : 0	No	3		
E	458 x 150mm Sign plate with Pictogram Type E16 (fixed to wall) A : 1 B : 0	No	1		
F	584 x 150mm Sign plate with Pictogram Type E17 (fixed to wall) A : 1 B : 0	No	1		
G	304 x 150mm Sign plate with Pictogram Type E6 (fixed to wall) A : 4 B : 0	No	4		
H	304 x 150mm Sign plate with Pictogram Type E38 (fixed to wall) A : 1 B : 0	No	1		
	Carried Forward			R	

				R
	Brought Forward			
A	458 x 150mm Sign plate with Pictogram Type E18 (suspended from ceiling) A : 1 B : 0	No	1	
B	458 x 150mm Sign plate with Pictogram Type E17 (suspended from ceiling) A : 1 B : 0	No	1	
C	304 x 150mm Sign plate with Pictogram Type F16 (suspended from ceiling) A : 1 B : 0	No	1	
D	304 x 150mm Sign plate with Pictogram Type F19 (suspended from ceiling) A : 1 B : 0	No	1	
E	458 x 150mm Sign plate with Pictogram Type F4 (fixed to wall) A : 3 B : 0	No	3	
F	458 x 150mm Sign plate with Pictogram Type F4 (suspended from ceiling) A : 2 B : 0	No	2	
G	150 x 150mm Sign plate with Pictogram Type F33 (fixed to door) A : 2 B : 0	No	2	
H	150 x 304mm Sign plate with Pictogram Type F28 (fixed to wall) A : 1 B : 0	No	1	
I	458 x 150mm Sign plate with Pictogram Type F6(suspended from ceiling) A : 4 B : 0	No	4	
J	458 x 150mm Sign plate with Pictogram Type F6 (fixed to wall) A : 1 B : 0	No	1	
K	458 x 150mm Sign plate with Pictogram Type F5 (suspended from ceiling) A : 2 B : 0	No	2	
L	304 x 150mm Sign plate with Pictogram Type F45 (fixed to door) A : 2 B : 0	No	2	
	Carried Forward			R

Brought Forward		R	
UPVC WINDOWS			
White uPVC Tilt and turn window			
All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike.			
Window complete with integral blinds. Blinds to be aluminium venetian blinds and to be operated by means of a slide magnet. Colour of blinds: White			
Double glazed windows to be manufactured in a static, dust free environment. Internal glazed panel to 6.4mm laminated safety glass and the external glazed panel to be 6.38mm tinted PVB laminated safety glass that provides medium solar control and has a low reflective appearance and complies with SANS 1263. The double glazed spacer bar to be filled with self-regenerating desiccant to prevent internal condensation.			
Carried Forward		R	

				R	
	Brought Forward				
	Top section of window to consist of 6mm fibre cement board, painted white on inside and grey on outside				
A	Take out of storage uPVC profile material for window overall size 1100 x 1600mm high (material bought by previous contractor) and install **(As per drawing for Window W01 on Drawing WIN-201 attached to these bills of quantities)** A : 12 B : 0	No	12		
B	Window overall size 1100 x 1600mm high **(As per drawing for Window W01 on Drawing WIN-201 attached to these bills of quantities)** A : 18 B : 0	No	18		
C	Window overall size 1100 x 1350mm high **(As per drawing for Window W02 on Drawing WIN-202 attached to these bills of quantities)** A : 13 B : 0	No	13		
D	Window overall size 1100 x 1350mm high **(As per drawing for Window W03 on Drawing WIN-203 attached to these bills of quantities)** A : 1 B : 0	No	1		
E	Window overall size 1100 x 1350mm high **(As per drawing for Window W04 on Drawing WIN-204 attached to these bills of quantities)** A : 1 B : 0	No	1		
F	Window overall size 1100 x 1350mm high **(As per drawing for Window W13 on Drawing WIN-213 attached to these bills of quantities)** A : 7 B : 0	No	7		
G	Window overall size 1100 x 1350mm high **(As per drawing for Window W15 on Drawing WIN-215 attached to these bills of quantities)** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
	All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike. **Double glazed windows to be manufactured in a static, dust free environment. Internal frosted glazed panel to 6.4mm laminated safety glass and the external frosted glazed panel to be 6.38mm tinted PVB laminated safety glass that provides medium solar control and has a low reflective appearance and complies with SANS 1263. The double glazed spacer bar to be filled with self-regenerating desiccant to prevent internal condensation.** **Top section of window to consist of 6mm fibre cement board, painted white on inside and grey on outside**				
A	Window overall size 1100 x 1350mm high **(As per drawing for Window W09 on Drawing WIN-209 attached to these bills of quantities)** A : 2 B : 0 **White uPVC Tilt and turn window**	No	2		
	Carried Forward			R	

	Brought Forward			R	
	All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike.				
	Glazing to be 6.4mm single glazed frosted laminated safety glass				
	Top section of window to consist of 6mm fibre cement board, painted white on inside and grey on outside				
A	Window overall size 600 x 1350mm high **(As per drawing for Window W05 on Drawing WIN-205 attached to these bills of quantities)** A : 3 B : 0	No	3		
B	Window overall size 1100 x 1350mm high **(As per drawing for Window W06 on Drawing WIN-206 attached to these bills of quantities)** A : 2 B : 0	No	2		
C	Window overall size 1100 x 1350mm high **(As per drawing for Window W07 on Drawing WIN-207 attached to these bills of quantities)** A : 3 B : 0	No	3		
D	Window overall size 1100 x 1350mm high **(As per drawing for Window W08 on Drawing WIN-208 attached to these bills of quantities)** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
	White uPVC Tilt and turn window				
	All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike.				
	Frosted 6.4mm Laminated safety glass in double glazed panels to be manufactured in a static, dust free environment. The double glazed spacer bar to be filled with self-regenerating desiccant to prevent internal condensation				
	Top section of window to consist of 8mm fibre cement board, painted white on inside and grey on outside				
A	Window overall size 600 x 1350mm high **(As per drawing for Window W14 on Drawing WIN-214 attached to these bills of quantities)** A : 1 B : 0	No	1		
	White uPVC Tilt and turn window				
	Carried Forward			R	

	Brought Forward			R	
	All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike.				
	Glazing to be 6.38mm tinted laminated safety glass, that is made from various combinations of clear and tinted glass and PVB (polyvinyl butyral) and complies with SANS 1263 Part 1				
	Top section of window to consist of 8mm fibre cement board, painted white on inside and grey on outside				
A	Window overall size 1100 x 1350mm high **(As per drawing for Window W11 on Drawing WIN-211 attached to these bills of quantities)** A : 14 B : 0	No	14		
B	Window overall size 1100 x 1350mm high **(As per drawing for Window W12 on Drawing WIN-212 attached to these bills of quantities)** A : 3 B : 0	No	3		
	White uPVC closed section window				
	Carried Forward			R	

	Brought Forward			R	
	All uPVC materials to be tropical mix and UV stabilized. uPVC frame profiles to be 60mm, 6 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 71mm, 4 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. uPVC sash profiles to be 72mm, 5 chambered profiles, reinforced with 1.2 to 2mm electro galvanised steel. All glazing gaskets and weather seals to be made from EPDM. Frames and sashes to be fusion welded at a temperature of between 230 and 250 degrees Celsius. Mullions to be mechanically joined by means of a mullion connector that is electro-galvanised and treated with two tone one seal anti-corrosion treatment. The tilt and turn hardware to be made up of electroplated, nano technology treated steel and stainless steel components to RAL-RG (10/201) standard. Handles to be robust cast aluminium lockable handles, all handles to be keyed alike.				
	Glazing to be 6.4mm laminated frosted safety glass, single glazed panels				
	Top section of window to consist of 6mm fibre cement board, painted white on inside and grey on outside				
A	Window overall size 600 x 1350mm high **(As per drawing for Window W10 on Drawing WIN-210 attached to these bills of quantities)** A : 3 B : 0	No	3		
	Repairs to existing UPVC windows				
B	Allow the Amount of R50,000.00 (Fifty Thousand Rand) to repair existing UPVC windows		Item		50,000.00
C	Profit on above item.		Item		
D	Attendance on ditto.		Item		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 8
Ironmongery
Q535B

Item No		Quantity	Rate	Amount
	SECTION 2			
	BILL NO 9			
	STRUCTURAL STEELWORK			
	PREAMBLES			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	TRADE NAMES			
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"			
	SUPPLEMENTARY PREAMBLES			
	Descriptions of bolts shall be deemed to include nuts and washers			
	Descriptions of L shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete			
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete			
	***NOTE**: The following items shall be deemed to fall into Work Group No 134 for JBCC CPAP purposes*			
	WORKSHOP DRAWINGS			
A	Preparation of all workshop drawings for steel beam for approval by structural engineer before manufacturing	Item		
	STEEL BEAMS, ETC.			
	Galvanised welded beams			
B	IPE 120 x 64 x 10.4kg/m beams A : 0.164 B : 0.000	t 0.164		
	Carried Forward		R	

	Brought Forward			R	
	Sundries				
A	120 x 180 x 10mm Thick end plate A : 2 B : 0	No	2		
	Galvanised Nuts and bolts, etc.				
B	M16 Chemical anchors A : 4 B : 0	No	4		
	THREADED BARS				
C	Y16 dowel bars 950mm long drilled 150mm into existing concrete slab A : 28 B : 0	No	28		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 9
Structural steel
Q535B

Item No		Quantity	Rate	Amount
	SECTION 2			
	BILL NO 10			
	METALWORK			
	PREAMBLES			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	TRADE NAMES			
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"			
	SUPPLEMENTARY PREAMBLES			
	Descriptions			
	Descriptions of bolts shall be deemed to include nuts and washers			
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete			
	Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described			
	STAINLESS STEEL LOUVRED VENT GRILLS			
	***NOTE**: The following items shall be deemed to fall into Work Group No 141 for JBCC CPAP purposes*			
	Stainless steel louvres and frames in doors			
A	Louvred vent consisting of 30 x 40 x 1.6mm grade 316 stainless steel fixed frame, fixed to door with stainless steel screws and 20 x 20 x 1.6mm grade 316 stainless steel V-shaped louvre blades welded at 25mm centres (54 degree angle) to L-shape channel, overall size 360 x 360mm high all in accordance with **Drawing 305 - 106/DRS-DTL01** annexed to the Bills of Quantities A : 25 B : 0	No	25	
	Carried Forward		R	

	Brought Forward			R	
	ALUMINIUM SHOPFRONTS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 149 for JBCC CPAP purposes*				
	Purpose made anodised aluminium powder coated aluminium shopfront glazed with 6.38mm clear normal strength laminated safety glass, hinges, sealant, etc. plugged to brickwork or concrete (Ironmongery measured elsewhere) All to AAAMSA Standards and Architects approval and in accordance				
A	Natural anodised aluminium shopfront with door and frame overall size 1656 x 2400mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-201 & Door AL01 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
B	Natural anodised aluminium shopfront overall size 2715 x 2240mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-202 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
	Carried Forward			R	

	Brought Forward			R	
A	Natural anodised aluminium shopfront with door and frame overall size 3020 x 2600mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-203 & Door AL01 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
B	Natural anodised aluminium shopfront overall size 2800 x 2240mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-204 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
C	Natural anodised aluminium shopfront with sliding door and frame overall size 3875 x 2600mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-205 & Door AL02 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
D	Natural anodised aluminium shopfront overall size 1980 x 1200mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm all in accordance with **Drawing 305-016/SF-206 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
	Carried Forward			R	

Section No. 2
Bill No. 10
Metalwork
Q535B

	Brought Forward			R	
A	Natural anodised aluminium shopfront with sliding door and frame overall size 4071 x 2600mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-207 & Door AL02 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
B	Natural anodised aluminium shopfront with door and frame overall size 2200 x 2600mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-208 & Door AL01 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
C	Natural anodised aluminium shopfront size 1022 x 1300mm and door and frame overall size 960 x 2400mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame, including vinyl decal to all glazing with 50% opacity all in accordance with **Drawing 305-016/SF-209 & Door AL04 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
D	Natural anodised aluminium shopfront overall size 3386 x 1270mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-210 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
	Carried Forward			R	

Section No. 2
Bill No. 10
Metalwork
Q535B

	Brought Forward			R	
A	Natural anodised aluminium shopfront overall size 950 x 900mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-211 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
B	Natural anodised aluminium shopfront with two sliding doors and frames overall size 5645 x 2935mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-212 & Door AL02 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
C	Natural anodised aluminium shopfront overall size 4147 x 2850mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-213 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
D	Natural anodised aluminium shopfront overall size 1960 x 1600mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-214 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	Natural anodised aluminium shopfront overall size 1850 x 1150mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-215 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
B	Natural anodised aluminium shopfront overall size 2136 x 1150mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-215 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
C	Natural anodised aluminium shopfront overall size 3085 x 2850mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-216 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
D	Natural anodised aluminium shopfront with two sliding doors and frames overall size 5645 x 2820mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-217 & Door AL02 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	Natural anodised aluminium shopfront overall size 4338 x 2935mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-218 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
B	Natural anodised aluminium shopfront with one sliding door and frame overall size 3945 x 2850mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-219 & Door AL02 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
C	Natural anodised aluminium shopfront overall size 8493 x 1150mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-220 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
D	Natural anodised aluminium shopfront overall size 2595 x 1600mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-221 annexed to the back of these Bills of Quantities** A : 1 B : 0	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	Natural anodised aluminium shopfront with one sliding door and frame overall size 3945 x 2850mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-222 & Door AL02 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
B	Natural anodised aluminium shopfront with two sliding doors and frames overall size 5645 x 2935mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-223 & Door AL02 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
C	Natural anodised aluminium shopfront overall size 3963 x 2850mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-224 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
D	Natural anodised aluminium shopfront overall size 1628 x 1140mm high overall including 6.38mm single laminated safety glazing, top and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm, all in accordance with **Drawing 305-016/SF-225 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
	Carried Forward			R	

				R	
	Brought Forward				
A	Natural anodised aluminium shopfront with one sliding door and frame overall size 2673 x 2240mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-226 & Door AL05 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
B	Natural anodised aluminium shopfront with one sliding door and frame overall size 1960 x 2240mm high overall including 6.38mm single laminated safety glazing, top, and all vertical mullions 30 x 80mm, bottom mullion 125 x 30mm and two intermediates 85 x 30mm, door opening intermediates two 85 x 30mm with 85mm aluminium door frame. Sliding door to be top hung - no bottom sliding rail all in accordance with **Drawing 305-016/SF-227 & Door AL06 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
	ALUMINIUM FIRE ESCAPE DOOR				
C	White powdercoated aluminium double door with two equal leaves overall size 1680 x 2400mm high overall including non-openable fanlight with 6.38mm clear laminated safety glazing, top and bottom rails 100 x 30mm and side and intermediate rails 80 x 30mm including 8mm thick solid composite infill panels to the opening sections all in accordance with **Drawing CR-305-016 ARC-215 annexed to the back of these Bills of Quantities**	No	1		
	A : 1 B : 0				
	ALUMINIUM VIEW PANELS, ETC				
	Purpose made polyester powder coated aluminium view panels glazed with 6.38mm clear intruder proof safety glass, plugged to timber doors				
D	View panel in single pane fixed; size 120 x 750mm high	No	12		
	A : 12 B : 0				
	ALUMINIUM SLIDING DOOR				
	Carried Forward			R	

	Brought Forward			R	
	Purpose made brushed finish 1.6mm thick 304 stainless steel cladding to timber frame (Timber frame measured elsewhere) including aluminium sliding door glazed with 6.38mm clear toughened safety glass, hinges, sealant, etc. plugged to brickwork or concrete (Ironmongery measured elsewhere) All to AAAMSA Standards and Architects approval and in accordance				
A	Sliding door size 1900 x 2200mm high overall with 50% opacity vinyl decal fitted to inside of glazing all in accordance with **Drawing 305-016/DRS-S01 annexed to the back of these Bills of Quantities (Door S1.C)**	No	1		
	A : 1 B : 0				
	SHELVING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 136 for JBCC CPAP purposes*				
	Shelco standard epoxy powder coated finish shelving, etc. fixed in position strictly in accordance with the manufacturer's specification				
B	30 x 15mm double slot wall bands 700mm high fixed to brick wall with 6 x 65mm Eureka easy fit wall anchors	No	48		
	A : 48 B : 0				
C	30 x 15mm double slot wall bands 1950mm high fixed to brick wall with 6 x 65mm Eureka easy fit wall anchors	No	13		
	A : 13 B : 0				
D	350mm Wide shelf bracket	No	128		
	A : 128 B : 0				
E	450mm Wide shelf bracket	No	25		
	A : 25 B : 0				
	SUNDRIES				
	The following in welded bench bearers				
F	38 x 38 x 2mm Thick galvanised mild steel tubular section rails, bearers, etc. including holes for expansion bolts and mitred angle intersections	m	6		
	A : 6 B : 0				
	Carried Forward			R	

	Brought Forward			R	
A	10mm Diameter expansion bolt 80mm long, including mortice in brickwork or concrete A : 6 B : 0	No	6		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 10
Metalwork
Q535B

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 11				
	PLASTERING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	GRANOLITHIC				
	Untinted granolithic on concrete				
A	32mm thick on floors A : 16 B : 0	m2	16		
B	75mm High coved skirting against walls A : 12 B : 0	m	12		
	SCREEDS				
	1:3 Cement plaster screeds on concrete				
C	30mm Thick on floors with steel trowelled finish A : 918 B : 0	m2	918		
	Treatment of existing screeds on concrete				
D	All holes in screed to be filled with Patchite patching compound as manufactured by iTe Products, in strict accordance with their specifications. A : 918 B : 0	m2	918		
	SPECIALIST FLOOR COVERINGS				
	Carried Forward			R	

	Brought Forward			R	
	BONDiTE polymer based primer and keying agent applied in strict accordance with manufacturer's instructions (after moisture barrier)				
A	Floors A : 918 B : 0	m2	918		
	Levelite F30 self-levelling compound as manufactured by iTe products, to a thickness of 5mm as part of the iTe Products screed preparation system				
B	Floors A : 918 B : 0	m2	918		
	Once coat waterbased Epoxy Sikafloor 2530W on floors (Colour Dark Grey)				
C	Floors A : 16 B : 0	m2	16		
	Once coat waterbased Epoxy Sikafloor 2530W skirting (Colour Dark Grey)				
D	150mm High painted as skirting against walls with fillet in corner A : 65 B : 0	m	65		
	INTERNAL PLASTER				
	One coat 1:4 cement plaster on brickwork to receive wall tiling				
E	On walls A : 248 B : 0	m2	248		
F	On narrow widths A : 17 B : 0	m2	17		
	One coat 1:4 cement plaster to brickwork with steel trowel to receive an approved high quality paint.				
G	On new walls A : 308 B : 0	m2	308		
H	On existing walls A : 137 B : 0	m2	137		
	Carried Forward			R	

Section No. 2
Bill No. 11
Plastering
Q535B

	Brought Forward			R	
A	On narrow widths A : 34 B : 0	m2	34		
	2mm Thick approved skim finishing plaster				
B	2mm Thick skim finishing plaster to plastered walls A : 2035 B : 0	m2	2,035		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 11
Plastering
Q535B

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 12				
	TILING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 144 for JBCC CPAP purposes*				
	WALL TILING				
	200 x 200 x 6mm Thick GWC-4 Gloss White ceramic wall tiles from Tile Africa (Code T0021150) with 2mm joints between tiles in TAL White grouting, in suitable tiling adhesive.				
A	On walls A : 112 B : 0	m2	112		
B	On narrow widths A : 11 B : 0	m2	11		
	300 x 600 x 10mm Thick Essence White Matt rectified ceramic wall tiles with 2mm joints between tiles in TAL White grouting fixed to walls with approved tile adhesive to plastered walls and waterproof tile grouting to joints				
C	On walls A : 51 B : 0	m2	51		
D	In splashbacks A : 85 B : 0	m2	85		
E	On narrow widths A : 6 B : 0	m2	6		
	Carried Forward			R	

	Brought Forward			R	
	Provide the PC amount of R375.00/m²supplied and delivered to site for 300mm x 300mm x 8.5mm Thick Terazzo floor tiles (to match existing) with 2mm joints complete with rectangular borders and diagonal infill panels, install with proprietary tile adhesive as recommended by tile manufacturer on well-prepared screed (elsewhere measured) to suit required level. Finish all joints with proprietary waterproof grout as recommended by the manufacturer. All strictly to manufacturer's specifications. Colour and type to Architect's approval				
A	On floors in patching A : 10 B : 0	m2	10		
B	On landings in patching A : 8 B : 0	m2	8		
C	On risers 170mm high in cut header coarse A : 12 B : 0	m	12		
D	On treads 250mm wide in cut header coarse A : 12 B : 0	m	12		
	SUNDRIES				
E	Kirk M-Trim grade 316 stainless steel straight edge trim (SSE080) A : 241 B : 0	m	241		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 12
Tiling
Q535B

Item No		Quantity	Rate	Amount

SECTION 2

BILL NO 13

INTERNAL PLUMBING AND DRAINAGE

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SANITARY FITTINGS

NOTE: All sanitary fittings shall be sealed next to walls, fitting sides and shelves with an approved type non-fungal sustaining white silicon

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SUPPLEMENTARY PREAMBLES

Concrete pipes

Pipes shall be jointed with interlocking joints

UPVC pipes and fittings

Soil, waste and vent pipes and fittings shall be tempered, chemical resistant pipes with butt welded joints

UPVC pressure pipes and fittings

Pipes for water and fire supply shall be High Impact uPVC of the Class stated

Pipes shall have cast iron clamped joints. Fittings shall be galvanised mild steel with clamped joints

Carried Forward R

Brought Forward		R	
Copper pipes Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and Class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers, Capillary solder fittings shall comply with ISO 2016.			
Fixing of pipes Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level			
Lead pipes and fittings All soldered joints shall be wiped and brass unions shall be used for jointing lead to steel			
Reducing fittings Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained			
Wire gratings Descriptions of gutter outlets, etc shall be deemed to include wire balloon gratings			
Exposed concrete surfaces Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gulley tops, cleaning eye tops, catchpits, inspection chambers, etc shall be finished smooth with plaster			
Carried Forward		R	

Brought Forward		R	

Excavations

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling

"Soft rock" and "Hard rock" shall be as defined in "Earthworks"

Laying, backfilling, bedding, etc of pipes

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions and the Engineer's drawings.

Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

SABS 1200 L: Medium-pressure pipelines
SABS 1200LD: Sewers
SABS1200LE: Stormwater drainage

Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB : Bedding (Pipes)

Flush pans

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary

Stainless steel basins, sinks, wash troughs, urinals, etc

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable

Waste unions

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings

Carried Forward		R	

	Brought Forward			R	
	Steel sectional water tanks				
	Tanks shall comply with SABS CKS 114				
	Petrolatum anti-corrosion tape				
	Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied with minimum 15mm lap per spiral unless otherwise described				
	Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including all mastic, tape, "Layflat" sheeting, securing of same, etc				
	Prices for wrapping of pipes shall include for all work as described to couplings in the length				
	Paper lagging				
	Prices for piping must include for all piping not exceeding 30mm to be wrapped with two layers of stout brown paper and tied with wire prior to building in				
	***NOTE**: The following items shall be deemed to fall into Work Group No 148 for JBCC CPAP purposes*				
	QUALITY CONTROL AND TESTING				
	NOTE: IT IS A STRICT CONDITION OF THIS PLUMBING CONTRACT THAT THE CONTRACTOR SHOULD CONDUCT QUALITY CONTROL TESTS AND INSPECTIONS ON AN ONGOING BASIS				
	SANITARY FITTINGS				
	White glazed vitreous china				
	Wash hand basin				
A	Lecico Sanitaryware vitreous china 502 x 418 x 177mm semi-rectangular Atlas medical basin (Code: ATLBASMED0500UE) with no tapholes, overflow or chainstay hole complete with 10 x 120mm fixing bolt set, basin be wall hung as per manufacturer's specifications A : 26 B : 0	No	26		
	Carried Forward			R	

				R	
	Brought Forward				
A	Vaal Sanitaryware vitreous china size 335 x 290 x 115mm “Mini Weaver” (code: 70660) basin with one taphole and no overflow, bolted to wall using two 10mm fixing bolts (code: VAA 8448Z0) and Vaal Sanitaryware bracket (Code VAA-8131Z300) A : 3 B : 0	No	3		
	Toilets				
B	Vaal Sanitaryware vitreous china “Energy” 90° outlet back inlet closed rim wall hung pan, with quality thermoset soft-close seat, with bolt-through-the-wall bracket (code: VAA-8084Z0) and DP Flushfit pan collar (or equivalent). Flush volume 6/3 litres, subject to the pan being installed with a cistern providing an effective 6/3 litre flush volume A : 10 B : 0	No	10		
C	38643001 Uniset (830x470x130mm) for WC flushing cistern GD2 with small maintenacne access sound - insulation EPS module for masonry - in 830 x 470x 130mm rail adaptors for modular fixing for single or rail installation. Wall rail with fixing accessories for single installation. 2 x WC fixing bolts, distance of fixing bolts 180/230mm fixing device for ceramic outlet bend 90mm diameter depth adjustable 90 / 110mm diameter reducer inlet and outlet connecting set adjustment ex. Factory 6L and 3L pneumatic discharge valve offering 3 modes of operation: Dual flush, start/stop, single flush water supply. From left/right/back or top low noise DIN approved insulated against condensation 1/2" water supply connection including integrated angle valve and push fit flexible hose union for vertical or horizontal hose union for vertical or horizontal use A : 10 B : 0	No	10		
D	3873200 Skate Cosmopolitan wall plate for dual flush for pneumatic discharge valve. AV1 vertical and horizontal installation, 156x197mm ABS GROHE StarLight® chrome finish and GROHE EcoJoy® technology for less water and perfect flow A : 10 B : 0	No	10		
	Carried Forward			R	

	Brought Forward			R	
	Paraplegic Toilets				
A	Vaal Sanitaryware vitreous china “Orchid Paraplegic" back inlet (Code 439550WH) 90° wall hung rim pan, pan to be used with concealed cistern, floor bracket (code: VAA-8082Z0), Jazz thermoset seat (Code 8531ZO) DPI Flushfit and Marley SG47 pan collar A : 1 B : 0	No	1		
B	38643001 Uniset (830x470x130mm) for WC flushing cistern GD2 with small maintenance access sound - insulation EPS module for masonry - in 830 x 470x 130mm rail adaptors for modular fixing for single or rail installation. Wall rail with fixing accessories for single installation. 2 x WC fixing bolts, distance of fixing bolts 180/230mm fixing device for ceramic outlet bend 90mm diameter depth adjustable 90 / 110mm diameter reducer inlet and outlet connecting set adjustment ex. Factory 6L and 3L pneumatic discharge valve offering 3 modes of operation: Dual flush, start/stop, single flush water supply. From left/right/back or top low noise DIN approved insulated against condensation 1/2" water supply connection including integrated angle valve and push fit flexible hose union for vertical or horizontal hose union for vertical or horizontal use A : 1 B : 0	No	1		
C	3873200 Skate Cosmopolitan wall plate for dual flush for pneumatic discharge valve. AV1 vertical and horizontal installation, 156x197mm ABS GROHE StarLight® chrome finish and GROHE EcoJoy® technology for less water and perfect flow A : 1 B : 0	No	1		
	Stainless steel type 304 (18/10)				
D	Franke Double bowl drainer sit on sink unit size 1800 x 650mm wide with radiused front edge together with a radiused internal corner at the base of the upstand, complete with two tapholes at 200mm centres for each bowl from 1.2mm Grade 304 Stainless steel 18/10 A : 2 B : 0	No	2		
	Carried Forward			R	

				R	
	Brought Forward				
A	Franke NVN611 Single end bowl drop-on sink (Code 101.0167.171/811023) unit size 800 x 460mm wide from 1.6mm Grade 304 Stainless steel 18/10 A : 1 B : 0	No	1		
B	Franke Model EC Combination Bedpan and Wash-Up Sink 1830 x 685mm (code: 350056) manufactured from grade 304 (18/10 stainless steel, 1.6mm (draining board) and 1.2mm thick (bowls). Unit with a 150mm high integral splash back to the rear and 15mm deep hospital bead 100mm apron to front and sides. The unit is fitted with two pressed seamless bowls with the sluice bowl having an integral flushing rim and a 38mm diameter inlet pipe for the flush valve. The waste outlet on sluice bowl is a 110mm and the rinse bowl size 610 x 460 x 230mm deep with a 40mm waste discharging into sluice bowl. The underside sprayed with vermin proof bitumastic sound deadening and has a galvanised mild steel backing sheet. Unit supplied complete with 11 Litres stainless steel high level cistern fitted with Supa Flush Valve and pull chain, 41mm diamater stainless steel flush pipe and 41 chrome plated coupling which is reduced on one end to fit the 38mm connection of the unit. 35mm water supply through 50mm sleeve on unit, CP171/041 pillar mixer with over-arm swivel spout, CP297 pillar mixer with retractable hand spray, 15mm bedpan spray nozzle, 15mm bottle spray nozzle (both nozzles activated by two 15mm quarter turn elbow action valves). Unit to be installed using stainless steel gallows brackets with front legs, manufactured from grade 304 (18/10) stainless steel, 40 x 40 x 1,2mm thick square tubing A : 3 B : 0	No	3		
C	Franke model BR Bedpan and Bottle Rack, Length 915mm (code: 350700), designed to hold plastic and stainless steel bedpans and bottles, manufactured from grade 304 (18/10) stainless steel 8mm diameter round bars and stainless steel flat bar mounting brackets. Unit complete with stainless steel drip tray which can be removed for cleaning and the ends of the bottle rods are fitted with rubber grommets. Unit fixed to wall with and including 4 anchor bolts (bolts specified elsewhere) A : 3 B : 0	No	3		
	Carried Forward			R	

				R	
	Brought Forward				
A	Franke model CH Slop Hopper (code: 351350) 540 x 540mm manufactured from grade 304 (18/10) stainless steel 1,2mm thick with a 100mm high integral splash back to rear and both sides. The cone has an integral flushing rim and a 110mm waste outlet for pan connector, the inlet is fitted with a 38x250mm long vertical flush pipe for a standard flush valve. Unit fitted with a hinged bucket grid manufactured from 10mm diameter grade 304 (18/10) stainless steel round bar complete with two 40 x 40mm square stainless steel wall mounting gallows brackets. Unit fixed to wall 600mm from the top of the front apron to the finish floor level with 4x anchor bolts. Allow for Cobra Flushmaster FM1.000 with 35mm water supply flush valve with a Cobra COB-FMT1-2 FJT1.2 straight flush pipe connected to CP on brass adaptor	No	3		
	A : 3 B : 0				
B	Ken Hygiene Systems bedpan washer-disinfector size 450 x 555 x 1150mm high (Product Code 731) complete with 5 programmes, capacity for 1 bedpan with lid, 2 urine bottles and 1 bowl per cycle, cycle time approximately 7 minutes, with hinged door, suitable as a slop sink with automatic closing and programme start, front panel includes a main switch, cycle indicators and digital thermometer, complete with 90mm diameter waste with P-trap, connected to 15mm hot and cold water supply and 240 volt electric power supply (electric power supply measured elsewhere) installed in strict accordance to manufacturer's specifications	No	1		
	A : 1 B : 0				
	WASTE UNIONS, ETC				
	Chromium plated				
C	Cobra unslotted basin waste with 62mm diameter flange and 75mm long shank, and 1 ¼" BSP male outlet connection (product code: COB-308). Anti-theft plug for basin wastes, chrome plated, including 72mm spindle and spindle locking tab, and 39mm diameter plug (code: COB-309-32)	No	32		
	A : 32 B : 0				
	TRAPS, ETC				
	Carried Forward			R	

				R
	Brought Forward			
	Brass			
A	50mm Du Bois PVC trap A : 32 B : 0	No	32	
	Chromium plated			
B	100mm Waste with P-trap under slab A : 1 B : 0	No	1	
	TAPS, VALVES, ETC			
C	Cobra CP171/041 Star Heavy Pattern chrome plated deck mounted, 2 hole, sink mixer with aerated swivel spout with 2 x 1/2"BSP male iron connection ends A : 2 B : 0	No	2	
D	Cobra Star pattern stop taps (code: 138-15) A : 2 B : 0	No	2	
E	Cobra Star pattern hose bibcock (code: 107-EC-15) A : 2 B : 0	No	2	
F	Cobra single function vandal resistant shower head (code: KP2.61) A : 2 B : 0	No	2	
G	Pause basin mixer, one hole single lever, chrome, flow restricted to 5.7l/min, include 3/8 BSP, 400mm long female flexible inlets, chrome plated, complete with Ghrohe universal angle valves 1/2 (G-2201700M) with compression coupling 3/8 for copper pipe 10mm plastic handle marking, neutral screw escutcheon, metal GROHE Starlight finish A : 3 B : 0	No	3	
H	Cobra Pause (Code PS-970) C-spout pillar sink mixer, swivel outlet, chrome plated, inclidng 3/8" BSP 450mm long, female inlets and Grohe universal angle valves 1/2 (G-2201700M) with compression coupling 3/8 for copper pipe 10mm plastic handle marking and neutral screw escutcheon, metal GROHE Starlight finish A : 1 B : 0	No	1	
	Carried Forward			R

				R	
	Brought Forward				
A	Wall mounted mixer set for 23 571 000 without concealed body metal escutcheon metal lever GROHE Starlight chrome finish, GROHE EcoJoy mousseur 5.7l/min GROHE AquaGuide adjustable mousseur centre distance 110mm Projection 149mm minimum, recommended pressure 1.0 bar	No	5		
	A : 5 B : 0				
B	Cobra Medical elbow-action (Code 507/N) progressive control, wall-type mixer, chrome plated, including 1/2 BSP male inlets, aerated underarm swivel outlet (dry spout) and concealed s-connection with integral control stops. Grhohe universal angle valves 1/2 (G-2201700M) with compression coupling 3/8 for copper pipe 10mm plastic handle marking, neutral screw escutcheon , metal GROHE Starlight finish	No	21		
	A : 21 B : 0				
C	Cobra Pause (Code PS-956) shower mixer undertile single lever, chrome plated wall plate, including 1/2" BSP female connections, chrome plated	No	2		
	A : 2 B : 0				
	Stainless Steel				
D	Polyflor/ACO (code: SO50) Grade 304 Stainless Steel round shower drain with 50mm side outlet and F.A.T trap, fitted with a special nylon holding clamp to secure Polyflor sheet vinyl, all installed as per manufacturer's specifications	No	2		
	A : 2 B : 0				
	SANITARY PIPEWORK				
	Underground pipes to be in uPVC SANS 791 2004 with rubber ring joints DPI Durodrain system class 34. Above ground soil and waste pipes to be in uPVC to SABS 967 with rubber ring joints and "Mupro" rubber lined pipe clamps. Pipe work testing to 1.5m water HD to be carried out in stages as work proceeds. The contractor shall mark on site the location of openings and chases for approval of the structural engineer.				
	Carried Forward			R	

				R	
	Brought Forward				
	uPVC pipes class 9				
A	50mm Pipe in walls or ducts A : 87 B : 0	m	87		
B	50mm Vent Pipe A : 26 B : 0	m	26		
C	110mm Vent Pipe A : 18 B : 0	m	18		
D	110mm Pipes in walls or ducts A : 40 B : 0	m	40		
	uPVC pipes class 34				
E	50mm Pipes fixed to underside of slabs A : 55 B : 0	m	55		
F	110mm Pipes fixed to underside of slab A : 25 B : 0	m	25		
	Extra over uPVC pipes for fittings:				
G	50mm Bend A : 53 B : 0	No	53		
H	50mm Access bend A : 22 B : 0	No	22		
I	50mm Junction A : 26 B : 0	No	26		
J	50mm Access junction A : 12 B : 0	No	12		
K	110mm Bend A : 34 B : 0	No	34		
L	110mm Junction A : 18 B : 0	No	18		
M	110mm Tee A : 12 B : 0	No	12		
N	110mm Access bend A : 8 B : 0	No	8		
	Carried Forward			R	

				R	
	Brought Forward				
A	110mm Diameter UPVC stub stack A : 225 B : 0	m	225		
B	110mm Access bend with anti-syphon horn A : 8 B : 0	No	8		
C	110mm Straight pan connector A : 11 B : 0	No	11		
	TESTING				
D	Testing waste pipe system		Item		
	WATER SUPPLY				
	Class 2 copper pipes for compression fittings in accordance with SABS 460				
E	15mm Pipes chased into brick walls A : 376 B : 0	m	376		
F	22mm Pipes chased into brick walls A : 42 B : 0	m	42		
G	15mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 253 B : 0	m	253		
H	22mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 58 B : 0	m	58		
I	28mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 18 B : 0	m	18		
J	35mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 20 B : 0	m	20		
	Extra over for fittings				
	Carried Forward			R	

				R
	Brought Forward			
	Extra over Class 2 copper pipes for brass capillary soldered fittings			
A	15mm Fittings A : 125 B : 0	No	125	
B	22mm Fittings A : 33 B : 0	No	33	
C	28mm Fittings A : 8 B : 0	No	8	
D	35mm Reducer A : 2 B : 0	No	2	
E	35mm Bend A : 3 B : 0	No	3	
F	35mm Tee A : 2 B : 0	No	2	
G	35mm Elbow A : 2 B : 0	No	2	
H	35 x 22mm Reducer A : 1 B : 0	No	1	
I	15mm Brass Shut -off valve jointed to copper pipe including adaptors A : 33 B : 0	No	33	
J	22mm Brass Shut- off valve jointed to copper pipe including adaptors A : 3 B : 0	No	3	
K	28mm Brass Shut -off valve jointed to copper pipe including adaptors A : 1 B : 0	No	1	
L	50mm Brass Shut -off valve jointed to copper pipe including adaptors A : 2 B : 0	No	2	
M	75mm Brass Shut -off valve jointed to copper pipe including adaptors A : 2 B : 0	No	2	
	Carried Forward			R

				R	
	Brought Forward				
	FIRE EQUIPMENT, ETC ON WALL MOUNTED HANGERS				
A	Fire hose reel to SABS 543 complete with 20mm diameter rubber hose 30m long, chromium plated stopcock, shut-off nozzle and wall bracket A : 3 B : 0	No	3		
B	4.5kg Dry chemical powder fire extinguisher including hanger fixed to and including timber backing board A : 6 B : 0	No	6		
C	5kg CO2 fire extinguisher including hanger fixed to and including timber backing board A : 2 B : 0	No	2		
	Hydroboil				
D	Zip stainless steel 5 litre Hydroboil (Code SKU 2610008) size 318 x 150 x 460mm high with instant boiling water, two way tap control, connected to 15mm cold water supply with service valve, waste for safety valve connected to waste water system and 220volt 15amp electrical power supply, plugged and screwed to wall and fitted under 1 year guarantee. All to comply with NBR A : 1 B : 0	No	1		
	WATER SUPPLIES TO FIRE APPLIANCES				
	Galvanised steel pipes				
E	25mm Pipes fixed to walls with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 9 B : 0	m	9		
F	25mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor A : 33 B : 0	m	33		
	Extra over galvanised steel pipes for steel fittings				
G	25mm Fittings A : 8 B : 0	No	8		
	Carried Forward			R	

	Brought Forward			R	
A	50 x 32mm Reducing socket A : 1 B : 0	No	1		
B	32 x 25mm Reducing socket A : 1 B : 0	No	1		
C	50 x 25 x 25mm Reducing tee A : 2 B : 0	No	2		
	TESTING				
D	Pressure testing water pipe system		Item		
E	Pressure testing fire pipe system		Item		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 13
Internal Plumbing and Drainage
Q535B

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 14				
	GLAZING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 150 for JBCC CPAP purposes*				
	PANELS, MIRRORS, ETC				
	6mm Silvered float glass copper backed mirrors with bevelled edges holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete				
A	Mirror, size 600 x 400mm A : 23 B : 0	No	23		
B	Mirror, size 600 x 1600mm A : 2 B : 0	No	2		
	Carried Forward to Summary of Section No. 2			R	

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 15				
	PAINTWORK				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 152 for JBCC CPAP purposes*				
	PAINTWORK TO PLASTERED SURFACES				
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply two coats Plascon Professional Hygiene Low Sheen (PHL)THL paint:				
A	On new plastered walls A : 479 B : -455	m2	24		
B	On existing plastered walls A : 1093 B : -1038	m2	55		
C	On existing granolithic sills A : 79 B : -75	m	4		
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply one coat Dulux MD Duraplast with foam plastic roller followed by two coats Dulux Wash n Wear Silk paint:				
D	On plastered walls (corridors) A : 463 B : -440	m2	23		
	Carried Forward			R	

				R	
	Brought Forward				
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply two coats Plascon Acrylic PVA				
A	On existing concrete ceilings or beams	m2	1		
	A : 21 B : -20				
	ON FIBRE CEMENT				
	Clean down, prepare and apply one coat Plascon Professional Waterbased Gypsum sealer (PGS1) and apply two coats Plascon Professional Super Matt (PEM900/TSA) paint on:				
B	Skimmed ceilings	m2	1		
	A : 2 B : -1				
	Clean down, prepare and apply one coat Plascon Professional Waterbased Gypsum sealer (PSG1) and apply two coats Plascon Professional Hygeine Low Sheen (PHL/THL) paint on:				
C	Soffits of horizontal bulkheads	m2	4		
	A : 38 B : -34				
	Prime with pink wood primer, and apply two coats Plascon Velvaglo paint on:				
D	Sides of horizontal bulkheads	m2	6		
	A : 53 B : -47				
	ON METALWORK				
	Ensure surfaces are clean and dry. Apply Plascon Universal Undercoat (UC 1), allow to dry for 16 hours and finish with two coats of Water based Enamel (WBE)				
E	On new door frames	m2	1		
	A : 18 B : -17				
	Carried Forward			R	

				R	
	Brought Forward				
	Remove all paint and rust completely. All surfaces to be sanded smooth and existing paint edges to be sanded smooth to approval. Apply one coat Aquanova Primer (WHP1) followed by one coat Professional All Purpose Undercoat (PU800)				
A	On existing window frames (measured flat both sides) A : 241 B : -229	m2	12		
	Surface to be clean, dry and free from contamination and all oil or grease removed. Apply one coat Intercure 200 primer followed by spray applied Interchar 1190 Single component, borate and chlorine free, water borne intumescent coating designed to provide up to two hours cellulosic fire protection on beams, columns and hollow sections exposed in interior environments. Application in strict accordance with manufacturer's specifications				
B	On structural steel A : 2 B : -1	m2	1		
	ON WOOD				
	Stop, fill, sand down and prepare wood surface. Apply primer and two coats Plascon Velvaglo Polyurethane Velvet Enamel paint:				
C	On doors A : 214 B : -189	m2	25		
	Clean down, prepare and apply one coat Plascon Professional Wood primer (PP800) and apply two coats Plascon Waterbased Velvaglo				
D	Door frames not exceeding 300mm girth A : 611 B : -580	m	31		
	Remove loose and peeling paint by scraper or hand sanding, feather edges and dust off. Apply one coat of Plascon Professional Wood Primer (PP800) and two coats of Plascon Waterbased Velvaglo (VLW/TVW)				
E	On existing doors A : 53 B : -30	m2	23		
	Carried Forward to Summary of Section No. 2			R	

Section No. 2
Bill No. 15
Painting
Q535B

Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL NO 16				
	BUILDER'S WORK IN CONNECTION WITH ELECTRICAL AND MECHANICAL SERVICES				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	NOTE: All sleeve pipes and pipe conduits to be supplied with draw wires as necessary for fixing of cables and wiring				
	CONCRETE				
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	Core drilling of hole for services exceeding 50mm and not exceeding 110mm diameter				
A	200mm Thick reinforced concrete slab, beam, wall, etc A : 7 B : 0	No	7		
	Core drilling of hole for services exceeding 110mm and not exceeding 160mm diameter				
B	200mm Thick reinforced concrete slab, beam, wall, etc A : 2 B : 0	No	2		
	Core drilling of hole for services exceeding 160mm and not exceeding 200mm diameter				
C	200mm Thick reinforced concrete slab, beam, wall, etc A : 12 B : 0	No	12		
	Carried Forward			R	

				R	
	Brought Forward				
	Core drilling of hole for services exceeding 200mm and not exceeding 300mm diameter				
A	200mm Thick reinforced concrete slab, beam, wall, etc A : 2 B : 0	No	2		
	Scanning of rebar (penetrations)				
B	Allow the Amount of R25,000.00 (Twenty Five Thousand Rand) for scanning of reinforcement in slab before coring for penetrations	Item			25,000.00
C	Profit on above item.	Item			
D	Attendance on ditto.	Item			
	HOLES ETC				
	Holes through 220mm brick wall				
E	100mm diameter hole through brick wall A : 11 B : 0	No	11		
	BRICKWORK UPSTAND AROUND CORES				
	***NOTE**: The following items shall be deemed to fall into Work Group No 116 for JBCC CPAP purposes*				
	Brickwork of clay bricks in 6:1 cement mortar				
F	Half brick walls A : 10 B : 0	m2	10		
	Internal plaster				
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	One coat 1:4 cement plaster to brickwork with steel trowel to receive an approved high quality paint.				
G	On new walls in narrow widths A : 28 B : 0	m2	28		
	Carried Forward			R	

				R	
	Brought Forward				
	Paintwork to plastered surfaces				
	***NOTE**: The following items shall be deemed to fall into Work Group No 152 for JBCC CPAP purposes*				
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply two coats Plascon Professional Hygiene Low Sheen (PHL)THL paint:				
A	On new plastered walls A : 28 B : 0	m2	28		
	OPENINGS THROUGH BRICKWORK				
	***NOTE**: The following items shall be deemed to fall into Work Group No 116 for JBCC CPAP purposes*				
B	600 x 600mm Opening through 345mm cavity wall including 38 x 114mm sub timber frame A : 2 B : 0	No	2		
	FIRE STOPS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	3M Fire barrier sealant CP 25WB+ gun-grade, latex based, intumescent sealant to form a monolithic firestop seal applied all in accordance with manufacturer's specifications				
C	Backfilling 110mm diameter opening through 200mm thick concrete slab around pipes, sleeves A : 2 B : 0	No	2		
D	Backfilling 160mm diameter opening through 200mm thick concrete slab around pipes, sleeves, etc A : 7 B : 0	No	7		
E	Backfilling 260mm diameter opening through 200mm thick concrete slab around pipes, sleeves, etc. A : 2 B : 0	No	2		
	Carried Forward			R	

					R
	Brought Forward				
A	Fire stop sealant around galvanised steel metal ducting with maximum girth of 3m in brick walls or concrete (Rate to include sealing on both sides of opening) A : 25 B : 0	No	25		
B	Fire stop sealant around cable trays with maximum girth of 1m in brick walls or concrete (Rate to include sealing on both sides of opening) A : 28 B : 0	No	28		
C	Fire stop sealant in opening size 20mm diameter (Rate to include sealing on both sides of opening) A : 8 B : 0	No	8		
	Carried Forward to Summary of Section No. 2				R

Section No. 2
Bill No. 16
Builderswork
Q535B

SECTION SUMMARY - SECTION 2 COMPLETION OF RENOVATIONS TO HIG

Bill No		Page No	Amount
1	Renovations	52	
2	Concrete, formwork and reinforcing	56	
3	Masonry	58	
4	Waterproofing	59	
5	Carpentry and Joinery	75	
6	Ceilings, Partitioning and Access Flooring	80	
7	Floorcovering	83	
8	Ironmongery	118	
9	Structural steel	120	
10	Metalwork	131	
11	Plastering	134	
12	Tiling	136	
13	Internal Plumbing and Drainage	151	
14	Glazing	152	
15	Painting	155	
16	Builderswork	159	

Carried to Final Summary R

Section No. 2
Q535B

Item No			Quantity	Rate	Amount
	SECTION NO. 3				
	RENOVATIONS TO CSSD (PROVISIONAL)				
	BILL NO. 1				
	RENOVATIONS				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
	FLOORS AND FLOOR FINISHES				
A	Take up and remove existing vinyl tiles/vinyl sheeting floor covering from cement screed and prepare screed to receive new vinyl sheeting (elsewhere measured)	m2	86		
B	Break up and remove existing screed / grano approximately 30mm thick from concrete surface bed and prepare latter to receive new screed (measured elsewhere)	m2	86		
C	Take off and remove existing timber / vinyl skirting from plastered wall and repair wall surface to receive new (elsewhere measured)	m	66		
D	Break up and remove existing reinforced concrete plinth, not exceeding 120mm thick	m2	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	Cut through concrete slab not exceeding 120mm thick to form an opening size 800 x 800mm wide, cut existing mesh (if any) on centre, bend up and preserve and remove existing concrete floor	No	1		
	WALLS AND WALL FINISHES				
B	Hack off and remove existing white glazed tiles including plaster backing from brick walls in patches and prepare the surface to receive new tiles (elsewhere measured)	m2	15		
C	Hack off and remove internal plaster from brick walls, concrete columns and beams and prepare to receive new plaster (measured elsewhere), including all necessary cleaning	m2	25		
	DOORS				
	Break out and remove existing doors and frames and brick up openings				
D	Break out timber frame and timber door, size approximately 813 x 2032 high, with lock, etc, from half brick wall, prepare top of existing brickwork and brick up opening with brickwork in cement mortar, finish off with plaster to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, neat flush intersections of new to existing finishes, etc	No	1		
	WINDOWS				
E	Service existing residential type window frame, but size 1100 x 1350mm high, including all necessary bending, servicing of hinges and replacing of ironmongery, etc.	No	4		
F	Service existing residential type window frame, but size 2000 x 1350mm high, including all necessary bending, servicing of hinges and replacing of ironmongery, etc.	No	2		
	CEILINGS				
G	Take down and remove existing skimmed gypsum plaster ceiling boards/suspended ceilings, including brandering/ceiling grids, insulation, cornices, etc.	m2	59		
	Carried Forward			R	

				R	
	Brought Forward				
	ROOFS				
A	Carefully take off and remove existing torch on waterproofing from timber boarded roof to receive new (elsewhere measured)	m2	40		
B	Carefully take down and remove existing marine plywood timber boards (roof sheeting), in patching and prepare to receive new (measured elsewhere)	m2	40		
C	Carefully cut existing boarding along the face of the concrete fin edges in straight line to separate existing timber roof from buildings	m	6		
D	Take off and remove existing timber fascia and barge boards, not exceeding 300mm wide, from roof timbers	m	27		
	FITTINGS				
E	Remove existing timber counter overall size 4500 x 600 x 910mm high overall, from plastered wall and repair wall faces	No	1		
F	Remove existing stainless steel worktop overall size 2942 x 600 x 910mm high overall, from plastered wall and repair wall faces	No	2		
	PLUMBING AND DRAINAGE				
G	Cut through, take off and remove existing galvanised or copper piping not exceeding 50mm diameter, including fittings and brackets from roof space, plastered walls, etc., cut back and seal off piping into walls and repair finished faces	m	15		
H	Cut through, take off and remove existing 40mm PVC piping, including fittings and brackets from plastered walls, and repair finished faces where necessary	m	36		
I	Ditto, but for 50mm pipes	m	20		
J	Ditto, but for 110mm pipes	m	8		
	Carried Forward			R	

				R	
	Brought Forward				
A	Take off and remove from plastered brick walls existing stainless steel sink and store temporarily for re-use, complete with fittings, taps, traps, pipes (sealed off into walls or floors), etc. and repair finished faces	No	2		
	BUDGETARY ALLOWANCE				
B	Allow R50,000.00 (Fifty Thousand Rand) for work or cost which cannot be entirely foreseen, defined or detailed at tender stage. This amount shall be used at the discretion of the Implementing Agent/Project Manager if required		Item		50,000.00
	CREDIT FOR OLD MATERIAL				
C	The contractor to allow herein for credit for all old materials from the alteration described to become the property of the contractor.	No	-1		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 1
Renovations
Q535B

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO 2

CONCRETE FORMWORK AND REINFORCEMENT

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Type of cement

All cement used in concrete work is to be OPC cement, no cement containing fly ash will be allowed

Cost of tests

The costs of making, storing and testing of concrete test cubes shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Representative/Agent. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the Representative/Agent. (Test cubes are measured separately)

Carried Forward R

Brought Forward		R	
Breeze concrete			
Breeze concrete shall consist of twelve parts clean dry furnace ash, free from coal or other foreign matter, to one part cement (1:12); the ash graded up to particles which will pass a 16,5mm ring from a minimum which fails to pass a 4,75mm mesh. The finer materials from the screening are to be first mixed with the cement into a mortar and the ash added afterwards and thoroughly incorporated			
Lightweight concrete			
Lightweight concrete shall have a density of 600kg/m^3 for the top 50mm and 400kg/m^3 for the remaining thickness. The minimum thickness at outlets, channels, etc shall be 50mm			
Formwork			
Descriptions of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use			
The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself			
Formwork to soffits of solid slabs etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described			
Formwork to soffits of slabs, beams, etc shall be deemed to be propped up exceeding 1,5m and not exceeding 3,5m high unless otherwise described			
Carried Forward		R	

	Brought Forward			R
	Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"			
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*			
	REINFORCED CONCRETE			
	25 MPa/19 mm concrete in			
A	Surface beds cast in panels on waterproofing in patching	m3	1	
	CONCRETE SUNDRIES			
	Finishing top surface of concrete smooth with a wood float in			
B	Surface beds	m2	1	
	Fabric reinforcement			
	***NOTE**: The following items shall be deemed to fall into Work Group No 114 for JBCC CPAP purposes*			
C	Type 311 fabric reinforcement in concrete surface beds	m2	1	
	Carried Forward to Summary of Section No. 3			R

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO. 3

MASONRY

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Sizes in descriptions

Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick

Wall ties

Descriptions of solid walls (except if built in English bond) and cavity walls shall be deemed to include metal wall ties complying with SABS 28 and of the butterfly or of the modified PWD type, of the required length with each end built at least 75mm deep into brickwork, spaced at not more than 1m centres alternatively to every third course of brickwork

Cavity walls etc

Descriptions of cavity walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole

Carried Forward R

	Brought Forward			R	
	Face bricks				
	Bricks shall be ordered timeously to obtain uniformity in size and colour				
	Pointing				
	Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc				
	***NOTE**: The following items shall be deemed to fall into Work Group No 116 for JBCC CPAP purposes*				
	SUPERSTRUCTURE				
	Brickwork of clay bricks in 6:1 cement mortar				
A	Half brick walls	m2	2		
B	Half brick wall lining to be bonded onto existing brickwork at end including tie-inns every 2nd course	m2	2		
	BRICKWORK SUNDRIES				
	Brick reinforcement				
C	75mm Wide reinforcement built in horizontally	m	16		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 3
Masonry
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 4				
	WATERPROOFING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	JOINT SEALANTS, ETC				
A	All joints/surrounds to wash hand basin to be sealed with Sikaflex -11 FC+ (colour white)	m	6		
	DAMP-PROOFING OF FLOORS				
	Two coats Vaporite moisture barrier to substrate and allow to dry, evenly apply a slurry coat consisting of equal parts by volume of Bondite Primer and Levelite F30 using a broom or brush and allow to dry, all in accordance with manufacturer's specifications				
B	Floors	m2	79		
	Sealing compound around windows				
C	Rake out and existing sealant and re-seal by applying Dow Sil 813C neutral cured joint sealant	m	33		
	Carried Forward			R	

				R	
	Brought Forward				
	One layer of 500 micron "Consol Plastics Gunplas Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape"				
A	Under surface beds	m2	1		
	DAMP-PROOFING OF ROOFS				
	4mm Thick Derbigum SP FR Fire resistant bitumen waterproofing membrane, to be installed with a 75mm side laps and 100mm end laps, fixed to timber boarded roof and flashing, all in accordance with manufacturer's specifications				
B	On timber boarded roofs	m2	40		
C	On timber boarded vertical flashing	m2	4		
	Backing chord				
D	15mm ABE Duracord closed cell polyethylene backing chord fitted between timber board flashing and roof upstand	m	6		
	Bituminous aluminium paint of waterproofing				
	Prepare and apply two coats bitumous aluminium paint, all in accordance with manufacturer's specifications				
E	On new waterproofing	m2	44		
	Carried Forward to Summary of Section No. 3			R	

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO 5

CARPENTRY AND JOINERY

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Descriptions

The term "planted on" shall mean the nailing of one timber member to another

The term "screwed on" shall mean the countersunk screwing of one timber member to another

The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screws sunk and pelleted

The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete

Carried Forward R

	Brought Forward			R	
	The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screws sunk and pelleted				
	Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing				
	Descriptions of floors, ceilings, joinery, etc shall be deemed to include for all square cutting				
	Descriptions of items given in lineal metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc				
	Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc shall be deemed to include for angles, ends, etc				
	Timber				
	All softwood to be South African Pine				
	***NOTE**: The following items shall be deemed to fall into Work Group No 126 for JBCC CPAP purposes*				
	ROOF TIMBER				
	Sawn SA Pine				
A	38 x 114mm Wall plate	m	28		
B	50 x 76mm Spaced support fixed to concrete fins	m	17		
	Marine plywood boards to be installed as timber decking roof sheeting				
C	22m Thick boards fixed to timber beams (elsewhere measured) in patching as roof sheeting	m2	80		
	Carried Forward			R	

				R	
	Brought Forward				
A	22m Thick boards as vertical flashing fixed to existing concrete panels with timber and steel supports (elsewhere measured)	m2	4		
B	22m Thick board 50mm high fixed vertically to timber board roof sheeting to create lip against face of concrete ribs	m	12		
	Eaves - Everite Nutec fibre cement boards				
C	12 x 225mm Fascia board bolted to existing timber purlins with corrosion proof gutter bolts at maximum 1000mm centres butt jointed with and including standard fascia jointing plates at all joints	m	27		
	DOOR FRAMES, ETC FIXED TO BRICKWORK OR PARTITIONING WALLS				
	Wrought Meranti				
D	44 x 12mm Architrave	m	29		
E	114 x 32mm Rebated door frame including 69 x 12mm beading	m	15		
	DOORS, ETC				
	Take out of storage and install solid heavy duty laminated flush door with Hardboard on both sides (with concealed edges) (doors bought by previous contractor)				
F	44mm Door 813 x 2032mm high	No	1		
G	44mm Door 850 x 2032mm high	No	2		
	Extra for openings in solid flush panel doors for viewpanels and louvres				
H	Extra for 120 x 750mm opening for aluminium framed glazed view panel (view panel elsewhere measured)	No	1		
	Carried Forward			R	

	Brought Forward			R	
A	Extra for 300 x 300mm opening for stainless steel louvre (louvre measured elsewhere)	No	2		

CUPBOARDS AND WORK TOPS

All internal shelves to be 16mm Melawood FOLKSTONE GREY to be BISON BOARD V313 as substrate.
Sink and WHB Units: All casework and shelving to be BISON BOARD V313 as a substrate.
All Doors to be 16mm Melawood FOLKSTONE GREY (Peen finish) edged on all sides with 2mm high impact edging. (Colour: to match door face) + All doors to be hung on 35mm concealed cabinet hinges, 2 per door.
All casework and drawer fronts to be 16mm Melawood FOLKSTONE GREY (Peen Finish) with 2mm high impack edging to all exposed edges.
All cupboards to be lockable with UNION 452-25PL (brass cylinder cupboard locks or similar approved.
Uppermost drawer in drawer units to be lockable with UNION 452-25PL (brass) cylinder cupboard locks or similar approved.
All drawers to be fitted with UTA 45mm full extension ball bearings slides (1.2mm thick steel; load capacity 35kg per on 450mm wide drawer), or similar approved.
Backing board to units with open shelving to be 16mm Melawood FOLKSTONE GREY (Peen finish).
Backing boards to units with closable cupboards (ie: not visible when cupboard doors are closed) to be 3.5mm white faced hardboard.
Where joinery is fixed against drywall, wall to be braced with suitable nog-ins.
Low Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into door.
All edges to be deburred.
High Level Cupboards: All handles to be Raiel finger grip flat handles in natural anodised aluminium (Code RAH841) cut to fit, recessed into bottom edges of door.
All edges to be deburred.
All bases to be solid SA Pine, treated for moisture resistance, prior to fixing, with intermediately studs at max 450 ccs.
Bases to be painted 1 coat Plascon pink wood

	Carried Forward			R	

	Brought Forward			R	
	primer (UC 2) prior to installation. **All countertops to be 12mm DU PONT Basic Surfaces with 22mm Supawood base for strength** **Skirting: Refer to detail.** **All internal cutouts to accommodate plumbing and/or electrical or other services to be cut neat and square/ rectangular / circular and to be closed up neatly with 4mm white faced Masonite board cut to square around penetration.** **All junctions between unit and wall to be closed with appropriate continuous spacers – NO POSTFORM JOINERS MAY BE USED -** **No gaps / holes** **Seal between all worktops, sanitary ware, tiling and wall with SIKAFLEX FC – 11 (for sanitary ware and/or wet areas) and SIKASIL –C everywhere else.**				
	FLOOR CUPBOARDS				
	Purpose made				
A	1100 x 600 x 900mm High floor cupboard with one pair of double doors and one single door, comprising bottom panel, side panel, fixed mid-shelf and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, with 600 x 12mm DuPont Basic Surfaces with 22mm Supawood base for strength on 150 x 32mm SA pine bearers as skirting, all in accordance with **Drawing JDT-C01**	No	1		
	WALL CUPBOARDS				
	Purpose made				
B	1100 x 284 x 1000mm High wall cupboard with one pair of double doors and one single door, comprising bottom panel, side panel, one fixed mid-shelves and top panel from 16mm Melawood faced board with 2mm PVC high impact edging, all in accordance with **Drawing JDT-C01**	No	1		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 5
Carpentry and Joinery
Q535B

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO 6

CEILINGS, PARTITIONS AND ACCESS FLOORING

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Descriptions

Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete

Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere

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***NOTE**: The following items shall be deemed to fall into Work Group No 129 for JBCC CPAP purposes*

INSULATION

Carried Forward R

				R	
	Brought Forward				
	135mm Thick Isover Aerolite Soft Touch (011 360 8200) thermal and acoustic ceiling insulation (R-value 3.38m2.K/W) closely fitted with ends butted firmly between tie beams and laid loose on top of brandering between roof timbers. All strictly to manufacturer's specifications.				
A	Ceiling insulation	m2	35		
	SUSPENDED CEILINGS				
	Note:				
	Electrical light fittings, diffusers, panels, etc generally are "lay in" units of the same dimensions as the suspension grid described and allowance must be made accordingly for their support inclusive of any flexibility insetting out that may be required (ceiling panels have not been deducted and pricing is to take cognisance thereof)				
	600 x 600 x 12.5mm Thick OWAdek vinyl faced squared edged gypsum ceiling panels, face covered with white embossed vinyl. Ceiling tiles laid on and including Donn T38 FR QRC fire rated main tees and Donn T38 FR QRC (600) cross tees. Suspension system including Donn Fire Notches and Donn Hangar straps. All to be installed as per manufacturer's instructions:				
B	Ceilings suspended not exceeding 1m below concrete slab	m2	22		
	595 x 595 x 6mm Thick Nutec embossed white vinyl ceiling tiles (Code 366-222) in Donn T38 FR QRC fire rated main tees and Donn T38FR QRC (600) cross tees. Suspension system including Donn Fire Notches and Donn Hangar straps. All to be installed as per manufacturer's instructions:				
C	Ceilings suspended not exceeding 1m below concrete slab	m2	27		
	CORNICES				
D	'Donn LSM 25 Shadowline' cornices, plugged	m	49		
	Carried Forward			R	

				R	
	Brought Forward				
	SUSPENDED PLASTERED GYPSUMBOARD BULKHEADS				
	9mm Thick Gyproc Rhinoboard plasterboard ceiling consisting of steel brandering fixed at 400mm centres in one direction onto which Rhinoboard is fixed, printed side up at right angles to the roof structure. All joints to be covered with Gyproc Rhino Tape and then plastered with a 3-6mm coat of Gyproc Rhinolite or Gyproc Cretestone plaster applied as per manufacturer's specifications complete with SABISA certificate. Colour to Architect's approval.				
A	Soffits of horizontal bulkheads, suspending not exceeding 1.5m below concrete soffits	m2	10		
	12mm Thick Supawood board on drywall stud subframe for support fixed to underside of existing slab				
B	Sides of horizontal bulkheads, suspending not exceeding 1.5m below concrete soffits	m2	5		
C	38 x 38mm Timber brandering fixed to concrete beam with 12mm supawood board fixed to brandering (board measured elsewhere)	m	15		
	Aluminium angle				
D	White powder coated aluminium angle to finish bulkhead corner and skimming of adjacent ceiling to edge of angle	m	10		
	SKIMMED CEILINGS				
	Carried Forward			R	

				R	
	Brought Forward				
	Gyproc Rhinoboard 6.4mm thick plasterboard ceiling consisting of steel branders fixed at 400mm centresin one direction onto which Rhinoboard is fixed, printed side up, at right angles to the roof structure. All joints to be covered with Gyproc Rhino Tape and then plastered with a 3-6mm coat of Gyproc Rhinolite or Gyproc Cretestone plaster applied as per manufacturer's instructions. All joints finished off with 48mm wide strips of suitable tape fixed over joints and the whole finished with minimum 3mm and maximum 6mm thick coat of gypsum skim plaster trowelled to smooth polished finish all as per manufacturer's instructions complete with SABISA certificate				
A	Ceilings suspended not exceeding 1m below concrete slab	m2	2		
	9.5 x 45 x 35mm Flush plaster trim cornice				
B	Angle cornice plugged to walls	m	3		
	Gyproc Rhinoboard 6.4mm thick plasterboard ceiling fixed to timber brandering (brandering measured elsewhere) fixed at 300mm centres in one direction onto which Rhinoboard is fixed, printed side up, at right angles to the roof structure. All joints to be covered with Gyproc Rhino Tape and then plastered with a 3-6mm coat of Gyproc Rhinolite or Gyproc Cretestone plaster applied as per manufacturer's instructions. All joints finished off with 48mm wide strips of suitable tape fixed over joints and the whole finished with minimum 3mm and maximum 6mm thick coat of gypsum skim plaster trowelled to smooth polished finish all as per manufacturer's instructions complete with SABISA certificate				
C	Ceilings suspended not exceeding 1m below timber roof	m2	35		
	38 x 38mm SA Pine brandering fixed to timber purlins				
D	38 x 38mm SA Pine brandering	m2	35		
	PARTITIONING SYSTEMS				
	Carried Forward			R	

	Brought Forward			R	
	Drywall gypsum board partition systems				
	Drywall partitioning shall comprise galvanised steel top and bottom tracks and natural anodised aluminium head channel, vertical studs at maximum 600mm centres, friction fitted or pop-riveted to top and bottom tracks with 0,6mm galvanised steel sheeting on one side and covered on both sides with 12,5mm gypsum plasterboard, screwed to studding with 25mm Drywall screws at maximum 220mm centres				
	Boards are to have staggered butt joints and the joints are to be finished with 48mm wide tape and two coats jointing compound applied in strict accordance with the manufacturer's instructions				
	All screw heads are to be spotted and all areas of jointing compound shall receive one coat plaster primer before finishing				
	Finishes to partitioning are measured elsewhere				
	_____				
	Partitions are to be constructed of Gypsum plasterboard fixed to steel framing as per Rhino Drywall System 3, using 2 layer plasterboard to each side of studding. All studding, fixing and boarding to be in accordance with the manufacturer's instructions as detailed. It is essential that suitable 230 x 50mm SA Pine framing pieces be fixed between studs where required for the fixing of sanitary fittings etc.				
	All services are to be fitted inside the partitions before the cladding to the second face is fitted in position. Showers and any other wet work areas to be covered with moisture resistant boards and fire walls to be covered with Rhino fire stop boards. Allowance to be made for additional timber for fixing of services inside and outside of partitions				
	Gyprox X Roc" Drywall steel stud partitioning				
A	Drywall 3000mm high 3 x12.5mm boards either side of 63.5mm studs	m	22		
B	Extra over partition 3000mm high for vertical abutment	No	9		
	Carried Forward			R	

				R	
	Brought Forward				
A	Drywall 3000mm high 2 x12.5mm boards either side of 63.5mm studs	m	2		
B	Extra over partition 3000mm high for vertical abutment	No	2		
	Doors				
C	Extra over partition for forming opening for door size 813 x 2032mm high including additional framing, etc (door, door frame, ironmongery, etc measured elsewhere)	No	3		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 6
Ceilings, partitioning and access flooring
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 7				
	FLOOR COVERINGS, WALL LININGS, ETC				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 130 for JBCC CPAP purposes*				
	VINYL SHEETING				
	Polyflor Classic Mystique PuR or equal approved life long polish free homogeneous vinyl floor sheeting 2,0mm thick, laid in acrylic adhesive spread with a notched trowel, joints welded with a fully flexible coloured Polyflor Welding Rod to provide a smooth, hygienic sealed finish and rolled with 68kg articulated floor roller, on well prepared cement screed (elsewhere) to match required level with a hygrometer reading showing a moisture content of less than 70% – all installed strictly to manufacturers specifications (Polyflor 011-609 3500) – Sheet and welding rod colours to Architects approval.				
A	Seamless vinyl floor sheets on floors	m2	45		
	Carried Forward			R	

	Brought Forward			R	
	2mm Thick heavy duty safety vinyl floor sheeting, Polysafe Vogue, as manufactured by Polyflor, or equal approved containing silicone carbide, aluminium oxide granules and coloured quartz through its entire thickness, to provide a non-skid surface, sustainable for the life of the product , fixed with an approved contact adhesive (The back of the sheet MUST be primed with a specific Pu primer [QAN 439A applied by Smooth trowel or Short haired roller]) prior to any installation where contact adhesive will be used, and joints hot welded & glazed with matching welding rod to provide a continuous finished surface including rolling with a 68kg three part metal roller on completion				
A	Seamless vinyl safety floor sheets to falls and currents	m2	34		
	SKIRTINGS, NOSINGS, ETC				
	Cappings, cove formers, etc				
B	"Polyflor Polycove CF 20" cove former, size 20mm high x 20mm wide	m	98		
C	Extra over "Polyflor Polycove PC20" taper end piece, size 20mm high x 150mm long	No	98		
D	"Polyflor CS48 capping strip with top edge of skirting sealed with and including SIKA Sikacryl-S	m	98		
	Seamless polyutherane reinforced fully flexible vinyl coved skirting fixed with and including adhesive				
E	Polyflor Mystique PuR or equal approved 2mm Thick x 200mm high with 200mm wide border bottom edge vinyl skirting with integral coved corner, including welding bottom edge to floor covering (floor covering elsewhere) including all formed internal and external corners (Color: Silver Mist)	m	62		
	Carried Forward			R	

				R
	Brought Forward			
A	Polyflor Polysafe Vogue Ultra Heavy duty vinyl flooring or equal approved 2mm Thick x 200mm high with 200m mm wide (400mm girth) border bottom edge safety vinyl skirting with integral coved corner, including welding bottom edge to floor covering (floor covering elsewhere) including all formed internal and external corners (Colour: Barley)	m	36	
	SEALERS			
	Two coats floor dressing as recommended by the manufacturer of the floor coverings on vinyl flooring (stripping and sealing)			
B	On floors	m2	79	
	MOVEMENT JOINTS			
C	Kirk M-Trim aluminium structural movement joint ASSJ390H including hospital infill	m	3	
D	Kirk Marketing M-Trim Brass Flat Bar (BFB403) size 40mm x 3mm with natural brass finish, including epoxy glue into slab to provide straight edge between corridor and trolley wash bay	m	3	
	Carried Forward to Summary of Section No. 3			R

Section No. 3
Bill No. 7
Floorcovering
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 8				
	IRONMONGERY				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	IRONMONGERY TO DOORS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 132 for JBCC CPAP purposes*				
	All locks to be on a master and grand master key system - 2 keys to be provided for each lock				
	The following ironmongery are measured according to the type (combination) to be used - all in accordance with Ironmongery schedule annexed at the back of the Bills of Quantities				
	The following in type A				
	Approved type				
A	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames	Pairs	1.5		
B	Lever handle on rose - Latch (Code CR001 Latch S.S)	Sets	1.0		
	Carried Forward			R	

				R	
	Brought Forward				
A	Disabled WC indicator (Red & White) and turnknob (code DWC-005)	Sets	1.0		
B	Bathroom Sash Lock. Case dimensions (mm) 102H x 78D. Forend dimensions (mm) 155H x 22W. Backset 57mm. Centres 57mm (Code D035S SS)	No	1		
C	Hat and Coat Hook with rubber buffer (Code DHC-SS030A)	No	1		
D	Dormakaba floor mounted door stop (Code DDS-SS-017)	No	1		
	The following in type B				
	Approved type				
E	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges	Pairs	3.0		
F	NON HOLD OPEN Cam action slide channel door closer. Max door width 950mm. Closing Force EN 3. Hydraulic speed control. Pull-side door leaf fixing (Standard), Pushside transom fixing. Door closer compliant with EN 1154. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS91B - SL)	No	2		
G	DPH301C Pull Handle BT fixed on a 150x300x1.2mm thick Grade 430 brushed stainless steel plate with cylinder cutout right. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DHP-430-BL-SF 150X300)	No	2		
H	150x300x1.2mm thick Grade 430 stainless steel plate with cylinder cutout left. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-BL - SF 150X300)	No	2		
I	ISEO 291105702 "Special" 70mm profile cylinder deadlock with 70mm backset, latchbolt to be blanked off, thus only deadbolt utilised (Code 291105702 "S")	Sets	2.0		
	Carried Forward			R	

				R
	Brought Forward			
A	65mm Five pin Euro-profile cylinder key to differ (Code DDC056501KD)	No	2	
B	Dormakaba floor mounted door stop (Code DDS-SS-017)	No	2	
C	Round cylinder escutcheon (CodeDCE-002 SS)	Pairs	2.0	
	DOOR PROTECTION			
	1.6mm Thick Grade 430 stainless steel with brushed finish for shaped / formed corners			
D	1.6mm Thick Grade 430 stainless steel door edge protector shaped around leading edge of door and extended 40mm on each face, drilled and screw fixed to door, 2032mm long	No	2	
E	1.6mm Thick Grade 430 stainless steel L-shaped door edge protector fitted to heel of door with one side extending 40mm on the face of the door, drilled and screw fixed to door, 2032mm long	No	2	
F	1.6mm thick grade 430 stainless steel "U" shaped door frame protectors size 44 x 12 x 12mm to fit timber architrave 2032mm high	No	4	
G	1.6mm thick grade 430 stainless steel "L" shaped door frame protectors size 72 x 12mm to fit timber doorframe 2032mm high	No	4	
	1.2mm Thick Grade 430 stainless steel with brushed finish for sheet areas			
H	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 850 x 1100mm high	No	1	
I	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 850 x 300mm high	No	1	
J	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 810 x 1100mm high holed for pull handle fixing	No	2	
	Carried Forward			R

				R
	Brought Forward			
A	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 770 x 1100mm high	No	2	
	BATHROOM FITTINGS			
B	Kimberly Clark Professional REFLEX rolled towel dispenser (code: 426125) in stainless steel, 395 x 330 x 270mm high	No	4	
C	Kimberly Clark Professional stainless-steel disposer (code: 426135), 390 x 350 x 285mm high	No	1	
D	Serra Hi-Scrub liquid soap dispenser (code: SD1261), 295 x 70 x 290mm	No	3	
E	Kimberly Clark Professional AQUARIUS hand cleanser dispenser, 1 litre, white (code: 6955)	No	1	
F	Kimberly Clark Professional MR2 bath tissue dispenser in stainless steel (code: 426130), 270 x 145 x 140mm high)	No	1	
G	Brabantia or other approved brushed stainless steel 12L capacity pedal bin	No	3	
	WALL AND CORNER PROTECTION			
H	Gradus WGS 200, 200mm high PVC-u Wall guard fixed against brick walls	m	25	
I	Gradus endcaps to fit WGS 200 Wall guard	No	10	
J	50 x 50mm 90 degree Gradus Standard PVC-u surface mounted corner guard 2150mm high (Code CGS5090N)	No	18	
	LETTERS, NAMEPLATES, ETC			
	Carried Forward			R

				R	
	Brought Forward				
	4mm Thick perspex sheeting with white lettering on a grey background. Lettering to be vinyl sticker to back of perspex (between perspex and door once sign is mounted. Letters to be self adhesive letters of 15mm height. Plate to be screwed to doors with two domeheaded countersunk stainless steel screws per plate. Lettering to be cased as indicated as follow:				
A	75 x 20mm high door number plate with three numerals	No	4		
	2mm Thick ABS plastic with photo luminescent pictogram on a dark grey background to approved SABS standards in a natural anodized aluminium frame with plastic corner pieces. Where plate to be screwed to doors or walls, plate to be fixed with two domeheaded countersunk stainless steel screws per plate. Hanging signage on suspension system conical clip with steel wire. **Pictograms indicated as follow - please refer to Emergency Signage Schedule at the back of the Bills of Quantities**				
B	304 x 150mm Sign plate with Pictogram Type E3 (suspended from ceiling)	No	2		
C	304 x 150mm Sign plate with Pictogram Type E1 (suspended from ceiling)	No	1		
D	304 x 150mm Sign plate with Pictogram Type E2 (suspended from ceiling)	No	1		
	Carried Forward to Summary of Section No. 3			R	

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO 9

METALWORK

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Descriptions

Descriptions of bolts shall be deemed to include nuts and washers

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete

Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described

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***NOTE**: The following items shall be deemed to fall into Work Group No 141 for JBCC CPAP purposes*

STAINLESS STEEL LOUVRED VENT GRILLS

Carried Forward R

				R	
	Brought Forward				
	Stainless steel louvres and frames in doors				
A	Louvred vent consisting of 30 x 40 x 1.6mm grade 316 stainless steel fixed frame, fixed to door with stainless steel screws and 20 x 20 x 1.6mm grade 316 stainless steel V-shaped louvre blades welded at 25mm centres (54 degree angle) to L-shape channel, overall size 360 x 360mm high all in accordance with **Drawing 314 - 002/DRS-DTL01** annexed to the Bills of Quantities	No	2		
	ALUMINIUM VIEW PANELS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 149 for JBCC CPAP purposes*				
	Purpose made polyester powder coated aluminium view panels glazed with 6.38mm clear intruder proof safety glass, plugged to timber doors				
B	View panel in single pane fixed; size 120 x 750mm high	No	1		
	ROLLER SHUTTER DOOR				
	***NOTE**: The following items shall be deemed to fall into Work Group No 136 for JBCC CPAP purposes*				
C	White powder coated galvanised mild steel roller shutter door for opening 1000 x 1200mm high, hand crank operated and manually lockable on crank box side, including rubber weather strip at base to seal against stainless steel counter all in accordance with **Drawing CR-000 DET-C03**	No	1		
D	63 x 63 x 3mm Square hollow section column	t	0.045		
E	180mm Long galvanized flat bar size 60mm wide x 5mm thick pre-drilled with two holes for M16 bolts	No	4		
	Galvanised Nuts and bolts, etc.				
F	M16 Grade 8.8 bolts	No	8		
	Carried Forward			R	

	Brought Forward			R
	SUPPORT FOR TIMBER BOARDED ROOF			
A	40 x 40 x 3m Galvanised mild steel angle fixed to concrete panels between fins (support for boarded flashing)	t	0.111	
	***NOTE**: The following items shall be deemed to fall into Work Group No 141 for JBCC CPAP purposes*			
	STAINLESS STEEL TABLES AND SHELVES			
B	650 x 250mm Wide stainless steel shelf table (grade 316) with 3mm steel sheet top on 25 x 25 x 2.5mm square tubing with brushed steel finish fixed to wall including stainless steel angles, stainless steel square tubes, brackets, legs and cross supports, all in accordance with **Drawing JDT-C04**	No	1	
C	1200 x 600mm Wide stainless steel table (grade 316) with front overhang, and shelf with 5mm steel sheet top on 38 x 38 x 3mm square tubing with brushed steel finish fixed to wall with 8 x 80mm coach screws and appropriate plastic wall plugs, including stainless steel angles, stainless steel square tubes, backing to stainless steel, brackets, legs and cross supports, all in accordance with **Drawing JDT-C02**	No	1	
D	2462 x 500mm Stainless steel table and shelf (grade 316) with 5mm steel sheet top on 38 x 38 x 3mm square tubing with brushed steel finish, fixed to wall with 8 x 80mm coach screws and appropriate plastic wall plugs including stainless steel angles, stainless steel square tubes, backing to stainless steel, brackets, legs and cross supports, all in accordance with **Drawing JDT-C03**	No	1	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 10				
	PLASTERING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	SCREEDS				
	1:3 Cement plaster screeds on concrete				
A	30mm Thick on floors with steel trowelled finish	m2	79		
	Treatment of existing screeds on concrete				
B	All holes in screed to be filled with Patchite patching compound as manufactured by iTe Products, in strict accordance with their specifications.	m2	40		
	SPECIALIST FLOOR COVERINGS				
	BONDiTE polymer based primer and keying agent applied in strict accordance with manufacturer's instructions (after moisture barrier)				
C	Floors	m2	79		
	Carried Forward			R	

	Brought Forward			R	
	Levelite F30 self-levelling compound as manufactured by iTe products, to a thickness of 5mm as part of the iTe Products screed preparation system				
A	Floors	m2	79		
	INTERNAL PLASTER				
	One coat 1:4 cement plaster on brickwork				
B	On walls	m2	23		
C	On narrow widths	m2	2		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 10
Plastering
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 11				
	TILING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 144 for JBCC CPAP purposes*				
	WALL TILING				
	Take out of storage and install 300 x 600 x 10mm Thick Essence rectified ceramic wall tiles with 2mm joints between tiles in TAL White grouting fixed to walls with approved tile adhesive to plastered walls and waterproof tile grouting to joints (tiles bought by previous contractor)				
A	In splashbacks	m2	2		
	200 x 200 x 6mm Thick GWC-4 Gloss White ceramic wall tiles from Tile Africa (Code T0021150) with 2mm joints between tiles in TAL White grouting, in suitable tiling adhesive.				
B	In splashbacks	m2	4		
C	On walls	m2	28		
	Carried Forward			R	

	Brought Forward			R	
A	Take out of storage existing 200 x 200 x 6mm Thick white ceramic tiles (tiles bought by previous contractor) and install with 2mm joints between tiles in TAL White grouting, in suitable tiling adhesive.	m2	38		
	SUNDRIES				
B	Kirk M-Trim grade 316 stainless steel straight edge trim (SSE080)	m	33		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 11
Tiling
Q535B

Item No		Quantity	Rate	Amount

SECTION 3

BILL NO 12

INTERNAL PLUMBING AND DRAINAGE

PREAMBLES

Preambles for Trades as defined in Pricing Instructions (Item 7)

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SANITARY FITTINGS

NOTE: All sanitary fittings shall be sealed next to walls, fitting sides and shelves with an approved type non-fungal sustaining white silicon

_____

TRADE NAMES

Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"

SUPPLEMENTARY PREAMBLES

Concrete pipes

Pipes shall be jointed with interlocking joints

UPVC pipes and fittings

Soil, waste and vent pipes and fittings shall be tempered, chemical resistant pipes with butt welded joints

Carried Forward R

Brought Forward		R	
UPVC pressure pipes and fittings Pipes for water and fire supply shall be High Impact uPVC of the Class stated Pipes shall have cast iron clamped joints. Fittings shall be galvanised mild steel with clamped joints			
Copper pipes Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and Class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers, Capillary solder fittings shall comply with ISO 2016.			
Fixing of pipes Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level			
Lead pipes and fittings All soldered joints shall be wiped and brass unions shall be used for jointing lead to steel			
Reducing fittings Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained			
Carried Forward		R	

Brought Forward		R	
Wire gratings Descriptions of gutter outlets, etc shall be deemed to include wire balloon gratings			
Exposed concrete surfaces Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gulley tops, cleaning eye tops, catchpits, inspection chambers, etc shall be finished smooth with plaster			
Excavations No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling "Soft rock" and "Hard rock" shall be as defined in "Earthworks"			
Laying, backfilling, bedding, etc of pipes Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions and the Engineer's drawings. Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L: Medium-pressure pipelines SABS 1200LD: Sewers SABS1200LE: Stormwater drainage Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : Earthworks (Pipe trenches) Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB : Bedding (Pipes)			
Carried Forward		R	

Brought Forward		R	

Flush pans

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary

Stainless steel basins, sinks, wash troughs, urinals, etc

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable

Waste unions

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings

Steel sectional water tanks

Tanks shall comply with SABS CKS 114

Petrolatum anti-corrosion tape

Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied with minimum 15mm lap per spiral unless otherwise described

Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including all mastic, tape, "Layflat" sheeting, securing of same, etc

Prices for wrapping of pipes shall include for all work as described to couplings in the length

Paper lagging

Prices for piping must include for all piping not exceeding 30mm to be wrapped with two layers of stout brown paper and tied with wire prior to building in

***NOTE**: The following items shall be deemed to fall into Work Group No 148 for JBCC CPAP purposes*

Carried Forward		R	

	Brought Forward			R	
	QUALITY CONTROL AND TESTING				
	NOTE: IT IS A STRICT CONDITION OF THIS PLUMBING CONTRACT THAT THE CONTRACTOR SHOULD CONDUCT QUALITY CONTROL TESTS AND INSPECTIONS ON AN ONGOING BASIS				
	SANITARY FITTINGS				
	White glazed vitreous china				
A	Vaal Sanitaryware vitreous china size 335 x 290 x 115mm “Mini Weaver” (code: 70660) basin with one taphole and no overflow, bolted to wall using two 10mm bolts (code: 8448Z0) and bracket (Code: VAA8131Z300) (B2)	No	1		
	Toilets				
B	Vaal Sanitaryware vitreous china “Energy” 90° outlet back inlet closed rim wall hung pan, with quality thermoset soft-close seat, with bolt-through-the-wall bracket (code: VAA-8084Z0) and DP Flushfit pan collar (or equivalent). Flush volume 6/3 litres, subject to the pan being installed with a cistern providing an effective 6/3 litre flush volume	No	1		
C	38643001 Uniset (830x470x130mm) for WC flushing cistern GD2 with small maintenance access sound - insulation EPS module for masonry - in 830 x 470x 130mm rail adaptors for modular fixing for single or rail installation. Wall rail with fixing accessories for single installation. 2 x WC fixing bolts, distance of fixing bolts 180/230mm fixing device for ceramic outlet bend 90mm diameter depth adjustable 90 / 110mm diameter reducer inlet and outlet connecting set adjustment ex. Factory 6L and 3L pneumatic discharge valve offering 3 modes of operation: Dual flush, start/stop, single flush water supply. From left/right/back or top low noise DIN approved insulated against condensation 1/2" water supply connection including integrated angle valve and push fit flexible hose union for vertical or horizontal hose union for vertical or horizontal use	No	1		
	Carried Forward			R	

				R	
	Brought Forward				
A	3873200 Skate Cosmopolitan wall plate for dual flush for pneumatic discharge valve. AV1 vertical and horizontal installation, 156x197mm ABS GROHE StarLight® chrome finish and GROHE EcoJoy® technology for less water and perfect flow	No	1		
	1,2mm Stainless steel type 304 (18/10)				
B	Franke Model MSS single bowl sink (code 2620259) unit size 650 x 650 x 258mm wide manufactured from Grade 304 stainless steel 1.2mm gauge with 50 x10mm apron all round, sink with pressed bowl 525 x 425 x 258mm deep (43 litres) with a 40mm waste outlet, unit is fitted with stainless steel gusset brackets for securing the sink to the wall	No	3		
	1,2mm Stainless steel type 304 (18/10)				
C	Franke model W wall bench size 1850 x 650mm (Code 359564) manufactured from grade 304 stainless steel 1.2mm thick with a 150mm integral splash back at the back and 50 x 10mm turndown on the remaining sides, the underside sprayed with vermin proof bitumastic sound deadening and supported with a 30 x 30 x 3mm framework and galvanised mild steel backing sheet, unit fixed 900mm high from the top of the front apron to the finish floor level with anchor bolts (T1)	No	1		
	Instrument washer				
D	650 x 690 x 1860mm high Floor standing Instrument washer with including dryer (Code: Getinge Washer disinfector 46-4-402 single door with drying) with 15mm hot and cold water connection and 50mm waste for water and 63mm exhaust waste for air at top of machine, (I1) including installation, commissioning and training	No	1		
	WASTE UNIONS, ETC				
	Carried Forward			R	

				R	
	Brought Forward				
	Chromium plated				
A	Cobra unslotted basin waste with 62mm diameter flange and 75mm long shank, and 1 ¼" BSP male outlet connection (product code: COB-308). Anti-theft plug for basin wastes, chrome plated, including 72mm spindle and spindle locking tab, and 39mm diameter plug (code: COB-309-32) (B2)	No	4		
	TRAPS, ETC				
	Brass				
B	50mm Du Bois PVC trap	No	4		
	TAPS, VALVES, ETC				
C	Cobra CP171/041 Star Heavy Pattern Chrome plated deck mounted two hole sink mixer with areated swivel spout complete with 2 x 1/2" BSP male iron connection ends and to include 20 year Lixil Africa warranty	No	3		
D	Cobra Pause (code: PS-951) one hole chrome single lever plain basin mixer, flow restricted to 5.7l/min, includeds 3/8 BSP, 400mm long, female flexible inlets, chrome plated (B2)	No	1		
E	Cobra Pause chrome plated bath/shower undertile mixer, single lever including 1/2" BSP female connections, chrome plated	No	1		
F	Cobra P-T/ Spray Kit brass plated chrome trigger spray kit including Cobra wall bracket, hose, trigger control (27 512), wall shower holder (28 605) angle valve 1/2 (22 958), Silverflex Longlife shower hose 1250mm (26 335) GROHE Starlight finish Speedclean anti-lime system Inner Waterguide	No	1		
	FLOOR DRAIN				
G	Herbish HB125HV Floor drain for vinyl floors, horizontal 50mm outlet, round flange, with standard lid	No	1		
	SANITARY PIPEWORK				
	Carried Forward			R	

				R	
	Brought Forward				
	Underground pipes to be in uPVC SANS 791 2004 with rubber ring joints DPI Durodrain system class 34. Above ground soil and waste pipes to be in uPVC to SABS 967 with rubber ring joints and "Mupro" rubber lined pipe clamps. Pipe work testing to 1.5m water HD to be carried out in stages as work proceeds. The contractor shall mark on site the location of openings and chases for approval of the structural engineer.				
	uPVC pipes class 9				
A	40mm Pipe in walls	m	23		
B	50mm Pipe in walls or in ducts	m	30		
C	63mm Pipe in walls or in ducts	m	9		
D	110mm Pipes in walls	m	7		
	uPVC pipes class 34				
E	50mm Pipes laid in and including trenches not exceeding 1m deep under surface beds	m	15		
F	110mm Pipes laid in and including trenches not exceeding 1m deep under surface beds	m	6		
	Extra over uPVC pipes for fittings:				
G	40mm Bend	No	8		
H	40mm Access bend	No	2		
I	40mm Junction	No	2		
J	40mm Access junction	No	2		
K	50mm Bend	No	10		
L	50mm Access bend	No	6		
M	50mm Junction	No	3		
	Carried Forward			R	

				R	
	Brought Forward				
A	50mm Access junction	No	3		
B	63mm Bend	No	4		
C	63mm Access bend	No	2		
D	63mm Junction	No	2		
E	63mm Access junction	No	2		
F	110mm Bend	No	2		
G	110mm Junction	No	1		
H	110mm Tee	No	1		
I	110mm uPVC Stub Stack with capped end	No	1		
J	110mm uPVC 90 degree underground long radius bend	No	1		
K	110mm Access bend	No	1		
L	110mm Access bend with anti-syphon horn	No	1		
M	110mm Straight pan connector	No	1		
	TESTING				
N	Testing waste pipe system		Item		
	WATER SUPPLY				
	Class 2 copper pipes for compression fittings in accordance with SABS 460				
O	15mm Pipes chased into brick walls	m	85		
P	15mm Pipes fixed to concrete ceiling with M10 rubber lined hanger brackets including M10 threaded rod not exceeding 500mm long and M10 drop-in anchor	m	46		
	Extra over for fittings				
	Carried Forward			R	

	Brought Forward			R	
	Extra over Class 2 copper pipes for brass capillary soldered fittings				
A	15mm Fittings	No	37		
B	15mm Brass Shut -off valve jointed to copper pipe including adaptors	No	6		
	TESTING				
C	Pressure testing water pipe system		Item		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 12
Internal Plumbing and Drainage
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 13				
	GLAZING				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 150 for JBCC CPAP purposes*				
	PANELS, MIRRORS, ETC				
	6mm Silvered float glass copper backed mirrors with bevelled edges holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete				
A	Mirror, size 600 x 400mm	No	1		
	Carried Forward to Summary of Section No. 3			R	

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 14				
	PAINTWORK				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 152 for JBCC CPAP purposes*				
	PAINTWORK TO PLASTERED SURFACES				
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply one coat Dulux MD Duraplast with foam plastic roller followed by two coats Dulux Wash n Wear Silk paint:				
A	On plastered walls	m2	134		
B	On prefab walls	m2	92		
	ON FIBRE CEMENT				
	Clean down, prepare and apply one coat Plascon Professional Waterbased Gypsum Sealer (PGS1) and apply two coats Plascon Super Matt (PEM900/TSA)				
C	Existing ceilings	m2	33		
D	Skimmed ceilings	m2	2		
	Carried Forward			R	

				R	
	Brought Forward				
A	On bulkheads	m2	15		
	Prepare and prime with Plascon Plaster Primer (PP700) and apply two coats Plascon Wall and All paint on:				
B	On fibre cement fascia and barge boards	m2	13		
	ON METALWORK				
	Remove all paint and rust completely. All surfaces to be sanded smooth and existing paint edges to be sanded smooth to approval. Apply one coat Aquanova Primer (WHP1) followed by one coat Professional All Purpose Undercoat (PU800)				
C	On existing window frames (measured flat both sides)	m2	11		
	ON WOOD				
	Stop, fill, sand down, clean and prepare wood surface. Apply one coat Plascon Professional Wood Primer (PP800) and apply two coats Plascon waterbased Velvaglo(VLW/TVW)				
D	On doors	m2	11		
E	Door frames not exceeding 300mm girth	m	44		
	Remove loose and peeling paint by scraper or hand sanding, feather edges and dust off. Apply one coat of Plascon Professional Wood Primer (PP800) and two coats of Plascon Waterbased Velvaglo (VLW/TVW)				
F	On existing doors	m2	20		
	Prepare and prime with one coat pink wood primer, one coat universal undercoat and two coats enamel paint				
G	Exposed roof timber not exceeding 300mm wide	m	6		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 14
Painting
Q535B

Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL NO 15				
	BUILDER'S WORK IN CONNECTION WITH ELECTRICAL AND MECHANICAL SERVICES				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	NOTE: All sleeve pipes and pipe conduits to be supplied with draw wires as necessary for fixing of cables and wiring				
	CONCRETE				
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	Core drilling of hole for services not exceeding 110mm diameter				
A	200mm Thick reinforced concrete slab, beam, wall, etc	No	4		
	FIRE STOPS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	Carried Forward			R	

	Brought Forward			R	
	3M Fire barrier sealant CP 25WB+ gun-grade, latex based, intumescent sealant to form a monolithic firestop seal applied all in accordance with manufacturer's specifications				
A	Backfilling 50mm diameter opening through 200mm thick concrete slab around pipes, sleeves	No	2		
B	Backfilling 110mm diameter opening through 200mm thick concrete slab around pipes, sleeves, etc	No	2		
	Carried Forward to Summary of Section No. 3			R	

Section No. 3
Bill No. 15
Builderswork
Q535B

SECTION SUMMARY - SECTION 3 RENOVATIONS TO CSSD (PROVISIONAL)

Bill No		Page No		Amount
1	Renovations	164		
2	Concrete, formwork and reinforcing	167		
3	Masonry	169		
4	Waterproofing	171		
5	Carpentry and Joinery	176		
6	Ceilings, partitioning and access flooring	182		
7	Floorcovering	185		
8	Ironmongery	190		
9	Metalwork	193		
10	Plastering	195		
11	Tiling	197		
12	Internal Plumbing and Drainage	207		
13	Glazing	208		
14	Painting	210		
15	Builderswork	212		
	Carried to Final Summary		R	

Section No. 3
Q535B

Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL NO 1				
	CRACK REPAIRS IN BASEMENT (PROVISIONAL)				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	ROOF SLAB CRACK REPAIR IN BASEMENT				
A	Sika Carbo DUR M514 plates 1100 x 50mm wide (on plan) and 1.4mm thick, installed at 500mm centres bonded to the soffit of the slab all in accordance with manufacturer's specifications	No	43		
B	50mm Wide Sikadur -30 to bond plates to the soffit of the slab	m	46		
C	Resin Sika Crack injection -201 for crack repairs in roof slab	m	53		
	Carried Forward			R	

	Brought Forward			R	
	REPAIRS TO CHIPPED CONCRETE ON SLAB SOFFIT IN BASEMENT				
A	Exposed concrete surface size 350 x 200 x 100mm deep to be cleaned to remove dirt or grease and expose sound concrete. Straight vertically cut the edges to prevent any feathered edges which tend to form once the repair mortar has been applied. Apply concrete repair mortar Sika Rep or similar approved according to manufacturer's specification	No	20		
B	Exposed corroded reinforcement to be treated with Sika Top Armatec 110 EC or similar approved according to manufacturer's instructions, size 350 x 200mm wide	No	20		
	Carried Forward to Summary of Section No. 4			R	

Section No. 4
Bill No. 1
Crack repairs in basement
Q535B

Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL NO 2				
	SEALING OF EXTERNAL WALLS (GROUND FLOOR, 1ST FLOOR, 2ND FLOOR AND 3RD FLOOR				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	SEALING OF EXTERNAL WALLS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	Work below will be done on external walls of 1st, 2nd floor and 3rd floor of hospital buildings. Bidder to allow for access scaffolding to working areas. No further claims in this regard will be entertained				
A	Rake out and remove all existing polysuphide joint sealant, joint size 8 x 8mm	m	3,242		
B	Install 10mm diameter Dura-cord backing cord into the existing joint	m	3,242		
	Carried Forward			R	

				R	
	Brought Forward				
A	Ensure surfaces are clean, dry, sound and grease-free, clean non-porous surface with DOWSIL R-40 Universal Cleaner and dry thoroughly with a clean, lint-free cloth befor application of sealant. Porous substructures such as concrete, brickwork, mortar, etc. must be mechanically cleaned of loose particles using a steel brush, sanding disc or similar means. Apply DOWSIL 813C neutral cured silicone sealant 8 x 8mm and level off accordingly all in accordance with manufacturer' specifications - colour Grey	m	3,242		
B	Ensure surfaces are clean, dry and free from loose, weak or foreign substances such as oil, grease, loose particles, laitance, curing compounds, vegetation and algae growth. Algae or smilar growths must be removed using a detergent biocide type cleaner and thereafter rinsed thoroughly and allowed to dry. Apply two coats of ABE Dura.Sil SH Silane/Siloxane High Solid water repellant by using portable spray equipment to concrete or facebrick surfaces to reduce the permeability of the surface, all in accordance with manufacturer's specifications	m2	1,298		
	Work below will be done on external walls of ground floor of hospital buildings. Bidder to allow for access scaffolding to working areas. No further claims in this regard will be entertained				
C	Rake out and remove all existing polysuphide joint sealant, joint size 8 x 8mm	m	124		
D	Install 10mm diameter Dura-cord backing cord into the existing joint	m	124		
E	Ensure surfaces are clean, dry, sound and grease-free, clean non-porous surface with DOWSIL R-40 Universal Cleaner and dry thoroughly with a clean, lint-free cloth befor application of sealant. Porous substructures such as concrete, brickwork, mortar, etc. must be mechanically cleaned of loose particles using a steel brush, sanding disc or similar means. Apply DOWSIL 813C neutral cured silicone sealant 6 x 6mm and level off accordingly all in accordance with manufacturer' specifications - colour Grey	m	124		
	Carried Forward			R	

	Brought Forward			R	
A	Ensure surfaces are clean, dry and free from loose, weak or foreign substances such as oil, grease, loose particles, laitance, curing compounds, vegetation and algae growth. Algae or smilar growths must be removed using a detergent biocide type cleaner and thereafter rinsed thoroughly and allowed to dry. Apply two coats of ABE Dura.Sil SH Silane/Siloxane High Solid water repellant by using portable spray equipment to concrete or facebrick surfaces to reduce the permeability of the surface, all in accordance with manufacturer's specifications	m2	53		
	Carried Forward to Summary of Section No. 4			R	

Section No. 4
Bill No. 2
Sealing of external walls
Q535B

Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL NO 3				
	REMEDIAL WORK TO CSSD CORRIDOR FLOOR, FIRE ESCAPE DOOR AND STAIRS, COURTYARD AND APRON				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	REMEDIAL WORK TO CSSD CORRIDOR FLOOR, COURTYARD AND APRON				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
A	Take up and remove existing vinyl tiles/vinyl sheeting floor covering from cement screed	m2	5		
B	Break up and remove existing screed approximately 30mm thick from concrete surface bed and prepare latter to receive new screed (measured elsewhere)	m2	5		
	DAMP-PROOFING OF FLOORS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	Carried Forward			R	

	Brought Forward			R	
	Two coats Vaporite moisture barrier to substrate and allow to dry, evenly apply a slurry coat consisting of equal parts by volume of Bondite Primer and Levelite F30 using a broom or brush and allow to dry, all in accordance with manufacturer's specifications				
A	Floors	m2	5		
	VINYL SHEETING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 130 for JBCC CPAP purposes*				
	Polyflor Mystique PuR or equal approved life long polish free homogeneous vinyl floor sheeting 2,0mm thick, laid in acrylic adhesive spread with a notched trowel, joints welded with a fully flexible coloured Polyflor Welding Rod to provide a smooth, hygienic sealed finish and rolled with 68kg articulated floor roller, on well prepared cement screed (elsewhere) to match required level with a hygrometer reading showing a moisture content of less than 70% – all installed strictly to manufacturers specifications (Polyflor 011-609 3500) – Sheet and welding rod colours to Architects approval.				
B	Seamless vinyl floor sheets on floors	m2	5		
	SCREEDS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	1:3 Cement plaster screeds on concrete				
C	30mm Thick on floors with steel trowelled finish	m2	5		
	SPECIALIST FLOOR COVERINGS				
	Carried Forward			R	

				R	
	Brought Forward				
	BONDiTE polymer based primer and keying agent applied in strict accordance with manufacturer's instructions (after moisture barrier)				
A	Floors	m2	5		
	Levelite F30 self-levelling compound as manufactured by iTe products, to a thickness of 5mm as part of the iTe Products screed preparation system				
B	Floors	m2	5		
	TRIMMING OF TREE				
C	Provide the sum of R30,000.00 (Thirty Thousand Rand) nett for trimming of existing tree canopy and roots and steel plate to direct root growth away from building		Item		30,000.00
D	Allow for profit if required		Item		
E	Allow for attendance		Item		
	IN-SITU CONCRETE APRONS, ETC				
	DEMOLITIONS				
	Breaking up and removing				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
F	Break up and remove existing damaged concrete aprons, etc. not exceeding 120mm thick including preparation, roughly levelling ground surfaces, ramming, etc.	m2	5		
	***NOTE**: The following items shall be deemed to fall into Work Group No 104 for JBCC CPAP purposes*				
	Carried Forward			R	

				R
	Brought Forward			
	Excavate in pickable material not exceeding 2m deep below natural or reduced ground level			
A	Reduced levels under aprons etc	m3	2	
	Extra over all excavations for carting away			
B	Exra over all excavations for carting surplus excavated material and spreading, levelling and lightly compacting on site where directed average 500m from the excavations (Measured nett- no allowance made for bulking)	m3	2	
	Compaction of surfaces			
C	Scarify earth surface to a depth of 150mm, breaking down over size material and reconsolidate to 90% modified AASHTO density	m2	5	
	G5 gravel layers supplied by the contractor compacted to 93% Mod AASHTO density in layers not exceeding 150mm			
D	Subbase under aprons	m3	2	
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*			
	Mass concrete (25Mpa) in:			
E	Aprons	m3	1	
	Finishing top surfaces of concrete to an evenly brushed non-slip surface			
F	Aprons	m2	5	
	***NOTE**: The following items shall be deemed to fall into Work Group No 111 for JBCC CPAP purposes*			
	Carried Forward			R

				R	
	Brought Forward				
	General Formwork				
A	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	7		
B	10mm Sajex or other approved cane fibre filler board in expansion joint between concrete surfaces in narrow widths not exceeding 150mm wide	m	2		
	Grey polysulphide sealant, including bond breaker, primer, etc				
C	10mm Wide x 10mm deep in expansion joints	m	2		
	FIRE DOOR				
	***NOTE**: The following items shall be deemed to fall into Work Group No 126 for JBCC CPAP purposes*				
	Class D Bitcon Industries rebated double door with Class D single rebated grade 316 stainless steel (brushed finish) frame supplied and installed by manufacturer as per manufacturer's details				
D	Take out of storage and install 48mm Thick Double Door and frame size 1626 x 2032mm high with 120 minute fire rating (bought by previous contractor) **all in accordance with Drawing CR-00-DRS-FD01 annexed at back of Bills of Quantities**	No	1		
	IRONMONGERY TO DOORS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 132 for JBCC CPAP purposes*				
	Carried Forward			R	

				R	
	Brought Forward				
A	NON HOLD OPEN Co-ordinated door closer system for rebated doors between 1350-1900mm. Closing Force EN 3. Hydraulic speed control. Max door width 950mm per leaf. Pull-side fixing. Door closer compliant with EN 1154. Door co-ordinators tested to EN 1158. Door closer is CERTI FIRE approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240. Certified manufacturer to ISO 9001 (Code TS91B GSR EMF1)	Sets	1.0		
B	Plate to be fabricated from 3mm thick aluminium plate with 8mm diamater predrilled holes positioned according to the relevant drawings. All corners to receive 5mm radius fillet (Code TS91 EN3 FP)	No	2		
C	Patent fixing screws for door closers	No	8		
D	149 x 19mm Straight tubular pull handle BT (Code DPH301C BT)	No	2		
E	Dormakaba floor mounted door stop (Code DDS-SS-017)	No	2		
F	150 x 300 x 1.2mm thick Grade 430 stainless steel plate with cylinder cutout left. Stainless Steel Plate to have 6 countersunk holes for screw fixing (Code DPP-430-CL - SF 150X300)	No	2		
	STAINLESS STEEL DOOR CLADDING				
	Door protection set SE8				
G	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 960 x 300mm high	No	2		
H	1.2mm thick grade 430 stainless steel plate drilled and screw fixed to door, overall size 960 x 200mm high	No	2		
I	1.2mm thick grade 430 stainless steel kick plate drilled and screw fixed to door, overall size 960 x 300mm high	No	2		
	Carried Forward			R	

Section No. 4
Bill No. 3
Remedial work to CSSD Corridor
Q535B

	Brought Forward			R	
	ON WOOD				
	***NOTE**: The following items shall be deemed to fall into Work Group No 152 for JBCC CPAP purposes*				
	Stop, fill, sand down and prepare wood surface. Apply primer and two coats Plascon Velvaglo Polyurethane Velvet Enamel paint:				
A	On doors	m2	8		
	REPLACE EXTERNAL DOOR AND NEW STAIRS AT CSSD PASSAGE				
	DEMOLITIONS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
	Breaking up and removing				
B	Break up and remove existing concrete paving blocks size 300 x 300mm, approximately 50mm thick including preparation, roughly levelling ground surfaces, ramming, etc.	m2	8		
C	Take out and remove existing timber door and timber frame, size 813 x 2032mm high from one and a half brick wall and prepare opening to receive new timber door and timber frame (elsewhere measured)	No	1		
	***NOTE**: The following items shall be deemed to fall into Work Group No 104 for JBCC CPAP purposes*				
	EXCAVATION, FILLING, ETC				
	Excavation in earth or compacted filling not exceeding 2m deep				
D	Reducing levels to final levels under new floors, ramps, pavings, etc.	m3	2		
	Carried Forward			R	

				R	
	Brought Forward				
A	Trenches	m3	3		
	Extra over all excavations for carting away				
B	Surplus material from excavations to a dumping site to be located by the contractor	m3	4		
	Risk of collapse of excavations				
C	Sides of trench and hole excavations not exceeding 1,5m deep	m2	9		
	Keeping excavations free of water				
D	Keeping excavations free of water		Item		
	Selected earth filling obtained from the excavations and/or prescribed stock piles on site in layers of 150mm thick compacted to 93% Mod AASHTO density				
E	Backfilling to trenches, holes, etc	m3	1		
	Compaction of surfaces				
F	Compaction of ground surface under surface beds etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density	m2	8		
	Selected earth filling obtained from the excavations and/or prescribed stock piles on site in layers of 150mm thick compacted to 95% Mod AASHTO density				
G	Under floors, steps, pavings, etc	m3	2		
	Approved G7 filling supplied and carted on by the Contractor, compacted in layers not exceeding 150mm to 93% Mod. AASHTO density				
H	Under solid floors	m3	2		
	Carried Forward			R	

Section No. 4
Bill No. 3
Remedial work to CSSD Corridor
Q535B

				R	
	Brought Forward				
	Approved G5 filling supplied and carted on by the Contractor, compacted in layers not exceeding 150mm to 95% Mod. AASHTO density				
A	Under solid floors	m3	5		
	50mm Thick coarse river sand filling supplied by the contractor				
B	Under floors etc	m2	8		
	SOIL INSECTICIDE				
	Soil insecticide in accordance with SANS 5859				
C	Under floors etc including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming (Certificate to be supplied before payment is made)	m2	8		
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	REINFORCED CONCRETE				
	TEST BLOCKS				
D	Making and testing set of three 150 x 150 x 150 mm strength test cubes	No	2		
	15MPa/19mm concrete				
E	Mass concrete in blinding	m3	1		
	30MPa/19mm Reinforced concrete				
F	Strip footings cast against excavated surfaces	m3	1		
G	Stairs including landings	m3	2		
	CONCRETE SUNDRIES				
	Carried Forward			R	

				R	
	Brought Forward				
	Finishing top surface of concrete smooth with a wood float in				
A	Stairs, landings, etc	m2	5		
	***NOTE**: The following items shall be deemed to fall into Work Group No 111 for JBCC CPAP purposes*				
	ROUGH FORMWORK (DEGREE OF ACCURACY II)				
	Rough formwork to sides				
B	Sloping outer edges of stairs not exceeding 400mm high extreme	m2	1		
C	Sloping edges, risers, ends and reveals not exceeding 300mm high	m	8		
	Rough formwork to sides				
D	Edges, risers, ends and reveals not exceeding 300mm high	m	5		
	REINFORCEMENT				
	***NOTE**: The following items shall be deemed to fall into Work Group No 114 for JBCC CPAP purposes*				
	Mild steel rod reinforcement to structural concrete work				
E	8mm Diameter bars	t	0.030		
	High tensile steel rod reinforcement to structural concrete work in foundations				
F	10mm Diameter bars	t	0.090		
G	12mm Diameter bars	t	0.075		
H	16mm Diameter bars	t	0.060		
I	20mm Diameter bars	t	0.045		
	Carried Forward			R	

				R
	Brought Forward			
	Fabric reinforcement			
A	Type 245 fabric reinforcement in concrete landings, etc.	m2	3	
	***NOTE**: The following items shall be deemed to fall into Work Group No 134 for JBCC CPAP purposes*			
	Galvanised steel beam			
B	IPE 120 x 64 x 10kg/m galvanised beam	t	0.019	
	***NOTE**: The following items shall be deemed to fall into Work Group No 116 for JBCC CPAP purposes*			
	MASONRY			
	Brickwork of clay bricks in 6:1 cement mortar			
C	One brick walls	m2	4	
D	Ditto, but in foundations	m2	3	
	Brickwork reinforcement			
E	High tensile galvanised steel brick reinforcement 150mm wide well lapped at all angles and passings and built into brick walls	m	47	
F	Ditto, but in foundations	m	35	
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*			
	EXTERNAL PLASTER			
	One coat 1:5 cement plaster on brickwork			
G	External walls	m2	4	
	Carried Forward			R

				R	
	Brought Forward				
	DOOR FRAMES, ETC FIXED TO BRICKWORK				
	***NOTE**: The following items shall be deemed to fall into Work Group No 126 for JBCC CPAP purposes*				
	Wrought Meranti				
A	44 x 12mm Architrave	m	10		
B	114 x 32mm Rebated door frame including 69 x 12mm beading	m	5		
	FL&B Doors				
C	44mm Thick wrot meranti framed, ledged and braced batten door size 813 x 2032mm with and including 6mm plywood panel	No	1		
D	50 x 100mm Wrot meranti rebated and splayed weatherboard screwed to door and bedding in thick white lead	m	1		
	IRONMONGERY				
	***NOTE**: The following items shall be deemed to fall into Work Group No 132 for JBCC CPAP purposes*				
	The following in type A				
E	Dorma DBB-SS-009 102 x 75 x 3mm stainless steel, 2 ball bearing, butt hinges with stainless steel wood screws for fitting to wood filled stainless steel frames	Pairs	1.5		
F	Lever handle on rose - Latch (Code CR001 Latch S.S)	Sets	1.0		
G	66mm five pin Euro-profile Double Cylinder Key to differ (Code DDC056501 KD) (65mm) (Satin nickel)	No	1		
H	Round Cylinder escutcheon (Code DCE-002 S.S)	Pairs	1.0		
	Carried Forward			R	

	Brought Forward			R	
A	Dormakaba cylinder sash lock 116.5H x 78D (Code D036S SS)	No	1		
	HANDRAILS, BALUSTRADES, ETC				
	***NOTE**: The following items shall be deemed to fall into Work Group No 136 for JBCC CPAP purposes*				
	Galvanised mild steel balustrade overall height 1000mm high, consisting of 50mm diameter toprail fixed to 50mm diameter GMS vertical stanchions with 25mm diameter intermediate horizontal rail, vertical stanchions fixed into concrete stairs using 8 x 60mm chemical anchors all in accordance to Drawing 305-016 DET-C04 annexed at the back of these Bills of Quantities				
B	Raking balustrade fixed to stairs and landings	m	5		
	Carried Forward to Summary of Section No. 4			R	

Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL NO 4				
	COMPLETION OF HVAC ENCLOSURE (GROUND FLOOR) (PROVISIONAL)				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	DEMOLITIONS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
A	Saw cut into existing concrete floor for new concrete footing / plinth, size of footing 200 x 250mm	m	3		
B	Trim concrete approximately 30mm from existing 180 x 70mm steel column at floor level, including temporary propping, where new base plate will be fitted to new concrete footing (footing and baseplate measured elsewhere)	No	1		
	REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	25MPa/19mm mass concrete				
C	Strip footings	m3	1		
	Carried Forward			R	

				R	
	Brought Forward				
	General Formwork				
	***NOTE**: The following items shall be deemed to fall into Work Group No 111 for JBCC CPAP purposes*				
A	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	3		
	Movement joints				
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
B	10mm Jointex between edge of concrete footing and existing brickwork in narrow widths not exceeding 150mm wide	m	1		
C	10 x 10mm Polyurethane sealant between concrete footing and existing brickwork	m	1		
	STRUCTURAL STEEL				
	***NOTE**: The following items shall be deemed to fall into Work Group No 134 for JBCC CPAP purposes*				
D	170 x 160 x 10mm Thick base plate	No	1		
E	170 x 160 x 20mm Thick non-shrink grout between concrete and underside of base plate	No	1		
F	M16 Hilti Hit HY-200 chemical anchors embedding into new plinth	No	2		
G	75 x 50 x 20 x 2.5mm Cold formed lipped channel purlins, with and including angle section cleats bolted on	t	0.15		
	WATERPROOFING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	Carried Forward			R	

				R	
	Brought Forward				
	One layer "Derbigum SP4" waterproofing membrane with 150mm side laps and end laps sealed to bitumen primed surface to falls and crossfalls by torch-on fusion finished with two coats bitumenous aluminium paint, applied under a ten year guarantee, in strict accordance with the manufacturer's specification, by an approved firm of specialists				
A	Flat roofs, etc.	m2	24		
B	Vertically to walls, beams, gutters etc. (200mm high turn-ups)	m2	9		
	PROFILED METAL SHEETING AND ACCESSORIES				
	***NOTE**: The following items shall be deemed to fall into Work Group No 124 for JBCC CPAP purposes*				
	0.53mm Thick Kliplok steel roofing shall be concealed fix standing seam 406 profile roll-formed in continuous lengths from certified Zincalume AZ150 coated steel G550 (Heavy Industrial) with a Clean Colorbond finish to one side and a standard backing coat, Mountain Mist, to other and fixed to steel purlins using KL65 clips and class 3 fasteners,in strict accordance with manufacturer's specifications by an approved contractor, A written and approved five year guarantee of water-tightness shall be issued after approval of roofs by manufacturer				
C	Roof sheeting not exceeding 25 degree pitch, fixed to steel purlins (elsewhere measured)	m2	14		
	Carried Forward			R	

				R	
	Brought Forward				
	0.53mm Thick flashings shall be manufactured from Zincalume AZ150 coated steel with a Clean Colorbond finish to one side with a Mountain Mist backing coat and fixed to steel purlins (measured elsewhere) by way of S10 brackets all in strict accordance with manufacturer's specification. Colours and type to Architect's approval				
A	Apex flashing 550mm girth three times bent along girth and notched on site to suit roof profile. Complete with metal and poly closer without any joints	m	17		
B	Counter flashing 185mm girth two times bent	m	10		
C	Head wall flashing concealed fix 462mm girth two times bent along girth and notched on site to suit roof profile	m	6		
D	External corner flashing concealed fix 462mm girth two times bent along girth and notched on site to suit roof profile	m	27		
	Box gutter, hopper and downpipe				
E	Custom made 3mm thick stainless steel gutter size 370mm deep and 445mm wide **all in accordance with Drawing 305-016 DET-007 annexed at the back of the Bills of Quantities**	m	8		
F	Galvanised iron hopper size 500 x 250mm made to suit stainless steel gutter **all in accordance with Drawing 305-016 DET-007 annexed at the back of the Bills of Quantities**	No	1		
G	110mm Diameter PVC Rainwater downpipes	m	4		
H	Extra over downpipe for 110mm diameter offset bend	No	2		
I	Extra over for shoe to fit 110mm diameter downpipe	No	1		
	IRONMONGERY TO DOORS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 132 for JBCC CPAP purposes*				
	Carried Forward			R	

	Brought Forward			R	
	All locks to be on a master and grand master key system - 2 keys to be provided for each lock				
	The following ironmongery are measured according to the type (combination) to be used - all in accordance with Ironmongery schedule annexed at the back of the Bills of Quantities				
A	2040-200 x 44 Sinkless Hinge anodised or powder coated	Pairs	8.0		
B	Lever handle on rose (Code CR001 Latch SS)	Sets	2.0		
C	Cylinder sash lock (code D036S SS)	No	2		
D	43mm Five pin Euro profile single cylinder master keyed (Code DSC104301 MK)	No	2		
E	Round cylinder escutcheon (Code DCE-002 SS)	Pairs	1.0		
F	Alufab metal flushbolt 150mm long	No	4		
G	900mm Long extensions for use with M1519 flush bolts (Code Alufab extensions 900)	No	2		
H	Hillaldam 1S Galvanised drop bolt (Code Hillaldam 1S)	No	4		
	ALUMINIUM DOORS WITH LOUVRED PANELS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 149 for JBCC CPAP purposes*				
	Carried Forward			R	

	Brought Forward			R	
	Purpose made polyester powder coated (50 - 100u) doors and frames with louvred panels built into door				
A	Double louvred door size 2325 x 3000mm high overall, with six Trox AWG louvred vents built into door, louvred vent consisting of 30 x 40 x 1.6mm grade 316 stainless steel fixed frame, fixed to door with stainless steel screws and 20 x 20 x 1.6mm grade 316 stainless steel V-shaped louvre blades welded at 25mm centres (54 degree angle) to L-shape channel, each vent size 900 x 800mm high **all in accordance with Drawing 305-016 DET-007 Detail 8 & 9 (Gate) annexed at the back of the Bills of Quantities**	No	2		
	ALUMINIUM LOUVRED PANELS				
	AWG louvred vent panels, louvred vent consisting of 30 x 40 x 1.6mm grade 316 stainless steel fixed frame, fixed to frame with stainless steel screws and 20 x 20 x 1.6mm grade 316 stainless steel V-shaped louvre blades welded at 25mm centres (54 degree angle) to L-shape channel,				
B	Fixed louvred panel size 2325 x 583mm high overall **all in accordance with Drawing 305-016 DET-007 (Detail 8 & 9) annexed at the back of the Bills of Quantities**	No	2		
	PAINTING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 152 for JBCC CPAP purposes*				
	Surface to be dry, sound and clean. Remove surface contaminants using Plascon Aquasolv degreaser (GR 1) with bristle brush or Scotch Brite pads and rinse off with tap water until surface is water break-free. Prime with one coat Plascon Plascoprime 170 Zink Phosphate Primer (UC 170) with an overcoating time of 16 hours and finish with two coats of Wall and All (WWA) with 2 hours drying time between coats				
C	On structural steel	m2	74		
	Carried Forward to Summary of Section No. 4			R	

Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL NO 5				
	REMEDIAL WORK TO DAMP WALL IN CATHLAB MEETING ROOM AND SLUICE ROOM (PROVISIONAL)				
	PREAMBLES				
	Preambles for Trades as defined in Pricing Instructions (Item 7)				
	TRADE NAMES				
	Any reference to trade names in the Bills of Quantities or Architect's specification or drawings shall deem to mean "or similar and approved"				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
	ALTERATIONS				
A	Hack off and remove internal plaster from brick walls and prepare to receive new plaster (measured elsewhere), including all necessary cleaning	m2	8		
B	Take down and temporarily store existing Gradus WGS200 bumper rail including two end caps, 200mm high plugged to plastered brick walls and repair wall faces	m	4		
C	Take out of storage and re-instate existing Gradus WGS 200 bumprail including two end caps against brick walls	m	4		
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	WALL TREATMENT				
	Carried Forward			R	

	Brought Forward			R	
	Apply Dura.latex cement slurry onto brickwork and bag accordingly (1 Dura.latex : 1 Water) including 3.4kg Cement yields around 3.2L. Moisture reading on substrate should not be greater than 8%. Apply a Dura.flex cementitious based waterproofing slurry at a rate of 2kg/m2/coat saturated with eco.felt membrane on corner junctions. Thereafter apply Dura.flex slurry onto flat surface up the wall using a block brush applied left to right. Wait 16 hours and thereafter apply another coat of Dura.flex on walls and floors at a rate 2kg/m2 applied top to bottom using a block brush. Add Dura.latex into your plaster mix at a rate of 2 Liter/m2 at 20mm thick plaster to walls and apply to a steel float finish				
A	On existing walls	m2	6		
B	On narrow widths	m2	2		
	INTERNAL PLASTER				
	Add Dura.latex into plaster mix at a rate of 2 Liter/m2 at 20mm thick plaster (Plaster measured elsewhere)				
C	On existing walls	m2	6		
D	On narrow widths	m2	2		
	One coat 1:4 cement plaster (with Dura.Latex elsewhere measured) to brickwork with steel trowel to receive an approved high quality paint.				
E	On existing walls	m2	6		
F	On narrow widths	m2	2		
	PAINTWORK TO PLASTERED SURFACES				
	Clean down, prepare and apply one coat Plascon Professional Gypsum Plaster Primer (PP700) and apply two coats Plascon Professional Hygiene Low Sheen (PHL)THL paint:				
G	On new plastered walls	m2	8		
	Carried Forward to Summary of Section No. 4			R	

Section No. 4
Bill No. 5
Remedial work to Cathlab meeting room & sluice
Q535B

SECTION SUMMARY - SECTION 4 REMEDIAL WORK AND SUNDRIES (PRO

Bill No		Page No		Amount
1	Crack repairs in basement	215		
2	Sealing of external walls	218		
3	Remedial work to CSSD Corridor	231		
4	Completion of HVAC enclosure	237		
5	Remedial work to Cathlab meeting room & sluice	239		
	Carried to Final Summary		R	

Section No. 4
Q535B

Item No		Quantity	Rate	Amount
	SECTION 5			
	BILL NO 1			
	EXTERNAL WORKS (PROVISIONAL)			
	This section consists of the following locations:			
	Block A: External works			
	Block B: SMME packages			
	Preambles for Trades as defined in Pricing Instructions (Item 7)			
	DEMOLITIONS			
	NOTE: *The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*			
	Brick up openings			
A	Remove existing timber frame and brick up existing opening with brickwork in cement mortar, size of opening 1000 x 1000mm high, finish off with plaster to both sides in patching and paint primer and undercoat to receive final coats (measured elsewhere) including necessary cutting, temporary support, neat flush intersections of new to existing finishes, etc. A : 1 B : 0	No	1	
	PAVING IN COURTYARD			
	DEMOLITIONS			
	NOTE: *The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*			
	Breaking up and removing			
B	Break up and remove existing concrete paving blocks size 300 x 300mm, approximately 50mm thick including preparation, roughly levelling ground surfaces, ramming, etc. A : 205 B : -195	m2	10	
	Carried Forward		R	

				R	
	Brought Forward				
A	Take out and remove existing precast concrete kerb, over all size approximately 300 x 150mm wide, including necessary excavations, filling, compaction, roughly levelling ground surface, etc., store temporarily and re-instate after completion of paving A : 25 B : -24	m	1		
B	Break up and remove existing precast concrete rainwater channel 150mm wide including preparation, roughly levelling ground surfaces, ramming, etc. A : 14 B : -13	m	1		
C	Take out and remove existing steel cage, over all size approximately 1200 x 1200mm wide, store temporarily and re-instate after completion of paving A : 1 B : 0	No	1		
D	Take out and remove existing steel cage, over all size approximately 2525 x 3145mm wide, store temporarily and re-instate after completion of paving A : 1 B : 0	No	1		
	Alterations to manholes and manhole covers, etc.				
E	Adjust level of existing manhole cover to suit new paving levels by demolishing existing concrete cover slab and adding one layer of one brick walls, plastered on the inside with cement plaster (5:1), with new 150mm thick 20Mpa / 19mm mass concrete cover slab with opening for cast iron cover and frame (measured elsewhere) set in cement mortar and sealed in tallow and smooth finishing on all exposed surfaces with 25mm thick granolithic angles rounded including all necessary step irons, formwork to slab, etc., size of existing manhole 600 x 700mm wide A : 4 B : -3	No	1		
F	550mm Diameter Type 2A cast iron manhole cover and frame, with frame bedded in 3:1 cement mortar and cover sealed in tallow A : 4 B : -3	No	1		
	PAVING AREA				
	***NOTE**: The following items shall be deemed to fall into Work Group No 104 for JBCC CPAP purposes*				
	Carried Forward			R	

				R	
	Brought Forward				
	Excavate in pickable material not exceeding 2m deep below natural or reduced ground level				
A	Reduced levels to final levels under paving A : 62 B : -59	m3	3		
	Extra over all excavations for carting away				
B	Surplus material from excavations and /or stock piles on site to a dumping site to be located by the contractor A : 62 B : -59	m3	3		
	Compaction of surfaces				
C	Scarify earth surface to a depth of 150mm, breaking down over size material and reconsolidate to 95% modified AASHTO density A : 205 B : -195	m2	10		
	Soil poisoning				
D	Clearpave or similar approved chemical spray for anti-termites and vegetation under paving (Certificate to be supplied before payment is made) A : 205 B : -195	m2	10		
	Approved G5 filling supplied and carted on by the Contractor, compacted in layers not exceeding 150mm to 98% Mod. AASHTO density				
E	Subbase under roads A : 62 B : -59	m3	3		
	Pavers				
	***NOTE**: The following items shall be deemed to fall into Work Group No 154 for JBCC CPAP purposes*				
F	80mm Thick grey double zig-zag interlocking concrete paving blocks (S-A) with chamfered edges, laid on a 50mm thick river sand bedding (elsewhere measured) including cement and sand filling to joints and vibrating A : 205 B : -195	m2	10		
	Carried Forward			R	

				R
	Brought Forward			
	50mm River sand			
A	Under concrete pavers A : 205 B : -195	m2	10	
	Precast concrete kerbs:			
B	150 x 300mm Barrier kerb as SABS Specification 927 Fig.3, in approximately 1000mm lengths, bedded, jointed and pointed including unreinforced concrete foundation size 400 x 150mm thick under and 200 x 200 x 200mm high unreinforced concrete Class B haunching behind, including necessary excavation A : 14 B : -13	m	1	
	IN-SITU CONCRETE RAMPS, ETC			
	***NOTE**: The following items shall be deemed to fall into Work Group No 104 for JBCC CPAP purposes*			
	Excavate in pickable material not exceeding 2m deep below natural or reduced ground level			
C	Reduced levels under ramps, etc A : 2 B : 0	m3	2	
	Extra over all excavations for carting away			
D	Exra over all excavations for carting surplus excavated material and spreading, levelling and lightly compacting on site where directed average 500m from the excavations (Measured nett- no allowance made for bulking) A : 2 B : 0	m3	2	
	Compaction of surfaces			
E	Scarify earth surface to a depth of 150mm, breaking down over size material and reconsolidate to 95% modified AASHTO density A : 7 B : 0	m2	7	
	Carried Forward			R

	Brought Forward			R	
	G5 gravel layers supplied by the contractor compacted to 98% Mod AASHTO density in layers not exceeding 150mm				
A	Subbase under ramps A : 2 B : 0	m3	2		
	***NOTE**: The following items shall be deemed to fall into Work Group No 110 for JBCC CPAP purposes*				
	Mass concrete (25Mpa) in:				
B	Ramps A : 1 B : 0	m3	1		
	Finishing top surfaces of concrete to an evenly brushed non-slip surface				
C	Ramps A : 7 B : 0	m2	7		
	***NOTE**: The following items shall be deemed to fall into Work Group No 111 for JBCC CPAP purposes*				
	General Formwork				
D	Edges, risers, ends and reveals not exceeding 300mm high or wide A : 10 B : 0	m	10		
E	10mm Jointex between edge of concrete ramp and interlocking paving in narrow widths not exceeding 150mm wide A : 11 B : 0	m	11		
F	10 x 10mm Polyurethane sealant between concrete ramp and interlocking paving A : 11 B : 0	m	11		
	***NOTE**: The following items shall be deemed to fall into Work Group No 114 for JBCC CPAP purposes*				
	Carried Forward			R	

				R	
	Brought Forward				
	Fabric reinforcement				
A	Type 311 fabric reinforcement in concrete ramps A : 7 B : 0	m2	7		
	REMEDIAL WORK TO TILED WALKWAY NEXT TO RAMP				
	ALTERATIONS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 102 for JBCC CPAP purposes*				
B	Take down and temporarily store existing galvanised steel balustrade approximately 925mm high including base plates fixed to concrete slab (24 baseplates) A : 20 B : 0	m	20		
C	Take out of storage and re-instate existing galvanised steel balustrade approximately 925m high and fix to tiled floor with existing base plates and four new 8mm chemical anchors to each baseplate (24 base plates) A : 20 B : 0	m	20		
D	Take up and remove existing ceramic tiles size 220 x 110mm, with cement plaster bedding, etc. from concrete floor, including preparing and proper cleaning of concrete surface to receive waterproofing (measured elsewhere) A : 36 B : 0	m2	36		
E	Break up and remove existing screed approximately 30mm thick from concrete surface bed and prepare latter to receive new screed (measured elsewhere) A : 36 B : 0	m2	36		
	WATERPROOFING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 120 for JBCC CPAP purposes*				
	Carried Forward			R	

	Brought Forward			R	
	Sikalastic - 152 cementitious flexible fibre-reinforced mortar for waterproofing and concrete protection applied onto concrete floor all in accordance to manufacturer's detail specifications to ensure a waterproof surface				
A	On external walkway A : 36 B : 0	m2	36		
	Sika Reemat Premium Glass fibre fabric reinforcement mat embedded into the first fresh mortar layer for added strength all accordance to manufacturer's detail specifications				
B	300mm wide mat on external walkway A : 21 B : 0	m	21		
	SCREEDS				
	***NOTE**: The following items shall be deemed to fall into Work Group No 142 for JBCC CPAP purposes*				
	1:3 Cement plaster screeds on concrete				
C	30mm Thick on floors with steel trowelled finish A : 36 B : 0	m2	36		
	FLOOR TILING				
	***NOTE**: The following items shall be deemed to fall into Work Group No 144 for JBCC CPAP purposes*				
	220mm x 110mm x 8.5mm Thick full body ceramic external floor tiles to match existing (P.C. amount R450.00/m2 supplied and delivered to site) with 2mm joints complete with rectangular borders and diagonal infill panels, install with Tal tile adhesive as recommended by tile manufacturer on well-prepared screed (elsewhere measured) to suit required level. Finish all joints with waterproof grout. All strictly to manufacturer's specifications. Colour and type to Architect's approval				
D	On external walkway A : 36 B : 0	m2	36		
	Carried to Final Summary			R	

Item No		Quantity	Rate	Amount

SECTION NO. 6

PROVISIONAL SUMS

BILL NO 1

The following provisional sums are for work to be executed by the specialist firms which will be regarded as direct domestic sub-contractors to the contractor. The contractor will call for quotations from firms approved by Representative/Agent in accordance with the conditions of contract and in conjunction with the Representative /Agent (at least three responsive quotations are required)

The Contractor may allow under the "profit" item for any profit he considers necessary. If the Contractor allows an amount for profit, this amount will be adjusted in direct proportion to the final value of the specialist work

Each provisional sum in this bill is followed by an item under which the Contractor may allow for attendance on the the specific sub- contractor

The amounts of the items for "Attendance" are to allow for giving every facility to attending upon and making good in all trades after the Specialists have completed their work, for providing the use of all water, electricity, storage space for materials, etc. the use of general amenities, i.e. latrines, etc., for the specialists and their workmen. For maintaining conduits, sleeve pipes, etc. in position during the building operations and providing the use of all ordinary scaffolding and plant. The Contractor is to leave erected scaffolding in position for the period required for work by the sub-contractors under this contract

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CIDB BUILD PROGRAMME

Carried Forward R

				R	
	Brought Forward				
	CIDB REGISTRATION FEE				
A	Allow the Amount of R100,000.00 (One Hundred Thousand Rand) for the registration of the awarded project on the CIDB Register of Projects	Item			100,000.00
B	Profit on above item.	Item			
	SUNDRY INSTALLATION				
	EXTERNAL SIGNAGE				
C	Allow the Amount of R100,000.00 (One Hundred Thousand Rand) for External Signage	Item			100,000.00
D	Profit on above item.	Item			
E	Attendance on ditto.	Item			
	Carried Forward to Summary of Section No. 6			R	

Item No		Quantity	Rate	Amount
	SECTION 6			
	SOCIO ECONOMIC DEVELOPMENT AND TRANSFORMATION			
	BILL NO 2			
	CONTRACTOR'S SOCIO-ECONOMIC DELIVERABLES			
	The following provisional sums cover the required full compliance with the C3.6 Socio-Economic Deliverables			
	The Contractor may allow under the "profit" item for any profit he considers necessary. If the Contractor allows an amount for profit, this amount will be adjusted in direct proportion to the final value			
	Each provisional sum in this bill is followed by an item under which the Contractor may allow for attendance on the specific item			

	CONTRACTOR SOCIO-ECONOMIC DELIVERABLES - TO BE IN ACCORDANCE WITH C3.6 SOCIO-ECONOMIC DELIVERABLES			
	EMPLOYMENT OF LOCAL RESOURCES (DELIVERABLE L1)			
A	The main contractor shall conduct a detailed labour risk assessment and submit risk assessment within 21 calender days of contract award as prescribed in **Deliverable L1.1**	Item		
	INDUCTIONS FOR THE DURATION OF THE PROJECT (L2)			
B	The main contractor to ensure all project personnel to attend induction presentations on a fully paid time basis, as prescribed in **Deliverable L2**	Item		
	Carried Forward		R	

	Brought Forward		R	
	EMPLOYMENT OF SITE SUPERVISOR FOR THE DURATION OF THE PROJECT (L3)			
A	The contractor shall employ a site supervisor with required competency, knowledge as prescribed in **Deliverable L3 & L3.1 & L3.2**	Item		
B	All associated other costs, including tools of the trade, safety equipment, etc as prescribed in **Deliverable L3**	Item		
	C.L.O. (L4)			
C	Allow the Amount of R220,000.00 (Two Hundred and Twenty Thousand rand) for monthly payment of R9,585.00 (nett) and R12,173.00 (Gross salary) of the Community Liaison Officer (CLO) as prescribed in **Deliverable L4**	Item		220,000.00
D	Profit on above item.	Item		
E	Attendance on ditto.	Item		
F	All associated other costs, including tools of the trade, safety equipment, etc. as prescribed in **Deliverable L4**	Item		
	TRAINING AND DEVELOPMENT INTERVENTION TO ACHIEVE FULL COMPLIANCE TO THE CIDB CONTRACT SKILLS DEVELOPMENT GOAL (CSDG) (DELIVERABLE L5)			
	Provide structured workplace learning opportunities that result in the attainment of a part of a full occupational qualification (CSDG Method 1) as prescribed in Deliverable L5.1			
G	All associated training costs, including tools of the trade, consumables, safety equipment, etc. as prescribed in **Deliverable L5.1 and L5.1.1**	Item		
H	Wages for employed learners as prescribed in **Deliverable L5.1 and L5.1.2**	Item		
I	Unemployed learner stipend (to cover daily transport and meal) as prescribed in **Deliverable L5.1 & L5.1.3**	Item		
	Carried Forward		R	

				R	
	Brought Forward				
	Provide structured workplace learning opportunities for apprentices and/or other artisan learners towards the attainment of a trade qualification in the Built environment (CSDG Method 2) (At least 60% of the Artisan Learners being holders of public TVET college qualifications as prescribed in Deliverable L5.2				
A	All associated training costs, including tools of the trade, consumables, safety equipment, etc as prescribed in **Deliverable L5.2 and L5.2.1**	Item			
B	Allow the Amount of R152,000.00 (One Hundred and Fifty Two Thousand rand) for monthly payment of R7000.00 (nett) and R8,890.00 (gross) for 1 x TVET College Graduate as prescribed in **Deliverable L5.2.2**	Item			152,000.00
C	Profit on above item.	Item			
D	Attendance on ditto.	Item			
	Work integrated learning opportunities for University of Technology or Comprehensive University students completing their National Diplomas (CSDG Method 3) as prescribed in Deliverable L5.3				
E	All associated training costs, including tools of the trade, consumables, safety equipment, etc as prescribed in **Deliverable L5.3**	Item			
F	Learner wages as prescribed in **Deliverable L5.3**	Item			
	CANDIDATE PROFESSIONALS (Deliverable L5.4)				
	Carried Forward			R	

				R	
	Brought Forward				
	Provide structured workplace learning for built environment profession candidates towards professional registration by a statutory council (CSDG Method 4) as prescribed in Deliverable L5.4				
A	Allow the Amount of R281,000.00 (Two Hundred and Eighty One Thousand Rand) for monthly payment of Candidate Professionals stipend cost of R13,000 (nett) and R16,510.00 (gross) per month (intake of 1 candidate = 1 candidate as prescribed in **Deliverable L5.4**	Item			281,000.00
B	Profit on above item.	Item			
C	Attendance on ditto.	Item			
D	All associated other costs, including tools of the trade, safety equipment, etc. as prescribed in **Deliverable L5.4.1**	Item			
	HEALTH AND SAFETY AWARENESS TRAINING (DELIVERABLE L6)				
E	General Health and Safety Awareness training for the entire workforce as prescribed in **Deliverable L6.1**	Item			
F	HIV/Aids Prevention Awareness Training for the entire workforce as prescribed in **Deliverable L6.3**	Item			
	PROVIDE SPECIFIC WORK READINESS AND LIFE SKILLS TRAINING FOR DESIGNATED PERSONS (DELIVERABLE L7)				
	All training costs such as tuition, venue and trainee refreshments to be provided. The required training courses, duration of training and required quantity of people to be trained is indicated in Deliverable L7.1				
G	Allow the Amount of R13,500.00 (Thirteen Thousand Five Hundred Rand) for First Aid Training and all associated costs as prescribed in **Deliverable L7.1**	Item			13,500.00
H	Profit on above item.	Item			
I	Attendance on ditto.	Item			
	Carried Forward			R	

				R	
	Brought Forward				
	PROVIDE WORK OPPORTUNITIES TO POST GRADUATE INTERNS (DELIVERABLE L8)				
	The recommended internships, amount of stipend, annual increases, etc is indicated in Deliverables L8.1				
A	Allow the Amount of R390,000 (Three Hundred and Ninety Thousand Rand) for monthly payment of built environment internships stipend cost of R9,000 (nett) and R11,430 (gross) per month (Post graduate interns) - 2 Candidates each as prescribed in **Deliverable L8.1**	Item			390,000.00
B	Profit on above item.	Item			
C	Attendance on ditto.	Item			
D	All associated other costs, including tools of the trade, consumables, safety equipment, etc **(Deliverable L8.1)**	Item			
	PROVIDE SEMI-SKILLED TRAINING AND EXPERIENTIAL WORK OPPORTUNITIES TOWARDS TRADE COMPETENCIES FOR DESIGNATED PERSONS METHOD 1 (DELIVERABLE L9)				
	The required training courses, stipend, duration of training and required quantity of people to be trained is indicated in Deliverable L9.1				
E	Allow the Amount of R235,000.00 (Two Hundred and Thirty Five Thousand Rand) for accredited technical training as prescribed in **Deliverable L9 and L9.1**	Item			235,000.00
F	Profit on above item.	Item			
G	Attendance on ditto.	Item			
H	Allow the Amount of R65,000.00 (Sixty Five Thousand Rand) for unemployed learner stipend for Technical Training (excluding General worker site preparation course) as prescribed in **Deliverable L9.4**	Item			65,000.00
I	Profit on above item.	Item			
J	Attendance on ditto.	Item			
	Carried Forward			R	

	Brought Forward		R	
A	All associated other costs, including all safety equipment required for technical training **(Deliverable L9.5)**	Item		
	ACCOMMODATION FOR NON-LOCAL CONSTRUCTION PERSONNEL (DELIVERABLE L10)			
B	Contractor to provide accommodation for non-local construction personnel as prescribed in **Deliverable L10.1**	Item		
	COMMUNITY PARTICIPATION / ENGAGEMENT (L11)			
C	Allow the Amount of R110,500.00 (One Hundred and Ten Thousand Five Hundred Rand) for participation in community engagement activities through the Project Support Committee for monthly stipend including meeting costs **(L11.1 and L11.2)**	Item		110,500.00
D	Profit on above item.	Item		
E	Attendance on ditto.	Item		
	ON-SITE COMMUNICATION STRUCTURES (DELIVERABLE L12)			
F	Contractor to establish and ensure the proper functioning of the Labour Consultative forum for the full duration of the project as prescribed in **Deliverable L12**	Item		
	MAIN CONTRACTOR ENSURING FULL COMPLIANCE (DELIVERABLE L13)			
G	Main Contractor to ensure the achievement of all socio-economic deliverables and full compliance to the labour management protocols on the whole project, inclusive of all sub-contractors for the full duration of the project as prescribed in **Deliverable L13**	Item		
	Carried Forward to Summary of Section No. 6		R	

Section No. 6
Bill No. 2
Socio Economic Development and Transformation
Q535B

SECTION SUMMARY - SECTION 6 PROVISIONAL SUMS

Bill No		Page No		Amount
1	Provisional Sums	249		
2	Socio Economic Development and Transformation	255		
	Carried to Final Summary		R	

Section No. 6
Q535B

Item No		Quantity	Rate	Amount

SECTION NO. 7

BILL NO 1

SMME DIRECT DOMESTIC SUB-CONTRACTORS

The following provisional sums cover the complete supply and installation of material and equipment by firms of SMME contractors to be direct domestic sub-contractors and are NETT, that is the sum does not include for builders discount

The Contractor may allow under the "profit" item for any profit he considers necessary. If the Contractor allows an amount for profit, this amount will be adjusted in direct proportion to the final value of the SMME work

Attendance on Domestic Sub-contractors

Each provisional sum in this bill is followed by an item under which the Contractor may allow for attendance on the specific SMME sub-contractor

The amounts of the items for "Attendance" are to allow for giving every facility to attending upon and making good in all trades after the SMME sub-contractors have completed their work, for providing the use of all water, electricity, storage space for materials, etc. the use of general amenities, i.e. latrines, etc., for the SMME sub-contractors and their workmen. For maintaining conduits, sleeve pipes, etc. in position during the building operations and providing the use of all ordinary scaffolding and plant. The Contractor is to leave erected scaffolding in position for the period required for work by the domestic sub-contractors under this contract

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SUPPLEMENTARY PREAMBLES

Carried Forward R

Brought Forward			R	
The following provisional sums are for work to be executed by the Small, Medium and Micro Enterprises, which will be regarded as direct domestic sub-contractors to the contractor. The contractor must call for quotations from firms approved by the Client in accordance with the conditions of contract and in conjunction with the Management Team for consideration.				
Tenderers are advised that it is a condition of the tender that where SMME's cannot be found, can not proceed or fail to complete the work, the Main Contractor will complete the work at his own tendered rates as per Section 2, 3, 4 and 5.				
Tenderers to take note that a portion of the building works, excluding specialist work, are to be contracted to SMME's. Provisional Sums are provided for this purpose and bids will be called for after award for these packages on a domestic sub-contractor basis. The Tenderer is to price all associated administrative, supervision, mentoring costs, profit and attendance in the relevant sections of the Preliminaries as no claims for additional costs will be entertained.				
The portion is made up of all building works excluding the following: **Preliminaries and General** **Provisional Sums** **Electrical Specialist Works** **Mechanical Specialist Works** **Escalation and Contingencies** **These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders calculated in terms of the prescribed contractual directives**				
Carried Forward			R	

Brought Forward		R	

SMME DIRECT DOMESTIC SUB-CONTRACTS

The following provisional sums cover the complete supply and installation of material and equipment by firms of SMME contractors to be direct domestic sub-contractors and are NETT, that is the sum does not include for builders discount. The contractor must call for quotations from firms approved by the Employer in accordance with the conditions of contract and in conjunction with the Management Team for consideration. **(at least three responsive quotations are required)**

The Contractor may allow under the "profit" item for any profit he considers necessary. If the Contractor allows an amount for profit, this amount will be adjusted in direct proportion to the final value of the SMME work

Attendance on Domestic Sub-contractors

Each provisional sum in this bill is followed by an item under which the Contractor may allow for attendance on the specific SMME sub-contractor

The amounts of the items for "Attendance" are to allow for giving every facility to attending upon and making good in all trades after the SMME sub-contractors have completed their work, for providing the use of all water, electricity, storage space for materials, etc. the use of general amenities, i.e. latrines, etc., for the SMME sub-contractors and their workmen. For maintaining conduits, sleeve pipes, etc. in position during the building operations and providing the use of all ordinary scaffolding and plant. The Contractor is to leave erected scaffolding in position for the period required for work by the domestic sub-contractors under this contract

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Carried Forward		R	

				R	
	Brought Forward				
	SMME MENTOR / FOREMAN				
A	Provide the sum of R450,000.00 (Four Hundred and Fifty Thousand Rand) nett for the provision of the Construction SMME mentor for the development of the local emerging contractors, including the employment of a full time SMME Mentor for the duration of the contract,according to the SMME specification (R25,000.00 per month gross salary)	Item			450,000.00
B	Allow for profit if required	Item			
C	Allow for attendance	Item			
	SMME PROVISIONAL SUMS				
	The following provisional sums are for work to be executed by the Small, Medium and Micro Enterprises, which will be regarded as direct domestic sub-contractors to the contractor. The contractor must call for quotations from firms approved by the Employer in accordance with the conditions of contract and in conjunction with the Management Team for consideration.				
	Notes:It is required that the contractor shall adhere to the requirements of employment and management of SMME Subcontractors				
	Tenderers are advised that it is a condition of the tender that where SMME's cannot be found, can not proceed or fail to complete the work, the Main Contractor will complete the work at his own tendered rates as per Bills of Quantities				
	TRAINING OF SMME CONTRACTORS				
D	Provide the sum of R250,000.00 (Two Hundred and Fifty Thousand Rand) nett for the training of targeted enterprises as per the CIDB contract skills development goal and the SMME Specification (NQF Accredited training for the SMME)	Item			250,000.00
E	Allow for profit if required	Item			
	Carried Forward			R	

Section No. 7
Bill No. 1
SMME Sub-contractors
Q535B

	Brought Forward			R	
A	Allow for attendance	Item			
	PPE FOR SMME DOMESTIC SUBCONTRACTOR LABOURERS				
B	Provide the sum of R80,000.00 (Eighty Thousand Rand) nett for purchasing and providing PPE Kits for all SMME domestic subcontractor labourers' (The Main Contractor shall provide detailed lists with names including ID numbers, verified by SMME Mentor)	Item			80,000.00
C	Allow for profit if required	Item			
D	Allow for attendance	Item			
	SMME CONTRACTS - DOMESTIC SUBCONTRACT PACKAGES				
	SMMe Domestic sub-contract packages to be implemented are below. The Bills of Quantities for the packages shall be provided to the successful bidder (Contractor) to obtain prices from SMMe sub Contractors. The Employer to approve list of subcontractors and preferred sub-contractors prior to appointment of such SMME Domestic Sub-contractors				
	All envisaged costs related to SMME packages to the Contractor shall be priced under Preliminaries, Item B/33				
	Alternative SMMe packages proposed by Contractor could be considered by the Employer. Work packages below could be divided into further smaller packages by the Employer, should it be required. No additional costs in this regard shall be entertained				
	SMME CONTRACTS - DOMESTIC SUBCONTRACT				
	Carried Forward			R	

				R
	Brought Forward			
	TIMBER DOORS AND DOORFRAMES (HIGH CARE / CICU UPGRADE - 2ND FLOOR)			
A	Provide the sum of R430,000.00 (Four Hundred and ThirtyThousand Rand) nett for timber doors and door frames to High Care / CICU upgrade on 2nd floor to be done by a SMME subcontractor (excluding installation of fire doors)	Item		430,000.00
B	Allow for profit if required	Item		
C	Allow for attendance	Item		
	PAINTING (HIGH CARE / CICU UPGRADE - 2ND FLOOR)			
D	Provide the sum of R550,000.00 (Five Hundred and Fifty Thousand Rand) nett for internal painting to walls, ceilings, door, door frames and existing steel windows to High Care / CICU upgrade on 2nd floor to be done by a SMME subcontractor	Item		550,000.00
E	Allow for profit if required	Item		
F	Allow for attendance	Item		
	SUSPENDED CEILINGS (HIGH CARE / CICU UPGRADE - 2ND FLOOR)			
G	Provide the sum of R600,000.00 (Six Hundred Thousand Rand) nett for suspended ceilings to High Care / CICU upgrade on 2nd floor to be done by a SMME subcontractor	Item		600,000.00
H	Allow for profit if required	Item		
I	Allow for attendance	Item		
	Carried Forward			R

Section No. 7
Bill No. 1
SMME Sub-contractors
Q535B

	Brought Forward		R	
	PAVING IN COURTYARD (NEXT TO ENTRANCE RAMP)			
A	Provide the sum of R315,000.00 (Three Hundred and Fifteen Thousand Rand) nett for paving in courtyard (next to entrance ramp to be done by a SMME subcontractor	Item		315,000.00
B	Allow for profit if required	Item		
C	Allow for attendance	Item		
	Carried to Final Summary		R	

Section No. 7
Bill No. 1
SMME Sub-contractors
Q535B

FINAL SUMMARY

Section No		Page No		Amount
1	SECTION 1 PRELIMINARIES AND GENERAL & HEALTH AND SAFETY	43		
2	SECTION 2 COMPLETION OF RENOVATIONS TO HIGH CARE /CICU 2ND FLOOR (PROVISIONAL)	160		
3	SECTION 3 RENOVATIONS TO CSSD (PROVISIONAL)	213		
4	SECTION 4 REMEDIAL WORK AND SUNDRIES (PROVISIONAL)	240		
5	SECTION 5 EXTERNAL WORKS (PROVISIONAL)	247		
6	SECTION 6 PROVISIONAL SUMS	256		
7	SECTION 7 SMME DOMESTIC SUB-CONTRACTS	263		
	SUB TOTAL		R	
	SECTION 8 ELECTRICAL INSTALLATION (HIGH CARE/CICU)	Item		
	SECTION 9 ELECTRICAL INSTALLATION (CSSD)	Item		
	SECTION 10 NURSE CALL AND ICT INSTALLATION	Item		
	SECTION 11 FIRE DETECTION (CICU/HIGH CARE & CSSD)	Item		
	SECTION 12 MEDICAL GAS INSTALLATION (CICU)	Item		
	SECTION 13 HVAC INSTALLATION (CICI/HIGH CARE & CSSD)	Item		
	SUB TOTAL		R	
	Carried Forward		R	

Q535B

FINAL SUMMARY

Section No		Page No		Amount
	Brought Forward		R	
	ALLOWANCE FOR CONTINGENCIES			
	Allow the Amount of R1,600,000.00 (One Million and Six Hundred Thousand Rand) for Contingencies to be used at the discretion of the Quantity Surveyor, or to be deducted in whole or in part if not required	Item		1,600,000.00
	ALLOWANCE FOR ESCALATION			
	Allow the Amount of R1,950,000-00 (One Million and Nine Hundred and Fifty Thousand Rand) for Escalation to be adjusted accordingly to contract conditions	Item		1,950,000.00
	SUB TOTAL (EXCLUDING VAT @ 15%)		R	
	VAT @ 15%		R	
	TOTAL CARRIED TO FORM OF OFFER AND ACCEPTANCE (INCLUDING VAT @ 15%)		R	
	Carried to Form of Offer and Acceptance		R	

Q535B

SECTION 8

ELECTRICAL INSTALLATION
HIGH CARE/CICU

C 3.1: DETAILED SPECIFICATION -JBCC 2000 PRINCIPAL BUILDING AGREEMENT (Edition 4.1 of March 2005)

PROJECT TITLE:	**PROVINCIAL HOSPITAL CATHLAB PHASE 2B – ELECTRICAL INSTALLATIONS**
TENDER NO:	

Contents

1.0 INTRODUCTION & GENERAL 2

2.0 SCOPE OF WORK 2

2.1 General Electrical Installation 2

2.2 Information & Communication Technology (I.C.T) Works & Access Control 3

2.3 Specialised Installation 3

2.4 Temporary Works 4

3.0 SYSTEM LOW VOLTAGE 4

4.0 NOTICES AND FEES 4

5.0 QUALITY OF MATERIALS 4

6.0 BALANCING OF LOAD 4

7.0 BUILDER'S WORK 4

8.0 SCHEDULES OF INFORMATION 4

9.0 SCHEDULE OF LUMINAIRES 5

10.0 SAMPLES AND ALTERNATIVES 6

11.0 SUPERVISION, WORKMANSHIP AND DELAYS 6

12.0 MAKING GOOD 7

13.0 COMMISSIONING AND TESTING 7

13.1 Commissioning 7

14.0 CONSTRUCTION PROGRAMME 7

15.0 DRAWINGS 8

15.1 General 8

15.2 Record / As-Built Drawings 8

16.0 MEASUREMENT 8

17.0 MONTHLY CERTIFICATES 9

18.0 LV DISTRIBUTION BOARDS 9
18.1 Cascading 9
19.0 DISTRIBUTION CABLES 10
20.0 OCCUPANCY SENSORS 10
21.0 PENDANT SERVICE SYSTEM 11
22.0 EARTHING AND BONDING 12
22.1 General 12
22.2 Water pipes 12
22.3 Roofs, gutters and down pipes 12
22.4 Sub-distribution boards 13
22.5 Sub-circuits 13
22.6 Common Earth 13
22.7 Non-metallic Conduit 13
22.8 Flexible Conduit 13
22.9 Connection 13
22.10 Earth Terminal for Other Services 14
23.0 CONDUIT, WIREWAYS AND ACCESSORIES 14
23.1 Conduit 14
23.2 Wiring Trunking / Channel 14
24.0 WIRING 15
25.0 WALL SWITCHES AND SWITCH SOCKET OUTLETS 15
26.0 TELEPHONE, COMPUTER AND SECURITY INSTALLATIONS 15
27.0 LIGHTNING PROTECTION SYSTEM 16
28.0 EQUIPMENT GUARANTEES, MAINTENANCE AND INSTRUCTION MANUALS 16
29.0 COMMISSIONING AND TAKE-OVER 16
29.1 Completion 16

1.0 INTRODUCTION & GENERAL

Should there be any conflict or ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority: -

- Schedule of Quantities
- Detailed Specification
- Drawings

Should the Tenderer notice any inconsistencies between these sections, it is his responsibility to notify the Engineer in order to obtain clarification thereon.

2.0 SCOPE OF WORK

The main contract is for the refurbishment of the Cath lab supporting rooms (Phase B) in the ground floor Pyott block at Provincial Hospital, Port Elizabeth.

2.1 General Electrical Installation

The Works will be executed in strict accordance with the following: -

a) The Wiring Code - SANS 1042-1: 2008,

b) Interior Lighting Part 1: Artificial Lighting of Interiors; Part 2: Emergency Lighting – SANS 10114-1,

c) Protection against Lightning – Physical Damage to Structures and Life Hazard: SANS 10313: 2008 and in conjunction with the SANS 62305 series,

d) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended.

The general electrical installation is reflected on a set of drawings attached to this document.

a) The Subcontractor to be mindful of the fact that the site is occupied at all times.

b) The subcontractor will be responsible for removal of existing electrical installations viz; lighting, power skirting, trunking, conduits, cables, etc. During tender the subcontractor will fully assess the building for the items to be removed for their pricing. The pricing to include transporting reusable material to Engineering Department and disposal of unwanted material.

c) The existing installations. The electrical subcontractor to note that there are existing electrical installations like conduits, wiring for lights including 5A

unswitched socket outlets and socket outlets and switch boxes. An allowance is made on the bills of quantities for subcontractor to inspect and repair where necessary the installed items with a purpose of taking them over and reusing them to complete installation.

d) The Subcontractor will be responsible for the supply and installation of new LV mains cabling between new and existing distribution boards (DB) including connecting the cables onto existing circuit breakers.

The existing DB is located on other floor and this might require opening up of ceilings and possible contact with other services along the cable route.

e) Supply and installation of

- complete building electrical installation including cabling, distribution boards and wireways for security and ICT cabling,
- the installation and connection to power of such equipment as may be supplied by the Employer or other Employer contractors,
- installation of specialised pendants
- installation of bedhead trunking in Induction room as shown on drawings
- the specialised Lightning Protection System (LPS).

f) Testing of the Electrical installation and issue Certificates of Compliance,

g) Testing of the LPS installation and issue Certificates of Compliance,

h) Produce marked up As-Built drawings of the Electrical Installations and be submitted to the Engineer

i) Produce Operation & Maintenance Manuals for the all new installations

The description of the Works listed above, is not necessarily complete and shall not limit the work to be carried out by the Subcontractor under this Contract.

2.2 Information & Communication Technology (I.C.T) Works & Access Control

a) The building installations works will be limited to providing

- cables
- cable trays and wiring channels inside the building,
- necessary conduits for access control and security installations,

2.3 Specialised Installation

The supply and installation of the following equipment will be carried out by specialist subcontractor (Hutz):

a) Pendants

b) Bedhead trunking with its accessories

The subcontractor will take responsibility of specialist work and provide cabling to

these installations:

2.4 Temporary Works

No temporary works are envisaged in the current design and planned execution of the works except where the Subcontractor wants to incorporate it as part of his work method. In case the requirement for such is necessary, the subcontractor to arrange with Engineer for a variation order of such work before it is carried out.

3.0 SYSTEM LOW VOLTAGE

The supply to all the Electrical installation shall be 400/230 Volts, 3-phase, 4 wire, 50 Hertz, Earthed Neutral.

4.0 NOTICES AND FEES

The Subcontractor shall liaise, issue all notices to and make the necessary arrangements with the Technical department of the hospital for planned power disruptions.

5.0 QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SABS specifications exist. All materials used shall bear the SABS or IEC mark of approval as applicable.

NB: All materials must be of South African manufacture. The Subcontractor must submit proof of unavailability where this requirement cannot be fulfilled.

6.0 BALANCING OF LOAD

The Subcontractor is required to balance the load as equally as possible over the multiphase supply **before Final Completion**.

7.0 BUILDER'S WORK

Subject to negotiations the following may be provided by the Contractor under the building works contract: -

- Making good all chasing

8.0 SCHEDULES OF INFORMATION

The schedule of information contained in this document consists of 2 sections:

a) Information supplied by the Engineer (schedules of drawings, cables, distribution boards, etc. as applicable.)

b) Information to be supplied by the Subcontractor at bidding stage (information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable.)

Bidders are required to enter, at the time of bidding, in the "Schedule of Equipment and Material Offered", sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a tender to state "as specified" in the schedules.

Failure to complete these schedules (if applicable) may render a bid invalid.

9.0 SCHEDULE OF LUMINAIRES

9.1 All luminaires to

- have Class A2 electronic control gear,
- LEDs to have suitable constant current drivers,
- 3m cable with 5A plug,
- bear a SABS or IEC mark of quality approval

9.2 LED luminaires to be 4000K

Type	Description
JS	40W LED Recessed mounted luminaire with: • Body – Seamless Aluminum extruded frame • Diffuser – Prismatic diffuser. 2.3mm PMMA • Dimensions –600mm (L) x 600mm (W) x 65mm deep
EX	1W LED Surface mounted Maintained Emergency Exit Sign with 3-hour NiCad back-up battery. Luminaire to be single-sided with LED array and EXIT signage. • Body – Epoxy powder coated metal • Diffuser – Acrylic • Dimensions – 390mm x 190mm x 60mm
R2	TYPE EX Luminaire above, the EXIT signage is replaced by one running men to the left. Luminaire to be double-sided.
R1.1	TYPE EX Luminaire above, the EXIT signage is replaced by two men running on opposite directions. Luminaire to be one-sided.

Z	13W LED downlight luminaire • Body – Die cast extruded aluminum • Dimensions – 142mm diameter x 130mm
ZN	5W LED round Recessed mounted downlighter • Body – Die cast extruded aluminum • Dimensions – 50mm diameter
Z1	5W LED round Recessed mounted Dimmable downlighter • Body – Die cast extruded aluminum Dimensions – 75mm diameter
EL	Ceiling mounted LED Examination light with a reach of 1.2m. • Luminance output – 50000 lux @ 500mm • Supply voltage – 220 -240V at 50Hz • Electrical Output – 12V DC / 12W • Electrical safety Classification – Class 2 type B • Lamp body – Plastic Molded with Anti-microbiol additive • Arm – Aluminum: Natural Anodised • Colour - Lamp body – White Arm – Natural Anodised Cover Caps – White • IP Rating - 54

10.0 SAMPLES AND ALTERNATIVES

10.1 Prior to installation the Subcontractor is required to submit for approval, comment or records, samples of materials upon which his offer is based. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Subcontractor of his responsibility to ensure full compliance with all performance and regulatory criteria and materials latent defects.

10.2 Samples forwarded shall be labelled and remain in the site stores until completion of the Works. The samples may be the last items to be embodied in the installation.

10.3 All expenses in do with the supply and return of the samples shall be borne by the Subcontractor.

11.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Subcontractor, who must be able and authorized to receive and execute instructions on behalf of the Subcontractor.

In the event that inferior materials or bad workmanship, on the part of the Subcontractor, leads to remedial work requiring redesign by the Engineer, the cost

of this work, including related professional fees, shall be borne by the Subcontractor.

Similarly, should delays in the contract be caused by poor performance on the part of the Subcontractor causing the Engineer to spend extraordinary time on the project, the extra costs incurred may be borne by the Subcontractor.

These costs will be based on the ECSA hourly rates and may be deducted from claims due or claims which will become due to the Subcontractor.

12.0 MAKING GOOD

The Subcontractor will carry out in all instances any work to be made good such as damage to or disturbances of the building installations caused by themselves or their employees during the execution of the contract, at their own cost.

13.0 COMMISSIONING AND TESTING

13.1 Commissioning

A documented method shall be followed, whereby the Subcontractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all codes of practice and international design codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

The Subcontractor will arrange for all inspections and testing of the installation after completion, including the issuing of the Certificate of Compliance. All notices, fees, including inspection and re-inspection are the responsibility of the Subcontractor and all the relevant costs shall be borne by him.

Any materials or workmanship considered as faulty or incorrectly or inadequately installed or repaired, will be substituted, altered or rectified to the approval of the Employer, without additional cost to the Employer.

14.0 CONSTRUCTION PROGRAMME

The Subcontractor must submit their construction programme to the Contractor who will amalgamate it into the project's overall construction programme.

15.0 DRAWINGS

15.1 General

Drawings must be read in conjunction with this Specification and the Bills of Quantities. Any errors, discrepancies or contradictions found between the Drawings, the Specifications and the Bills of Quantities must be brought to the attention of the Engineer immediately, they become evident.

The drawings generally show the scope and extent of the proposed work and shall be construed as showing every minute detail of the work to be executed.

Construction Drawings will be issued to site accompanied by drawing issue slips. The drawing issue register reflecting the summary of all previously issued drawings with dates and drawing revisions will be issued at the site meetings once a month.

15.2 Record / As-Built Drawings

The Subcontractor must prepare Record/As-Built drawings of the completed installation indicating actual cable runs, circuiting, distribution board details, final cable sleeves positions, luminaire, power point layout details, etc. The contract will not be deemed complete until these drawings have been submitted to the Engineer.

16.0 MEASUREMENT

The Subcontractor shall not make any assumption regarding the installation. If there is any doubt or ambiguity, they must consult the Engineer. The Subcontractor shall take cognisance of the fact that the schedule of quantities is re-measurable and final quantities may be adjusted at the end of the contract.

a) All outlet boxes up to 100 x 100mm are measured as one item regardless of the number of conduit entries.

b) Outlet boxes shall be without covers and draw boxes shall include covers, screws, etc.

c) Conduit boxes shall always include the fixing to the conduit with lock and bush nuts.

d) All switches and plug (SSO) units shall include the fixing to conduit and shall include screws, cover plates.

e) All fittings, equipment and accessories shall include connections to power. All light fittings shall be complete with lamps and tubes.

f) All measurements are net Tendered rates must allow or wastage.

17.0 MONTHLY CERTIFICATES

Pro forma claim form will be available from the Engineer in Excel format. This is the preferred method of submitting payment claims. Should the Subcontractor have developed his own method of claiming, this may be submitted to the Engineer for consideration.

18.0 LV DISTRIBUTION BOARDS

All distribution boards (DBs) will be supplied, wired and complete with all equipment of quantities, types, sizes and ratings as specified on the distribution board schematics, which are included in this document. The distribution boards shall be manufactured in accordance with the Standard Specification for Electrical Building Services.

The Subcontractor shall confirm on site, before commencing with any work that sufficient space and access is available to install the DBs as specified. No additional claims for failure to check these details and rectify any default will be entertained.

Before handing over, the DBs shall be thoroughly cleaned inside and outside. Damaged finished surfaces shall be made good where necessary with identical paint to the original finish.

18.1 *Cascading*

All DBs circuit breakers must be cascaded from the same manufacture and cascading group. Mixing of circuit breaker makes is not allowed.

Each cascaded DB must be marked with a label

a) informing that circuit breakers are cascaded and

b) that replacement and / or additional circuit breakers must be chosen from the same circuit breaker group.

18.2 Isolation Transformers

The Isolation transformer shall be a floor standing 8kVA, single phase 230V, 50Hz, Indoor Isolation transformer with its accessories.

The pricing of the distribution boards with Isolation transformer should include isolation transformer as shown on the relevant schematic diagram.

18.3 Un-interruptible Power Supply (UPS)

- The UPS shall be 10kVA, Single phase in single phase out, complete with external 12V 10 year design life maintenance free batteries in battery cabinet, giving a back-up time of 30 minutes at full load, in the event of a power failure.

- The UPS shall be 6kVA, Single phase in single phase out, complete with external 12V 10 year design life maintenance free batteries in battery cabinet, giving a back-up time of 30 minutes at full load, in the event of a power failure.

The UPS will be installed and commissioned by a specialised installer. The subcontractor will however allow for the monitoring and overseeing this installation and will be responsible for this installation.

18.4 Iso-guard

The Isoguard shall be suitable for 100–240V, 50/60Hz medical isolated power system and shall continuously monitor the insulation condition and Total Hazard Current (THC) of the isolated supply.

The Iso-guard shall have the following minimum specifications:

- Supply voltage: 100–240V
- Power consumption: <22VA
- Nominal monitored system voltage: 100–240V
- Operating voltage range: 85–110% of nominal voltage
- Rated frequency: 50/60Hz
- THC response value: 5mA / 2mA
- THC response tolerance: 4.5–5mA / 1.8–2mA
- Undervoltage monitoring: 80–300V, adjustable
- Overvoltage monitoring: 80–300V, adjustable
- Load current monitoring: 10–200A
- Communication: RS-485 with proprietary bus
- Baud rate: 9.6kbit/s
- Maximum communication cable length: 1,200m
- Termination: 120Ω, 0.25W terminating resistor, selectable via DIP switch

The unit shall include a digital display, audible and visual alarm indication, alarm mute and test facility, and shall comply with IEC 61557-8.

1.0 DISTRIBUTION CABLES

1.1 Low Voltage (LV)

All PVC Insulated PVC bedded SWA PVC sheathed 600/1000V copper cables shall conform to SANS 1507-3 and bear the SABS mark. Cables shall be of sizes and type as shown on the drawings.

Cables shall be supplied with their corresponding termination and as well as corresponding bare copper earth wire. The Subcontractor is advised to measure actual lengths of cable required on site before ordering as no compensation for over-measurements shall be entertained.

2.0 OCCUPANCY SENSORS

Surface mount dual-load 360^0 PIR occupancy sensors for controlling lights. Positions as shown on the lighting layout. The table below provides detail description of the sensors

Technology	Passive Infra-red
Photocell	Built-In
Mounting	Ceiling (Surface-mount)

IR Remote Control	NO
Rated Voltage	230Vac+/-10%, 50/60Hz
Load	Dual load independent control. Load 1 for lighting: Incandescent Lamp: max. 2000W AC Halogen Lamp: max. 1000W LV Halogen Lamp: max. 1000VA Fluorescent Lamp: max. 900VA/100μF Load 2 (D1-D2) for HVAC Max. 5A (cosφ=1) 250VAC or 30VDC Motor: 1/10HP (approx.73W)
HVAC Relay (2nd Channel)	NO
Detection angle	360º
Detection range forward adjustable	7M at 2.5M height
Stair-timer / Short impulse Mode	Yes
Timer adjustable precisely	Time 1 (for lighting): Adjustable from 5 sec to 20 min, plus test (2sec on, 2sec off) & (short impulse: 1 sec on, 9 sec off) Time 2 (for HVAC): Adjustable from 10 sec to 60 min
Meter adjustable	Yes
Lux adjustable precisely	10 Lux to 2000 Lux
Test Mode	Yes
Auto/On/Off manual switch	Yes
Parallel circuit operation	Yes
Environmental protection	IP40
Operating temperature	0ºC to 45ºC 0~95%
Product colour	White

-

3.0 PENDANT SERVICE SYSTEM

20.1. **Anaesthetic Pendant**

The Flexible Anaesthetic ceiling mounted Pendant shall be “Tandem Mount, double arm, Double Articulated”. The body shall be constructed from an aluminium extrusion with hard wearing textured powder coated finish. The pendant shall be supplied complete with following components: Refer to drawings for mounting positions.

- For recovery room
  - 1 X HU6-S1-HAP (1st & 2nd)
  - 1 X Height Adjustable Pillar Assembly - 800mm (Service Column without Grab tubes)
  - 2 X Medical Gas Installed - O2
  - 2 X Medical Gas Installed - VAC
  - 2 X Medical Gas Installed - LPA-MA4
  - 1 X Medical Gas Installed - N2O
  - 1 X Medical Gas Installed - SCAV-AGGS
  - 1 X Nist Connector O2 with probe (set)

- 2 X Nist Connector VAC with probe (set)
- 1 X Nist Connector LPA with probe (set)
- 1 X Nist Connector N2O with probe (set)
- 1 X Nist Connector SCAV with probe (set)
- 8 X 16A Socket I.E. (Red) Non-Shaven
- 8 X 20A D/Pole Switch (Red)
- 2 X RJ45 - Data Point / Monitor Point Installed
- 2 X Patient Earth (banana plug)

Compulsory Items

- 1 X HU5/6/8 Slab Mount First Fix Plate for S2 units (SAPN0270)
- 1 X HU5/6/8 Ceiling Plate Second Fix for S2 units (SAPN8070)

4.0 EARTHING AND BONDING

4.1 General

Earthing shall generally be in accordance with

- SANS 10142-1: 2008 Wiring Code,
- SANS 10198: Part 3 - Earthing System; General Provision; Part 12 - Installation of Earthing Systems,
- SANS 10200: Neutral Earthing in Medium Voltage Industrial Power Systems,
- SANS 10292: Earthing of Low Voltage Distribution Systems,
- SANS 1063: Earth Rods Couplers and Clamps,
- AMEU Code of Practice for the application of protective multiple earthing to low voltage distribution systems and
- The latest amendments and the OHS Act 1993.

4.2 Water pipes

All metallic hot and cold-water pipes shall be bonded with 12mm x 0,8mm perforated for solid copper strapping and connected to the nearest system earth. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board.

4.3 Roofs, gutters and down pipes

Unless not included in the Lightning Protection System (LPS), all metal parts of roofs, gutters and down pipes shall be earthed.

4.4 Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of bare stranded copper conductors installed along the same routes as the supply cables or in the same sleeve or ladder as the power conductors.

Alternatively, armoured cables with earth continuity conductors included in the armouring (ECC) may be utilised where specified or approved.

4.5 Sub-circuits

The earth conductors of all sub-circuits shall be connected to the earth busbar in the source DB in accordance with SANS 10142.

4.6 Common Earth

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall by connected to the common earth conductor with T-ferrules or soldered.

NB: The common earth shall not be broken.

4.7 Non-metallic Conduit

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

4.8 Flexible Conduit

An earth conductor shall be installed in all non-metal flexible conduits. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

4.9 Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Subcontractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

4.10 Earth Terminal for Other Services

A readily accessible earthing terminal shall be provided, near the trap door in the ceiling, for the bonding of other services such as a television aerial or satellite dish, an audio system, a video surveillance system, and the like, to the building. Such an earthing terminal shall be bonded to the consumer's earth terminal in the main distribution board by a conductor of at least 6mm² copper or equivalent, and shall be identified by the earth symbol.

NOTE: Providers of services other than the electrical power services should not access the distribution board or other parts of the electrical installation.

5.0 CONDUIT, WIREWAYS AND ACCESSORIES

5.1 Conduit

All conduit/outlet boxes and associated fittings for use in this installation shall bear the SABS mark approved.

The Subcontractor must provide all conduit and accessories for the lighting, power, telephone, communications, computer and security systems, as shown on the drawings and as measured in the schedule of quantities.

Flexible metallic tubing of galvanized steel shall be used for connections to water heaters, fans and other similar equipment. The corrugations of the tubing shall have a rectangular cross section suitable to fit standard brass connections.

5.2 Wiring Trunking / Channel

Wiring channels in ceiling voids and wherever indicated on the drawings shall be medium duty of Cab-strut, Cooper B-Line or similar manufacture and shall be complete with corner pieces, end pieces, hangers, junction pieces, supply conduits, cover plates and power outlets as specified and indicated on the drawings. Note that Nylon or plastic nuts or fasteners will not be accepted.

The channels shall be manufactured of rolled sheet steel and hot-dip galvanised to SANS 763.

Channels shall be cold galvanised at all joints, sections that have been cut and at places where the galvanising has been damaged.

The wiring channels' metal covers shall be pop-riveted closed, once the installation is complete.

6.0 WIRING

Lighting and Power wiring in conduit and channel wireways shall comprise 600/1000V single core PVC insulated copper wire sized in accordance with the distribution board schematics. Conductor outer sheaths shall be of the following colours: -

- Phase Conductors : red, white, blue
- Neutral : black
- Earth : yellow + green

7.0 WALL SWITCHES AND SWITCH SOCKET OUTLETS

Wall switches to be of the flush type complete with cover plates and screws in 100 x 50 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All surfaces mounted switch socket outlets to be in 100 x 100 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All switched socket outlets mounted in power skirting to have matching cover plates.

The Subcontractor will be responsible for the installation of power points to feed equipment such as water heaters, air-conditioners, fans, security equipment, etc. This equipment, if supplied and installed by others, will be connected by the Subcontractor.

The cover plates to all outlets shall be fixed **AFTER** the final coat of paint has been applied.

All light switches and power points shall be labelled with indelible circuit numbers to tie up with a circuit number in the distribution boards. Labels shall be engraved Trifoliate or similar approved type. Labels, like Brother™ labels that peel off easily shall not be acceptable.

8.0 TELEPHONE, COMPUTER AND SECURITY INSTALLATIONS

The Subcontractor will be responsible for the complete installation of conduits and wireways for the I.C.T and security systems.

9.0 LIGHTNING PROTECTION SYSTEM

10.0 EQUIPMENT GUARANTEES, MAINTENANCE AND INSTRUCTION MANUALS

The Contractor shall submit to the Engineer all manufacturers' equipment guarantees, maintenance and instruction manuals. All equipment shall be guaranteed for twelve (12) months from the date of Practical Completion Certificate.

11.0 COMMISSIONING AND TAKE-OVER

The Contractor shall carry out the necessary tests according to the SANS 1-0142, the latest edition and provide a certificate of compliance on completion of the works. The certificates of compliance shall be of the approved type as issued by the Electrical Contracting Board of South Africa.

11.1 Completion

The electrical installation shall be complete after:

(i) All tests for the switchgear and cables have been done and tests results submitted to the Engineer.

(ii) The completed certificates of compliance have been submitted to the Engineer.

(iii) All equipment guarantees, maintenance and instruction manuals have been submitted to the Engineer.

(iv) The site has been cleared of all debris and electrical waste materials and left in a neat and tidy condition.

(v) "As-Built" drawings of the Works, including LPS and Distribution boards have been submitted to the Engineer.

ELECTRICAL INSTALLATIONS

SCHEDULE OF MATERIAL OFFERED

THE FOLLOWING SCHEDULE OF EQUIPMENT AND MANUFACTURE SHALL BE COMPLETED IN FULL.

FAILURE TO DO SO WILL INVALIDATE THE TENDER

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders.

	EQUIPMENT	MANUFACTURE

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 1 : PROVISIONAL AND SUPERVISION AMOUNTS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
	A Preliminary and General item is provided to cover the Contractor's charges for compliance with the Conditions of Contract and this Specification, including the provision, maintenance and removal of his site establishment, etc.				
1.10	FIXED CHARGES				
1.1.1	Site Establishment	Sum	1		
1.1.2	Removal of Site Establishment	Sum	1		
1.1.3	Provision of Electricity and Water	Sum	1		
1.1.4	Provision of Toilet Facilities	Sum	1		
1.1.5	**Other Fixed-charge Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
1.20	CONTRACTUAL REQUIREMENTS				
1.2.1	Provision of Sureties	Sum	1		
1.2.2	Insurances	Sum	1		
1.2.3	Third Party Insurance	Sum	1		
1.2.4	Guarantee of the Works	Sum	1		
1.2.5	Provide Test Results	Sum	1		
1.2.6	Provision of Record Drawings	Sum	1		
1.2.7	All OHSA Requirements including safety equipment and clothing	Sum	1		
1.2.8	All HIV / AIDS Specification Requirements	Sum	1		
1.2.9	**Other Value Related Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
1.30	TIME-RELATED ITEMS				
1.3.1	Contractual Requirements	Sum	1		
1.3.2	Operation and Maintenance of Site Establishment	Sum	1		
1.3.3	Supervision for the Duration of Contract	Sum	1		
1.3.4	**Other Time-Related Obligations**	Sum	1		
	(Please Specify).	Sum	1		
	. . . . .	Sum	1		
	TOTAL SCHEDULE NO. 1 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 2 : DISTRIBUTION BOARDS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
2.1	**Distrubution Board** Flush and surface mounted Distribution Boards fitted into frames and Trays with Doors to Specification and drawings.				
2.1.1	Remove & replace existing MDB with new MDB as shown on the drawing number 1710-C-E-300 PEPH CathLab 2B. Price to include upgrading of circuit breakers in basement LV panel to suit the new MDB and as well as tracing & relocating of circuits in use into the new MDB.				
	Supply	each	1		
	Install	each	1		
2.1.1.1	Trace Circuits on existing DB, label and make safe				
	Electrician	hrs	8		
	Semi-skilled	hrs	8		
2.1.1.2	Remove existing DB				
	Electrician	hrs	8		
	Semi-skilled	hrs	8		
2.1.1.3	Relocate existing circuits into new DB				
	Electrician	hrs	3		
	Semi-skilled	hrs	3		
2.1.2	New SDB-ISO as shown on the drawing number 1710-C-E-300 PEPH CathLab 2B.				
	Supply	each	1		
	Install	each	1		
2.1.2	New SDB-Plant room as shown on the drawing number 1710-C-E-300 PEPH CathLab 2B.				
	Supply	each	1		
	Install	each	1		
	TOTAL SCHEDULE NO. 2 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 3 : CABLES

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
3.1	**Cables** PVC Insulated PVC bedded SWA PVC with ECC sheathed 600/1000V copper cables. drawn into building entry sleeve, mounted on Tray or Wire Basket.. Tenderer to allow addition suitable earth conductor for the cable				
3.1.1	70mm² 4 Core complete with ECC (MDB-Essential and Non-Essential)				
	Supply	m	150		
	Install	m	150		
3.1.1,1	Termination for 70mm² 4 core cable complete with ECC				
	Supply	each	4		
	Install	each	4		
3.1.2	35mm² 4 Core complete with ECC (MDB-Isolation)				
	Supply	m	100		
	Install	m	100		
3.1.2.1	Termination for 35mm² 4 core cable complete with ECC				
	Supply	each	2		
	Install	each	2		
3.1.3	6mm² 4 Core complete with ECC (SDB-HVAC)				
	Supply	m	100		
	Install	m	100		
3.1.3.1	Termination for 6mm² 4 core cable complete with ECC				
	Supply	each	6		
	Install	each	6		
3.1.4	6mm² 2 Core complete with ECC (SDB-Isolation)				
	Supply	m	100		
	Install	m	100		
3.1.4.1	Termination for 6mm² 2 core cable complete with ECC				
	Supply	each	6		
	Install	each	6		
TOTAL SCHEDULE NO. 3 TO PRICE SUMMARY					

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B
SECTION 8: ELECTRICAL INSTALLATIONS
BILL NO. 4 : LUMINAIRES

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
4.1	**Luminaires** Luminaires mounted on concrete or suspended ceilings, or on brickwork including lamps and fixing material. **NOTE: See contract document for detailed technical specifications.**				
4.1.1	Type-JS (40W LED Recessed mounted, 600mmx600mm)				
	Supply	each	64		
	Install	each	64		
4.1.2	Type-Z (13W LED round Recessed mounted downlighter, 125 diameter)				
	Supply	each	23		
	Install	each	23		
4.1.2	Type-Z1 (8W LED round Recessed mounted downlighter, 50 diameter)				
	Supply	each	4		
	Install	each	4		
4.1.2	Type-ZN (8W LED round Recessed mounted downlighter, 50 diameter)				
	Supply	each	14		
	Install	each	14		
4.1.3	Type-R 2 (1W LED Escape sign with directional arrow one way (both sides))				
	Supply	each	2		
	Install	each	2		
4.1.4	Type-R 2.1 (1W LED Escape sign with directional arrow two way (both sides))				
	Supply	each	1		
	Install	each	1		
4.1.4	Type-R1 (1W LED Escape sign with directional arrow one way (one sided))				
	Supply	each	1		
	Install	each	1		
4.1.5	Type-EX (1W LED Maintained Emergency Exit Sign)				
	Supply	each	2		
	Install	each	2		
4.1.6	Type-L (20W LED Bulkhead)				
	Supply	each	2		
	Install	each	2		
4.2	**Occupancy Sensors** Ceiling mounted occupancy sensors with accessories for a complete installation				
4.2.1	Motion Detector (Passive Infra Red)				
	Supply	each	10		
	Install	each	10		
4.3	**Telephone**				
4.3.1	Telephone RJ11 outlet mounted to power skirting complete with cover plate				
	Supply and Install	each	12		
4.4	**Data**				
4.4.1	Data RJ45 outlet mounted to power skirting complete with cover plate				
	Supply and Install	each	12		
TOTAL SCHEDULE NO. 4 TO PRICE SUMMARY					

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 5 : SWITCHGEAR EQUIPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
5.1	**Switchgear** 16 Amp rocker type light switch with coverplate installed into a flush box measured elsewhere.				
5.1.1	Single lever, one way				
	Supply	each	38		
	Install	each	38		
5.1.2	Dimmer switch				
	Supply	each	2		
	Install	each	2		
5.2.3	Nurse Base Custom Made MULTI-WAY Switch panel Single Way Ten Lever				
	Supply	each	2		
	Install	each	2		
5.2	**Switchgear** 16 Amp rocker type Power Outlets with coverplate installed into boxes orPower Skirting which are measured elsewhere.				
5.2.1	16 Amp 3 pin dedicated switched socket outlets with cover plates installed in a **flush wall Box**. Colour: WHITE				
	Supply	each	42		
	Install	each	42		
5.2.2	16 Amp 3 pin dedicated switched socket outlets with cover plates installed in a **flush wall Box**. Colour: RED				
	Supply	each	7		
	Install	each	7		
5.2.3	16 Amp 3 pin UPS switched socket outlets with cover plates installed in a **flush wall Box**. Colour: Blue				
	Supply	each	3		
	Install	each	3		
5.2.4	16 Amp 3 pin standard switched socket outlets with cover plates installed in **power skirting**. Colour: White				
	Supply	each	7		
	Install	each	7		
5.2.5	16 Amp 3 pin dedicated switched socket outlets with cover plates installed in a **power skirting**. Colour: RED				
	Supply	each	7		
	Install	each	7		
5.2.6	16 Amp 3 pin UPS switched socket outlets with cover plates installed in a **power skirting**. Colour: Blue				
	Supply	each	7		
	Install	each	7		
5.2.7	16 Amp 3 pin Euro switched socket outlets with cover plates installed in a **power skirting**. Colour: White				
	Supply	each	7		
	Install	each	7		
	TOTAL CARRIED TO THE NEXT PAGE				

	TOTAL FROM PREVIOUS PAGE				
5.2.8	16 Amp 3 pin ceiling mounted switched socket outlets. The price to include the **surface mounting box** and its accessories.				
	Supply	each	29		
	Install	each	29		
5.2.9	Purpose made **wall flush** mounted cluster box with 1x 16 Amp 3 pin normal switched, 2x dedicated switched, 1 x euro, 1 x data and 1 x telephone point.				
	Supply	each	5		
	Install	each	5		
5.2.10	5 amp unswitched Socket outlet for lights in the ceiling void				
	Supply	each	100		
	Install	each	100		
5.3	**ISOLATORS FOR HVAC AND VENTILATION**				
	Supply and install complete Air conditioning points including all cables, isolators and associated equipment.				
5.3.1	20 Amp indoor flush wall mounted double isolator.	Nº	2		
5.3.2	20 Amp three phase surface mount isolator for AC Condenser.	Nº	2		
	TOTAL SCHEDULE NO. 5 TO SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 6 : POWER

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
6.1	**Conduit** PVC conduit chased into brickwork, cast in concrete or fixed on trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material (average).				
6.1.1	20mm				
	Supply	m	3,200		
	Install	m	3,200		
6.1.2	25mm				
	Supply	m	1,050		
	Install	m	1,050		
6.2	Galvanised metal conduit chased into brickwork, cast in concrete or fixed on trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material (average).				
6.2.1	20mm				
	Supply	m	30		
	Install	m	30		
6.2.2	25mm				
	Supply	m	100		
	Install	m	100		
6.3	**Conduit Boxes** Round Galvanised box for 20mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed in trusses including couplings bushes cover plates and fixing materials (average rate)				
6.3.1	20mm Galv round box				
	Supply	each	250		
	Install	each	250		
6.3.2	25mm Galv round box				
	Supply	each	20		
	Install	each	20		
6.4	Galvanisd boxes with 20mm knockouts as specified chased into brickwork.				
6.4.1	100mm x 50mm x 50mm				
	Supply	each	30		
	Install	each	30		
6.4.2	100mm x 100mm x 50mm				
	Supply	each	49		
	Install	each	49		
	TOTAL SCHEDULE NO. 6 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B
SECTION 8: ELECTRICAL INSTALLATIONS
BILL NO. 7 : MEDICAL EQUIPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
7.1	**Medical Pendant**				
	Pendant, Tandem Mount fixed pillar double articulated arm as per detailed specification.				
7.1.1	Price to include free-issued brackets for the pendants:				
	Supply	per bed	14		
	Install (including sundries)	per bed	14		
	TOTAL SCHEDULE NO. 7 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 8 : CONDUCTORS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
8.1	**Conductors** **600/1000 grade PVC insulated single core copper conductors drawn into conduit**				
8.1.1	1,5mm² red/black				
	Supply	m	5,600		
	Install	m	5,600		
8.1.2	2,5mm² red/black				
	Supply	m	8,150		
	Install	m	8,150		
8.1.3	2,5mm² yelow & green				
	Supply	m	6,875		
	Install	m	6,875		
8.1.4	2,5mm² surffix cable				
	Supply	m	350		
	Install	m	300		
8.1.5	4mm² surffix cable				
	Supply	m	380		
	Install	m	380		
TOTAL SCHEDULE NO. 8 TO PRICE SUMMARY					

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B

SECTION 8: ELECTRICAL INSTALLATIONS

BILL NO. 9 : POWER RETICULATION EQUIPMENT

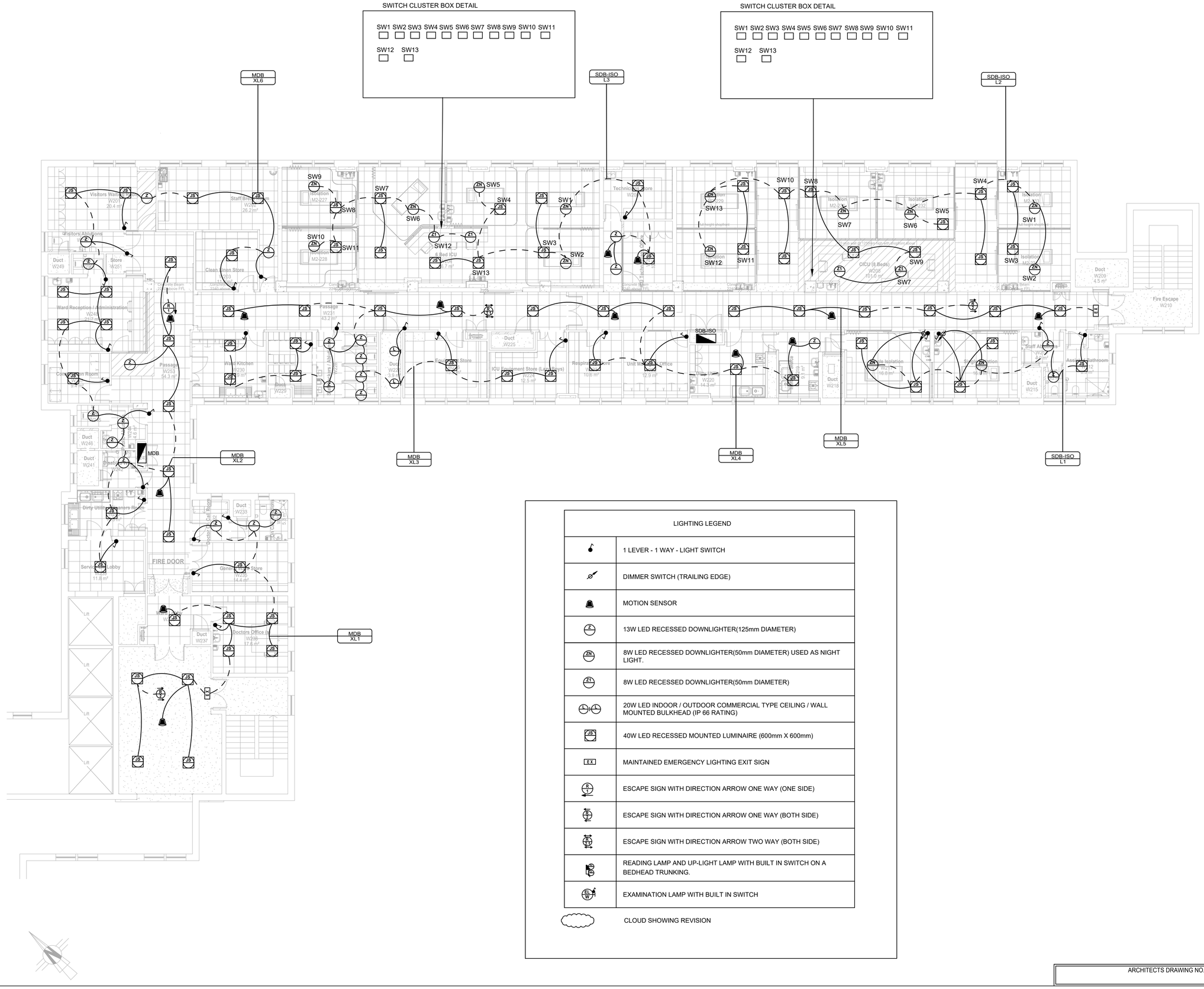
ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
9.1	**Wiring Duct**				
	P8000 galvanised wiring duct including covers, hangers and splices.				
9.1.1	Supply	m	200		
	Install	m	200		
9.1.2	External elbow				
	Supply	each	2		
	Install	each	2		
9.1.3	Tee radiused				
	Supply	each	6		
	Install	each	6		
9.1.4	Distribution Outlet				
	Supply	each	3		
	Install	each	3		
9.1.5	Endcap				
	Supply	each	6		
	Install	each	6		
9.2	**Cable Tray**				
	150mm wide wiremash Galvanised Cable tray installed on side mounted angle Brackets.(Medium Duty Cable Tray)				
9.2.1	Cable Tray				
	Supply	m	150		
	Install	m	150		
9.2.2	90 bend				
	Supply	m	1		
	Install	m	1		
9.2.3	Tee radiused				
	Supply	each	5		
	Install	each	5		
9.2	**POWER SKIRTING**				
9.3.1	Fixed on walls or worktops 2-Compartment aluminium powerskirting , complete with covers				
	Supply	m	11		
	Install	m	11		
9.3.2	Endcap				
	Supply	each	4		
	Install	each	4		
9.3.3	Power Skirting Risers matching above power skirting with 3 compartments				
	Supply	each	2		
	Install	each	2		
	TOTAL SCHEDULE NO. 9 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX - CATHLAB PHASE 2B
SECTION 8: ELECTRICAL INSTALLATIONS
BILL NO. 10 : SUNDRY ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
10.1	Housekeeping, sundry items, consumable stocks such as circuit beads engraving, labels etc.	Sum	1		
10.2	Testing of complete installation in terms of the regulations	Sum	1		
10.3	Provide for the earthing of the new buildings to wiring code	Sum	1		
10.4	Provide Certificate of Compliance for the new works	Sum	1		
10.5	Remove existing electrical installations				
	Electrician	hrs	40		
	Semi-skilled	hrs	40		
10.6	Checking and minor repairs to existing electrical installations (conduits and wires) recently installed by previous electrical contractor in order to re-use under this contract				
	Electrician	hrs	80		
	Semi-skilled	hrs	80		
10.7	Cleaning and reinstatement of existing pendant mounting brackets recently left on site by previous contractor for re-use under this contract. Rate to include all labour, transport, and coordination with Hutz	Sum	1		
	TOTAL SCHEDULE NO. 10 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX -
CATHLAB PHASE 2B
SECTION 8: ELECTRICAL INSTALLATIONS
SUMMARY OF MAIN BILL

DESCRIPTION	**AMOUNT**
BILL NO. 1 : P&G'S	
BILL NO. 2 : DISTRIBUTION BOARDS	
BILL NO. 3 : CABLES	
BILL NO. 4 : LUMINAIRES	
BILL NO. 5 : SWITCHGEAR EQUIPMENT	
BILL NO. 6 : CONDUITS	
BILL NO. 7: MEDICAL EQUIPMENT	
BILL NO. 8 : CONDUCTORS	
BILL NO. 9: POWER RETICULATION EQUIPMENT	
BILL NO. 10 : SUNDRY ITEMS	
SUBTOTAL	
MAIN CONTRACTOR'S PROFIT AND ATTENDANCE	
TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 8 ON FINAL SUMMARY ON PAGE 264	



LIGHTING LEGEND	
	1 LEVER - 1 WAY - LIGHT SWITCH
	DIMMER SWITCH (TRAILING EDGE)
	MOTION SENSOR
Z	13W LED RECESSED DOWNLIGHTER(125mm DIAMETER)
ZN	8W LED RECESSED DOWNLIGHTER(50mm DIAMETER) USED AS NIGHT LIGHT.
Z1	8W LED RECESSED DOWNLIGHTER(50mm DIAMETER)
	20W LED INDOOR / OUTDOOR COMMERCIAL TYPE CEILING / WALL MOUNTED BULKHEAD (IP 66 RATING)
JS	40W LED RECESSED MOUNTED LUMINAIRE (600mm X 600mm)
EX	MAINTAINED EMERGENCY LIGHTING EXIT SIGN
	ESCAPE SIGN WITH DIRECTION ARROW ONE WAY (ONE SIDE)
	ESCAPE SIGN WITH DIRECTION ARROW ONE WAY (BOTH SIDE)
	ESCAPE SIGN WITH DIRECTION ARROW TWO WAY (BOTH SIDE)
	READING LAMP AND UP-LIGHT LAMP WITH BUILT IN SWITCH ON A BEDHEAD TRUNKING.
ELW	EXAMINATION LAMP WITH BUILT IN SWITCH
	CLOUD SHOWING REVISION

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	06-08-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO bigen HDG HOSPITAL HOLDINGS GROUP ENGAGE. ENABLE. EMPOWER.

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB SECTION 8

TITLE

ELECTRICAL:
LIGHTING LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039 Newton Park, 6055
Tel: 041 581 2807

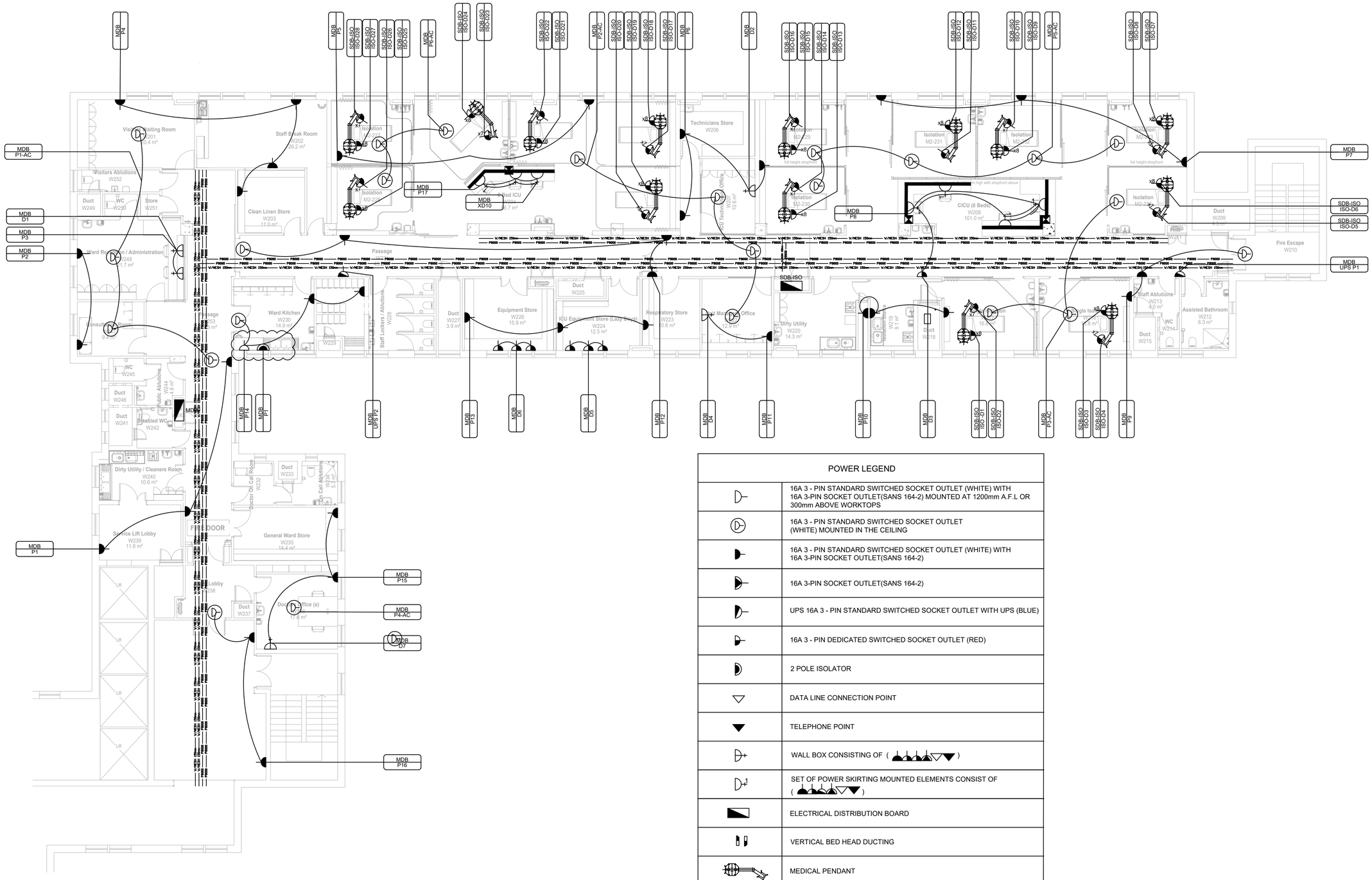
CESA Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: E. CEBA		SCALE 1:100
DRAWN B.GEELBOOI	DATE 19/09/2023	PRINT DATE 17/09/2026
CHECKED BY: E. CEBA		
REGISTRATION No. 20193005 3		
SIGNED.		

ARCHITECTS DRAWING NO.	REV No.

DRAWING NO.	REV No.
1710-T-E-101 PEPH CATHLAB SECT 8	00



POWER LEGEND

	16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) WITH 16A 3-PIN SOCKET OUTLET(SANS 164-2) MOUNTED AT 1200mm A.F.L OR 300mm ABOVE WORKTOPS
	16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) MOUNTED IN THE CEILING
	16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) WITH 16A 3-PIN SOCKET OUTLET(SANS 164-2)
	16A 3-PIN SOCKET OUTLET(SANS 164-2)
	UPS 16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET WITH UPS (BLUE)
	16A 3 - PIN DEDICATED SWITCHED SOCKET OUTLET (RED)
	2 POLE ISOLATOR
	DATA LINE CONNECTION POINT
	TELEPHONE POINT
	WALL BOX CONSISTING OF ( )
	SET OF POWER SKIRTING MOUNTED ELEMENTS CONSIST OF ( )
	ELECTRICAL DISTRIBUTION BOARD
	VERTICAL BED HEAD DUCTING
	MEDICAL PENDANT
P8000	P8000
W/MESH 150mm	150mm WIDE WIRE MESH CABLE TRAY
	POWER SKIRTING
	POWER SKIRTING RISER
	CLOUD SHOWING REVISION

FOR INFORMATION

ARCHITECTS DRAWING NO. | REV No.

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING: AC = AIR CONDITIONING; D = DEDICATED SSO; L = LIGHTING CIRCUIT; P = STANDARD SSO; XL = LIGHTING CIRCUIT ON STANDBY POWER; XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	31-07-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO HEALTH SOLUTIONS · bigen · HDG HOSPITAL GROUP LIMITED · NEMA SA

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2B

TITLE

POWER LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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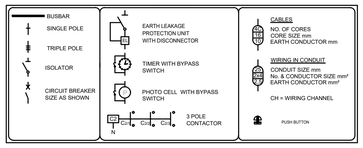
RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807

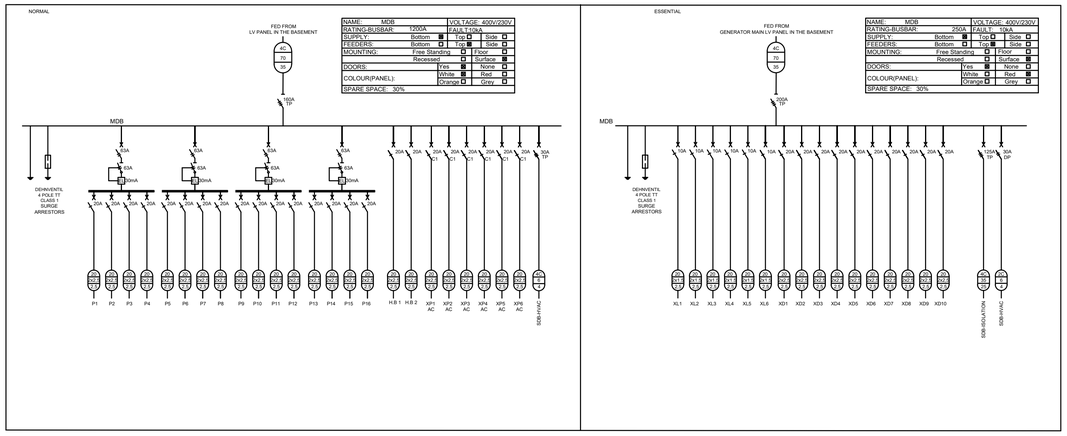
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Consulting Engineers South Africa

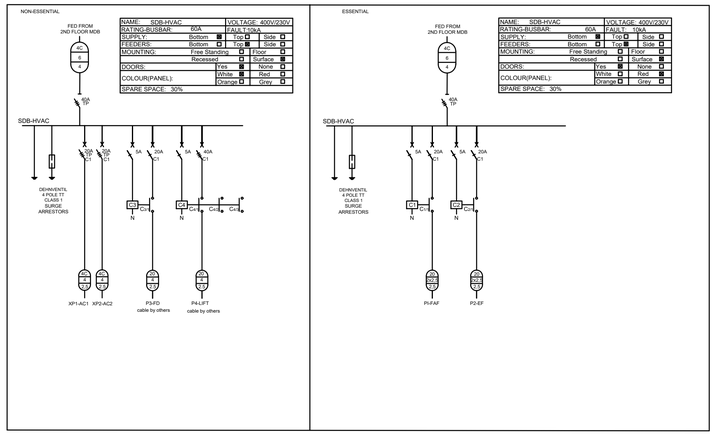
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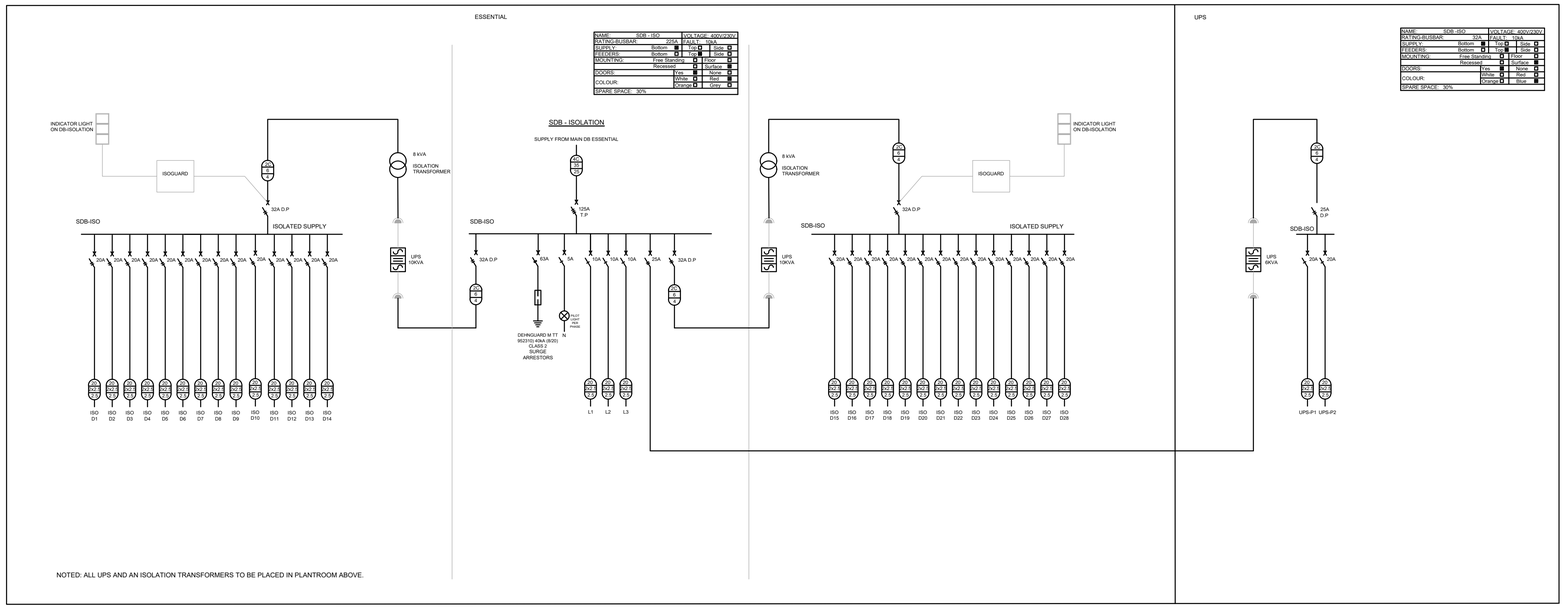
DESIGNED BY: E. CEBA	SCALE 1:100	
DRAWN L.JEKEQA	DATE 13/09/2019	PRINT DATE 03/08/2026
CHECKED BY: E. CEBA		
REGISTRATION No. 201930053		
SIGNED.		
DRAWING NO. 1710-T-E-102 PEPH CATHLAB SECT 8		REV No. 00

LEGEND









GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
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16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	06-08-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO bigen HDG

PROJECT

PROVINCIAL HOSPITAL:
CATH LAB SECTION 8

TITLE

ELECTRICAL:
SCHEMATIC DIAGRAMS

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY:	E. CEBA
SCALE	N.T.S
DRAWN	B.GEELBOOI
DATE	19/09/2023
PRINT DATE	06/08/2026
CHECKED BY:	E. CEBA
REGISTRATION No.	201930053
SIGNED.	

ARCHITECTS DRAWING NO.	REV No.
.....	.....

DRAWING NO.	REV No.
1710-C-E-300 PEPH CATHLAB SECT 8	00

SECTION 9

ELECTRICAL INSTALLATION
CSSD

C 3.1: DETAILED SPECIFICATION -JBCC 2000 PRINCIPAL BUILDING AGREEMENT (Edition 4.1 of March 2005)

PROJECT TITLE:	**CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX: SECTION 9 - CSSD – ELECTRICAL INSTALLATIONS**
TENDER NO:	

Contents

1.0 INTRODUCTION & GENERAL 2

2.0 SCOPE OF WORK 2

2.1 General Electrical Installation 2

2.2 Information & Communication Technology (I.C.T) Works & Access Control 3

2.3 Temporary Works 3

3.0 SYSTEM LOW VOLTAGE 4

4.0 NOTICES AND FEES 4

5.0 QUALITY OF MATERIALS 4

6.0 BALANCING OF LOAD 4

7.0 BUILDER'S WORK 4

8.0 SCHEDULES OF INFORMATION 4

9.0 SCHEDULE OF LUMINAIRES 5

10.0 SAMPLES AND ALTERNATIVES 5

11.0 SUPERVISION, WORKMANSHIP AND DELAYS 6

12.0 MAKING GOOD 6

13.0 COMMISSIONING AND TESTING 6

13.1 Commissioning 6

14.0 CONSTRUCTION PROGRAMME 7

15.0 DRAWINGS 7

15.1 General 7

15.2 Record / As-Built Drawings 7

16.0 MEASUREMENT 7

17.0 MONTHLY CERTIFICATES 8

18.0 LV DISTRIBUTION BOARDS 8
18.1 Cascading 8
19.0 DISTRIBUTION CABLES 9
20.0 OCCUPANCY SENSORS 9
21.0 EARTHING AND BONDING 10
21.1 General 10
21.2 Water pipes 10
21.3 Roofs, gutters and down pipes 10
21.4 Sub-distribution boards 10
21.5 Sub-circuits 11
21.6 Common Earth 11
21.7 Non-metallic Conduit 11
21.8 Flexible Conduit 11
21.9 Connection 11
21.10 Earth Terminal for Other Services 12
22.0 CONDUIT, WIREWAYS AND ACCESSORIES 12
22.1 Conduit 12
22.2 Wiring Trunking / Channel 12
23.0 WIRING 13
24.0 WALL SWITCHES AND SWITCH SOCKET OUTLETS 13
25.0 TELEPHONE, COMPUTER AND SECURITY INSTALLATIONS 13
26.0 LIGHTNING PROTECTION SYSTEM 14
27.0 EQUIPMENT GUARANTEES, MAINTENANCE AND INSTRUCTION MANUALS 14
28.0 COMMISSIONING AND TAKE-OVER 14
28.1 Completion 14

1.0 INTRODUCTION & GENERAL

Should there be any conflict or ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority: -

- Schedule of Quantities
- Detailed Specification
- Drawings

Should the Tenderer notice any inconsistencies between these sections, it is his responsibility to notify the Engineer in order to obtain clarification thereon.

2.0 SCOPE OF WORK

The main contract is for the refurbishment of the CSSD supporting rooms (Phase B) in the ground floor Pyott block at Provincial Hospital, Port Elizabeth.

2.1 General Electrical Installation

The Works will be executed in strict accordance with the following: -

a) The Wiring Code - SANS 1042-1: 2008,

b) Interior Lighting Part 1: Artificial Lighting of Interiors; Part 2: Emergency Lighting – SANS 10114-1,

c) Protection against Lightning – Physical Damage to Structures and Life Hazard: SANS 10313: 2008 and in conjunction with the SANS 62305 series,

d) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended.

The general electrical installation is reflected on a set of drawings attached to this document.

a) The Subcontractor to be mindful of the fact that the site is occupied at all times.

b) The subcontractor will be responsible for removal of existing electrical installations viz; lighting, power skirting, trunking, conduits, cables, etc. During tender the subcontractor will fully assess the building for the items to be removed for their pricing. The pricing to include transporting reusable material to Engineering Department and disposal of unwanted material.

c) The existing installations. The electrical subcontractor to note that there are existing electrical installations like conduits, wiring for lights including 5A

unswitched socket outlets and socket outlets and switch boxes. An allowance is made on the bills of quantities for subcontractor to inspect and repair where necessary the installed items with a purpose of taking them over and reusing them to complete installation.

d) The Subcontractor will be responsible for the supply and installation of new LV mains cabling between new and existing distribution boards (DB) including connecting the cables onto existing circuit breakers.

The existing DB is located on other floor and this might require opening up of ceilings and possible contact with other services along the cable route.

e) Supply and installation of

- complete building electrical installation including cabling, distribution boards and wireways for security and ICT cabling,
- the installation and connection to power of such equipment as may be supplied by the Employer or other Employer contractors,
- installation of specialised pendants
- installation of bedhead trunking in Induction room as shown on drawings
- the specialised Lightning Protection System (LPS).

f) Testing of the Electrical installation and issue Certificates of Compliance,

g) Testing of the LPS installation and issue Certificates of Compliance,

h) Produce marked up As-Built drawings of the Electrical Installations and be submitted to the Engineer

i) Produce Operation & Maintenance Manuals for the all new installations

The description of the Works listed above, is not necessarily complete and shall not limit the work to be carried out by the Subcontractor under this Contract.

2.2 Information & Communication Technology (I.C.T) Works & Access Control

a) The building installations works will be limited to providing

- cables
- cable trays and wiring channels inside the building,
- necessary conduits for access control and security installations,

2.3 Temporary Works

No temporary works are envisaged in the current design and planned execution of the works except where the Subcontractor wants to incorporate it as part of his work method. In case the requirement for such is necessary, the subcontractor to arrange with Engineer for a variation order of such work before it is carried out.

3.0 SYSTEM LOW VOLTAGE

The supply to all the Electrical installation shall be 400/230 Volts, 3-phase, 4 wire, 50 Hertz, Earthed Neutral.

4.0 NOTICES AND FEES

The Subcontractor shall liaise, issue all notices to and make the necessary arrangements with the Technical department of the hospital for planned power disruptions.

5.0 QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SABS specifications exist. All materials used shall bear the SABS or IEC mark of approval as applicable.

NB: All materials must be of South African manufacture. The Subcontractor must submit proof of unavailability where this requirement cannot be fulfilled.

6.0 BALANCING OF LOAD

The Subcontractor is required to balance the load as equally as possible over the multiphase supply **before Final Completion**.

7.0 BUILDER'S WORK

Subject to negotiations the following may be provided by the Contractor under the building works contract: -

- Making good all chasing

8.0 SCHEDULES OF INFORMATION

The schedule of information contained in this document consists of 2 sections:

a) Information supplied by the Engineer (schedules of drawings, cables, distribution boards, etc. as applicable.)

b) Information to be supplied by the Subcontractor at bidding stage (information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable.)

Bidders are required to enter, at the time of bidding, in the "Schedule of Equipment and Material Offered", sufficient details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a tender to state "as specified" in the schedules.

Failure to complete these schedules (if applicable) may render a bid invalid.

9.0 SCHEDULE OF LUMINAIRES

9.1 All luminaires to

- have Class A2 electronic control gear,
- LEDs to have suitable constant current drivers,
- 3m cable with 5A plug,
- bear a SABS or IEC mark of quality approval

9.2 LED luminaires to be 4000K

Type	Description
JS	40W LED Recessed mounted luminaire with: • Body – Seamless Aluminum extruded frame • Diffuser – Prismatic diffuser. 2.3mm PMMA • Dimensions –600mm (L) x 600mm (W) x 65mm deep
EX	1W LED Surface mounted Maintained Emergency Exit Sign with 3-hour NiCad back-up battery. Luminaire to be single-sided with LED array and EXIT signage. • Body – Epoxy powder coated metal • Diffuser – Acrylic • Dimensions – 390mm x 190mm x 60mm
R2	TYPE EX Luminaire above, the EXIT signage is replaced by one running men to the left. Luminaire to be double-sided.
R1.1	TYPE EX Luminaire above, the EXIT signage is replaced by two men running on opposite directions. Luminaire to be one-sided.
Z	13W LED downlight luminaire • Body – Die cast extruded aluminum • Dimensions – 142mm diameter x 130mm

10.0 SAMPLES AND ALTERNATIVES

10.1 Prior to installation the Subcontractor is required to submit for approval, comment or records, samples of materials upon which his offer is based. Any approvals given or comments made shall be on the generality of the scheme and shall not relieve the Subcontractor of his responsibility to ensure full compliance with all performance and regulatory criteria and materials latent defects.

10.2 Samples forwarded shall be labelled and remain in the site stores until completion of the Works. The samples may be the last items to be embodied in the installation.

10.3 All expenses in do with the supply and return of the samples shall be borne by the Subcontractor.

11.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Subcontractor, who must be able and authorized to receive and execute instructions on behalf of the Subcontractor.

In the event that inferior materials or bad workmanship, on the part of the Subcontractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Subcontractor.

Similarly, should delays in the contract be caused by poor performance on the part of the Subcontractor causing the Engineer to spend extraordinary time on the project, the extra costs incurred may be borne by the Subcontractor.

These costs will be based on the ECSA hourly rates and may be deducted from claims due or claims which will become due to the Subcontractor.

12.0 MAKING GOOD

The Subcontractor will carry out in all instances any work to be made good such as damage to or disturbances of the building installations caused by themselves or their employees during the execution of the contract, at their own cost.

13.0 COMMISSIONING AND TESTING

13.1 Commissioning

A documented method shall be followed, whereby the Subcontractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all codes of practice and international design codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

The Subcontractor will arrange for all inspections and testing of the installation after completion, including the issuing of the Certificate of Compliance. All notices,

fees, including inspection and re-inspection are the responsibility of the Subcontractor and all the relevant costs shall be borne by him.

Any materials or workmanship considered as faulty or incorrectly or inadequately installed or repaired, will be substituted, altered or rectified to the approval of the Employer, without additional cost to the Employer.

14.0 CONSTRUCTION PROGRAMME

The Subcontractor must submit their construction programme to the Contractor who will amalgamate it into the project's overall construction programme.

15.0 DRAWINGS

15.1 General

Drawings must be read in conjunction with this Specification and the Bills of Quantities. Any errors, discrepancies or contradictions found between the Drawings, the Specifications and the Bills of Quantities must be brought to the attention of the Engineer immediately, they become evident.

The drawings generally show the scope and extent of the proposed work and shall be construed as showing every minute detail of the work to be executed.

Construction Drawings will be issued to site accompanied by drawing issue slips. The drawing issue register reflecting the summary of all previously issued drawings with dates and drawing revisions will be issued at the site meetings once a month.

15.2 Record / As-Built Drawings

The Subcontractor must prepare Record/As-Built drawings of the completed installation indicating actual cable runs, circuiting, distribution board details, final cable sleeves positions, luminaire, power point layout details, etc. The contract will not be deemed complete until these drawings have been submitted to the Engineer.

16.0 MEASUREMENT

The Subcontractor shall not make any assumption regarding the installation. If there is any doubt or ambiguity, they must consult the Engineer. The Subcontractor shall take cognisance of the fact that the schedule of quantities is re-measurable and final quantities may be adjusted at the end of the contract.

a) All outlet boxes up to 100 x 100mm are measured as one item regardless of the number of conduit entries.

b) Outlet boxes shall be without covers and draw boxes shall include covers, screws, etc.

c) Conduit boxes shall always include the fixing to the conduit with lock and bush nuts.

d) All switches and plug (SSO) units shall include the fixing to conduit and shall include screws, cover plates.

e) All fittings, equipment and accessories shall include connections to power. All light fittings shall be complete with lamps and tubes.

f) All measurements are net Tendered rates must allow or wastage.

17.0 MONTHLY CERTIFICATES

Pro forma claim form will be available from the Engineer in Excel format. This is the preferred method of submitting payment claims. Should the Subcontractor have developed his own method of claiming, this may be submitted to the Engineer for consideration.

18.0 LV DISTRIBUTION BOARDS

All distribution boards (DBs) will be supplied, wired and complete with all equipment of quantities, types, sizes and ratings as specified on the distribution board schematics, which are included in this document. The distribution boards shall be manufactured in accordance with the Standard Specification for Electrical Building Services.

The Subcontractor shall confirm on site, before commencing with any work that sufficient space and access is available to install the DBs as specified. No additional claims for failure to check these details and rectify any default will be entertained.

Before handing over, the DBs shall be thoroughly cleaned inside and outside. Damaged finished surfaces shall be made good where necessary with identical paint to the original finish.

18.1 Cascading

All DBs circuit breakers must be cascaded from the same manufacture and cascading group. Mixing of circuit breaker makes is not allowed.

Each cascaded DB must be marked with a label

a) informing that circuit breakers are cascaded and

b) that replacement and / or additional circuit breakers must be chosen from the same circuit breaker group.

18.2 Isolation Transformers

The Isolation transformer shall be a floor standing 5kVA, single phase 230V, 50Hz, Indoor Isolation transformer with its accessories.

The pricing of the distribution boards with Isolation transformer should include isolation transformer as shown on the relevant schematic diagram.

19.0 DISTRIBUTION CABLES

19.1 Low Voltage (LV)

All PVC Insulated PVC bedded SWA PVC sheathed 600/1000V copper cables shall conform to SANS 1507-3 and bear the SABS mark. Cables shall be of sizes and type as shown on the drawings.

Cables shall be supplied with their corresponding termination and as well as corresponding bare copper earth wire. The Subcontractor is advised to measure actual lengths of cable required on site before ordering as no compensation for over-measurements shall be entertained.

20.0 OCCUPANCY SENSORS

Surface mount dual-load 360^0 PIR occupancy sensors for controlling lights. Positions as shown on the lighting layout. The table below provides detail description of the sensors

Technology	Passive Infra-red
Photocell	Built-In
Mounting	Ceiling (Surface-mount)
IR Remote Control	NO
Rated Voltage	230Vac+/-10%, 50/60Hz
Load	Dual load independent control. Load 1 for lighting: Incandescent Lamp: max. 2000W AC Halogen Lamp: max. 1000W LV Halogen Lamp: max. 1000VA Fluorescent Lamp: max. 900VA/100µF Load 2 (D1-D2) for HVAC Max. 5A (cosφ=1) 250VAC or 30VDC Motor: 1/10HP (approx.73W)
HVAC Relay (2nd Channel)	NO
Detection angle	360º
Detection range forward adjustable	7M at 2.5M height
Stair-timer / Short impulse Mode	Yes
Timer adjustable precisely	Time 1 (for lighting): Adjustable from 5 sec to 20 min, plus test (2sec on, 2sec off) & (short impulse: 1 sec on, 9 sec off) Time 2 (for HVAC): Adjustable from 10 sec to 60 min
Meter adjustable	Yes

Lux adjustable precisely	10 Lux to 2000 Lux
Test Mode	Yes
Auto/On/Off manual switch	Yes
Parallel circuit operation	Yes
Environmental protection	IP40
Operating temperature	0°C to 45°C 0~95%
Product colour	White

21.0 EARTHING AND BONDING

21.1 General

Earthing shall generally be in accordance with

- SANS 10142-1: 2008 Wiring Code,
- SANS 10198: Part 3 - Earthing System; General Provision; Part 12 - Installation of Earthing Systems,
- SANS 10200: Neutral Earthing in Medium Voltage Industrial Power Systems,
- SANS 10292: Earthing of Low Voltage Distribution Systems,
- SANS 1063: Earth Rods Couplers and Clamps,
- AMEU Code of Practice for the application of protective multiple earthing to low voltage distribution systems and
- The latest amendments and the OHS Act 1993.

21.2 Water pipes

All metallic hot and cold-water pipes shall be bonded with 12mm x 0,8mm perforated for solid copper strapping and connected to the nearest system earth. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board.

21.3 Roofs, gutters and down pipes

Unless not included in the Lightning Protection System (LPS), all metal parts of roofs, gutters and down pipes shall be earthed.

21.4 Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of bare stranded copper conductors installed along the

same routes as the supply cables or in the same sleeve or ladder as the power conductors.

Alternatively, armoured cables with earth continuity conductors included in the armouring (ECC) may be utilised where specified or approved.

21.5 Sub-circuits

The earth conductors of all sub-circuits shall be connected to the earth busbar in the source DB in accordance with SANS 10142.

21.6 Common Earth

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall by connected to the common earth conductor with T-ferrules or soldered.

NB: The common earth shall not be broken.

21.7 Non-metallic Conduit

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

21.8 Flexible Conduit

An earth conductor shall be installed in all non-metal flexible conduits. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

21.9 Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Subcontractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

21.10 Earth Terminal for Other Services

A readily accessible earthing terminal shall be provided, near the trap door in the ceiling, for the bonding of other services such as a television aerial or satellite dish, an audio system, a video surveillance system, and the like, to the building. Such an earthing terminal shall be bonded to the consumer's earth terminal in the main distribution board by a conductor of at least 6mm² copper or equivalent, and shall be identified by the earth symbol.

NOTE: Providers of services other than the electrical power services should not access the distribution board or other parts of the electrical installation.

22.0 CONDUIT, WIREWAYS AND ACCESSORIES

22.1 Conduit

All conduit/outlet boxes and associated fittings for use in this installation shall bear the SABS mark approved.

The Subcontractor must provide all conduit and accessories for the lighting, power, telephone, communications, computer and security systems, as shown on the drawings and as measured in the schedule of quantities.

Flexible metallic tubing of galvanized steel shall be used for connections to water heaters, fans and other similar equipment. The corrugations of the tubing shall have a rectangular cross section suitable to fit standard brass connections.

22.2 Wiring Trunking / Channel

Wiring channels in ceiling voids and wherever indicated on the drawings shall be medium duty of Cab-strut, Cooper B-Line or similar manufacture and shall be complete with corner pieces, end pieces, hangers, junction pieces, supply conduits, cover plates and power outlets as specified and indicated on the drawings. Note that Nylon or plastic nuts or fasteners will not be accepted.

The channels shall be manufactured of rolled sheet steel and hot-dip galvanised to SANS 763.

Channels shall be cold galvanised at all joints, sections that have been cut and at places where the galvanising has been damaged.

The wiring channels' metal covers shall be pop-riveted closed, once the installation is complete.

23.0 WIRING

Lighting and Power wiring in conduit and channel wireways shall comprise 600/1000V single core PVC insulated copper wire sized in accordance with the distribution board schematics. Conductor outer sheaths shall be of the following colours: -

- Phase Conductors : red, white, blue
- Neutral : black
- Earth : yellow + green

24.0 WALL SWITCHES AND SWITCH SOCKET OUTLETS

Wall switches to be of the flush type complete with cover plates and screws in 100 x 50 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All surfaces mounted switch socket outlets to be in 100 x 100 x 50 extension outlet boxes mounted on the wall surfaces. Colours of outlet boxes and cover plates must match.

All switched socket outlets mounted in power skirting to have matching cover plates.

The Subcontractor will be responsible for the installation of power points to feed equipment such as water heaters, air-conditioners, fans, security equipment, etc. This equipment, if supplied and installed by others, will be connected by the Subcontractor.

The cover plates to all outlets shall be fixed **AFTER** the final coat of paint has been applied.

All light switches and power points shall be labelled with indelible circuit numbers to tie up with a circuit number in the distribution boards. Labels shall be engraved Trifoliate or similar approved type. Labels, like Brother™ labels that peel off easily shall not be acceptable.

25.0 TELEPHONE, COMPUTER AND SECURITY INSTALLATIONS

The Subcontractor will be responsible for the complete installation of conduits and wireways for the I.C.T and security systems.

26.0 LIGHTNING PROTECTION SYSTEM

27.0 EQUIPMENT GUARANTEES, MAINTENANCE AND INSTRUCTION MANUALS

The Contractor shall submit to the Engineer all manufacturers' equipment guarantees, maintenance and instruction manuals. All equipment shall be guaranteed for twelve (12) months from the date of Practical Completion Certificate.

28.0 COMMISSIONING AND TAKE-OVER

The Contractor shall carry out the necessary tests according to the SANS 1-0142, the latest edition and provide a certificate of compliance on completion of the works. The certificates of compliance shall be of the approved type as issued by the Electrical Contracting Board of South Africa.

28.1 Completion

The electrical installation shall be complete after:

(i) All tests for the switchgear and cables have been done and tests results submitted to the Engineer.

(ii) The completed certificates of compliance have been submitted to the Engineer.

(iii) All equipment guarantees, maintenance and instruction manuals have been submitted to the Engineer.

(iv) The site has been cleared of all debris and electrical waste materials and left in a neat and tidy condition.

(v) "As-Built" drawings of the Works, including LPS and Distribution boards have been submitted to the Engineer.

SECTION 9: ELECTRICAL INSTALLATIONS

SCHEDULE OF MATERIAL OFFERED

THE FOLLOWING SCHEDULE OF EQUIPMENT AND MANUFACTURE SHALL BE COMPLETED IN FULL.

FAILURE TO DO SO WILL INVALIDATE THE TENDER

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders.

	EQUIPMENT	**MANUFACTURE**

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

ELECTRICAL INSTALLATIONS

BILLS OF QUANTITIES - NOTES TO TENDERERS

1 All queries will only be answered in writing by the Engineer responsible for the project.

2 The Bills of Quantities form part of and must be read in conjunction with the specification which contains the full description of the work to be done and material and equipment to be used. Unless otherwise described in the Bills of Quantities, reference should be made to the specification for the full meaning of description of work to be done and materials and equipment to be used in this service. Tenderers are requested to check the formulas in the Bills of Quantities and are responsible for the accuracy of their formulas/calculations.

3 The total tender price in the tender form shall constitute the contract price of the successful Tenderer. Tenderers are advised to check their item extensions and total additions, as no claim for arithmetical errors will be considered.

4 No alterations, erasure or addition is to be made in the text of the Schedule of Prices. Should any alteration, erasure or addition be made it will not be recognised but the original wording of the Schedule of Prices will be adhered to.

5 The Priced Bills of Quantities of the successful Tenderer will be checked and the Employer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.

6 The responsibility for accuracy of the quantities written into the schedules remains with the person who prepared the schedules. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the schedules although he will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the schedules and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification. Conductor prices shall include for wastage and sagging.

7 All conductors have been measured exclusive of sagging and wastage. The Contractors prices must therefore include for sagging as well as wastage.

8 All prices entered in these Bills of Quantities shall include for supply [unless otherwise stated], installation, testing, commissioning, guarantee with free maintenance during the Guarantee period and profit but excluding VAT.

9 The successful Tenderer and the Employer or his Agent may agree that the total of any bill or bills, including any variations by way of additions thereto or deductions therefrom, represents a fair accurate quantification of the items set out in the bills and the parties may agree to final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

10 The quantities in these Bills of Quantities are not to be used for ordering materials.

11 The description of each item shall, unless other-wise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, all installation materials and sundries, cutting and waste, sagging, patterns, models and templates, plant, temporary works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.

12 All measurements are net and Tenderers must allow for wastage in the item rate submitted.

13 All provisional sums shall be expended as directed by the Employer and any balance remaining shall be deducted from the amount of the contract sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Employer.

14 It is a requirement of the contract that the work shall be carried out in the manner that is most economical on materials. Unless otherwise indicated by the Employer, the Electrical Contractor is required to use the shortest practical route for all conductors subject to the restrictions of the specification and good electrical practice.

15 The terms in the Bills of Quantities are based on standard Eskom/Telkom assemblies. The Tenderer shall take careful notice to the make-up of these assemblies with regard to the inclusion/exclusion of excavation, poles, stays, earthling and other items.

16 The prices shall be fixed and not subject to adjustment for inflation for the period between contract and programmed completion as set out in the contract.

Tenderers are to specifically note that the Bills of Quantities must be priced as per the quantities provided. Any change in the descriptions and/or additional information must be made in an alternative offer.

No quantities in the original Bills of Quantities or description of equipment offered are to be changed and must remain as is.

Note:

It will be expected of the successful tenderer to submit a full re-measured Bills of Quantities within twenty-one [21] days after acceptance of the tender price.

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX
SECTION 9: CSSD
ELECTRICAL INSTALLATIONS
BILL NO. 1 : PROVISIONAL AND SUPERVISION AMOUNTS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
	A Preliminary and General item is provided to cover the Contractor's charges for compliance with the Conditions of Contract and this Specification, including the provision, maintenance and removal of his site establishment, etc.				
1.10	FIXED CHARGES				
1.1.1	Site Establishment	Sum			
1.1.2	Removal of Site Establishment	Sum			
1.1.3	Provision of Electricity and Water	Sum			
1.1.4	Provision of Toilet Facilities	Sum			
1.1.5	**Other Fixed-charge Obligations**	Sum			
	(Please Specify).	Sum			
	. . . . .	Sum			
1.20	CONTRACTUAL REQUIREMENTS				
1.2.1	Provision of Sureties	Sum			
1.2.2	Insurances	Sum			
1.2.3	Third Party Insurance	Sum			
1.2.4	Guarantee of the Works	Sum			
1.2.5	Provide Test Results	Sum			
1.2.6	Provision of Record Drawings	Sum			
1.2.7	All OHSA Requirements including safety equipment and clothing	Sum			
1.2.8	All HIV / AIDS Specification Requirements	Sum			
1.2.9	**Other Value Related Obligations**	Sum			
	(Please Specify).	Sum			
	. . . . .	Sum			
1.30	TIME-RELATED ITEMS				
1.3.1	Contractual Requirements	Sum			
1.3.2	Operation and Maintenance of Site Establishment	Sum			
1.3.3	Supervision for the Duration of Contract	Sum			
1.3.4	**Other Time-Related Obligations**	Sum			
	(Please Specify).	Sum			
	. . . . .	Sum			
	TOTAL SCHEDULE NO. 1 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX
SECTION 9: CSSD
ELECTRICAL INSTALLATIONS
BILL NO.2 : ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
2.2	**Luminaires** Luminaires mounted on concrete or suspended ceilings, or on brickwork including lamps and fixing material.				
2.2.1	Type-JS (40W LED Recessed mounted, 600mmx600mm)				
	Supply	each	9		
	Install	each	9		
2.2.2	Type-R 1 (1W LED Escape sign with directional arrow one way (one sided))				
	Supply	each	1		
	Install	each	1		
2.2.3	Type-EX (1W LED Maintained Emergency Exit Sign)				
	Supply	each	1		
	Install	each	1		
2.2.4	Type-Z (13W LED round Recessed mounted downlighter, 125 diameter)				
	Supply	each	3		
	Install	each	3		
2.2.5	Remove and re-install existing luminaires on the new ceiling	No.	6		
2.3	**Occupancy Sensors** Ceiling mounted occupancy sensors with accessories for a complete installation				
2.3.1	Motion Detector (Passive Infra Red)				
	Supply	each	2		
	Install	each	2		
2.4	**Switches** 16 Amp rocker type light switch with coverplate installed into a flush box measured elsewhere.				
2.4.1	Single lever, one way				
	Supply	each	3		
	Install	each	3		
2.5	**Switchgear** 16 Amp rocker type Power Outlets with coverplate installed into boxes orPower Skirting which are measured elsewhere.				
2.5.1	Remove surface mounted socket oulet and reinstall the flush mount.	no.	3		
2.5.2	16 Amp 3 pin ceiling mounted switched socket outlets. The price to include the surface mounting box and its accessories.				
	Supply	each	2		
	Install	each	2		
2.5.3	5 amp unswitched Socket outlet for lights in the ceiling void				
	Supply	each	11		
	Install	each	11		
2.6	**ISOLATORS FOR HVAC AND VENTILATION** Supply and install complete Air conditioning points including all cables, isolators and associated equipment.				
2.6.1	20 Amp outdoor double surface wall mounted isolator.	Nº	2		
	TOTAL SCHEDULE NO. 2 TO NEXT PAGE				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX
SECTION 9: CSSD
ELECTRICAL INSTALLATIONS
BILL NO.2 : ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
	TOTAL SCHEDULE NO. 2 TO PRIVIOUS PAGE				
2.7	**Conduit**				
	PVC conduit chased into brickwork, cast in concrete or fixed on trusses in ceiling void including cutting, bending, reaming, setting, joining, draw boxes and fixing material (average).				
2.7.1	20mm				
	Supply	m	310		
	Install	m	310		
2.8	**Conduit Boxes**				
	Round Galvanised box for 20mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed in trusses including couplings bushes cover plates and fixing materials (average rate)				
2.8.1	20mm Galv round box				
	Supply	each	15		
	Install	each	15		
2.9	Galv boxes with 20mm knockouts as specified chased into brickwork.				
2.91	100mm x 50mm x 50mm				
	Supply	each	3		
	Install	each	3		
2.9.2	100mm x 100mm x 50mm				
	Supply	each	5		
	Install	each	5		
2.10	**Conductors**				
	600/1000 grade PVC insulated single core copper conductors drawn into conduit				
2.10.1	1,5mm² red/black				
	Supply	m	550		
	Install	m	550		
2.10.2	2,5mm² red/black				
	Supply	m	200		
	Install	m	200		
2.10.3	2,5mm² yelow & green				
	Supply	m	375		
	Install	m	375		
	TOTAL SCHEDULE NO. 2 TO PRICE SUMMARY				

CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX
SECTION 9: CSSD
ELECTRICAL INSTALLATIONS
BILL NO.3 : SUNDRY ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
3.1	Housekeeping, sundry items, consumable stocks such as circuit beads engraving, labels etc.	Sum	1		
3.2	Repair and Servicing to SDB 302 to comply with SANS10142 Standards	Sum.	1		
3.3	Provide Certificate of Compliance for the new works	Sum	1		
3.4	Remove existing electrical installations				
	Electrician	hrs	48		
	Semi-skilled	hrs	48		
TOTAL SCHEDULE NO. 3 TO PRICE SUMMARY					

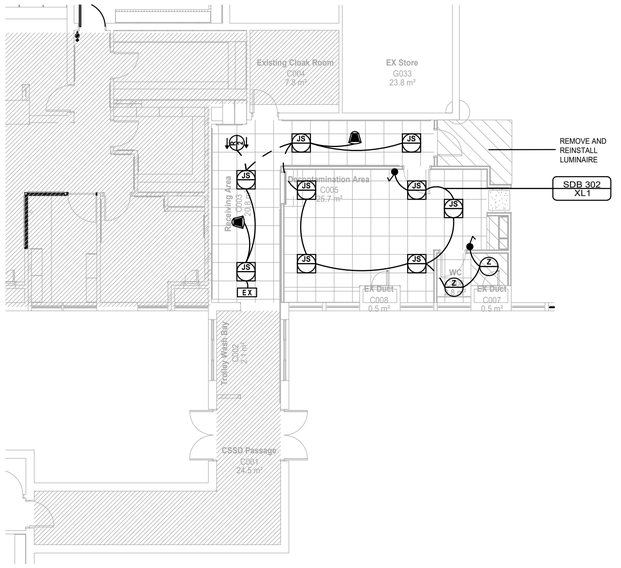
CDC/73/26 -COMPLETION OF THE CATH LAB AND CSSD AT LIVINGSTONE PEPH HOSPITAL COMPLEX

SECTION 9: CSSD
ELECTRICAL INSTALLATION
SUMMARY OF MAIN BILL

DESCRIPTION	**TENDER**
BILL NO. 1 : P&G'S	
BILL NO. 2 : ELECTRICAL INSTALLATION	
BILL NO. 3 : SUNDRY ITEMS	
SUBTOTAL	
MAIN CONTRACTOR'S PROFIT AND ATTENDANCE	
TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 9 ON FINAL SUMMARY ON PAGE 264	

LIGHTING LAYOUT

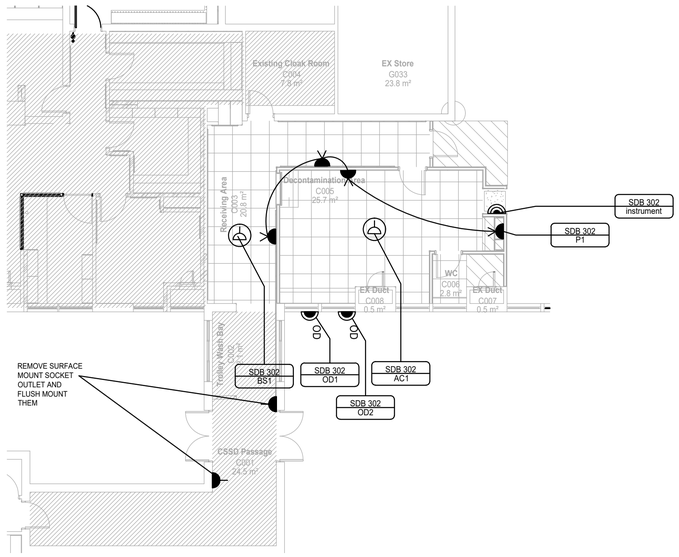
LIGHTING LEGEND	
	1 LEVER - 1 WAY - LIGHT SWITCH
	MOTION SENSOR
Z	13W LED RECESSED DOWNLIGHTER(125mm DIAMETER)
JS	40W LED RECESSED MOUNTED LUMINAIRE (600mm X 600mm)
EX	MAINTAINED EMERGENCY LIGHTING EXIT SIGN
	ESCAPE SIGN WITH DIRECTION ARROW ONE WAY (BOTH SIDE)



THE NEW CIRCUIT TO BE ADDED ON EXISTING DB

POWER LAYOUT

POWER LEGEND	
	EXISTING 16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET (WHITE)
	16A 3 PIN SWITCHED SOCKET OUTLET TO COMPLY WITH SANS 164-1 & 2. (WHITE) 450mm AFFL
D	16A 3 - PIN STANDARD SWITCHED SOCKET OUTLET (WHITE) MOUNTED IN THE CEILING
OD	2 POLE OUTDOOR ISOLATOR
	4 POLE ISOLATOR



NEW CIRCUITS TO BE ADDED ON EXISTING DB

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	06-08-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO bigen HDG HOSPITAL DESIGN GROUP

PROJECT

PE PROVINCIAL HOSPITAL:
CSSD SECTION 9

TITLE

ELECTRICAL
LIGHTING & POWER LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road,
Walmer,
Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039
Newton Park, 6055
Tel: 041 581 2807

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: E. CEBA

SCALE: 1:100

DRAWN: B.GEELBOOI

DATE: 19/09/2023

PRINT DATE: 06/08/2026

CHECKED BY: E. CEBA

REGISTRATION No. 201930053

SIGNED.

ARCHITECTS DRAWING NO.

REV No.

DRAWING NO. 1710-D-E-101 & 102 PEPH CSSD SECT 9

REV No. 00

SECTION 10

NURSE CALL AND ICT INSTALLATION

SECTION 10: DETAILED TECHNICAL SPECIFICATION

ACCESS CONTROL

1. ACCESS CONTROL

1.1 GENERAL INFORMATION

The Subcontractor is responsible for providing the installation in accordance with this Specification and as shown on tender drawings.

The intent of this document is a performance specification for a modular security management system encompassing the sub-systems described. Tenderers are at liberty to offer enhancements to the equipment specified.

The security subcontract will be inclusive of the following IP based installations:

- Door Monitoring
- Access Control
- Electro-mechanical and Magnetic locks
- Biometric/card readers
- Closed Circuit Television Cameras, Monitors and Recording
- Linking new installations with existing hospital network

Tenderers are encouraged to tender a main option which would represent a compliance with the specification and quantities and would relate to the completed Bills of Quantities. Alternative options may be offered together with a full motivation and separate Bills of Quantities.

In instances where reference is made or inferred to particular products, it only serves the purpose of defining a required standard. Tenderers are requested to offer the best and most suitable products for the application.

General items include the following:

a) Cable trays to be supplied and used where possible and all cable to be neatly and securely tied with cable ties.

b) If no cable trays, all cables to be installed in conduit and correctly secured.

c) No cables may be left to lay on the ceiling boards.

d) All cable loops to have minimum of 20% spare capacity.

e) All cabling to electronic locks is to be installed on the secure side.

f) No joins in cable will be accepted.

g) All junction boxes and boards to be correctly mounted.

h) All door monitors will be of the 20mm recessed type unless specified otherwise.

i) All readers must be wired to facilitate the reader sounder and other functionalities.

j) All electronic devices, power supplies and any other control equipment must be mounted neatly in suitable enclosures to protect them against damage and tampering. Each enclosure will be fitted with a tamper switch and all power supplies are to be monitored.

k) All floor, room and ceiling voids to be protected and monitored for smoke, fire and water.

l) All power supplies will be battery backed up with a 12Vdc, sealed rechargeable lead acid battery.

m) All CCTV, access control, fire detection and monitoring, plus emergency evacuation systems are to be connected to UPS power with battery back-up. Head end equipment must be provided with dual UPS power from different power breakers.

n) On system hand-over, the installation is to be complete and FULLY functional.

o) A complete set of user friendly operating instructions to be provided.

p) Adequate operator training to be included in tender price.

q) A complete set of design architecture drawings depicting correct positioning of all equipment to be supplied.

r) All devices including public address speakers and access control devices must be labelled according to the floor number and location on the floor. A register of the items installed and the corresponding numbering must be supplied on hand over.

s) All equipment must be networkable and facilitate remote monitoring and operation.

1.2 SPECIFICATION

1.2.1 Local and Supply Authority

The project location is within the bounds of the Forest Hill Military Base (erf 1216, Summerstrand, Port Elizabeth). The base is immediately adjacent the Port Elizabeth Airport, to the west. The area is also approximately 2.1km from Algoa Bay

This site will consist of both single story buildings and double story, on two levels. This is due to the site being on located on a slight incline.

1.2.2 Site Conditions

Equipment shall be suitable for the following conditions:

Ambient temperature	-5°C to 40°C
Altitude	0m
Lightning	Severe
Dust	Severe
Relative Humidity	32°C dB Temperature 22°C wB Temperature
Nominal LV Supply	400/231 [no load] 4 wire, 3 phase system with earthed neutral.
Nominal HV Supply	11kV 3-wire system.
Frequency	50 Hz.

Details to be submitted with the tender document:

Should the Subcontractor in any way differ from the Specification, the differences shall be stated in detail. The information shall be included in a covering letter accompanying the tender, stating the paragraph of the Specification where the requirements are deviated from.

It shall be noted that the information entered in the schedules will not relieve the Subcontractor of his obligations to comply with the Specification.

1.2.3 Scope

The Specification covers all activities up to final commissioning and maintenance during the guarantee period of the installation.

- IP Based Access control Impro, Gallagher
- Full Integration of the above

Tenderers shall allow for the future extension of the systems and equipment offered for an additional 20% extension of all systems.

Access Control termination boxes will be provided on and will be all linked to the Hospital network.

1.2.4 The Access Control (ACS) Installation shall include but not be limited to:

- The installation of the ACS, supply, delivery, installation, testing, integration, commissioning, guarantee and maintenance of the Access Control Installation.
- The provision of all necessary equipment, tools, accessories and test equipment to complete the Security Installation.
- The timeous provision of building work details.
- The provision of shop drawings showing all wiring routes, equipment details, equipment positions, [including fixing details], sleeves, etc.
- The compilation of manuals including a full schedule of equipment installed spares lists, "As Built" drawings and information as set out in the Specification.

1.2.6 Related work by others

The following related work associated with this Subcontract will be carried out by other parties as specified:

1.2.6.1 Access Control Subcontractor and Main Contract

The following work will be provided by the Main Contractor:

- Provisions of penetrations in walls and structure for reticulation of cabling.
- Closing of ducts and opening through concrete slabs after installation of wiring and piping.
- Setting out of all equipment

1.2.6.2 Access Control Subcontractor and Electrical Subcontract

The following work will be provided by the Electrical Subcontractor:

- A 400V 3-phase or 240V [uninterrupted] power supply point at each point as required and identified by the Subcontractor. Any transformers or converters required for other voltages shall form part of this subcontract and shall be priced with associated equipment.

- All conduit and wiring channels.

1.2.6.3 Access Control Subcontractor and the Fire Detection, Alarm and Extinguishing System Subcontractor

The following related work will be provided by the Fire Detection, Alarm and Extinguishing System Subcontractor:

- The Fire Detection, Alarm and Extinguishing System Subcontractor will provide signals for the interfacing of the Fire Detection and Security Systems. These signals will be wired to terminal strips in the equipment racks in the Security Control Room. Connections of these signals to the Security System including wiring forms part of this Subcontract.

- The Fire Detection, Alarm and Extinguishing System monitoring and control computers will be located in the Security Control room.

The Access Control and CCTV installation Subcontractor will be required to liaise with the Fire Detection, Alarm and Extinguishing System Subcontractor if not the same Subcontractor to co-ordinate the requirements in respect of space, wiring routes and access.

1.2.7 Sub-Contracting

Tenderers are advised that no part of the Access Control and CCTV installation may be sub-contracted to companies external to the permanent employment of the Subcontractor, except for purposes of Empowerment as submitted in pre-qualification submissions. It is a specific requirement that all operational team members responsible for installation, commissioning and training shall be permanent employees of the tenderer.

1.2.8 Service Level Agreement [SLA]

Tenderers shall specifically state their ability to provide a comprehensive SLA to the Owner on completion. Tenderers shall submit with their tender's examples and a list of performance-driven SLA's provided for installations similar in scope and nature.

1.2.9 Confidentiality

It is a condition of issue of these documents that the successful Subcontractor shall maintain full confidentiality of the documents and drawings.

During the course of the Subcontract, the successful Subcontractor shall institute such procedures to ensure proper control over copies of documentation and drawings. Such procedures may vary from time to time but shall include:

- Numbering of all prints of shop drawings and recording issue.
- Return of all drawings when superseded.

1.2.10 Conduits and wire-ways

All conduits and wire-ways required by the Subcontractor will be supplied and installed by the subcontractor as provided for in the bills of quantities.

Trunking in place of conduits will be preferred for neatness in areas of exposed slabs.

The Subcontractor shall provide shop drawings for requirements over and above those already indicated for co-ordination purposes. These shall in particular, show size and position

of outlet boxes as well as details of any special fixings that are required. All additional wire ways and power supplies to be supplied on shop drawings that may be accordance with the product specified

All wiring required to make the Security System operational shall form part of this Subcontract. This shall include all power and control wiring from the 400V/240V power points installed by the Electrical Subcontractor.

All wire ways in the Security Control and Equipment rooms are excluded from this subcontract and will be installed by the Electrical Subcontractor.

1.7 MAGNETIC LOCKS AND STRIKES

Magnetic locks shall be fitted to all doors shown on the drawings and/or schedules.

The doors shall be in the locked position during normal operation and shall only be possible to open a door in one of the following ways:

- From the outside by presenting a valid card to the corresponding card reader and thereby activating the magnetic lock.
- From the outside by withdrawing the bolt from the strike with a key without activating the magnetic lock.
- By the fire system in the event of a fire. A main override will be provided at the control desk to override all magnetic locks in the event of a fire.
- By means of a green break glass emergency feature, operable in the event of a software failure.

The Subcontractor shall ensure and test that all magnetic locks are powered by the nearest available POE+ switch.

Should the magnetic lock be powered by a dedicated power supply, the installer is to ensure and test that the unit operates on UPS power if available.

All doors shall be equipped with a door closer which will be supplied and installed by the Contractor.

The magnetic locks shall be suitable for intermittent duty i.e. doors are normally locked and released only momentarily from time to time.

Locks to be installed by subcontractor requiring openings will be made by the main contractor. Where possible, locks must be recessed in doors/frames and the subcontractor is responsible for coordinating the required cut-outs etc. with the main contractor to be made in the door manufacturer’s factory prior to delivery to site.

It will be the responsibility of the Subcontractor to identify to the Contractor doors to be equipped at the factory with concealed door loops and/or other equipment.

The installation of the magnetic lock and the alignment of the door to ensure proper operation shall be the responsibility of the Subcontractor.

1.4 ACCESS CONTROL SYSTEM

1.4.1 General

Tenderers shall submit a proposal for a modular access control and security management system based on Impro IXP400i or similar or equal to.

Tenderers shall respond fully to the following minimum criteria as well as any additional options offered:

System architecture, modular at all levels, to allow:

- Software elements to be installed as required in different locations.
- Large number of controllers to be connected via flexible multidrop interfacing.
- Software and hardware able to support local and remote sites.

Core software to be employed, providing set up and monitoring without affecting stand-alone operation of field elements and controllers.

Tenderers shall state their choice of software and support systems, based onstability, versatility and performance.

Field controllers to provide application needs and distributed intelligence, system speed and integrity as well as integral power supplies for powering door locks, etc.

Controllers to accommodate built-in communications firmware for communication with the core software.

Description of the following features offered by the system:

- Card holders and card production
- Monitor and Control
- Access Configuration
- Reports and storage [archive]
- Alarm Graphics
- Guard Clocking
- Video Identification [Video and Audio badging]
- Asset Tag discrimination
- Image monitoring
- Event trigger [external actions]
- Time Synchroniser
- Local Printing

Multiple alarm conditions, priorities, acknowledge, input monitoring capability.

- Availability of reporting and monitoring.
- History and session logs.
- History and database reports
- Time recording
- Card transaction record and tracking.

The system shall provide at least the following features, [capacities given are minimum requirements], to be extendable with +50%:

[a]	Transactions per 24 hour period 12 000	[+50%]	
[b]	Number of cards	200 staff	[+50%, provision only]
		200 visitors	[+50%, provision only]

[c] Maximum card verification time 0.5 sec

[d] Personnel records for each cardholder, which shall contain the following minimum information:

- Name
- Address
- Next of Kin
- Telephone Number [Home]
- Telephone Number [Work]
- Employee Number
- Identity number
- Unit number
- Car registration number
- Other information [10 lines of 80 characters per line], which shall be password, protected.

[e] Anti-pass back operation at all levels [local and global as programmed].

[f] Minimum of 24 levels of security each with four separately programmable time zones per level.

[g] Minimum of 16 programmable time zones.

[h] Automatic visitors card voiding. [Refer retrieval system specified.]

[i] Lost card voiding with associated alarm.

[j] Alarms for invalid transactions.

[k] Event of alarm logging as selected with associated reports.

[l] Automatic personnel logging for selected areas.

[m] Personnel location interrogation.

[n] Visitor/host attachment

[o] Duress alarms

[p] System alarm/event/protocol printer

[q] Full interface [event recording, logging, lock-out, etc.] with CCTV and door monitoring system as required.

[r] Four digit PIN option and Duress PIN function.

The Access Control system alarm and selected event recording [including video ID of visitors and vehicles as required] shall have a seven-day wrap-around storage capacity.

.

Tenderers are requested to tender the following option:

- Main Offer
  Proximity card readers and cards as described above

Tenderers are requested to provide under separate heading in their tender submission, the following rates for higher access level readers, that may be available in the system offered, or may be imported into the system from other manufacturers:

- Biometric reader with Wiegand Interface (include card reader)

Tenderers shall confirm that the above higher level readers can be accommodated at any reader point in the system, in the card reader positions as indicated on the drawings.

The access control system will consist of a central processor located in the equipment room adjacent to the security control room with terminals as follows:

[a] The reception counter on ground floor level shall be provided with two terminals for visitors card validation and tenant card validity checking. [Extend to four stations for +50% extension]

[b] Visitors arriving by vehicle [one driver per vehicle] or on foot at the entrance, will be issued with a temporary card, which must be exchanged for a metal or other token to operate the exit boom [or pedestrian turnstile] upon leaving the premises. Tenderers shall allow for the provision of temporary plastic cards and tokens [1 000 per day +50% future], as well as for the required token-operated releases for the exit boom and exit pedestrian turnstile. [Both these being off-line devices]

The access control system shall be provided with a guard clocking/patrol facility, which will allow a user programmed route and time-lapse facility between card readers. This will allow the holders of defined cards to follow the route and if there is any deviation in route or time between stations, [too short or too long], then an alarm shall be raised in the Security Control Room.

Access cards offered shall be suitable for use with or without photographs of the holder.

The card readers shall have a positive means of indication to show that the card reader is on-line and whether a transaction is accepted or rejected.

Tenderers are advised that normal type proximity [or Smart Card option] cards will be used to be programmed for visitors. Tenderers shall allow high-reliability, dual reading visitor's card retrieval devices at the pedestrian barrier exit line at the main reception [full details to be submitted].

ACCESS CONTROL INSTALLATION

SCHEDULE OF EQUIPMENT

THE FOLLOWING SCHEDULE OF EQUIPMENT AND MANUFACTURE SHALL BE COMPLETED IN FULL.

FAILURE TO DO SO WILL INVALIDATE THE TENDER

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders.

	EQUIPMENT	MANUFACTURE

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

SECTION 10: ACCESS CONTROL INSTALLATIONS

SCHEDULE OF MATERIAL OFFERED

THE FOLLOWING SCHEDULE OF EQUIPMENT AND MANUFACTURE SHALL BE COMPLETED IN FULL.

FAILURE TO DO SO WILL INVALIDATE THE TENDER

Completion of the schedule below does not relieve the Subcontractor of his obligation to provide full details of all equipment prior to the placing of the orders.

	EQUIPMENT	MANUFACTURE

NAME OF TENDER : ……

NAME OF COMPANY : ……

SIGNATURE OF TENDERER : ……

ACCESS CONTROL INSTALLATION

BILLS OF QUANTITIES - NOTES TO TENDERERS

1 All queries will only be answered in writing by the Engineer responsible for the project.

2 The Bills of Quantities form part of and must be read in conjunction with the specification which contains the full description of the work to be done and material and equipment to be used. Unless otherwise described in the Bills of Quantities, reference should be made to the specification for the full meaning of description of work to be done and materials and equipment to be used in this service. Tenderers are requested to check the formulas in the Bills of Quantities and are responsible for the accuracy of their formulas/calculations.

3 The total tender price in the tender form shall constitute the contract price of the successful Tenderer. Tenderers are advised to check their item extensions and total additions, as no claim for arithmetical errors will be considered.

4 No alterations, erasure or addition is to be made in the text of the Schedule of Prices. Should any alteration, erasure or addition be made it will not be recognised but the original wording of the Schedule of Prices will be adhered to.

5 The Priced Bills of Quantities of the successful Tenderer will be checked and the Employer reserves the right to call for adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.

6 The responsibility for accuracy of the quantities written into the schedules remains with the person who prepared the schedules. The Tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender sum submitted shall be in respect of the quantities set out in the schedules although he will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the schedules and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification. Conductor prices shall include for wastage and sagging.

7 All conductors have been measured exclusive of sagging and wastage. The Contractors prices must therefore include for sagging as well as wastage.

8 All prices entered in these Bills of Quantities shall include for supply [unless otherwise stated], installation, testing, commissioning, guarantee with free maintenance during the Guarantee period and profit but excluding VAT.

9 The successful Tenderer and the Employer or his Agent may agree that the total of any bill or bills, including any variations by way of additions thereto or deductions therefrom, represents a fair accurate quantification of the items set out in the bills and the parties may agree to final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

10 The quantities in these Bills of Quantities are not to be used for ordering materials.

11 The description of each item shall, unless other-wise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, all installation materials and sundries, cutting and waste, sagging, patterns, models and templates, plant, temporary

works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.

12 All measurements are net and Tenderers must allow for wastage in the item rate submitted.

13 All provisional sums shall be expended as directed by the Employer and any balance remaining shall be deducted from the amount of the contract sum.

All items described as "Provisional" shall be measured as executed and paid for according to prices in the Bills of Quantities and any unexpended amounts shall be deducted from the amount of the contract sum. No work for which "Provisional" items are provided shall be commenced without written instructions from the Employer.

14 It is a requirement of the contract that the work shall be carried out in the manner that is most economical on materials. Unless otherwise indicated by the Employer, the Electrical Contractor is required to use the shortest practical route for all conductors subject to the restrictions of the specification and good electrical practice.

15 The terms in the Bills of Quantities are based on standard Eskom/Telkom assemblies. The Tenderer shall take careful notice to the make-up of these assemblies with regard to the inclusion/exclusion of excavation, poles, stays, earthling and other items.

16 The prices shall be fixed and not subject to adjustment for inflation for the period between contract and programmed completion as set out in the contract.

Tenderers are to specifically note that the Bills of Quantities must be priced as per the quantities provided. Any change in the descriptions and/or additional information must be made in an alternative offer.

No quantities in the original Bills of Quantities or description of equipment offered are to be changed and must remain as is.

Note:

It will be expected of the successful tenderer to submit a full re-measured Bills of Quantities within twenty-one [21] days after acceptance of the tender price.

DETAIL SPECIFICATION –. IP NURSE CALL SYSTEM

4.3.1 NURSE CALL INSTALLATION - TECHNICAL REQUIREMENTS

No public address or sound system is required on the nurse call system, however the Television system must be able to be controlled from the bedhead nurse call unit.

All conduit work shall form part of the electrical installation but the nurse call contractor shall co-ordinate and check the installation thereof.

The bedhead ducting manufacturer shall make provision in the ducting for the nurse call outlet points but complete installation wiring and testing will form part of the nurses call installation contractor.

4.3.2 NURSE/PATIENT CALL SYSTEM (BASIC REQUIREMENTS)

The basic nurses call system shall have a 2 part operation i.e. the normal patient to nurse station call and an emergency call system. The units shall normally be mounted in a bedhead duct or in a standard 100 x 50x50mm flush draw box and shall consist of the following items:-

Nurse call, cancel and emergency push button unit, in the bedhead duct, with re-assurance LED, Nurse call unit socket/outlet and cord with Nurse call Unit.

Ward over door indication lamp. (Flash in emergency, Steady for normal call.)

Nurse call, cancel and emergency push button unit in a bathroom or toilet with re-assurance LED - normally one per closed off toilet, bathroom or shower area - accessible from WC, bath or shower. Installed in a 100x50x50mm flush vertical draw box at 100mm a.f.f.l. to the Bottom of the unit.

Nurse call impulse pull cord unit next to a bath, shower or toilet with no cancel facility or emergency call facility. A nurse call initiated at a pull cord unit shall be cancelled at the nurse call, cancel and emergency push button" unit in the particular toilet or bathroom.

Nurse call toilet call unit (slave), next to a toilet, with no cancel facility or emergency call facility. A nurse call initiated at a "toilet call" unit shall be cancelled at the "nurse call, cancel and emergency push button" (slave) unit in the particular toilet or bathroom. The toilet call unit shall be mounted at approximately 500mm AFFL and also at skirting level in disabled toilets. Indication panel at the nurse's station, with buzzer and chimes. Buzzer to operate until cancelled. Chimes to be timed.

The system shall have a LED lamp panel at the nurse station with a buzzer and flashing lamps for an emergency call and steady lamp and chime for a normal call. These signals shall emanate from all call units at the beds, bathrooms and toilets. If 2 signals are operated at the same time, the emergency flashing over door and nurse station lamp shall take priority over the normal call, once the emergency call has been answered and cancelled the flashing lights shall revert to steady lamps until the normal call has been answered and cancelled by the attending staff.

The length of time for the chime shall be adjustable internally in the panel and not externally. In addition to the nurse station panel, an indication lamp set shall be installed above the nurse station panel inter-connecting, where possible, the nurses stations in the same building or unit, Each nurse station is to be made aware of any call made to a particular station and not answered by that duty staff so that in the event of that particular nurse station being busy or

requiring emergency, help can be given by one of the other stations.

4.3.3 IP NURSE CALL SYSTEM OPERATION

A patient will initiate a call at the bed by pressing the Nurse call unit button or the call button on the bed unit. The bed reassurance LED, the over door lamp and the indicator panel LED at the nurse station will light up and stay on until the call is cancelled. The call can only be cancelled at the bed unit from which the call was made.

When the call is cancelled all the LED's and lamps go off and the chimes will stop at the emergency points.

The same operation applies to the toilet call unit if the call button or a pull cord is pulled, a pull cord can only initiate a call and not cancel a call. The call can only be cancelled at the toilet call cancel unit. When any call is made the chimes will sound, the on and off time duration of the chimes shall be adjustable so the chimes do not become disturbing. The chimes at the nurse station shall sound once only for not less than 5 to 10 seconds when a call is made from any location other than the toilet etc.

These chimes shall however repeat until the call has been attended to and cancelled at the bathrooms or toilet cancel points.

A red over door flashing light leading to a zoned passage shall be used to indicate to the nurse station which zone requires attention. This light shall flash for any call in a particular zone and shall only be cancelled when the patient call has been answered.

Please note a bed unit can have normal call only or normal and emergency call. Normal call from the pear push and emergency call form the bedhead unit. A bathroom or toilet must have emergency call.

4.3.4 INPUT POWER SUPPLY

A 230V/24V power pack as per equipment supplier's specification with double-wound mains transformer with short circuit, thermal and over load protection shall be provided and installed next to midspan hub as indicated on ther drawings. The regulator and bridge rectifier should be heatsinked to allow for cooling under load conditions. The housing shall be constructed of aluminium with adequate ventilation and powder coated finish in white. The unit shall be protected against spikes and lightning surges. Proper support to position the power pack in the roof space shall be provided.

4.3.5 INDICATION PANELS AT NURSE STATIONS

These shall be of a PC mode with touch screen application. This shall of a map based showing the area similar to the area on the drawing, graphically displayed, showing all call points.

Bright LED's on the screen showing each call points.

4.3.6 OVER DOOR INDICATOR LAMPS (WARD INDICATOR)

Ward, room or corridor indicators direct facility staff to the site of a nurse, staff assist or emergency call through the display of colours. These colours, as specified in AS3811-1998, can be easily viewed from long distance through rooms and corridors, utilising the multi-directional prism on the unit. Ward indicators connect directly to the master call point.

The unit shall fit into a 100 x 50mm vertically mounted outlet box.

4.3.7 LCD DISPLAY PANELS

No LCD Screens for this Project.

4.3.8 NETWORK SWITCH

The network switch connects all master devices to create a patient communication system. Ethernet lines which require power will run from the network switch to the midspan hub. This switch has 16 ports.

4.3.9 MIDSPAN HUB (POWER PATCH PANEL)

The midspan hub connects the nurse call communication network to the network switch, and injects power over the network cable for all devices which require network power.

There are 24 ports on the front of the unit for connection to the network switch and 24 ports for connection to power devices.

All master points that are powered over the network are required to be connected to the midspn hub.

4.3.10 BED CALL CANCEL UNITS (MASTER)

These shall be purpose made white ABS plastic clip-in units. No vacuum formed units will be accepted. The unit shall clip in and out of the duct or outlet box without the need of tools for easy maintenance.

A touch keypad with symbol signs to indicate the call cancel buttons (which can be easily cleaned) shall be used. The button size shall be at least 17 x 14mm.

A red bright reassurance LED shall indicate a call. A panel mounted moulded RCA socket must be fixed to the front of the unit not onto the printed circuit board for the pear push. The printed circuit board must have a plug in cable termination connector so the unit can be changed without removing wires. The unit shall be equipped with an emergency push button to activate the buzzer and cause the over-door light to
flash. The unit shall activate a call if the pear push is accidentally pulled out of the RCA socket (stereo phono socket).

4.3.11 NURSE CALL UNIT

The Nurse call unit cord shall be 1.5m long with a dedicated data outlet and switch. The data outlet must be moulded on to the one end with a robust switch and holder on the other end of the cord. The Nurse call unit shall be plugged into the bed call cancel unit and shall not damage the printed circuit board if jerked or ripped out of the unit.

4.3.12 TOILET CALL UNIT (SLAVE)

This unit shall be a purpose made white ABS plastic unit fitted to a 100 x 50mm outlet box. The toilet call unit shall be a one button (labelled call) call only unit with 5mm bright reassurance LED linked to the toilet / bathroom reset and emergency call unit.

4.3.13 TOILET CALL CANCEL UNIT (SLAVE)

This unit shall be the same as the bed call cancel unit with emergency button, but without the data outlet. The unit shall have a call input connection on the printed circuit board to allow calls from a bath or shower pull cord. It shall clip into a 100 x 50 vertical outlet box.

4.3.14 BATH SHOWER IMPULSE PULL CORD UNIT (SLAVE)

This unit shall be a purpose made white ABS plastic unit that will clip into a 100 x 50 vertical outletbox. The unit shall have a 2m length nylon pull cord with an acorn at the end, 5mm bright reassurance LED and a lable marked "call". The unit shall work with the toilet call cancel unit.

4.3.15 NURSE CALL CABLES

All nurse call cables shall be CAT.6

4.3.17 CALL

Normal Call

When a normal call is made from a bed or elsewhere (not a patient bathroom or toilet) the following happens:-

- The Reassurance Lamp lights up at the unit.
- The Over Door Lamp lights up in the passage.
- The LED on the Lamp Pane) lights up.
- The Chime at the Lamp Panel turns on for a timed period.
- The Call can only be cancelled by pressing the cancel button on the unit that initiated the call.
- All functions return to normal.

Emergency Call

The feature only applies to systems with Emergency. When an emergency call is made from a bed bathroom or toilet the following happens:-

- The Reassurance Lamp flashes at the bed.
- The Over Door Lamp flashes in the passage.
- The LED flashes on the Lamp Panel.
- The Emergency Buzzer turns on continuously.
- The Emergency Call can only be cancelled by pressing the cancel button on the unit that initiated the Call.
- All functions retur normal.

4.3.18 OPERATING AND MAINTENANCE MANUALS AND AS-BUILT DRAWINGS

One draft copy of the operating and maintenance manual shall be submitted to the engineer for approval. Four final sets of operating and maintenance manuals and as built drawings shall be submitted at Practical Completion. **A basic operating manual for non technical personnel in A4 orA5 size framed behind a Perspex cover shall be mounted next to each nurse call control panel**. This basic operating manual shall indicate procedures in case of an alarm, silencing of the alarm, isolation and reset of the system.

As built drawings will indicate nurse call outlet points, interlinking sleeves and conduits, control and board diagrams and symbolist. Engineer's drawings will be made available for compiling as built and manual compilation.

The drawings submitted shall be in paper and electronic format.

4.3.19 TESTS AND COMMISSIONING

The Contractor must supply all the necessary test equipment to execute the tests.

The Employer and Engineer will have the right to attend any or all tests and inspections.

All completed test and inspection reports must be submitted to the Engineer before acceptance of the system.

Successful completion of the acceptance tests will serve as proof that the system is functioning as required.

The Engineer shall have the right to request the Contractor to perform all or some tests in the presence of the Engineer and the Employer.

In the event of failure of the system to pass any of the tests, a re-test will be required within 14 days of the original test. The cost associated with all re-tests will be for the account of the Contractor.

4.3.20 TRAINING OF OPERATING STAFF

The Contractor shall undertake to train the Employer's operating staff to be fully competent in the operation of the equipment as allowed in the Bills of Quantities.

Before or on completion of the installation, when the system is in full running order, the Contractor shall instruct operators in the operation of the system until they are fully conversant with the equipment and the handling thereof.

The Contractor shall take full responsibility for the safety of personnel during training and for the quality of work produced by such personnel under his supervision.

4.3.21 WARRANTY PERIOD

The contractor shall include in the bid price a "free" warranty period of 12 months. This shall include all repairs/replacement of defective equipment.

When any equipment becomes defective during the warranty period the nurse call and public address contractor will be contacted by the Employer or electrical subcontractor to repair or replace the defective equipment.

4.3.22 NURSE CALL SCHEDULES OF PARTICULARS AND INFORMATION

At schedules which accompany this bid notice, form an integral part of it and shall be duly completed in every detail; FAILING which, the bid in question may be rendered ineligible for consideration.

Under no circumstances will statements such as: -

- See attached pamphlets
- Refer to catalogue
- Data to follow
- As given by supplier, etc be acceptable to the Department.

Equipment offered and listed In the schedules shall be capable of performing the specified duties and complying with the Specification requirements in all respects. Should it transpire that such equipment, even when offered by make, mode! and/or type, is unsuitable of meeting, or performing in accordance with, the Specification requirements in any respect, the electrical subcontractor and/or nurse call sub- contractor shall nevertheless be responsible for any additional costs incurred in providing the required or suitable equipment.

The schedules for "NURSE CALL INSTALLATION MATERIAL" in"MATERIALS OFFERED ON THE SERVICE" must be completed in full and returned with the tender. Blank statements of compliance will not be considered.

NOTE;

Bidders are to note that under no circumstances may materials be installed other than that offered in the material schedule.

LIVINGSTONE HOSPITAL - CATHLAB PHASE 2B

NURSE-CALL, ICT ACCESS CONTROL AND INTERCOM INSTALLATIONS

BILL NO. 1 : PROVISIONAL AND SUPERVISION AMOUNTS

ITEM	DESCRIPTION	UNIT	RATE	QTY	TENDER AMOUNT
	A Preliminary and General item is provided to cover the Contractor's charges for compliance with the Conditions of Contract and this Specification, including the provision, maintenance and removal of his site establishment, etc.				
1.10	FIXED CHARGES				
1.1.1	Site Establishment	Sum		1.00	
1.1.2	Removal of Site Establishment	Sum		1.00	
1.1.3	Provision of Electricity and Water	Sum		1.00	
1.1.4	Provision of Toilet Facilities	Sum		1.00	
1.1.5	**Other Fixed-charge Obligations**	Sum		1.00	
	(Please Specify). . . . . HSE	Sum		1.00	
		Sum		1.00	
1.20	CONTRACTUAL REQUIREMENTS				
1.2.1	Provision of Sureties	Sum		1.00	
1.2.2	Insurances	Sum		1.00	
1.2.3	Third Party Insurance	Sum		1.00	
1.2.4	Guarantee of the Works	Sum		1.00	
1.2.5	Provide Test Results	Sum		1.00	
1.2.6	All OHSA Requirements including safety equipment and clothing	Sum		1.00	
1.2.7	All HIV / AIDS Specification Requirements	Sum		1.00	
1.2.8	**Other Value Related Obligations**	Sum		1.00	
	(Please Specify).	Sum		1.00	
	. . . . .	Sum		1.00	
1.30	TIME-RELATED ITEMS			1.00	
1.3.1	Contractual Requirements	Sum		1.00	
1.3.2	Operation and Maintenance of Site Establishment	Sum		1.00	
1.3.3	Supervision for the Duration of Contract	Sum		1.00	
1.3.4	**Other Time-Related Obligations**	Sum		1.00	
	(Please Specify).	Sum		1.00	
	. . . . .	Sum		1.00	
TOTAL SCHEDULE NO. 1 TO PRICE SUMMARY					

LIVINGSTONE HOSPITAL - CATHLAB PHASE 2B
NURSE-CALL, ICT ACCESS CONTROL AND INTERCOM INSTALLATIONS

BILL NO. 2 : NURSE-CALL

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
2.1	The supply & installation of Emergency Staff Nurse Call System including all wiring installed in Data room				
2.1.1	Nurse Call System monitoring PC complete with digital 19"display to be installed in the Nursing Station Complete with Switches and Leads	No	1		
2.1.2	Software for above system including licences if necessary	No	1		
2.1.3	Emergency Call point in bedhead trunking complete with Patient handset	No	16		
2.1.4	Call pull cord in bathroom and toilets	No	2		
2.1.5	Mushroom type callpoint for Cathlab	No	4		
2.1.6	Ceiling mount speaker for 3 tones emergency chime	No	1		
2.1.7	Over door indicator point (Ward Indicator)	No	5		
2.1.8	Nurse Call Conductors (CAT5) installed by the Nurse Call subContractor in the wire-ways and conduit provided by the Electrical Contractor including all terminations and connecting onto hospital network	m	600		
2.2	**TESTING AND COMMISSIONING**				
2.2.1	Testing of Nurse call System display and alarm functions	Sum	1		
2.2.2	Operating and Maintenance manual (3 hard copies and 3 CDs)	Set	3		
2.2.3	"RECORD" DRAWINGS	Set	1		
2.2.4	Training				
2.2.4.1	Training of 6 hospital staff in the complete functioning of the System,	Days	2		
	TOTAL SCHEDULE TO PRICE SUMMARY				

LIVINGSTONE HOSPITAL - CATHLAB PHASE 2B

NURSE-CALL, ICT ACCESS CONTROL AND INTERCOM INSTALLATIONS

BILL NO. 3: ICT (DATA AND TELEPHONE) INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
3.1	**NETWORK SWITCHES**				
3.1.1	Supply and install 24 port network switch and POE. Specification: Aruba 2530-24G PoE + Switch (to match existing installation)	no	1		
3.1.2	Supply and install a 12u wall mounted swing Frame Network Cabinet including the brush panel, Cat 6 patch panel, 10 way metal power, fans, shelf and cable management	no	1		
3.2	**TELEPHONE** The supply and installation of flush board with soft wood backing architrave and hinged door				
3.2.1	Supply and install 300 x 300 x 100 board	No.	2		
3.2.2	Supply and install Panasonic SAB500 Black Basic Telephones	No.	6		
3.3	**HORIZONTAL CABLING**				
3.3.1	The supply and installation of horizontal unscreened CAT6 UTP cable, grey. Price to include termintating cable onto flushmounted RJ45 in power skirting	m	600		
3.3.2	The supply and installation of Cat 3 Telephone cabling similar to existing price to include termintating cable onto flushmounted RJ11 in power skirting	m	500		
3.3.3	Data termination plate sized for the mounting of the data outlet housing on the void duct in the floor/ceiling [recessed type]. The data termination plate shall have 3 x punch-outs 250mm x 127mm mounted on P9000 - to be verified prior to installation.	no	11		
3.4	**LABELLING**				
3.4.1	The supply and installation of heat shrink type labels at either end of the data cable as specified.	no	11		
3.4.2	Labels with 9mm label cassette Black on white printed tape. Glued onto the 6 way 4-port outlets indicating the data connector number as per the specification and DOH requirements	no	10		
3.4.3	Labelling of the data points on the ceiling T's underneath the ceiling to facilitate easy referencing and identification of location of voice and data points underneath the raised access floor tiles	no	5		
3.5	**PROVISIONAL ALLOWANCES**				
3.5.1	Trace existing ICT network and replace it with new cable installation	Sum	1		
3.5.2	Locate nearest telephone network and connect the new installation onto this network. Price to include any cabling and terminations	Sum	1		
3.5.3	Locate nearest data network point and connect the new installation onto this network. Price to include any cabling and terminations	Sum	1		
3.6	**TESTING AND COMMISSIONING**				
3.6.1	Testing (Fluke Testing) and commissioning of the entire ICT Installation	Sum	1		
3.6.2	Operating and Maintenance manual (3 hard copies and 3 CDs)	Set	3		
3.6.3	"RECORD" DRAWINGS	Set	1		
3.6.4	Training				
3.6.4.1	Training of hospital staff in the complete functioning of the System,	Days	1		
3.7	**ON SITE SUPPORT** It is expected of the vendor to provide support for the pre and post contract works for assisting the tenant whilst moving into the building.				
3.7.1	Team hours required for the on-site support. The hourly rate will be for a team comprising a team leader and one assistant				
	Team leader	Hrs	10		
	Assistant	Hrs	10		
TOTAL SCHEDULE TO PRICE SUMMARY					

LIVINGSTONE HOSPITAL - CATHLAB PHASE 2B
NURSE-CALL, ICT ACCESS CONTROL AND INTERCOM INSTALLATIONS
BILL NO. 4: ACCESS CONTROL AND INTERCOM INSTALLATION

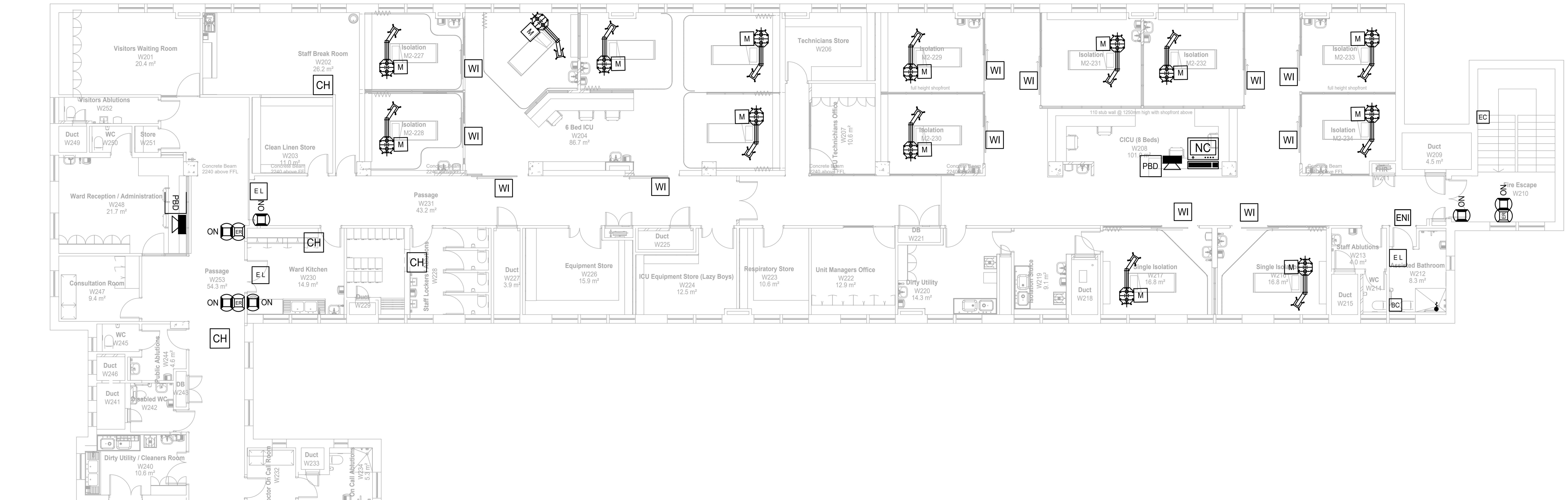
ITEM	DESCRIPTION	UNIT	QTY	RATE	TENDER AMOUNT
4.1	**ACCESS CONTROL**				
4.1.1	Physical Access Controllers as per Impro IPX400i with intergrated PSU and battery backup	No	2		
4.1.2	Access Reader Biometric + Card (Indoor) similar to Morphoaccess Sigma with unlock tokens	No	4		
4.1.3	CAT 6 cable				
	Supply	m	350		
	Install	m	650		
4.1.4	Mylar cable [4 pair]	m	350		
4.1.5	Breakglass units with alarm bell	No	5		
4.1.6	Door Contacts	No	8		
4.1.7	Touch free door release (stainless steel)	No	5		
4.1.8	Electro-Magnetic Lock	No	5		
4.2	**INTERCOM** Supply, Install, test and commission a complete intercom system including all necessary accessories and cabling at positions shown on the drawings				
	Install Only	No	2		
4.2.1	1 button wall mounted Audio Only handset complete with mounting accessories	No	3		
4.2.2	1-button intercom front panel made of natural anodized satin finish aluminum. With polycarbonate bracket, it features pictograms to indicate the status of the system and 1 button with name tag size 66 x 15 mm. To pair up with an intercom module. Impact resistance rating IK07.	No	3		
4.2.3	Cabling to link handset to front panel including electro-magnetic door lock	m	250		
4.2.4	Testing and commissioning of installation	Sum	1		
	TOTAL SCHEDULE TO PRICE SUMMARY				

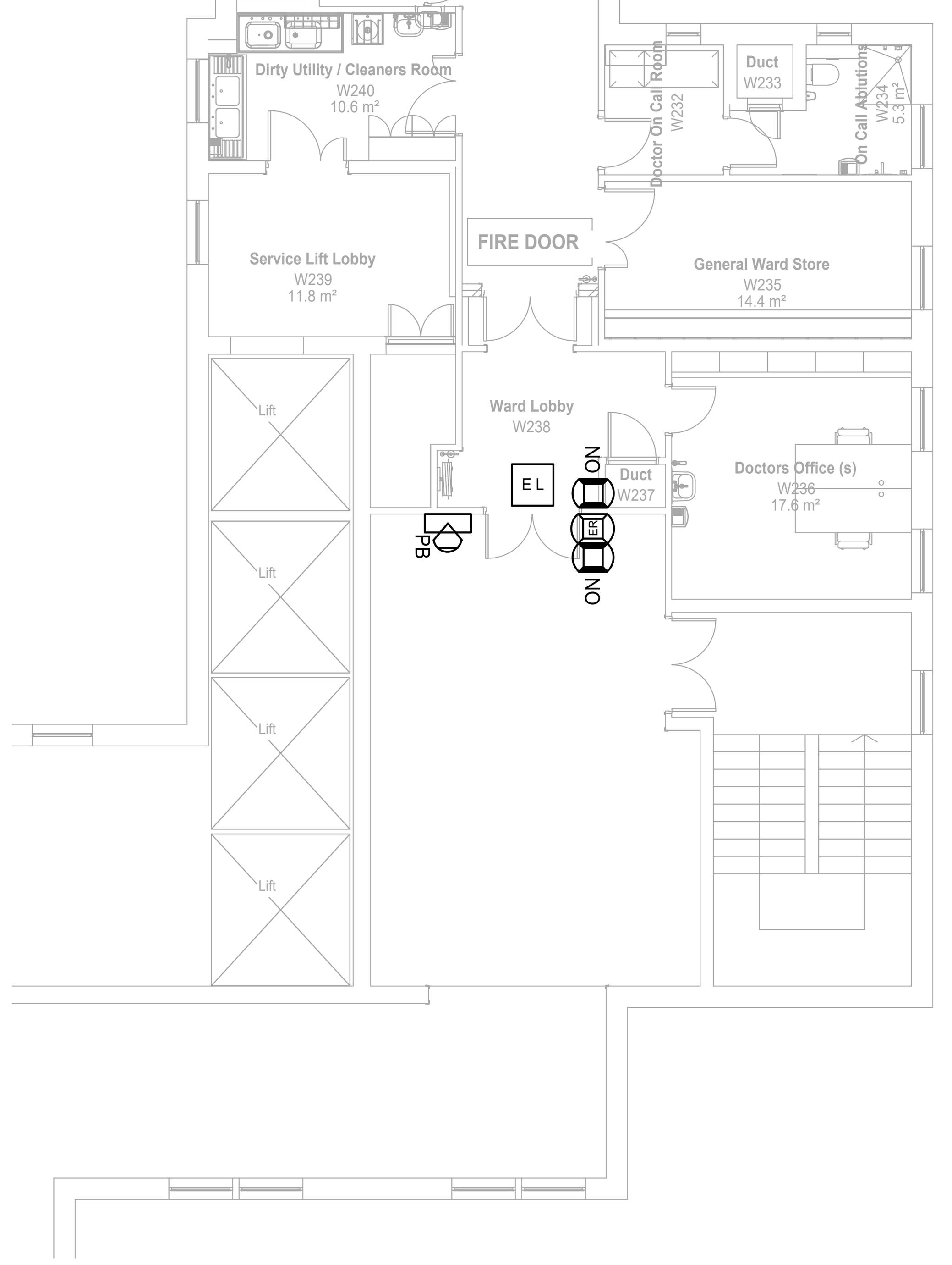
PE PROVINCIAL HOSPITAL - CATHLAB PHASE 2B

NURSE-CALL, ICT ACCESS CONTROL AND INTERCOM INSTALLATIONS

SUMMARY PAGE

BILL NO.	DESCRIPTION	AMOUNT
1	PRELIMINARY & GENERAL	
2	NURSE-CALL	
3	ICT (DATA AND TELEPHONE) INSTALLATION	
4	ACCESS CONTROL AND INTERCOM INSTALLATION	
SUBTOTAL		
MAIN CONTRACTOR'S PROFIT AND ATTENDANCE		
TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 10 ON FINAL SUMMARY ON PAGE 264		





NURSE CALL LEGEND	
M	NURSE CALL POINT IN BEDHEAD DUCT
EM	EMERGENCY CALL POINT MASTER
WI	WARD INDICATOR
EC	EMERGENCY CALL CANCEL POINT
	CALL POINT SLAVE - PULL CORD
BC	BATH CALL POINT
NC	NURSE STATION PC
ENI	EN-SUITE INDICATOR
	MEDICAL PENDANT

ACCESS CONTROL LEGEND	
EL	ELECTRONIC DOOR LOCK
ER	ACCESS CONTROL EMERGENCY DOOR RELEASE RE-SETABLE AND WITH AUDIBLE ACTIVATION
ON	ACCESS CONTROL UNIT CONSISTING OF A BIOMETRIC READER
PB	TWO WAY TAMPER RESISTANT INTERCOM WITH MICROPHONE AND PUSH BUTTON
	INTERCOM CONTROL STATION (WITH MICROPHONE AND PUSH BUTTON)
PBD	PUSH BUTTON DOOR RELEASE

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	06-08-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO bigen HDG HOSPITAL DESIGN GROUP

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB SECTION 10

TITLE

NURSE CALL & ACCESS CONTROL LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

COPYRIGHT
RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road,
Walmer,
Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039
Newton Park, 6055
Tel: 041 581 2807

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY:	E. CEBA	SCALE	1:100
DRAWN	B.GEELBOOI	DATE	13/09/2019
PRINT DATE	06/08/2026		

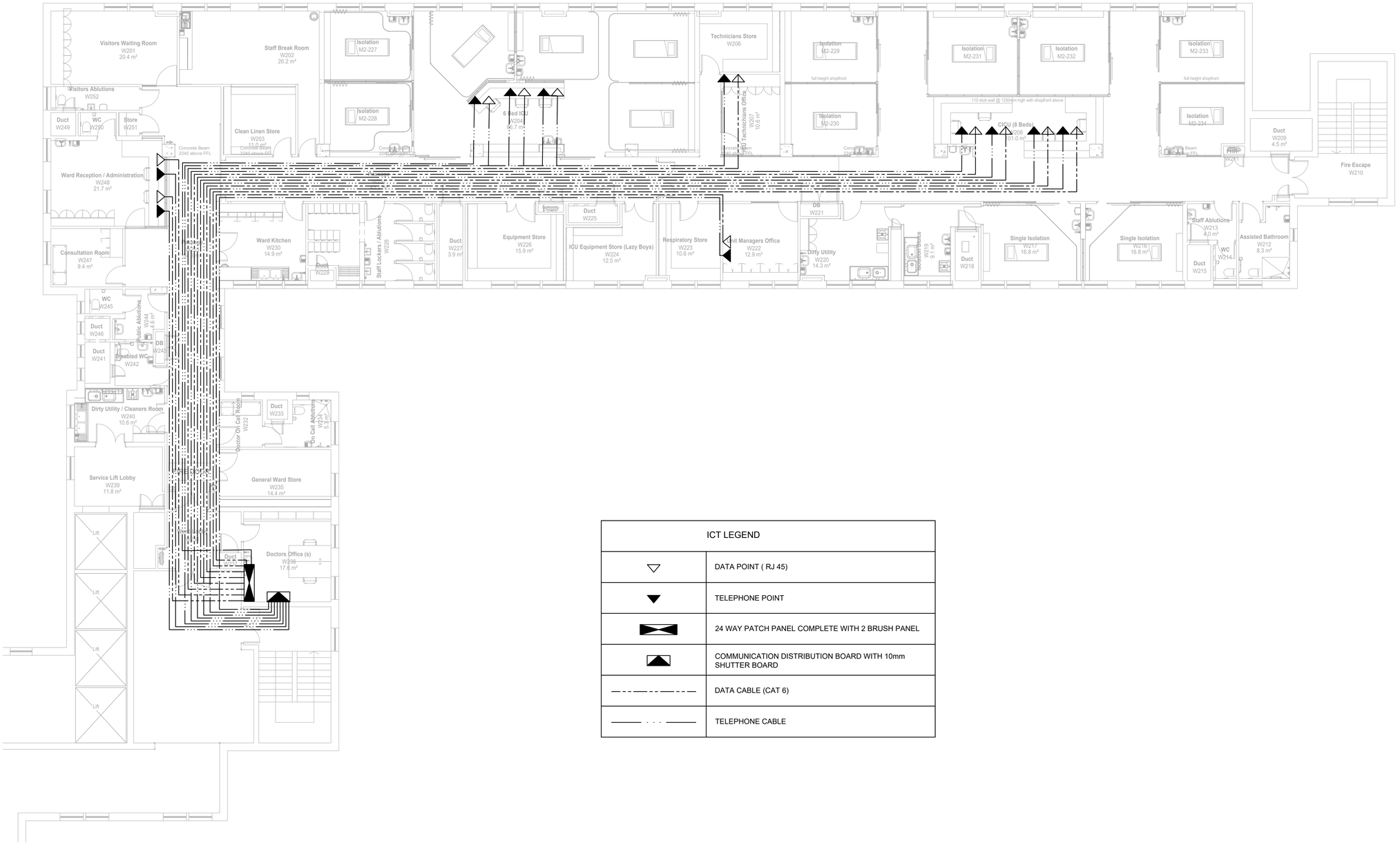
CHECKED BY: E. CEBA

REGISTRATION No. 201930053

SIGNED.

ARCHITECTS DRAWING NO.	REV No.

DRAWING NO.	REV No.
1710-T-E-103 PEPH CATHLAB SECT 10	00



ICT LEGEND	
▽	DATA POINT (RJ 45)
▼	TELEPHONE POINT
	24 WAY PATCH PANEL COMPLETE WITH 2 BRUSH PANEL
	COMMUNICATION DISTRIBUTION BOARD WITH 10mm SHUTTER BOARD
— - - — - - — - - —	DATA CABLE (CAT 6)
——— . . . ———	TELEPHONE CABLE

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14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
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15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	06-08-26	E.C.	ISSUED FOR TENDER.

CLIENT

SAKHIWO bigen HDG HOSPITAL GESIEN GROEP

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB SECTION 10

TITLE

ICT LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
87 Heugh Road, Walmer, Port Elizabeth, 6070
E-Mail: office@rnaconsulteng.co.za
P.O. Box 35039, Newton Park, 6055
Tel: 041 581 2807

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: E. CEBA		SCALE 1:100
DRAWN B.GEELBOOI	DATE 23/10/2019	PRINT DATE 06/08/2026
CHECKED BY: E. CEBA		
REGISTRATION No. 201930053		
SIGNED.		

ARCHITECTS DRAWING NO.	REV No.

DRAWING NO.	REV No.
1710-T-E-104 PEPH CATHLAB SECT 10	00

SECTION 11

FIRE DETECTION INSTALLATION HIGH CARE/CICU & CSSD

SECTION 11. 1 SCOPE OF WORKS

EARLY WARNING SMOKE DETECTION EQUIPMENT INSTALLATIONS

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 EARLY WARNING SMOKE DETECTION & SUPPRESSION INSTALLATIONS

The work to be carried out and commissioned by a SAQCC Fire approved installer:

a. Installation of new early warning fire detection & suppression equipment, as per SANS 10400 Section T and SANS 10139 to the following areas:
   - CICU – install new loop from existing (Cathlab) fire panel + new line units,
   - CSSD – cut into existing loop and extend to cover CSSD unit + new line units,

b. Installation of new fire equipment signage, as per SANS 1186,
c. Testing and Commissioning, as per SANS 10400 Section T and SANS 10139,
d. Manuals, Drawings, OEM Literature,

2.2 Existing

Fire panel, loop and line units on ground floor Cathlab existing, new loops + line units to CSSD (Ground Floor) and CICU (First Floor).

2.3 Order of The Works

As per the building contractors' program of works.

SECTION 11.2 STANDARD SPECIFICATION

AUTOMATIC FIRE DETECTION INSTALLATIONS

NOTE:

These standard specifications outline the basic principles of materials and workmanship to be utilised and employed in this installation. The detail specification (Part 5A) details the exact methods to be employed and the equipment to be installed. The Detail Specification thus takes precedence over these standard specifications.

1.0 GENERAL

The system shall offer the best possible compromise between the initial expenditure and the long term interest and redemption charges and running / operating costs.
All workmanship and materials used in the execution of the works shall conform with modern practice and the entire installation shall comply fully with all relevant requirements of governmental and the Local Authority whose jurisdiction embraces the location of the site.

2.0 REFERENCES

The work shall be carried out strictly in accordance with:

a. The Machinery and Occupational Safety Act of 1984.
b. All relevant Regulations and Bylaws of the Municipal Council and Fire Department concerned.
c. SANS 10139-1981 Code of Practice for The Prevention, Automatic Detection and Extinguishing of Fire in Buildings.
d. SANS 322 Fire detection and alarm systems in hospitals and healthcare premises,
e. BS 5839 and European Standard EN 54, Parts' 2 and 4.

Where no Building, Municipal, Health or Fire Department Act, Regulation, Bylaw or other requirement exist, nor any SANS standard or detailed requirement by the Engineers then the Contractor's terms of reference shall always be the current editions of NFPA handbook.

3.0 INSTALLATION GENERAL PRACTICES

a. All electrical equipment shall comply with the relevant SANS or BSS where applicable, and to SANS 10142, Code of Practice for the Wiring of Premises.
b. Material shall be subject to the approval of the Engineer, to whom samples shall be submitted upon request.
c. Cable sizes for each circuit shall be selected to ensure that the current carrying capacity will be adequate and that the voltage drop at the equipment served will comply with the Code of Practice for the Wiring of Premises.
d. Wiring shall be carried out in PVC insulated cables enclosed in Class B conduit or approved trunking. Alternatively, M.I.M.S., fire resistant cable, or PVCSWAPVC cable may be used where convenient, and where permitted under the section Wiring between Detection Zones hereunder.
e. All cables, cable trays, conduits (other than those encased in concrete or chased into walls), and cable trays shall run parallel with, or at right angles to the structure or walls. Their routes shall be co-ordinated with piping and duct systems. They may run on the surface of walls and ceilings in all plantrooms, in ceiling voids and in underfloor voids where permitted by the clause Wiring between Detection Zones. Elsewhere they shall be concealed in an approved manner.
f. No cable or electrical shall be routed within 75 mm of a hot water pipe.

4.0 WIRING BETWEEN DETECTION ZONES

The control wires or power cables between the control panel, the battery pack, a detection zone or where the wiring of a detector circuit passes through any other detector zone, shall be one of the following:-

a. Mineral insulated metal sheathed cable which shall complying with all SANS and BS EN codes. The Contractor may be required to demonstrate to the Engineer that he is proficient in making off these types of cables.
b. PVC insulated annealed copper wire complying with SANS 150, housed within conduits which are buried into cement or brickwork. Surface conduits between zones will not be permitted.
c. Fire resistant cables in compliance with SANS 150 and SANS Method 494 Resistance of cables to Fire Propagation.
d. PVCSWAPVC cables and terminations complying with SANS 150.
e. Aluminium cables will not be permitted.

5.0 CABLES AND WIRING

5.1 MIMS Cables

a. MIMS cables shall be mineral insulated copper sheathed and copper core cables equal to pyrotenax of not less than 600 volt grade. Aluminium cables will not be permitted.
b. Minimum sizes for MIMS cables shall be 1,5 mm^2 for power and 1,00 mm^2 for control wiring.
c. Tails shall be sleeved with silicone rubber insulation in appropriate colour.
d. All cable fixings shall tie by means of factory manufactured brass or copper saddles or clips, secured by brass or cadmium plated screws.
e. Clips or saddles shall be provided within 150 mm of fittings, accessories or bends, and not more than 600 mm apart elsewhere. No more than 4 cables shall be secured by a single saddle.
f. A straight length of cable shall be left adjacent to termination glands to enable the glands to be readily withdrawn. The cables shall be made-off with approved standard pot-type seals and accessories as applicable.
g. The minimum bending radius of cables shall be 6 times the cable diameter.
h. Where a number of cables run parallel they shall be dressed into a neat symmetrical arrangement without sagging or distortion. Care shall be taken to avoid flattening or indentation of cable sheaths.
i. Where cables come into contact with dissimilar metals, which may give rise to corrosion, the Contractor shall adequately separate the surfaces with PVC tape or by other approved means.
j. Where cables pass through holes in metal-work, the holes shall be neatly bushed to prevent damage to the sheath.
k. Cables shall not be buried directly in plaster. concrete or similar materials.
l. Where installation in these materials is necessary, the cables shall be enclosed in a suitable duct, pipe or conduit, which is provided with bushed ends to prevent damage to the cable sheath.
m. Cables shall be mechanically protected where they rise from floors in exposed positions and where they may be exposed to accidental damage.

5.2 PVC Insulated Wire

a. PVC insulated copper wire conductors shall be of South African origin, manufactured to comply with SANS 150.
b. Where PVC insulated wires are used, the installation shall comprise PVC insulated copper conductors drawn into duct or conduit. Where such wires are drawn into conduits it shall be carried out in accordance with standard electrical practice, and shall be subject to the approval of the Engineer.
c. No joints in the PVC wires between terminal points will be permitted under any circumstances.

5.3 Fire Resistant Cables

a. The fire resistant cable shall be constructed of silicon rubber insulated copper conductors housed in a protective PVC sheath bonded to coated aluminium foil. This shall be as per PH120 Fire Resistant Cable Fire Resistant Cable or similar approved.
b. These cables shall be installed in the manner prescribed for MIMS cables, with attention being paid to any special requirements regarding terminations, radius of bends, etc., as prescribed by the manufacture.
c. No joints in this cable will be permitted.

5.4 Armoured Cables

a. PVCSWAPVC cables and cable terminations shall comply with SANS 150 and shall be of 660 volt grade.
b. These armoured cables where permitted, may:

- Lay flat on cable trays, fixed with approved ties.
- Where the cable tray is vertical, the armoured cables are to be held in position by approved straps.
- Fixing with wire is not permitted.
- Be fixed to the masonry with saddles.
- Be fixed to unistrut with the approved fixing saddles.

c. Where the cable is in a ventilation air path (other than the underfloor void of a computer room) the outer PVC sheath is to be removed after fixing if so demanded by the local authorities.
d. No joints in PVC cables will be permitted under any circumstances.
e. The PVC cable glands shall consist of the brass cone type with waterproof seal, equal to "DESCO", and shall be suitable for PVCSWAPVC general purpose 660 volt grade cable.

6.0 CONDUITS

a. Conduit shall be heavy gauge welded screwed steel conduit to SANS 162 and powder coated yellow.
b. Conduit shall be clean, true and free from internal obstructions.
c. Burrs shall be removed with taper reamer. All free ends shall be fitted with approved bushes.
d. No conduit shall be less than 25 mm nominal diameter.
e. No surface conduits, PVC conduit or box trunking will be permitted between two separate detection zones or between detection and non-detection zone. They can however be used within a single detection or gas protected zone to interconnect the detectors and other equipment housed within that zone.
f. The entire conduit system shall be watertight, electrically and mechanically continuous.
g. During installation, the ends of conduit shall be temporarily plugged to prevent the ingress of dirt and moisture.
h. Conduits shall be securely saddled along the length of the run and saddles shall be provided within 500 mm of all fittings or terminations.
i. Sets and bends shall be made cold with approved bending machines in such a manner that there is no damage to or distortion of the conduit. In locations where it is not practicable to use sets for changes in direction, such changes shall be made by the use of approved screwed fittings.
j. All sets and bends shall be such that they permit cables to be drawn easily into the conduits after installation.
k. All junction boxes provided to facilitate the drawing-in of cables shall be located in positions which will be readily accessible in the completed project.
l. Inspection fittings shall not be used as "Loop-in" points.
m. The whole conduit installation shall be a "Loop-in" installation.
n. Conduits shall be installed in such a manner that they are free from mechanical stress.
o. No threads shall be visible after erection, other than at running joints.
p. Running threads shall be thoroughly painted.
q. Final connections to plant (other than in cases where the items can be mounted directly to termination boxes) shall be run to a junction box adjacent to the item of equipment.
r. Flexible conduit connections are to be installed between the round terminal box adjacent to a ceiling void detector and its ceiling mounted remote indication lamp. The flexible conduit plus the PVC wires contained therein shall be left sufficiently long to allow for the indication of the lamp in the centre of a ceiling tile (which may not fall directly beneath the terminal box). There shall be no stress imposed on the flexible conduit.
s. Before the drawing in of any conductors the conduit installation shall be complete with lock-nuts, bushes and all other accessories in accordance with standard electrical practice. Conduits shall be cleaned out and swabbed dry internally.

7.0 CABLE TRAYS

a. Cable trays shall be of Pyrotenax, unistrut or other approved manufacture.
b. The size and gauge of all trays shall be chosen to suit each particular application. They shall be adequately stiffened and braced both traversely and longitudinally, ensuring a true finished run.
c. All screws, washers, nuts, etc. used in the installation of the trays shall be cadmium plated.
d. All trays, fittings, brackets, etc. shall be galvanised or electro-tinned and where exposed shall be painted after erection in accordance with the details as specified herein.
e. All trays shall be supported by brackets at intervals sufficiently small to produce a robust installation and to ensure that there is no perceptible deflection of the finished tray and its associated supports.
f. All bends, tee-offs, changes in section and changes in direction shall be made with factory finished fittings.
g. All joints shall be made with approved jointing plates. Lapped joints will not be permitted.

8.0 TRUNKING

a. Trunking shall be manufactured from galvanised sheet metal of a thickness not less than 1 mm for runs, and 1,6 mm for bends, off-sets, reducing pieces, etc.
b. Trunking shall comply with BS 4678.
c. Covers shall be of the same material as the trunking and shall not exceed 1,2m in length.
d. All screws, nuts, washers, etc. shall be cadmium plated.
e. The trunking and covers shall be braced as necessary to ensure rigidity, and the open side of the trunking shall be provided with right angled returns to receive the covers.
f. The covers shall be securely fixed to the trunking by means of approved clips or fasteners.
g. The trunking shall be supported to brackets at intervals sufficiently small to produce a robust rigid installation and to ensure that there is no perceptible deflection of the trunking between supports.
h. All bends, tee-offs, changes in section and changes in direction shall be made in factory-manufactured fittings.
i. All joints shall be butt joints, made with internal fishplates.
j. Lapped joints will not be permitted.
k. Screws shall be cut off flush with the top of the nuts after erection, and shall be filed smooth and painted.
l. The trunking is to be cut square were cutting is necessary for jointing etc. Cut edges shall be smoothed off with a file.
m. Plastic trunking may be permitted at the Engineers discretion and subject to his approval of the specific material offered.

9.0 CONTROL PANELS

9.1 General

a. The control panel shall be wired in the factory and not on site. The only connections to be made in the panel on site shall be the interconnection with the field wiring.
b. All outgoing circuits shall terminate on numbered terminals with approved lugs where the numbers correspond to those reflected on the as-built drawings.
c. Wires within the cubicle shall bear an identification number at both ends. Numbering shall be by approved wiring ferrules securely attached so that they will not slip off when the wire is removed from its terminal.
d. The numbering shall correspond to the drawings. Handwritten numbers or adhesive tape bearing numbers will not be acceptable.
e. When a device is removed from the loop, it must be reflected on the panel as a faulty device and it must be clear once the device has been re-installed.

10.0 ZONE PANEL

10.1 General

a. Allow to supply and install a zone layout with a building plan and line unit numbers located adjacent each fire control panel.

11.0 NETWORKING

11.1 General

a. The networking capabilities of the system shall be such that all control panels may be connected via optical medium. The system shall ensure rugged and reliable “peer to peer” operation. It shall be possible to remove and add to the network to allow for easy expansion of the system.

b. The network shall use an industry standard protocol such as ARCNET or ETHERNET to ensure that no data is corrupted.

c. The network is to feature:

- Inter-panel Input/Output programming.
- Remote uploading/downloading of system configurations to individual panels.
- Remote maintenance.
- RS232 nodes for connection to graphics packages, building management systems and modems.
- Global repeater panel.
- LCD repeaters.

12.0 LINE ISOLATORS

Loop isolators are to be connected in to the loop circuit and monitor for short circuit. In the event of a short circuit occurring the loop isolators on each side of the short circuit are to disconnect and isolate that portion of the loop from the system, enabling the remainder of the system to function normally.

A light emitting diode (LED) must illuminate when a loop/line isolator is in an open condition.

SECTION 11.3 DETAILED SPECIFICATION

AUTOMATIC FIRE DETECTION INSTALLATIONS

1.0 INTRODUCTION & GENERAL

This Detail Specification complements & qualifies the foregoing standard specifications of material & workmanship. The Standard Specification should be regarded as a basis and guideline, with this Detailed Specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority:

a) Schedule of quantities
b) Project specification
c) Drawings (loose and bound-in)
d) Standard specification

2.0 SITE CONDITIONS

Location: Provincial Hospital, Port Elizabeth, Eastern Cape

3.0 SCOPE OF WORK

The standard specification shall apply unless otherwise indicated in this section.

The drawings issued herewith and listed in the relevant section are to be read in conjunction with the specification and all items mentioned, together with all ancillary equipment necessary for the correct installation, operation and full compliance with the Standards and codes must be provided, notwithstanding the fact that they may not have been included in detail in these documents.

The bidder shall, at the time of bidding, draw the Engineer's attention to any omissions or discrepancy between the specification and the drawings and request from him clarification of details or responsibilities.
If a limited allowance or special conditions are made for the Bid Sum for the supply or erection of any item of the installation, the limit or special conditions shall be defined at the time of bidding.

It is the sole responsibility of the bidder to ensure that all quotations obtained from manufactures and suppliers are complete in their entirety and must include all equipment and accessories necessary for compliance with current practice and the efficient and proper functioning of the installation.

If any such items of equipment, brackets and accessories, etc., have been omitted from a supplier's quotation, or incidental work is necessary, the bidder must include for all such items and work in the bid.

The whole installation shall be in accordance with the latest edition of the Occupational Health and Safety Act: No. 85 of 1993. All regulations framed therein, shall be carried out to the satisfaction of the Engineer.

All equipment offered by the bidder shall be to the approval of the duly appointed Engineer, prior to installation. This Standard Specification and the Detailed Specification with drawings shall be carefully adhered to by the bidder. Equipment installed without the approval of the Engineer will have to be removed at the Contractor's expense and be replaced with officially approved listed items.

The successful bidder will be required to prove to the Engineer that he has qualified personnel on his staff establishment as well as recognised test equipment for the successful completion of a safe working installation.

The contractor shall employ only skilled artisans and technicians approved by the Engineer who are competent in this type of work. The work shall be carried out in accordance with the standards laid down by the Engineer.

The contracting firm shall be recognised contractor specialising in this field and approved by the Engineer.

The work performed shall comprise the supply, delivery, off-loading, interim storage, installation, testing, commissioning and leaving in good working order of the complete fire detection and evacuation system installation inclusive of all guarantees as specified herein and the supply of 'AS IS' installation record drawings, Maintenance and Operating Manuals for:

- Supply and installation of an L1 automatic fire detection and alarm evacuation system equipment.
- Supply and installation of PVC conduit and galvanised steel trunking.
- The liaison with a Building/Principal Contractor, Electrical Sub-contractor, Air Conditioning Sub-contractor and their Domestic Sub-contractors if and when required.
- Testing and commissioning of all equipment in the fire protected areas with and in conjunction with the Air Conditioning Sub-contractor.

This Sub Contract also includes all electrical works for the installation but excludes the power supply to the Main Panel which will be provided by others.

Notwithstanding any omission in this specification the installations shall be complete in all respects. This condition shall be recognised in the preparation of all working drawings submitted for approval. Further, despite any approval of working drawings given by and on behalf of the Main Contractor the responsibility for correct functioning of the plant during tests, inspection and the maintenance period shall rest entirely with the successful bidder.
The installation shall be strictly in accordance with the approved drawings or such further drawings, modifications, or instructions as may be given by the Engineer concerned, or that are found to be necessary, and such modifications or instructions shall be deemed to be within the specification for the purpose of the bid, and shall not vitiate the contract.

Payment for such modifications will only be made on certification by the Engineer to the effect that such modifications have involved additional expense to the Sub-Contractor.

The following sections of Work are excluded:

- Builder’s work e.g. cut-outs in walls to Tenderer’s specifications, including chasing and making good of walls.
- The cutting of holes in suspended ceilings and ceiling tiles for the fixing of detector heads, sirens and other fire devices.
- Tiling, painting or decorating after installation
- Provision of suitable 220 V / 1 phase power supply for Control Panel.

3.0 SITE CONDITIONS

The site shall be serviced as far as electricity services are concerned, although Tenderers must make provision for an alternative electricity supply during installation.

The equipment specified herein shall be designed to operate at the environmental parameters as follows:

Location: Port Elizabeth, Eastern Cape

4.0 PROGRAMME

The Sub Contractor shall complete the installation within the time stipulated. The Sub Contractor will be required to report to the Principal Contractor, generally on a weekly basis (or more often if required by the Principal Contractor), progress of work and any difficulties arising, to enable the Principal Contractor to update the programme.

The sequence in which the work is to be carried out shall be decided upon in consultation with the Principal Contractor. The Sub Contractor shall thereafter submit an adequately detailed Sub Contractor's installation programme for approval within two (2) weeks of the Sub Contract being awarded unless otherwise indicated herein after.

This programme must be periodically updated as the work progresses and as may be necessary to meet changing site conditions and alterations to the overall installation programme.

Programmes shall take the form of bar charts, network diagrams and schedules as may be required by the Main Contractor or as applicable, and shall reflect quantities of work as required for supervision purposes and measurements.

As a minimum the programme shall reflect:

- sequence and timing of installation activities.
- sequence and latest event times of major equipment ordering, manufacture and delivery dates.
- sequence and dates for the submission of drawings and samples for approval.
- sequence and dates for factory and site inspections and tests.
- target and achieved work quantities on a weekly, fortnightly and monthly basis.

In preference all work is to be undertaken by staff in the full time employ of the bidder.

All work which is to be undertaken by “Domestic Sub Contractors” of the Sub Contractor will be clearly identified in the bid submission and the Sub Contractors to be used subject to prior approval of the Client and/or Engineer and/or Principal Contractor; failure to comply with this requirement may result in the “Domestic Sub Contractors” being removed from site.

All costs in replacing the undesirable "Domestic Sub Contractor" or any delays incurred as a consequence of this will be entirely for the Sub Contractor's account.

5.0 PROJECT TECHNICAL SPECIFICATION

The bidder shall allow for programming the work in such a manner as to not disrupt the Main Contractor’s programme. Sequence of work to suit the Sub Contractor's requirements will not be guaranteed nor accepted.

Claims from Sub Contractors arising out of broken work sequences or agreed programmes changed due to contingent requirements, will not be considered unless full motivations for the extra costs are submitted; the motivation for extra costs must justify costs in terms of the accepted programme and any unforeseen and justifiable additional staffing levels required to meet targets revised with insufficient notice. Reallocation of staff and/or acceleration of work will not be reason enough to claim for extra costs unless the Sub Contractor can prove that he has indeed had to pay for staff’s idle time which was not or could not be envisaged at the time of biding and/or drawing up the installation programme and sequence. When claiming for extra cost all out of town cost will be disallowed as it is assumed that the Sub Contractor has fully staffed premises in the vicinity of the site.

The Subcontractor must also assume that work may be required to continue uninterrupted outside of normal working hours and/or for an extended and/or unbroken period of time.

5.1 Automatic Fire Detection System

The building is to be constructed, the system will have a new analogue addressable fire detection system with corresponding line devices as specified in the bill of quantities and drawings provided.

All fire signals received by a sensor are to be confirmed by a sensor in a zone or any break glass unit; all confirmed signals will be automatically relayed to the Main Fire Alarm Panel unit. If not cancelled (reset) within a specified time (less than four minutes) all signals which are not confirmed will then trigger the alarm. The person attending to the alarm can call for more time by pressing the "More Time" push button in which instance the clock will be reset to zero and a new cycle (programmable between O and 999 seconds) will be initiate. During such cycle the attendant must be capable of investigating the source of the alarm and cancel it (by pushing the reset button) at any panel in the event of a false alarm or confirm it (by pushing the accept button) at any panel or by breaking the glass of any break glass unit.

It must be noted that operation of the "More Time" push button shall be overridden by the triggering of a second sensor/device in the same zone or via a break glass unit.
The fire detection and alarm evacuation installation shall operate as follows:

In the event of a confirmed fire condition the fire alarm system is to automatically:

- Sound the evacuation sounders located in the building (a pulsing tone)
- Isolate the power supplies to fresh air and extraction fans, and passenger lifts in the specific zones.

These functions will be grouped differently depending on what zone the signal originates from. The device address and location, as defined on the drawings, shall be indicated on the L.C.D. display of the fire control panel.

Information relating to the alarm (or fault condition) shall pass to the C.P.U. and in turn be displayed on the display terminal.

The generation of a fire alarm, within the various hospital areas (wards; high care; ICU etc.) shall be referenced to SANS 322 Fire Detection and Alarm Systems for Hospitals, immediately initiate the following, within the affected fire zone only.

6.0 EQUIPMENT SPECIFICATIONS

6.1 General

The following description details the design parameters for the operation, control, dimensions, finishes, etc. for the Fire Detection unit installation. These parameters are the minimum requirements, and the sub-contractor may offer equipment that exceeds these specifications. All relevant technical information to be submitted with tender.

Latest Generation equipment shall be accepted, any brand, model or equipment line with a Fire (5) year or more period from its inception date will not be accepted

6.2 Fire Alarm Control Panel

6.2.1 The Fire Alarm Panel shall be the central controller of the complete system. It shall receive and process analogue information from the detection devices, provide audible and visual indication of alarm and other conditions to the user, automatically initiate alarm response sequences and provide the user interface for interrogation and user programming of the system.

6.2.2 Updates to the Fire Alarm Panel operating software shall be simple to undertake and shall not require the use of replaceable components. The operating program and configuration memory shall be stored in non-volatile memory and shall not rely on batteries for retention. The Fire Alarm Panel shall incorporate separate microprocessors for signalling loop control and central operation.

6.2.3 The Fire Alarm Panel shall provide a user interface from which; controls can be operated, manual operations can be carried out, indications are audible and/or visible and system information can be obtained. It shall also be capable of unambiguously indicating the following functional conditions: Quiescent condition, fire alarm condition, fault warning condition and disablement condition. Furthermore, the fire alarm condition shall always be capable of clearly being indicated without any prior manual intervention at the Fire Alarm Panel.

6.2.4 The Fire Alarm Panel shall be easy to configure all basic operating characteristics and variables through the user interface on the Fire Alarm Panel to satisfy the detection zone and output mapping of the premises. A PC Tool operating under the Windows ™ operating system shall also be available to fully program the panel.

6.2.5 The Fire Alarm Panel shall support up to 127 devices on the signalling loop. The Fire Alarm Panel shall fully support the sub-addressing capabilities of the relevant input and output devices.

6.2.6 The Fire Alarm Panel shall contain one, one to two, or one to four signalling loop drivers depending on the system design requirements. Each signalling loop shall be capable of supplying at least 500mA of power for loop-based sounders or other output devices. The Fire Alarm Control Panel software and hardware loop driver, without modification, shall be compatible with the analogue detection, call points, input and output devices available from, at least, the following manufacturers:

Apollo S90, XP95, Discovery and Xplorer ranges
Hochiki ESP, GTP and ASX ranges
Kidde, Aritech, and Edwards

6.2.7 The Fire Alarm Panel shall fully support the sub-addressing capabilities of loop devices incorporating this feature.

6.2.8 The Fire Alarm Panel shall provide 2 or 4 outputs to fire alarm devices, each rated at 1-ampere. An auxiliary supply output shall also be available to provide power for internal option modules.

6.2.9 The Fire Alarm Panel shall provide a diagnostic monitoring feature for all signalling loop, alarm device output and auxiliary supply output circuits to monitor voltage, current load, etc. This information shall be available to view at Level 2. In addition, diagnostic monitoring of the signalling loop return current pulses shall be provided at Level 3.

6.2.10 The Fire Alarm Panel shall incorporate a real-time clock for time stamping of events in the event history log and for scheduling of time related functions.

6.2.11 It shall be possible to install a network communications card to allow connection of up to 200 control panels, remote terminals, mimic displays or other peripheral devices. The network shall offer peer-to-peer operation and have a fault tolerant capability. The time to propagate a fire alarm condition across the network shall not exceed 3 seconds.

6.2.12 A single Fire Alarm Panel shall have the capability for configuration and operation of 200 fire alarm zones. In a network system, the overall system shall have the capability for up to 1000 zones.

6.2.13 It shall be possible to adjust sensitivity settings for all detection devices based on a time clock. It shall be possible to select device modes for both active and inactive time periods for multi-sensor detectors.

6.2.14 It shall be possible to configure the panel for Stage 1/ Stage 2 Investigation operation based on a time clock. It shall be possible to configure the devices used for investigation on an individual basis. This shall also include call point type devices.

6.2.15 It shall be possible to configure up to 10 independent time clocks. Each time clock shall be capable of up to two active time periods for each day of the week.

6.2.16 All fault conditions (except CPU System Fault) shall be non-latching.

6.2.17 All input devices shall have the capability of being latching or non-latching (except when configured for Fire Alarm input).

6.2.18 It shall be possible to configure complex cause and effect operation for phased evacuation and output control operations at the panel. It shall be possible to assign each output device to one of 200 output groups, each output group operation being programmable as to response on a zone by zone basis for fire, double knock fire, pre-alarm, fault, enablement or disablement conditions and shall be capable of up to 21 programmable ringing styles with programmable delays and pulsing tones.

6.2.19 It shall be possible to connect optional equipment in accordance with the requirements of EN54-2 Standardised I/O such as mimic panels and remote control terminals.

6.3 Panel Construction

6.3.1 The Fire Alarm Control Panel shall be of metal construction. It shall be capable of surface or semi-flush mounting. Sufficient 20mm knockouts shall be provided to accommodate all likely wiring requirements.

6.3.2 The housing shall meet IP30 minimum ingress protection classification. It shall not be possible to open the enclosure without a key or special tool.

6.4 Panel Indications

6.4.1 The Fire Alarm Control Panel shall be equipped with a graphics liquid crystal display (240x64 pixels) as the primary indicator giving at least 6-lines of information. The display shall incorporate an LED backlight that will illuminate upon any event (excluding mains failure) or button press.

6.4.2 The primary display shall be simultaneously capable of indicating the presence of Fire Alarms, Faults, Disablements and Tests in accordance with the requirements of EN54-2.

6.4.3 In addition, the following minimum LED indicators shall be provided in accordance with the requirements of EN54-2:

Power On	Green
Fire Alarm	Red (x2)
Fault	Yellow
Disabled	Yellow
Test	Yellow
Sounders Silenced	Yellow
Sounders Disabled	Yellow
Sounder Fault	Yellow
System Fault	Yellow
Delayed	Yellow

6.4.4 In addition, there shall be five programmable LED Indicators (4x Yellow and 1x Red) for application use.

6.4.5 A zone based indicator panel shall be provided as an option to additionally indicate zone fire alarms and shall provide 20, 50, 100 or 200 zone indicators. Additionally, this optional feature shall also be provided on a graphical mimic basis.

6.5 Panel Controls

6.5.1 The Fire Alarm Control Panel shall be provided with the following minimum manual controls:

Silence Buzzer
Evacuate (Sound Alarms)
Silence / Resound Alarms
Reset

6.5.2 In addition, the following controls shall be provided for menu operation and programming:

Navigation keys,

A confirmation key,
A numeric keypad, 0-9, also providing the function for letter / character programming
A cancel key
A menu select key

6.6 Software

6.6.1 A PC Configuration Tool shall be available for configuration of the Fire Alarm Panel and for retention of configuration data. The PC Configuration Tool shall be graphically based and operate under Windows ™ operating systems 98, NT, 2000, ME, XP and Vista.

6.7 Configuration

6.7.1 It shall be possible to configure ALL basic configuration parameters and settings from either the Fire Alarm Panel front panel or from the PC Configuration Tool. It shall be permitted to configure enhanced / extended features and functions from the PC Configuration Tool only.

6.8 Remote Dial-up

6.8.1 Software shall also be available to provide full dial-up capability to the Fire Alarm Panel using a modem. This software package should enable remote access to interrogate and inspect the operation of the Fire Alarm Panel, retrieve panel status and historic event log.

6.9 Remote Terminals

6.9.1 It shall be possible to provide remote access to monitor (Remote Display Terminal) or monitor / control (Remote Control Terminal) operation of the installation.

6.9.2 The Remote Control Terminal shall provide the same display, indication and buttons as the Fire Alarm Panel.

6.9.3 The Remote Display Terminal shall provide the same display, indication and buttons as the Fire Alarm Panel except for the control buttons.

6.9.4 Remote Control shall provide the capability to silence alarms, resound alarms, evacuate and reset the system. In addition, it shall be possible to remotely enable or disable zones and points and remotely configure a zone walk test.

Power Supplies

6.9.5 All power supplies (integral to the fire alarm control panel or remote) shall be certified to EN54-4: 1998 and shall be capable of supporting 72 –hour standby requirements.

6.9.6 All power supplies shall be capable of operating from a main supply of 230VAC 50/60Hz.

6.10 Additional System Components

6.10.1 The following additional system components shall be provided as optional equipment.

Remote Control Terminals:	providing the features and functions described in section 3.8
Remote Display Terminals:	providing the features and functions described in section 3.8
Mimic Module:	providing a bespoke solution for graphical presentation, using LED Indicators, to indicate either zone based fires or output groups activated
Graphics Interface Module:	providing a gateway to 3rd party graphics packages with full reporting and control features and functions as described in section 3.8. It shall be possible to install multiple graphics gateways in the network.

6.10.2 It shall be possible to connect the following modules internally to the FIRE ALARM PANEL for locally based input and output extensions:

Relay Module:	providing 8 individually programmable relay outputs with NO, NC and COM contacts rated at 30V DC, 1A
Input Module:	providing 8 individually programmable digital inputs
Printer:	providing the capability to select and automatically print fire, alarm, fault and test events and the capability to manually print the historic log. The printer arrangement shall be such that it is not required to open the enclosure to change the paper roll. The printer shall not use replaceable ink ribbons or cartridges.
Shop Interface Module:	providing inputs and outputs specifically configured for connection to a landlord's main system.
Integral Modem: .	providing remote connection to the FIRE ALARM PANEL

6.10.3 It shall be possible to connect the following modules for locally based input and output extensions:

Sounder Splitter:	providing 4 additional outputs to fire alarm devices from one of the panel outputs. Operation of all additional outputs is to follow the programmed operation of the selected panel output.
Sounder Booster:	providing a 4-ampere output to fire alarm devices from one of the panel outputs. Operation is to follow the programmed operation of the selected panel output.

6.11 Optical Smoke Detectors and Bases

The location of optical smoke detectors are indicated on the drawing provided with this document and the Tenderer shall supply and install units that shall meet or better the following specifications:

a. The detectors shall operate on a 24 V d.c. power supply, and be suitable for connection in the circuit to the control panel using two wire system.

b. The detector base section shall be suitable for easy removal and replacement of the detectors, and shall allow for the interchanging of the different types of detectors without any modifications being necessary.

c. The base to be employed shall depend on the special mounting conditions required, and shall be suitable for one or more of the following:

- surface / wall mounting
- mounting in damp / plant rooms
- suspended mounting
- underside of ceiling

d. The construction of the detector and bases shall be in white self-extinguishing polycarbonate plastic. All circuitry must be protected against moisture and fungus. Smoke entry points must be protected against dust and insect ingress by corrosion resistant gauze. The optical chamber must be of conductive plastic and have a snap-lock fit for ease of removal when cleaning. The detectors must be unobtrusive when installed, having a dimension not exceeding 50mm x 100mm diameter maximum including the mounting base

e. A visual alarm detection indication lamp shall be incorporated on each detector which shall illuminate or flash on the detector activated. If not visible over 360° the detector shall be orientated so that the indication light faces towards the entrance to the room, or to where it can easily be visible on entry to the space in an emergency.

f. Unit is to feature:

- Measure of smoke density from 0.5 to 10 particle range.
- Suitable for detecting visible smoke such as is produced by slow smoldering fires including burning PVC
- Data transmissions to and from the FACP from the detector shall be via communications circuitry which is factory fitted to the detector by the original detector manufacturer and forms a complete and integral part of the detector
- The detector shall be supplied complete, fully tested and calibrated.
- The detector shall be capable of operating within the following environmental limits:
    - Temperature operating range -20ºC to +60ºC no condensation
    - Humidity operating range 0% to 95% RH
    - Wind speeds—not affected
- Active output proportional to the amount of smoke present in the chamber.
- Output value of the sensor to provide data regarding contamination levels in sensor and electronic circuit.
- Comply with Standard EN54 Part 7.

6.12 Heat Detectors

6.12.1 The heat detector shall be electronic in operation and suitable for connecting to a 24V central system which can operate within the voltage range of 17V -28V DC.

6.12.1 The device shall detect temperature by means of an NTC thermistor.

6.12.2 A red indicator LED shall be provided on the detector which illuminates when the detector has reached a pre-set alarm level. The indicator shall be operated independently of the detector from the FACP.

6.12.3 Provision shall be made for an output from the detector suitable for operating a remote indicator or other device with a current limitation of 4 milliamps. The output shall be operated independently of the heat detector from the FACP.

6.12.4 The detector shall be capable of operating within the following environmental limits:

Temperature operating range –20ºC to +60ºC (no condensation)
Humidity operating range 0% to 95% RH
Wind speeds—not affected

6.12.5 Separate mounting bases shall be required which enable ready removal of the detectors for maintenance. The bases shall be fitted with dual finger stainless steel contacts.

6.12.6 The construction of the detector and bases shall be in white self-extinguishing polycarbonate plastic. Full circuitry must be protected against moisture and fungus. The detectors must be unobtrusive when installed, having a dimension not exceeding 50mm x 100mm diameter maximum including the mounting base.

6.12.7 The detector shall incorporate a feature enabling it to be locked securely to its base.

6.12.8 Data transmissions to and from the control panel from the detector shall be via communications circuitry which is factory fitted to the detector by the original detector manufacturer and forms a complete and integral part of the detector.

6.12.9 The detector shall be supplied complete and fully tested and calibrated.

6.12.10 The unique address of the detector shall be set by the installer by means of a coded plastic card fitted to the detector base.

6.12.11 The detector shall be capable of being remotely tested from the FACP by the transmission of an output command bit to the addressed detector. This shall result in a healthy detector transmitting an analogue value in excess of the recommended fire alarm threshold. The control panel will recognise this as a test signal and shall not raise an alarm against this signal.

6.13 Manual Call Points Units

Breakglass / Manual call point units are to be provided for each zone as indicated on the drawings. These are to be suitable for manual initiation of an alarm for their respective zones.

The Tenderer shall provide and install equipment that meet or better the following specifications:

Each of the different types of mechanical / electrical breakglass units shall be:

- have a well illustrated front
- where specifically called for, a stainless steel or anodised aluminium lift flap, suitably illustrated on its face shall be provided to cover the unit to offer additional protection against accidental breakage.

The types of acceptable mechanical call point units are:

a. Press-to-Activate

The electrical circuit will be activated on the button (housed behind the breakglass front) being pressed. This unit should generally be employed in preference to the break-to-activate type.

The unit shall be fire engine red with the front of the unit clearly displaying the words “FIRE / BRAND”

Recessed / chased-in round dia. 63 galvanised boxes shall be provided and installed by the electrical sub-contractor for mounting of the breakglass units, unless measured elsewhere.

6.14 Ceiling Mounted Sirens and Bases

The Tenderer shall provide and install sirens and bases that are under ceiling mounted as indicated on the drawing provided with this document. The units shall meet or better the following specification:

a. Operate on 24 V d.c.
b. Feature a shallow base as they are under ceiling mounted.
c. Be fire engine red in colour.
d. Be a compact high volume warning sounder and emit a sound level greater than 85 Db at 3 m.

Round dia. 63 galvanised boxes shall be provided and installed by the electrical sub-contractor, for the sirens unless measured elsewhere.

6.15 Short-circuit Isolators

6.15.1 Short-circuit isolators shall be of the stand-alone type with a mounting base that is unique to the isolator or may be incorporated into the mounting base of a detector. Isolators may also be incorporated into interfaces.

6.15.2 In the event of a short-circuit fault on the loop wires the isolators shall be capable of sensing the short circuit and disconnecting the affected part of the loop within 50µs.

6.15.3 Isolators shall operate at between 17 and 28V DC in normal conditions. The isolators shall open and disconnect the affected part of the loop when the loop voltage falls to 14±0.4V.

6.15.4 The isolators on either side of the short-circuit fault shall test the integrity of that part of the loop every 4–5 seconds. If the short-circuit fault is no longer present, the affected part of the loop shall be re-connected.

6.15.5 The isolators shall be supplied by the supplier of the detectors and interfaces. The mouldings of the isolators, the isolator bases and the isolating bases shall be of the same material as the detectors and bases.

The isolators shall be capable of operating in the following environments:

- Temperature range –20OC to +60OC (no condensation or icing)
- Humidity 0% to 95% RH (no condensation)
- Design environment indoor use only

6.16 Output Unit

6.16.1 The output unit shall provide a volt free changeover relay contact operated by command from the control and indicating equipment (FACP).

6.15.1 The contacts of the relay output unit shall be rated at a minimum of 1A at 24 V DC

6.15.2 The output unit shall be capable of deriving its operating power from the addressable loop.

6.15.3 The output unit shall provide a red LED indication that the relay has operated.

Switch Monitor

6.15.4 The switch monitor shall provide status monitoring of one or more single pole, volt-free contacts connected on a single pair of cables, to the FACP.

6.15.5 The switch monitor shall provide the facility to monitor the input wiring for open and short circuits and transmit the necessary fault signal to the FACP.

6.15.6 The switch monitor will communicate four input states to the FACP—'Normal', 'Fault', 'Pre-Alarm' and 'Alarm'.

6.15.7 The switch monitor shall provide a red LED indication for an 'Alarm' condition and a yellow LED for a 'Fault'. The switch monitor shall be capable of deriving its power directly from the addressable loop.

6.15.8 A version with identical functionality but smaller dimensions shall be available for use where space is limited.

6.15.9 A version with additional functionality shall be available for use where a delay in response is required.

Addressable Mini Switch Monitor (Interrupt)

6.15.10 The mini switch monitor (interrupt) shall provide status monitoring of one or more single pole, volt-free contacts connected on a single pair of cables, to the FACP.

6.15.11 The mini switch monitor (interrupt) shall provide the facility to monitor the input wiring for open and short circuits and transmit the necessary fault signal to the FACP.

6.15.12 The mini switch monitor (interrupt) will communicate three input states to the FACP— 'Normal', 'Fault' and 'Alarm'.

6.15.13 The mini switch monitor (interrupt) shall provide a 'priority interrupt' where a fast response to the signal is required.

6.15.14 The mini switch monitor (interrupt) shall provide an integral red LED and provision for a remote LED which is switched automatically with the integral LED.

6.15.15 The mini switch monitor (interrupt) shall have small dimensions for use where space is limited.

6.15.16 **Input/Output Unit**

6.15.17 The input/output unit shall provide a volt free changeover relay contact operated by command from the FACP.

6.15.18 The contacts of the input/output unit shall be rated at a minimum of 1A at 24 V DC.

6.15.19 The input/output unit shall be capable of deriving its operating power from the addressable loop.

6.15.20 The input/output unit shall provide a red LED indication that the relay has operated.

6.15.21 The input/output unit shall provide a yellow LED to indicate a 'Fault' condition; open and short circuit on the input wiring, and a red LED to indicate when the switch input is closed.

6.15.22 The input/output unit shall provide monitoring of the status of a single pole, volt free contact connected on a single pair of cables, to the FACP.

6.15.23 The input/output unit shall provide a further opto-coupled input for monitoring an external voltage.

6.15.24 The input/output unit will communicate three input states to the FACP: 'Normal', 'Fault' and 'Switch Closed'

6.16 Flashing Strobe / Beacon

Flashing Strobes / Beacons must use high efficiency LED's as their light source. In areas with high back ground noise, visual indicators accompany sounders to ensure that the alarm is recognised. Depending on the colour and flash rate, beacons can provide additional information about the nature of the alarm.

Features:

- IP Rating: IP65 (Standard)
- Operating Temp: -20ºC to +70ºC
- Construction: UV Stabilised Polycarbonate Weight: 0.14kg

Units are to be programmed to operate in the zone were a line device has activated only.

6.17 Sounder Drivers

A dual monitored line output unit (Sounder drivers) shall monitor and switch two separate 24V dc lines to sounder devices. The Sub Contractor shall provide all necessary components and interface units for the proper operation of the sounder devices by the sounder drivers.

The Sounders shall operate independently in zones or generally all together.

7.0 OPERATING AND MAINTENANCE INSTRUCTIONS

Three sets of instruction manuals shall be provided. Each manual shall comprise of the following sections, bound in a vinyl plastic covered folder with the name of the project typewritten on a card inserted into a clear plastic covered cardholder on the front cover and spine and shall be handed to the Main Contractor on completion of the installation:

- Table of Contents
- Functional Description of Plant (as installed)
- Operation of Plant (as installed – step by step instructions).
- Performance Testing Procedures including Test Report
- Maintenance Instructions (in schedule form setting out each item of plant, the description and frequency of maintenance operations required). Instructions on testing fire detection system must also be provided.
- Spare Parts (list of spare parts that shall be required, with detailed description of each part, make, model or part number and supplier's name and address).
- Descriptive Literature (for all items of plant and equipment).
- Record Drawings (of plant as installed to include plant layout drawings showing component location, control and wiring diagrams and schematic piping diagrams).

8.0 GUARANTEE

The entire fire detection and alarm evacuation system installation shall be fully guaranteed for 12 (twelve) calendar months from date of acceptance by the Engineer. During the guarantee period, the sub-contractor shall be responsible for the making good of any defects reported by the Tenant. The guarantee shall be ceded to the Superintendent following acceptance of the installation.

9.0 MAINTENANCE

The fire detection sub-contractor shall be responsible for the maintenance of the entire plant during the guarantee period, as specified in this document. Record of all services are to be kept and copies signed by the Superintendent.

The maintenance of the plant shall be undertaken by the Maintenance Staff after expiry of the guarantee period(s).

A hand-over to the Maintenance Staff representative is to be carried out on the plant 4 weeks before expiry of the guarantee period(s).

10.0 CERTIFICATION ON COMPLETION OF GUARANTEE & MAINTENANCE PERIOD

In the month prior to the expiry of the guarantee and first twelve months maintenance period the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the

Tenant with a certificate, within fourteen days of the guarantee expiry date, to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the fire detection sub-contractor.

11.0 SAMPLES & ALTERNATIVES

Samples will be requested where and when required.

The tender prices shall be based on the equipment as specified and not on any alternatives. Should the tenderer wish to submit prices for alternatives, he shall do so separately, in a letter or similar correspondence, attached to the tender. The use of any alternative equipment, if any, will be evaluated and decided on after tender award, when the costs, etc. will be negotiated with the successful tenderer

The Engineer reserves the right to call for prices on alternative equipment subsequent to tender submission.

12.0 SCHEDULES OF INFORMATION

The schedules of information contained in this document consists of 2 sections:

- Information supplied by the Engineer (schedules of drawings, cables, distribution boards, etc. as applicable).

- Information to be supplied by the sub-contractor at tender stage (tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable).

Tenderers must complete, at the time of tendering, the “Schedule of Material Offered”, and provide sufficient technical details to enable the equipment concerned to be identified without ambiguity.

It is not sufficient for a Tenderer to state “as specified” in the schedules.

Failure to complete these schedules (if applicable) may render a tender invalid.

13.0 DRAWINGS

13.1 General

Generally, the term “detail” shall mean that the drawing is exact in all aspects to what shall be provided. Where the term “illustration” is used, however, it shall be construed that the drawing is to be regarded as a proposal or guideline as to what is to be provided, manufactured or supplied.

13.2 Tender Drawings

Refer to the proposed Fire Detection and Alarm Evacuation Installation as provided with this document.

13.3 Construction / Workshop Drawings

The successful tenderer shall submit construction drawings (or detailed catalogues) of the manufactured equipment, such as mounting details, etc., for consideration by the Engineer prior to manufacture/supply thereof.

The Engineers approval of construction or workmanship drawings does not relieve the sub-contractor of his responsibility with regards to any of the deviations from the requirements of this contract unless the Engineer has been clearly informed, in writing, of such deviations at the time of

submission and the Engineer subsequently gives written approval for the specific deviation. Similarly, the Engineer's approval shall not relieve the sub-contractor of responsibility for errors or omissions in the construction / workmanship drawings.

13.4 Record Drawings

The sub-contractor must prepare record drawings of the completed installation as constructed, indicating cable runs, equipment mounting details, circuiting & distribution board details, sleeve pipe positions, etc.

The contract shall not be deemed as complete until these drawings have been submitted.

13.5 Fire Detection System

The following drawings are required:

- Layout drawings
- Schematic circuit drawings
- Internal circuit drawings of all panels, etc.
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer).

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.
- Programme printout

14.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the sub-contractor, who must be able and authorised to receive and execute instructions on behalf of the sub-contractor. This person must be a registered and accredited person, as described by the OHS Act. It must be noted that the staff complement of the sub-contractor shall remain similar throughout the duration of the contract, for all sections of the Works.

In the event that inferior materials or bad workmanship, on the part of the sub-contractor, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the sub-contractor.

Similarly, should delays in the contract be caused by poor performance on the part of the sub-contractor causing the engineer to spend extra-ordinary time on the project, the extra costs incurred shall be borne by the sub-contractor.

These costs will be based on the SAACE hourly rate and will be deducted from claims due to from claims which will become due to the sub-contractor.

15.0 COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES

The sub-contractor shall arrange for all inspections and testing of the installation as required. All notices, fees, including inspection and re-inspection, are the responsibility of the sub-contractor and all the relevant costs shall be borne by him.

The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the

Employer.

The Works will be executed in strict accordance with the following:

- All relevant by-laws and regulations of local authorities.
- All relevant SANS, BS and other international standards.
- The Occupational Health and Safety Act of 1993.

16.0 COMMISSIONING AND TESTING

16.1 Commissioning

A documented method shall be followed whereby the sub-contractor shall ensure that his installation is correctly constructed in accordance with the manufacturers' specifications, consultant's specification, consultant's design and all Codes of Practice and International Design Codes.

The commissioning procedure must allow for signing off of the major items of equipment by a qualified person in terms of the codes. These signed off documents will form part of the record drawings.

16.2 Performance Tests

The sub-contractor shall be responsible for the physical testing, in the manufacturing works, or on site, of the items of plant or systems as required by the Engineer. These tests shall be performed by the sub-contractor or supplier of the equipment, and where called for, the Engineer shall witness such tests. The Engineer may also only witness a representative sample of the equipment tests. In any event, the sub-contractor will supply documentary proof of full performance tests of all relevant equipment.

16.3 Acceptance Tests

Acceptance tests will be performed on site of the working system or sub system, to show that the Works, as installed, is functioning according to the specifications and design. The onus for the correct functioning of the systems is still on the sub-contractor irrespective of whether the Engineer has witnessed the acceptance tests or not.

Prior to the system being taken into use, a certificate of compliance must be provided. The works shall not be deemed complete without this certificate.

16.4 Fire Detection and Alarm Evacuation System Testing Equipment

Testing equipment required for the successful commissioning of the Works described herein is to be made available by the sub-contractor.

All arrangements for this equipment or instructing of testing specialists to undertake this work and all associated costs, including professional fees shall be deducted from money due to the sub-contractor.

17.0 BUILDER'S WORK

The onus is on the sub-contractor to point out and check the requirements for and positioning and correctness of all builder's work for his services.

18.0 MAKING GOOD

With exception of making good to the cut-outs and drilled holes for piping, the sub-contractor will carry out, in all instances any work to be made good such as damage to, or disturbance of the building installations caused by himself or his employees during the execution of the contract at his own cost.

19.0 SITE MEETINGS

The sub-contractor's representative shall be expected to attend an official site meeting at the onset of the project including scheduled technical and site meetings during the contract period. For meetings termed as "technical and site", a site representative is required and must be competent and able to interpret and receive and act on instructions on behalf of the sub-contractor.
The tenderer shall price all relevant P & G costs, overheads, travelling, etc. for these meetings.

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
	BILL NO. 1 : PRELIMINARY AND GENERAL				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
	TOTAL CARRIED TO MAIN SUMMARY				
1.5	Provision of all drawings and manuals as specified including As-Installed drawings for Fire Detection Installation Work	Item	1		
1.6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1.7	Provision of testing and compliance certificates for Fire Detection Installation Work	Item	1		
1.8	Provision of Training of Client's representative (s) at "practical completion" and at "end of defects liability period"	Item	1		
1.9	Compliance with Construction Regulations and Health & Safety Act	Item	1		
1.10	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	Item	1		
#					
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	BILL NO. 2 : EARLY WARNING FIRE DETECTION EQUIPMENT				
2.1	**ADDRESSABLE FIRE CONTROL PANEL**				
	Supply, Install, test, commission and provide 12 month guarantee for Fire Control and Alarm Panel c/w battery back-up and charger.				
	1 Loop Panel	no.	0		
	2 Loop Panel	no.	1		
	4 Loop Panel	no.	0		
2.2	**ADDRESSABLE OPTICAL SMOKE DETECTORS**				
	Supply, Install, test, commission and				
	Smoke Detectors c/w bases.	no.	70		
	12 month guarantee for Remote Light Emitting Diode				
	(LED) to suit detection device detailed c/w bases.	no.	26		
2.4	**ADDRESSABLE HEAT DETECTORS**				
	Supply, Install, test, commission and provide 12 month guarantee for				
	Heat Detectors c/w bases.	no.	37		
2.5	**LINEAR BEAM DETECTORS**				
	Supply, Install, test, commission and provide 12 month guarantee for set of Linear Beam Detectors c/w bases				
	(beam detection coverage, 30m wide x 100m span).	Sets	0		
2.6	**ADDRESSABLE MANUAL CALL POINTS**				
	Supply, Install, test, commission and provide 12 month guarantee for Breakglass				
	Units - Type 1 c/w bases.	no.	9		
2.7	**ADDRESSABLE SOUNDER WITH BUILT-IN FLASHING STROBE/BEACON WARNING LIGHT**				
	Supply, Install, test, commission and provide 12 month guarantee for Siren with build-in Flashing Strobe c/w bases.	no.	7		

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
2.8	**ADDRESSABLE FLASHING STROBE/BEACON WARNING LIGHT**				
	Supply, Install, test, commission and provide 12 month guarantee for Flashing Strobe Warning Light c/w bases.	no.	6		
2.9	**PAINTING OF TERMINAL UNITS**				
	Etch and paint the following line units to colour Black. Exact shade of black will be confirmed prior to order/painting.				
2,9,1	Smoke detector	no.	0		
2,9,2	LED indicator	no.	0		
2,9,3	Siren and Strobe combination	no.	0		
2.10	**MAGNETIC DOOR HOLD-BACKS**				
	Supply, install, test, commission and provide a 12 month guarantee for set of Magnetic Door Hold-Backs c/w bases.	no.	2		
2.11	**DOOR CONTACTORS**				
	Supply, Install, test, commission and provide 12 month guarantee for door contactors linked to Main Fire Control Panel.	Sets	2		
2.12	**LINE ISOLATORS**				
	Supply, install, test, commission and provide a 12 month guarantee for Line Isolators c/w bases.	no.	8		
2.13	**ADDRESSABLE OUTPUT RELAY MODULE**				
	Supply, install, test, commission and provide a 12 month guarantee for Addressable Output Relay Module Unit, to be linked to ventilation systems.	no.	4		
2.14	**INTERPHASE UNIT (NON ADDRESSABLE UNITS)**				
	Supply, install, test, commission and provide a 12 month guarantee for interphase unit	no.	4		

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
2.15	**FIBRE OPTIC CONNECTION** Supply, install, test, commission and provide a 12 month guarantee for Westermo Converters ODW732 Single Mode, Fibre to 485, for connection of fire detection system to security control room	no.	1		
2.16	**FIRE REPEATER PANEL** Supply, install, test, commission and provide a 12 month guarantee for Fire Repeater panels.	no.	0		
2.17	**FIRE PROOF CABLE** Supply, install, test, commission and provide a 12 month guarantee for fire proof cable with a fire rating of PH120 (public building) minutes, all as specified.	m	2576		
2.18	**INTER-LOCKING SYSTEM** Supply, install, test, commission and provide a 12 month guarantee for inter-locking of fire detection system with Air-conditioning System, Ventilation System, System, Smoke Extraction System and etc.	no.	8		
2.19	**A3 FRAMED FIRE ZONE PANEL** Supply and install an A3 frame fire zone panel indicating all zones on that floor with devices numbering. Zones to be in different colour for easy readability. All frames to be installed next to the panels (Main / Repeater panels and etc.).	no.	1		
2.20	**SPRAGUE CONDUIT** Supply, Install, test, commission and provide 12 month guarantee for Sprague Conduit c/w bases, couplings (include all mounting brackets & boxes etc all as specified). installed next to the panels (Main / Repeater panels and etc.).	m	154		
2.21	**NETWORK CARD** Supply, Install, test, commission and provide 12 month guarantee for class A redundant 32 node network, via RS485, supporting maximum 32 loop .	no.	1		
2.22	**RS485** Supply, Install, test, commission and provide 12 month for RS485 cable, in sleeve provided by others.	m	200		

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
2.23	**PVC CONDUIT**				
	Supply, Install, test, commission and provide 12 month guarantee for PVC conduit chased into brickwork, cast into concrete or fixed onto trusses including cutting, bending, galvanised saddles, bushes, etc.				
2,23,1	25mm diameter conduit	m	1288		
2,23,2	32mm diameter conduit	m	0		
2,23,3	60 mm round boxes	no.	158		
2.24	**GALVANISED CONDUIT BOXES**				
2,24,1	Supply, Install, test, commission and provide 12 month guarantee for round box for 32 & 25mm conduit, back or side entry for 1, 2, 3 or 4-way chased into brickwork, cast into concrete or fixed onto trusses including couplings bushes, cover plates and fixing materials.	no.	9		
2,24,2	Supply, Install, test, commission and provide 12 month guarantee for 75 x 75 x 50 box (for manual call points) for 25mm conduit, chased into brickwork or cast into concrete.	no.	9		
2.25	**STEEL BOSAL CONDUIT**				
	Supply, Install, test, commission and provide 12 month guarantee for Steel Bosal Conduit				
2,25,1	25 mm Bosal	m	0		
2,25,2	Truss C Clamps incl fasteners	no.	0		
2,25,3	Threaded Rod M8	m	0		
2,25,4	Band Hangars 25 mm	m	1288		
2.26	**220 to 24 V Step Down Power Supply Unit**				
	Supply, Install, test, commission and provide 12 month guarantee for boxed power supply unit, 100 -220 Vdc, c/w battery.	no.	2		
2.27	**GSM COMMUNICATION DEVICE**				
	Supply, Install, test, commission and Global System for Mobile Communication device provide 12 month guarantee etc.	no.	1		
2.28	**PROGRAMMING**				
2,28,1	Programming of early warning detection	no.	1		
2,28,2	Programming and interphasing early warning detection system with automated smoke control panels	no.	0		
2.3	**LOG BOOK**				
	Fire Log Book Holder, Fire Safety Log Book, Wall Mounted folder holder	no.	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 1710
PE PROVINCIAL HOSPITAL
EARLY WARNING DETECTION INSTALLATION

SECTION 11.4 PROVISIONAL SCHEDULE OF QUANTITIES

BILL NO.	DESCRIPTION	AMOUNT
1	**BILL NO. 1 : PRELIMINARY AND GENERAL**	
2	**BILL NO. 2 : EARLY WARNING FIRE DETECTION EQUIPMENT**	
	SUBTOTAL	
	MAIN CONTRACTOR'S PROFIT AND ATTENDANCE	
	TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 11 ON FINAL SUMMARY ON PAGE 264	

SECTION 11.5 SCHEDULE OF MATERIALS OFFERED

AUTOMATIC FIRE DETECTION INSTALLATIONS

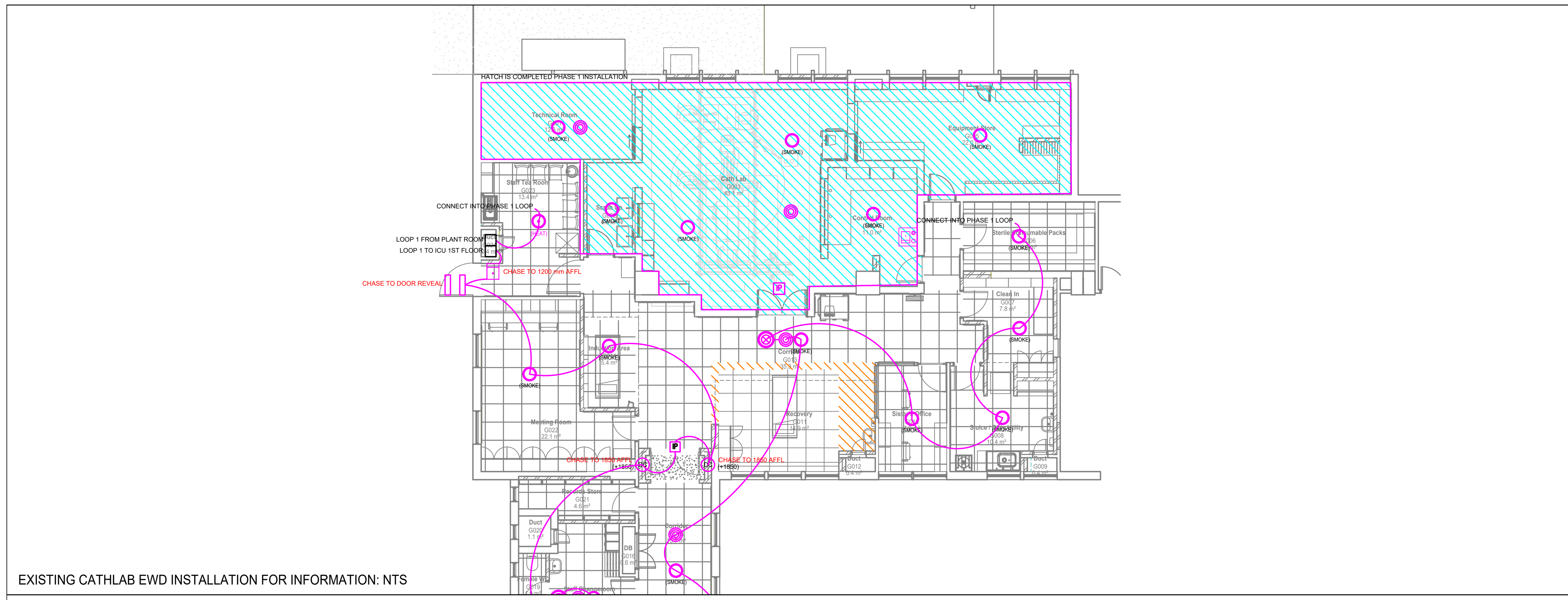
The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities. The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	ADDRESSABLE FIRE CONTROL PANEL		
2.	ADDRESSABLE OPTICAL SMOKE DETECTORS		
3.	ADDRESSABLE REMOTE LIGHT EMITTING DIODE (LED)		
4.	ADDRESSABLE HEAT DETECTORS		
5.	LINEAR BEAMS		
6.	ADDRESSABLE MANUAL CALL POINTS		
7.	ADDRESSABLE SIREN COMBINATION UNIT		
8.	ADDRESSABLE FLASHING STROBE WARNING LIGHT		
9.	ADDRESSABLE MAGNETIC DOOR HOLD BACKS		
10.	LINE ISOLATORS		
11.	ADDRESSABLE OUTPUT RELAY MODULE		
12.	INTERPHASE UNIT (NON ADDRESSABLE UNITS)		
13.	FIBRE OPTIC CONNECTION		
14.	FIRE REPEATER PANEL		
15.	FIRE RESISTANT CABLE		
16.	NETWORK CARD		
17.	RS485		
18.	GSM Unit		
19.	SPRAGUE CONDUIT		
20.	PVC CONDUIT		

21.	GALVANISED CONDUIT BOXES		
22.	STEEL BOSAL CONDUIT		
23.	220 to 24 V STEP DOWN POWER SUPPLY UNIT		

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor. Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.



DETECTOR SPACING REQUIREMENTS:

POSITION OF DETECTORS AS SHOW ON DRAWING ARE FOR REFERENCE PURPOSES ONLY. FINAL POSITION OF DETECTORS ARE TO BE CONFIRMED ON SITE PRIOR TO INSTALLATION, ENSURING THAT ALL DETECTORS ARE NEATLY POSITIONED AND INSTALLED IN THE ROOMS (I.E. ASTHETICALLY CO-ORDINATED WITH ALL SERVICES). PLEASE TAKE THE FOLLOWING REQUIREMENTS/GUIDELINES INTO CONSIDERATION :

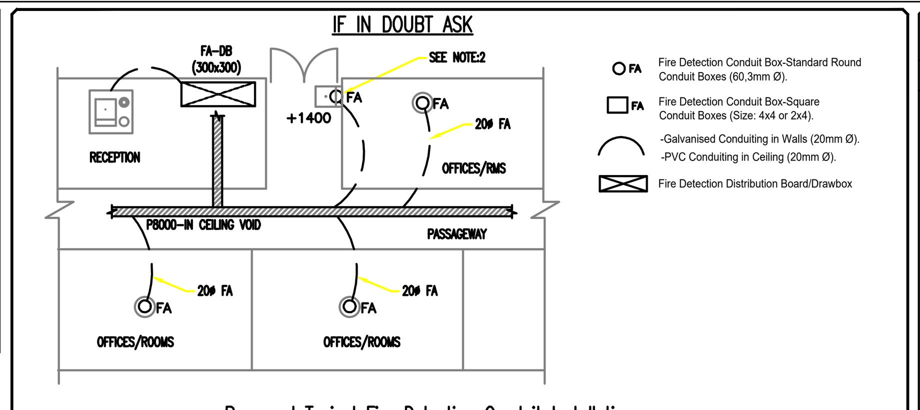
IN GENERAL, WHERE ONLY ONE DETECTOR IS REQUIRED IN A ROOM, THE DETECTOR SHOULD BE PLACED AS CLOSE TO THE CENTRE OF THE CEILING AS POSSIBLE.

IF A CENTRE LOCATION IS NOT POSSIBLE, IT MAY BE PLACED NO CLOSER THAN 100mm FROM THE WALL.

AVOID PLACEMENT NEAR FLUORESCENT LIGHT FIXTURES. THE DETECTORS MUST BE INSTALLED AT LEAST 300–500mm AWAY FROM LIGHT FIXTURES.

PLACEMENT OF DETECTORS NEAR AIR-CONDITIONING/INCOMING AIR VENTS MUST BE AVOIDED. THE DETECTORS MUST BE INSTALLED NOT CLOSER THAN 1000m AWAY FROM THESE SYSTEMS.

IF IN DOUBT ASK



Proposed Typical Fire Detection Conduit Installation
(By Electrical Contractor)

(Note: Fire Detection Specialist to Liase with Electrical Contractor to ensure that all Conduits, Boxes, P8000 etc are provided for all Fire Detection Devices (i.e. detectors, alarm boxes, FACP etc to be installed). Electrical Contractor must confirm final position of conduit boxes in ceilings and walls with the Fire Detection Specialist prior to installation.

LEGEND

SYMBOL	DESCRIPTION
(SMOKE)	ADDRESSABLE SMOKE SENSOR DEVICES.
(HEAT)	ADDRESSABLE HEAT SENSOR DEVICES.
(SMOKE)	ADDRESSABLE CEILING VOID SMOKE SENSOR DEVICE WITH ADDRESSABLE EXTENDED CEILING LED.
	LINEAR BEAM (SMOKE / HEAT) DEVICE
	ADDRESSABLE FIRE CONTROL PANEL (2 - 4 LOOP PANELS) (INCORPORATING BREAK GLASS UNIT, BUZZER, SILENCE BUTTON & MIMIC PANEL)
	FIRE SUPPRESSION CONTROL PANEL.
1400 AFFL	ADDRESSABLE MANUAL CALL POINT (FLUSH MOUNTED AT 1400 AFFL).
	DUAL TONE ADDRESSABLE SOUNDER 65 db.
	DUAL TONE ADDRESSABLE HORN SOUNDER 104 db
	ADDRESSABLE FLASHING STROBE WARNING LIGHT.
(SMOKE)	DUAL TONE ADDRESSABLE SOUNDER ON COMMON BASE WITH ADDRESSABLE SMOKE SENSOR DEVICE.
	DUAL TONE ADDRESSABLE SOUNDER ON COMMON BASE WITH ADDRESSABLE FLASHING STROBE WARNING LIGHT.
	LINE ISOLATOR
DC (+750)	SOLENOID OPERATED DOOR RELEASE MECHANISM (MOUNTED AT 750 AFFL)
FRP	FIRE REPEATER PANEL
	FIRE ZONES
IP	INTER PHASE UNIT
AR	ADDRESSABLE RELAY MODULE
	REED SWITCH

NOTE:

FIRE DETECTION CONTRACTOR MADE ALLOWANCE FOR THE CONNECTION OF THE FOLLOWING SERVICES TO BE LINKED TO THE FIRE DETECTION SYSTEM FOR FIRE SIGNAL, NAMELY:-

1. ACCESS CONTROL SYSTEM (OVER-RIDE ALL ACCESS CONTROL DOORS IN CASE OF FIRE),
2. HVAC SYSTEM (CUT POWER SUPPLY TO ALL HVAC SYSTEM IN CASE OF FIRE) AND
3. FIRE SPRINKLER FLOW SWITCH (FIRE SPRINKLER SYSTEM MONITORING).

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.



REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	08/08/25	TW	ISSUED FOR INFORMATION
01	16/07/26	TW	ISSUED FOR INFORMATION

CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

FIRST FLOOR
EARLY WARNING DETECTION LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
11 Bonza Bay Rd,
Beacon Bay,
East London, 5241
E-Mail: office@rnaconsulteng.co.za
P.O. Box 12359
Amalinda, 5252
Tel: (043) 742 0041

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T. Warne

SCALE 1:50

DRAWN T. Warne

DATE 08/09/2025

PRINT DATE 08/09/2025

CHECKED BY: T. Warne

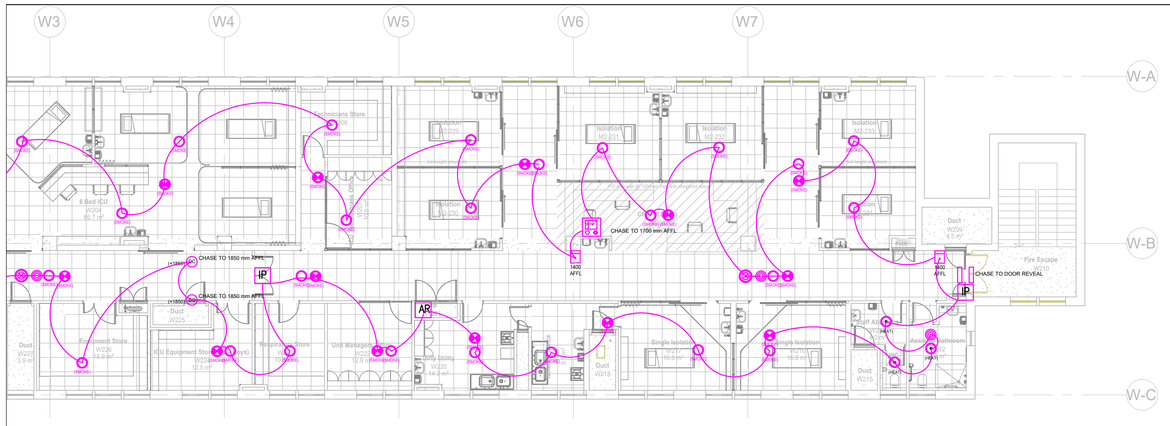
REGISTRATION No. 201770017

SIGNED.

ARCHITECTS DRAWING NO. -- REV No. --

DRAWING NO. 1710-C-M-101 EWD PEPH ICU

REV No. 01



EXISTING CATHLAB EWD INSTALLATION FOR INFORMATION: NTS

DETECTOR SPACING REQUIREMENTS:

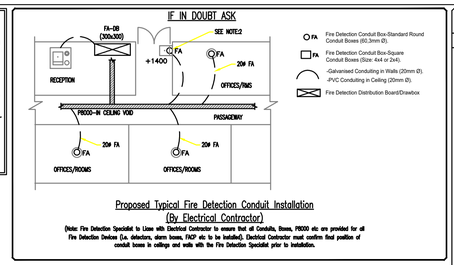
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IN GENERAL, WHERE ONLY ONE DETECTOR IS REQUIRED IN A ROOM, THE DETECTOR SHOULD BE PLACED AS CLOSE TO THE CENTRE OF THE CEILING AS POSSIBLE.

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PLACEMENT OF DETECTORS NEAR AIR-CONDITIONING/INCOMING AIR VENTS MUST BE AVOIDED. THE DETECTORS MUST BE INSTALLED NOT CLOSER THAN 1000m AWAY FROM THESE SYSTEMS.



Proposed Typical Fire Detection Conduit Installation (By Electrical Contractor)

Note: Fire Detection Specialist to Liase with Electrical Contractor to ensure that all Conduits, Boxes, PR0000 etc are provided for all Fire Detection Devices (i.e. detectors, alarm bases, FACP etc to be installed). Electrical Contractor must confirm final position of conduit boxes in ceilings and walls with the Fire Detection Specialist prior to installation.

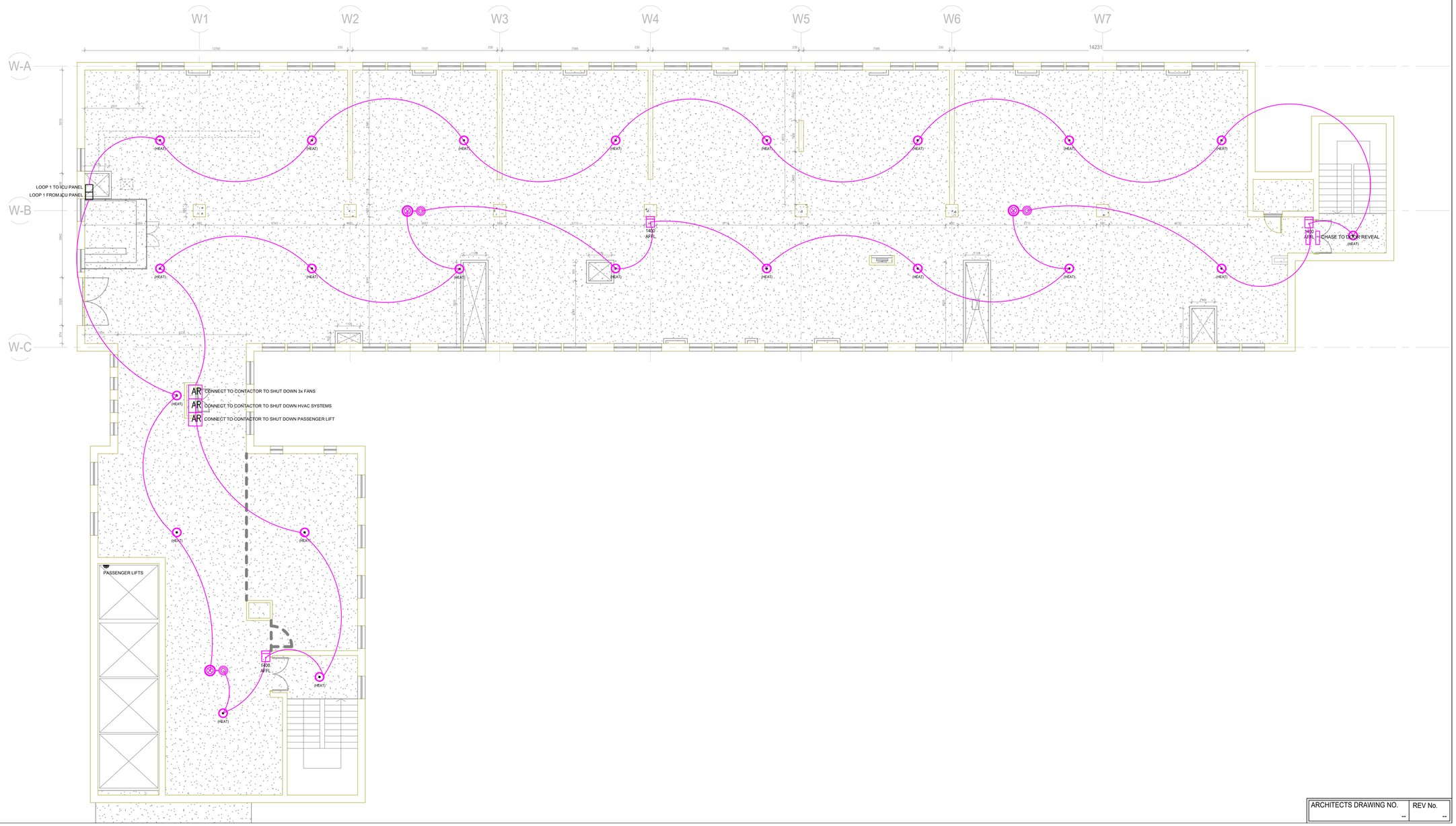
LEGEND

SYMBOL	DESCRIPTION
(SMOKE)	ADDRESSABLE SMOKE SENSOR DEVICES.
(HEAT)	ADDRESSABLE HEAT SENSOR DEVICES.
(SMOKE)	ADDRESSABLE CEILING VOID SMOKE SENSOR DEVICE WITH ADDRESSABLE EXTENDED CEILING LED.
	LINEAR BEAM (SMOKE / HEAT) DEVICE
	ADDRESSABLE FIRE CONTROL PANEL (2 - 4 LOOP PANELS) (INCORPORATING BREAK GLASS UNIT, BUZZER, SILENCE BUTTON & MIMIC PANEL)
	FIRE SUPPRESSION CONTROL PANEL.
1400 AFFL	ADDRESSABLE MANUAL CALL POINT (FLUSH MOUNTED AT 1400 AFFL).
	DUAL TONE ADDRESSABLE SOUNDER 65 db.
	DUAL TONE ADDRESSABLE HORN SOUNDER 104 db
	ADDRESSABLE FLASHING STROBE WARNING LIGHT.
(SMOKE)	DUAL TONE ADDRESSABLE SOUNDER ON COMMON BASE WITH ADDRESSABLE SMOKE SENSOR DEVICE.
	DUAL TONE ADDRESSABLE SOUNDER ON COMMON BASE WITH ADDRESSABLE FLASHING STROBE WARNING LIGHT.
	LINE ISOLATOR
(+750)	SOLENOID OPERATED DOOR RELEASE MECHANISM (MOUNTED AT 750 AFFL)
FRP	FIRE REPEATER PANEL
	FIRE ZONES
IP	INTER PHASE UNIT
AR	ADDRESSABLE RELAY MODULE
	REED SWITCH

NOTE:

FIRE DETECTION CONTRACTOR MADE ALLOWANCE FOR THE CONNECTION OF THE FOLLOWING SERVICES TO BE LINKED TO THE FIRE DETECTION SYSTEM FOR FIRE SIGNAL NAMELY:-

1. ACCESS CONTROL SYSTEM (OVERRIDE ALL ACCESS CONTROL DOORS IN CASE OF FIRE).
2. HVAC SYSTEMS (CUT POWER SUPPLY TO ALL HVAC SYSTEM IN CASE OF FIRE) AND
3. FIRE SPRINKLER FLOW SWITCH (FIRE SPRINKLER SYSTEM MONITORING).



GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE DETAILED SPECIFICATIONS.
2. DO NOT SCALE LENGTHS OF SLEEVE, CABLES ETC FROM DRAWINGS .
3. A COMPLETE SET OF DRAWINGS MUST BE AVAILABLE ON SITE AT ALL TIMES.
4. FOR WIRING CONDUCTOR SIZES, REFER TO DB SCHEMATIC DIAGRAMS.
5. CONDUITS TO BE INSTALLED IN STRAIGHT PARALLEL LINES IN CEILING VOIDS AND SADDLED AT EVERY TRUSS.
6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
7. NON-CORRODING DRAW WIRE / STRING TO BE INSTALLED IN ALL SPARE SLEEVES, TELEPHONE AND DATA CABLE CONDUITS AND SLEEVES.
8. DISCREPANCIES, ERRORS AND OMISSIONS ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THEY BECOME EVIDENT.
9. ALLOW 4 X 20mmØ & 4 x 25mmØ SPARE CONDUITS FROM EACH DB TO CEILING VOIDS. (FLUSH MOUNTED DB's)
10. IF NOT MEASURED IN THE BILL OF QUANTITIES, TELEPHONE AND DATA SOCKETS SHALL BE SUPPLIED AND INSTALLED BY OTHERS.
11. TELEPHONE AND DATA CONDUITS TO BE 25 Ø mm UNLESS INDICATED DIFFERENTLY ON DRAWINGS.
12. IF NOT INDICATED ON DRAWINGS, IN RADIO ROOMS, KITCHENS AND WORK AREA, POWER SKIRTING OR WIRING CHANNELS TO BE ABOVE WORK TOP OR 1200mm A.F.F.L.
13. CIRCUITING:
    - AC = AIR CONDITIONING
    - D = DEDICATED SSO
    - L = LIGHTING CIRCUIT
    - P = STANDARD SSO
    - XL = LIGHTING CIRCUIT ON STANDBY POWER
    - XP = STANDARD SSO ON STANDBY POWER
14. DB DUCTS TO HAVE RISING CABLE TRAYS AS FOLLOWS:
    - 1x300mm WIDE FOR TELEPHONE, DATA AND FIRE DETECTION CABLES.
    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.

REVISIONS

REV	DATE	INIT.	DESCRIPTION
00	08/08/25	TW	ISSUED FOR INFORMATION
01	16/07/26	TW	ISSUED FOR INFORMATION

CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

SERVICES FLOOR
EARLY WARNING DETECTION LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Wallmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
11 Bonza Bay Rd, Beacon Bay, East London, 5241
P.O. Box 12359, Amalinda, 5252
Tel: (043) 742 0041
E-Mail: office@rnaconsulteng.co.za

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T. Warne

SCALE: 1:50

DRAWN: T. Warne

DATE: 08/09/2025

PRINT DATE: 08/09/2025

CHECKED BY: T. Warne

REGISTRATION No. 201770017

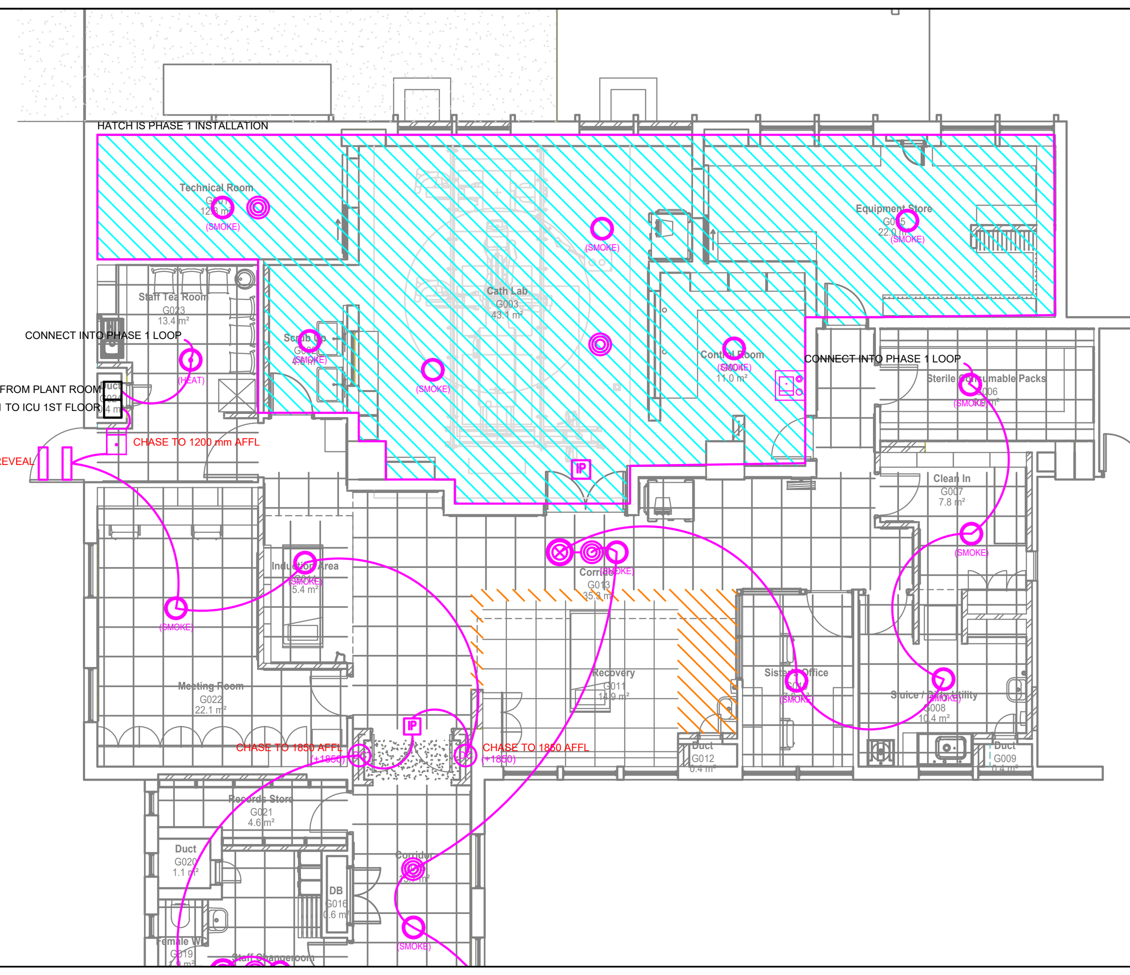
SIGNED.

ARCHITECTS DRAWING NO. --

REV No. --

DRAWING NO. 1710-C-M-102 EWD PEPH ICU

REV No. 01



EXISTING CATHLAB EWD INSTALLATION FOR INFORMATION: NTS

DETECTOR SPACING REQUIREMENTS:

POSITION OF DETECTORS AS SHOW ON DRAWING ARE FOR REFERENCE PURPOSES ONLY. FINAL POSITION OF DETECTORS ARE TO BE CONFIRMED ON SITE PRIOR TO INSTALLATION, ENSURING THAT ALL DETECTORS ARE NEATLY POSITIONED AND INSTALLED IN THE ROOMS (I.E. ASTHETICALLY CO-ORDINATED WITH ALL SERVICES). PLEASE TAKE THE FOLLOWING REQUIREMENTS/GUIDELINES INTO CONSIDERATION :

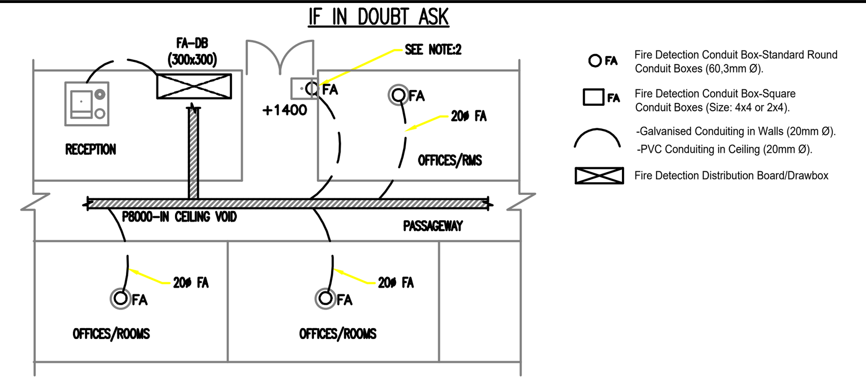
IN GENERAL, WHERE ONLY ONE DETECTOR IS REQUIRED IN A ROOM, THE DETECTOR SHOULD BE PLACED AS CLOSE TO THE CENTRE OF THE CEILING AS POSSIBLE.

IF A CENTRE LOCATION IS NOT POSSIBLE, IT MAY BE PLACED NO CLOSER THAN 100mm FROM THE WALL.

AVOID PLACEMENT NEAR FLUORESCENT LIGHT FIXTURES. THE DETECTORS MUST BE INSTALLED AT LEAST 300-500mm AWAY FROM LIGHT FIXTURES.

PLACEMENT OF DETECTORS NEAR AIR-CONDITIONING/INCOMING AIR VENTS MUST BE AVOIDED. THE DETECTORS MUST BE INSTALLED NOT CLOSER THAN 1000m AWAY FROM THESE SYSTEMS.

IF IN DOUBT ASK



Proposed Typical Fire Detection Conduit Installation
(By Electrical Contractor)

(Note: Fire Detection Specialist to Liase with Electrical Contractor to ensure that all Conduits, Boxes, P8000 etc are provided for all Fire Detection Devices (i.e. detectors, alarm boxes, FACP etc to be installed). Electrical Contractor must confirm final position of conduit boxes in ceilings and walls with the Fire Detection Specialist prior to installation.

LEGEND

SYMBOL	DESCRIPTION
(SMOKE)	ADDRESSABLE SMOKE SENSOR DEVICES.
(HEAT)	ADDRESSABLE HEAT SENSOR DEVICES.
(SMOKE)	ADDRESSABLE CEILING VOID SMOKE SENSOR DEVICE WITH ADDRESSABLE EXTENDED CEILING LED.
	LINEAR BEAM (SMOKE / HEAT) DEVICE
	ADDRESSABLE FIRE CONTROL PANEL (2 - 4 LOOP PANELS) (INCORPORATING BREAK GLASS UNIT, BUZZER, SILENCE BUTTON & MIMIC PANEL)
	FIRE SUPPRESSION CONTROL PANEL.
1400 AFFL	ADDRESSABLE MANUAL CALL POINT (FLUSH MOUNTED AT 1400 AFFL).
	DUAL TONE ADDRESSABLE SOUNDER 65 db.
	DUAL TONE ADDRESSABLE HORN SOUNDER 104 db
	ADDRESSABLE FLASHING STROBE WARNING LIGHT.
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	DUAL TONE ADDRESSABLE SOUNDER ON COMMON BASE WITH ADDRESSABLE FLASHING STROBE WARNING LIGHT.
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DC (+750)	SOLENOID OPERATED DOOR RELEASE MECHANISM (MOUNTED AT 750 AFFL)
FRP	FIRE REPEATER PANEL
	FIRE ZONES
IP	INTER PHASE UNIT
LR	LINE RELAY UNIT
	REED SWITCH

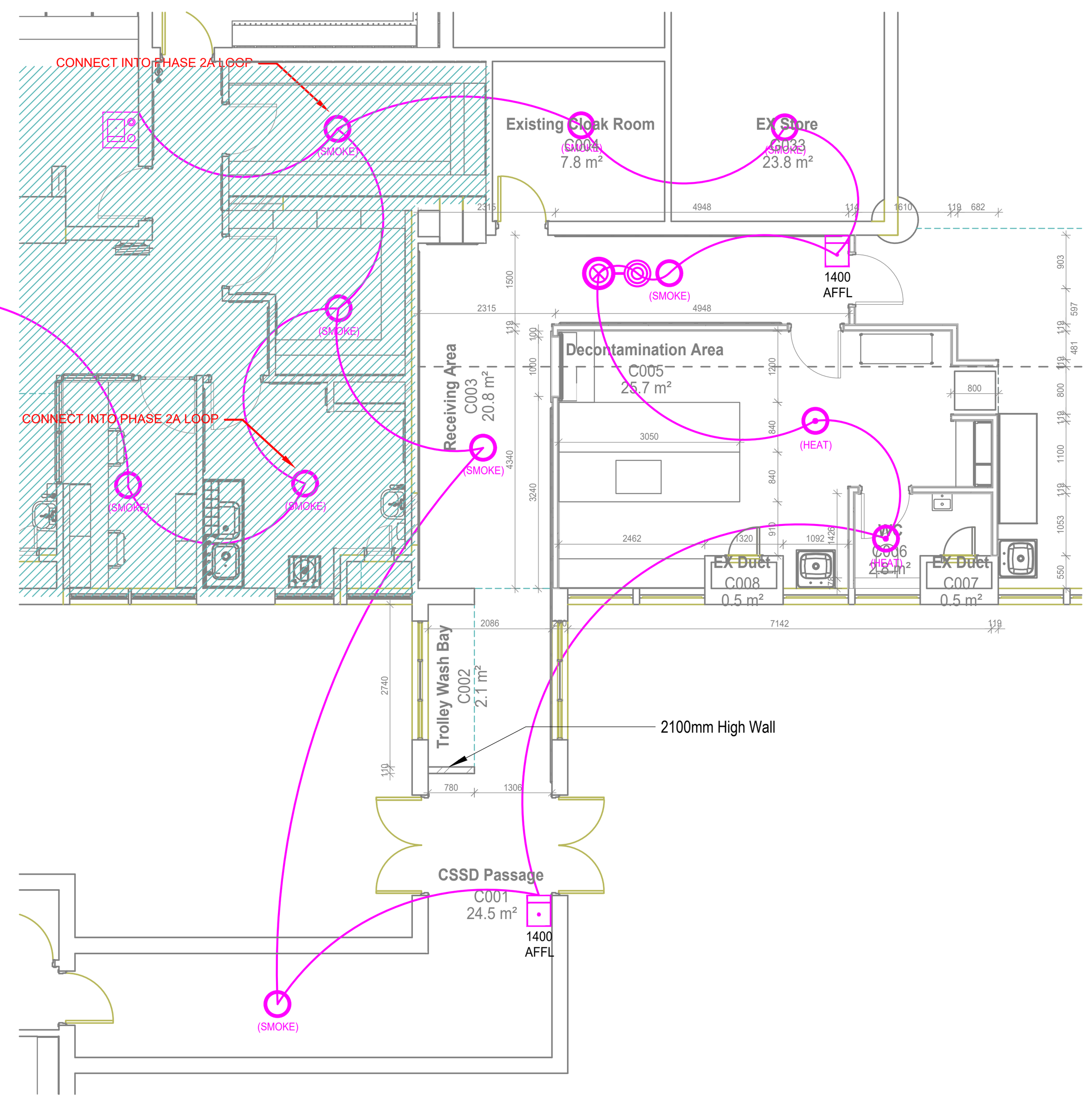
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2. HVAC SYSTEM (CUT POWER SUPPLY TO ALL HVAC SYSTEM IN CASE OF FIRE) AND
3. FIRE SPRINKLER FLOW SWITCH (FIRE SPRINKLER SYSTEM MONITORING).

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6. SEE DETAILED SPECIFICATION FOR MOUNTING HEIGHTS OF SWITCHES, SWITCH SOCKET OUTLETS, ETC.
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    - XP = STANDARD SSO ON STANDBY POWER
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    - 1x200mm WIDE FOR POWER CABLES (MINIMUM).
15. ALL SSO AND LIGHT SWITCHES TO BE LABELLED WITH CIRCUIT NUMBERS.
16. AC ISOLATORS TO BE INSTALLED ON THE RHS OF THE AC POSITIONS.



Instrument Washer Requirements:
(Getinge 46-4-402 Single door with drying)

650mm Wide
690mm Deep
1860mm High (including Dryer)

15mm CW connection
15mm HW connection

50mm Waste for water (machine has pump)
63mm Waste for air (exhaust at top of machine)

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	08-09-25	TW	ISSUED FOR CONSTRUCTION.
01	16/07/26	TW	ISSUED FOR INFORMATION

CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

CSSD P BLOCK
EARLY WARNING DETECTION LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
11 Bonza Bay Rd,
Beacon Bay,
East London, 5241
E-Mail: office@rnaconsulteng.co.za
P.O. Box 12359
Amalinda, 5252
Tel: (043) 742 0041

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T. Warne

SCALE 1:50

DRAWN T. Warne

DATE 08/09/2025

PRINT DATE 08/09/2025

CHECKED BY: T. Warne

REGISTRATION No. 201770017

SIGNED.

ARCHITECTS DRAWING NO. --

REV No. --

DRAWING NO. 1710-C-M-103 EWD PEPH CSSD

REV No. 01

SECTION 12

MEDICAL GAS INSTALLATION

SECTION 12. 1 SCOPE OF WORKS

EARLY WARNING SMOKE DETECTION EQUIPMENT INSTALLATIONS

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 MEDICAL GAS INSTALLATIONS

The work to be carried out and commissioned by a SAQCC Gas approved installer:

a. Installation of new medical gas:
   - Reticulation,
   - Area valve service units,
   - Pressure sensors,
   - Outlets:
     - Oxygen,
     - Vacuum,
     - Medical low-pressure air,
   - Connection to pendants (supplied by others)
   - Alarm panel,

b. Cut into existing hospital trunk main for supply to CICU,

c. Cleaning of existing medical gas piping to ASTM B819, internally and purged with nitrogen and external, respectively,

d. Testing and Commissioning, as per SANS regulations,

e. Manuals, Drawings, OEM Literature,

2.2 Existing

Hospital trunk main supply form basement to duct.

2.3 Order of The Works

As per the building contractors' program of works.

MEDICAL GAS EQUIPMENT INSTALLATIONS

1. INTRODUCTION

1.1 General

This specification contains standard technical requirements for medical gas and vacuum installations and anesthetic mask scavenging systems.

1.2 Project Specification

This standard specification and drawings will at times have to be read in conjunction with project specification and drawings in which the specific requirements, scope and layout of the installation are set out.

Where contradictions arise between such project specifications and drawings and this standard specification and standard drawings, the project drawings and project specification will take precedence.

1.3 Queries

Where queries or disputes in interpretation of this specification and standard drawings vis- à-vis project specifications and drawings arise, the matter must be referred to the Secretary for Health or his duly appointed representative, whose decision will be final and binding.

1.4 Competence of Installation Technicians

It is a requirement that all pipe fitters employed in medical gas and vacuum installations are able to show proof of knowledge of, and experience in such installations before commencing work on a medical gas and vacuum system.

1.5 Permit to Work

Prior to any person working on or isolating any medical gas system, a Permit to Work, as described below, and as per form B15, will be required.

1.5.1 General

The Permit to Work system is applicable to the servicing, repair, alteration and extension of existing installations within a Hospital, or any action, such as the closure of an isolating valve, which restricts the supply. This means that Permits shall also be obtained before any major item of central plant, e.g. manifold, control panel, compressor, or vacuum pump (including and standby plant), is isolated prior to servicing, repair or overhaul. The system is applicable to work on installations already in service.

1.5.2 Routine Changing of Cylinders

Permits are not necessary for the routine replacement of cylinders on manifolds nor for the recharging of liquid oxygen vessels, provided there is no danger of the supply being disrupted when these tasks are undertaken.

1.5.3 Planned Preventive Maintenance (PPM) Work

Permits will not be required for routine daily or weekly inspections (where the service is not interrupted), but follow-up work will usually involve the issue of a Permit.

1.5.4 Substantial Alterations, Extensions to, or Overhaul of Existing Installations

Work described on the Permit should normally be completed in one day, though provision is made for some carryover. Work likely to take more than one day may be initiated on the Permit, but should be carried out under normal procedures for engineering work of this nature and commissioned in accordance with the requirements of part 2 of this specification.

1.5.5 Capital Works

Capital works undertaken by the Province's Works Department and other similar new work should be connected to an existing system only after a break point has been established. The new capital work should be tested and commissioned in the normal manner as provided for in part 2 of this specification.

1.6 Standard Drawings

The standard drawings, listed below, available on request, here form part of this specification and must be read in conjunction with it: -

M040103	Typical Layout of Medical Gas and Vacuum Outlet Points at Bed Head
M040104	Vacuum Pipe Take-off Details
M040201	Diagrammatic Layout – Medical Compressed Air Piping and Equipment

1.7 Other Standards and Publications

The following publications must be read in conjunction with this specification: -

1.7.1 Occupation Health and Safety Act (Act No. 85 of 1994) As amended.

1.7.2 Standard Specification for Electrical Installations Pertaining to Mechanical Equipment.

1.7.3	SABS	099 – 1974	The construction of air receivers.
1.7.4	SABS	460 – 1975	Copper and copper alloy tubing.
1.7.5	SABS	763 – 1977	Hot-dip (galvanised) zinc coatings.
1.7.6	SABS	948 – 1978	Three phase induction motors part 1 low voltage standard motors.
1.7.7	SABS	1091 – 1975	National colour standard for paint.
1.7.8	SABS	1189 – 1978	Single phase induction motors.
1.7.9	SABS	1062 – 1985	Vacuum and pressure gauges.
1.7.10	SABS	1409 – 1986	Outlet sockets and probes for medical services used in hospitals.
1.7.11	SABS	0224	Non flammable medical gas pipeline systems.
1.7.12	SABS	0142	Wiring of Premises
1.7.13	CKS	64 – 1967	Compressed Air for breathing.
1.7.14	CKS	332 – 1977	Industrial V-belts.
1.7.15	CKS	605 – 1987	Medical gas regulators.
1.7.16	R158	Regulation	Hospital norms.

2. PROCEDURE FOR VALIDATION AND VERIFICATION OF MEDICAL GAS PIPELINE SYSTEMS

2.1 GENERAL

The following tests, as applicable, are required for any additional/modifications to piping. Tests are not required after servicing of or repairs to outlet points.

2.1.1 Important Notes - The system being tested may not be commissioned until all tests as specified have been satisfactorily completed.

2.1.2 The pre commissioning tests (i.e. Nº's 1 – 20) are to be executed/witnessed by: - a) the contractors authorised representative

b) the responsible competent person c) the project manager (if applicable) d) the consultant (if applicable)

2.1.3 The identity tests (i.e. Nºs 20 – 21) are to be executed/witnessed by the persons as listed in 2.1.2 above, plus: -

e) The responsible clinical technician f) Anesthetist/medical officer

2.1.4 It is incumbent upon the contractor executing the works to submit a written request for testing/commissioning to the project manager or competent person, at least 14 days prior to the proposed date. The project manager/competent person will then advise of all parties in writing of the confirmed date(s).

2.1.5 The contractor is to provide all necessary pressure testing equipment and gas. The Department of Health (CMTD) will provide the gas analyser.

2.1.6 The sequence of tests in this procedure is important and should be followed.

2.1.7 All tests will need to be planned and carried out by the appropriate persons. Forward planning will be necessary to ensure that the necessary persons and test equipment will be available.

2.1.8 Summaries of the tests required on the pipeline carcass and on the total pipeline system are given in Tables 1 and 2.

TABLE 1 SUMMARY OF TESTS REQUIRED ON PIPELINE CARCASS

Test Order	Description	Specification Clause	Form
1	Labelling and marking	2.2.1	B1
2	Sleeving and supports	2.2.2	B1
3	Leakage	2.2.3	B1
4	Cross-connection	2.2.4	B2

TABLE 2 SUMMARY OF TESTS REQUIRED ON PIPELINE SYSTEM

Test Order	Description	Specification Clause	Form
5	Leakage from total compressed system	2.3.1	B3
6	Leakage into total vacuum system	2.3.2	B4
7	Closure of Isolating Valves	2.3.3	B5
8	Zoning of Isolating Valves	2.3.3	B5
9	Cross-connection	2.3.4	B6
10	Flow and pressure drop at terminal units	2.3.5	B7
11	Mechanical function of terminal units	2.3.5	B7
12	Gas specificity of terminal units	2.3.5	B7
13	NIST connectors (Probes)	2.3.5	B7
14	Performance tests of the pipeline system	2.3.6	B8
15	Functional tests of supply system	2.3.7	B9
16	Pressure safety valves	2.3.8	B10
17	Warning systems	2.3.9	B11
18	Verification of drawings	2.3.10	B12
19	Filling with medical air	2.3.11	B14
20	Purging and filing with specific gases	2.3.12	B13
21	Gas identity	2.2.13	B14

2.2 TESTS ON THE PIPELINE CARCASS

2.2.1 Labelling and Marking

- Inspect each pipeline carcass to ensure that the pipelines are labelled in accordance with clause 12 and that the isolating valves are worked in accordance with clause 7 and that the terminal unit base blocks are marked in accordance with clause 6.4.

- If the labelling and marking I correct, complete Form B1.

2.2.2 Sleeving and Supports

- Inspect each pipeline carcass to ensure that the pipelines are sleeved and supported in accordance with the contract specification.

- If the sleeving and supports are correct, complete Form B1.

2.2.3 Leakage

- If it has been necessary to link the carcasses to form a single system for the purpose of this test, then care must be taken to ensure the links are removed. Alternatively, the test may be carried out on sections of the pipeline, provided no part of the pipeline is omitted.

2.2.3.1 General Conditions

- The pipeline should be completely installed and correctly supported. The base blocks of all terminal units should be fitted and blanked. Other devices such as safety valves or pressure sensors need not be fitted. All connection sockets for such devices should be blanked.

2.2.3.2 Procedure

- Connect a suitable pressure-measuring device to the pipeline. Fill the pipeline with test gas at the specified test pressure. Disconnect and remove the gas supply. Record the pipeline and room temperature initially and again at the end of the test period (24 hours).

2.2.3.3 Results

- The rate of pressure drop during the test should be less than 0.025% per hour, except for pressure changes due to temperature variations. The pressure change due to temperature variation is approximately 0.35% per ºC. Record the results on Form B1.

2.2.4 Cross Connection

- Any links between the systems should be removed before this test is carried out. All pipelines should be at atmospheric pressure and all isolating valves should be open. A single pressure source should be used and connected to one pipeline at a time. This should remain under pressure throughout the test. At least one base block on all other pipelines should be fully open.

2.2.4.1 Procedure

- Connect one pipeline to the pressure source. Check that no gas flows from the open base block on the other pipelines, which are not under pressure. Each terminal unit on the pipeline under test should be opened, checked for flow and then reblanked. When testing has been completed on one pipeline, the pressure source should be removed and that pipeline should be left open to atmosphere. Another pipeline should then be pressurised and the procedure repeated.

2.2.4.2 Results

- The contractor should record that satisfactory tests have been completed on Form B2.

2.3 TESTS ON THE PIPELINE SYSTEM

2.3.1 Leakage from Compressed Medical Gas Systems

- The leakage test described above should have been completed satisfactorily. All terminal unit valves and other devices such as safety valves and pressure sensors should be fitted. The supply system should be isolated from the pipeline. There should be no links between the pipeline systems. The test may be carried out on sections of each pipeline, provided no section is omitted. Different sections and pipelines may be tested at the same time.

2.3.1.1 Procedure

- Connect a suitable pressure-measuring device to the pipeline. Fill the pipeline (or section of pipeline) with test gas at pipeline distribution pressure. This filling procedure may also be used to measure the volume of the pipeline. Disconnect and remove the gas supply. Note the pressure and temperature initially and again at the end of the test period.

2.3.1.2 Results

- The rate of pressure drop during the test period should not exceed the value specified by the formula given in paragraph 2.2.3, after allowing for pressure changes due to temperature variation. Record the results on Form B3.

2.3.2 Leakage into Vacuum Systems

- The leakage test described above should have been completed satisfactorily. All terminal unit valves and other devices such as pressure sensors should be fitted. The vacuum supply should be connected to the system under test.

2.3.2.1 Procedure

- Connect a vacuum gauge to the system. Run the vacuum supply system to maintain pipeline distribution pressure until the pipeline system is dried out. With the system at pipeline distribution pressure, isolate the vacuum supply system. Note the vacuum initially and again after one hour.

2.3.2.2 Results

- Record the results on Form B4. The pressure increase after one hour should not exceed 10 kPa. There is no additional allowance for temperature variation in this test.

2.3.3 Closure and Zoning of Area Valve Service Units

- The test specified in paragraphs 2.2.1 – 2.3.2 must have been completed satisfactorily.

2.3.3.1 Procedure

The procedure for this test is as follows: -

a) connect a pressure-measuring device to the system. The system should be at pipeline distribution pressure, with all Area Valve Service Units (AVSU's) closed;

b) depressurise the pipeline downstream of the most remote valve from the source to 1 bar (g) pressure by opening a terminal unit valve. Close the terminal unit valve;

c) note the total number of terminal units controlled by the AVSU and check that these terminal units are correctly labelled and that they are all at the test pressure;

d) if necessary, re-adjust the test pressure to 1 bar (g). Read the pressure in the section under test and then read the pressure again after 15 minutes;

e) check the AVSU for leakage to the environment in both the closed and open positions.

2.3.3.2 Results

- Record the results on Form B5. There should be no pressure increase downstream of the valve under test.

- On each pipeline system, open the area valve service units in sequence towards the supply system repeating the above procedure.

2.3.4 Cross Connection

- These tests should be carried out on one pipeline at a time. All pipelines should be at atmospheric pressure and AVSUs should be open. A single pressure source should be used and connected to one pipeline at a time, which should remain under pressure throughout the test.

2.3.4.1 Procedure

The procedure is as follows: -

a) connect one pipeline to the pressure source at pipeline distribution pressure;

b) in order to depressurise the other system, insert an open probe into one terminal unit on each other system. Check that no gas flows from these probes (into or out of);

c) check that gas flows through every terminal unit of the pipeline under pressure;

d) check that there is no gas flow from any other terminal units when they are opened with the correct probes.

2.3.4.2 Results

- Record the results on Form B6 if there are no cross connections.

- Repeat the procedure described above on each pipeline in turn, including vacuum, preferably at one session. This test should be repeated in full if any subsequent modifications are made to the pipeline system during construction.

2.3.5 Functional Tests of Terminal Units

- These tests may be carried out at the same time as the cross connection test described above. In this case, only one system at a time is pressurised.

2.3.5.1 Procedure

The procedure is as follows: -

a) before commencing the tests, check that the test equipment meets the requirements given in Appendix C for the system under test. All terminal units should be complete with the fascia plate;

b) insert the test device described in Appendix C into each terminal unit in turn on the system under test. Note that the pressure drop at the specified flow does not exceed the value given in paragraph 2.2.3.3;

c) check that the gas specific probe can be inserted, captured and released and that it does not swivel in horizontally mounted terminal units;

d) check that no gas is released at each terminal unit by the probes for all other gases used and that no probes can be engaged;

e) check that all NIST connectors (probes) accept the NIST probe for the correct gas and that mechanical connection is made. Check that the NIST probes for all other gases do not make mechanical connection;

f) note that the NIST self sealing device functions correctly;

g) NISTs incorporated in certified assemblies do not need to be tested.

2.3.5.2 Results

- Record the results on Form B7.

2.3.6 Performance Tests of the Pipeline System

- These tests should be carried out on one system at a time.
- All AVSUs should be open. Connect a supply of test gas at the supply source of sufficient capacity to meet the total design flow of the system. The vacuum supply system may be used to test the vacuum pipeline system.

2.3.6.1 Procedure

The procedure is as follows: -

a) insert leaks into selected terminal units, AVSUs and NISTs as appropriate, throughout the system under test to provide a total flow equal to the total design flow of that system;

b) run the system so that the pressure/vacuum at the source meets the specification;

c) check the gauge pressure at the specified flow at selected terminal units throughout the system.

d) record the results on Form B8 if they are in accordance with the specifications;

e) remedial work may be needed if these specifications are not met.

2.3.7 Supply System Tests

2.3.7.1 General

- All supply systems should be installed and connected to normal and standby power supplies.

2.3.7.2 Procedure

The procedure is as follows: -

a) the functions and operating parameters of each item of plant should be checked;

b) the supply systems should be shown to operate on the essential power supply;

c) all pipe work joints should be tested for leakage at normal operating pressure;

d) the compressor plant should be tested for leaks during normal running. Minor leaks detectable as bubbles are acceptable.

2.3.7.3 Results

- It should be confirmed that the manufacturer's specification meets the requirements of the contract specification.
- Record the results on Form B9, if they are in accordance with the specific checklist.

2.3.8 Safety Valve Inspection

- Tests of safety valves are not required.

2.3.8.1 Procedure

The procedure is as follows: -

a) inspect each safety valve to check that the discharge capacity and the set pressure are in accordance with the contract specification;

b) check that the safety valves conform to BS6759: Part 2;

c) inspect the certification supplied with each valve.

2.3.8.2 Results

- Record the results on Form B10.

2.3.9 Warning System Tests

2.3.9.1 General

- The tests should be carried out for one function at a time on one system at a time.
- All alarm systems should be fully installed and in operation.

2.3.9.2 Procedure

The procedure is as follows: -

a) adjust the pressure in each pipeline system either locally or throughout the pipeline system;

b) observe that the appropriate changes in warning system conditions occur;

c) check that the warning system will operate from the essential power source.

2.3.9.3 Results

- Record the results on Form B11.

2.3.10 Verification of Drawings

2.3.10.1 Procedure

- Inspect the as fitted drawings, to ensure that all variations from the contract drawings have been recorded.

2.3.10.2 Results

- Record the results on Form B12.

2.3.11 Filling with Medical Air

- When an indefinite period may elapse before the system is taken into use, it should first be tested for particulate contamination, using medical air, as the test gas.

2.3.11.1 Procedure

- If the test is satisfactory, the system should be filled with medical air and left pressurised at pipeline distribution pressure.

2.3.11.2 Results

- If the results are satisfactory, they should be recorded on Form B14, which should be annotated to indicate that the system has been tested with medical air.

2.3.11.3 Special Connectors

- At the end of the contract period, the contractor should ensure that any special connectors are removed from site.

2.3.12 Purging and Filling with Specific Gas

2.3.12.1 General

The following should be carried out prior to purging and filling with the specific gas: - a)

all systems may be filled with their specific gases at the same time;

b) all previous tests should have been satisfactorily completed;

c) each pipeline system should be connected to its source of supply, with all AVSUs open;

d) all sources of test gas should be disconnected;

e) all special connectors and cylinders should be removed from site.

2.3.12.2 Procedure

The procedure is as follow: -

a) starting at atmospheric pressure (except for vacuum systems), fill each pipeline system to pipeline distribution pressure;

b) with the supply system on, purge each terminal unit with a known volume of gas at least equal to the volume of the pipeline being tested;

c) for vacuum systems, purging is not necessary;

d) leave each system at pipeline distribution pressure with the supply system connected.

2.3.12.3 Results

- Record on Form B13 that the systems have been filled.

2.3.13 Tests for Gas Identity

2.3.13.1 General

- All systems should preferably be tested at the same time. The previous tests must have been satisfactorily completed.

2.3.13.2 Procedure

- The tests should be carried out at all terminal units, using the medical gas analyser supplied by CMTD.

2.3.13.3 Results

- Record the results on Form B14.

2.3.14 System Taken into Use

When all the tests have been satisfactorily completed, the construction labels should be removed and the system may be taken into use.

3. MEDICAL GAS PIPING INSTALLATION

3.1 Quality of Medical Gas Piping

3.1.1 Medical Gas ('MG') tubing is designed to meet the stringent requirements laid down for the distribution of medical gases in hospital services. Two categories are recognized, viz: -

a) High pressure distribution; and b)

Low-pressure distribution.

Only 'MG' grade to be used.
The necessary of tube bore cleanliness cannot be over-emphasized.

3.1.2 Compliance with S.A.B.S. Specifications

All piping used for medical gas and vacuum installations must be of copper and in compliance with SABS 460 – 1975 (latest amendments).

All copper tubing must be in metric sizes and comply with the sizes as used for domestic plumbing services. "Half hard" piping is required up to 35mm outside diameter in straight lengths 5,5 or 3 metres long and hard drawn piping for all larger sizes in 5,5m straight lengths.

3.1.3 Physical Properties

3.1.3.1 High Pressure Applications

"Serpentines" may be in soft annealed copper coils. Manifolds shall be in hard drawn straight copper in exact lengths of 5,5 metres or 3 metres or as described in paragraph 3.7.

3.1.3.2 Low Pressure Applications

All tubes will normally be in the "half hard" condition as standard, up to 35mm outside diameter to facilitate bending but when specially needed and for larger sizes tubes can be specified to be in the hard drawn condition.

3.1.4 Freedom from Defects

Eddy current testing shall be carried out on all tubes to ensure freedom from physical defects as specified in ASTM Standard E243. Contractors may be required, at the discretion of the Secretary for Health, to obtain copies of documentation proving compliance with this requirement from the piping supplier.

3.1.5 Bore Cleanliness

3.1.5.1 General

All tubes shall be processed in such a manner that the bores are bright and clean. The use of carbon tetrachloride as a cleaning agent is not permissible. The measure of acceptable cleanliness shall be that specified in ASTM B.280. This requires that when the interior of a test sample of the tube is washed with trichloro-ethylene, or other solvent such as re- distilled chloroform or re-distilled trichloro-ethylene, the residue remaining upon evaporation of the solvent shall not exceed 0,0376 g/m2.

3.1.5.2 The following processes have to be undertaken on Medical Grade Copper Tubing before and after annealing at the manufacturer's premises.

a) Blowpipes clean with medically pure compressed air.

b) Use steam vapour aggravation next for cleaning inside of pipes. c)

Use a hot detergent for washing of the pipes internally.

d) Finally use a soft abrasive cleaning organic liquid. The final responsibility for ensuring that clean tubing is used in the installation rests with the Contractor. The above steps are required for all the tubing sizes in order to ensure compliance with paragraph 3.1.5.1.

3.1.6 Identification and Packing

3.1.6.1 Identification

All straight length tubes shall be identified by means of a continuous red line printed along the length of the tube, and shall have the ends protected with red plastic caps to prevent ingress of foreign matter during storage and transport.

All coiled tubes shall have their ends mechanically sealed and shall be marked M.G. All piping must be stored off the ground in a clean, safe area with the ends capped at all times.

3.1.6.2 Packaging

All straight length tubes shall be packed and delivered in timber cases of suitable size and capacity, normally half tonne (500kg) net.

All coiled tubes shall be packed in M.G. standard cardboard boxes and marked M.G.

3.2 Valves and Fittings

3.2.1 Valves

All valves are to be ball valves, with stainless steel bodies and balls and PTFE or Teflon seals.

They shall be suitable for a working pressure of 1000kPa gauge. Pipelines must be properly secured by holder bats in close proximity to the and on either side of each valve.

Valves shall be fitted into the pipeline by means of capillary hard soldered joints containing silver (see paragraph 3.3).

All types of valves tendered for shall be submitted for approval to the Secretary of Health prior to installation. The valve handle shall be the same colour as allocated to the gas.

3.2.2 Fittings

Bends and tees must be of wrought copper capillary fittings with internal stops.

Note that where pipe bends of a radius greater than 5 pipe diameters are required the tubing may be bent, provided that no flattening or thinning of the tube occurs at any point.

Bends in Class 2 tubing shall be free from flattening, buckling or thinning of the tube wall at any point. Form bends are permissible up to 28mm diameter. Elbow type fittings shall not be used unless for special purposes specified in the project specification.

Note further that makeshift methods of forming reducers, tees, joints, etc. Such as butt brazing of piping will under no circumstances be acceptable.

All clean and degreased valves and fittings shall be supplied to site in individual heat sealed plastic bags, which may only be opened just prior to installation.

3.3 Pipe Joints

Only capillary hard solder fittings for M.G. copper classes 0 and 2 tubing, shall be used up to 28mm outside diameter. Class 0 to be utilised in all larger sizes. The fittings shall be degreased similar to the Medical grade copper tubing.

Medical grade copper tubes joined by means of capillary fittings shall be jointed with hard solder with working temperatures between 600ºC and 700º, using: -

a) Self fluxing copper/phosphorous 7% minimum silver rod, as Afrox Silfos 15, or other approved.

b) When using self-fluxing hard solder, care must be taken to ensure that the joint is not overheated.

Alcohol or borax based mixtures or resin and similar paste fluxes may under no circumstances be used.

All screw joints must be sealed by tinning the male thread with soft solder.

3.4 Pipe Sizing and Routing

3.4.1 General

Special provision may be made in the building for holes through, and chases in the walls for piping by the building contractor, but all sleeves, brackets and fixings must be done in terms of the medical gas contract. Where the builder is to do the chasing, it will be the responsibility of the Medical Gas and Vacuum Contractor to point out to the builder in good time the exact position and size of openings and chases. The Medical Gas Contractor will beheld responsible at al times for the final positioning of outlets and conduits.

3.4.2 Pipe Sizing

The size of pipes for main runs and branch lines are as shown on the project drawings. The gas flow rates in MG piping must be as per the guidelines laid down by the U.K. Department of Health and Social Security in Hospital Technical Memorandum No. 22 and SABS 051. When ring mains are used these sizes can be reduced. Terminal connections to all outlet points, except as shown otherwise, may not be less than 10mm OD for oxygen, 12mm for vacuum and scavenge piping and 6mm for nitrous oxide.

3.4.3 Pipe Routes

Both horizontal and vertical pipe runs shall conform to the following sequence. From top to bottom and from left to right as appropriate. Oxygen, Nitrous Oxide, Vacuum, Low Pressure Air, High Pressure Compressed Air and Scavenging.

Horizontal pipe runs shall whenever possible not be lower than 2400mm above the floor level, unless they are suitably protected and accessible for maintenance staff.

Wherever practicable piping is to run on external walls below the eaves.

3.4.4 Wall Outlet Points

All wall outlet points shall be positioned 1,5m above finished floor level, the position in the room being shown on the project drawings.

3.5 Pipe Supports

Pipe runs in roof spaces, covered ways, under eaves and on the outside of buildings, i.e. where not in a space normally inhabited, shall be secured with “Fischer” clips. Other types of holder batts, which Tenderers may wish to offer, must first received the approval of the Secretary for Health. In all cases dissimilar metals must be isolated.

The centre distance of supports shall not exceed the following up to and including: - Up to

10mm outside diameter pipe	-	1,00m
12 to 15mm outside diameter pipe	-	1,25m
22mm outside diameter pipe	-	1,80m
28mm outside diameter pipe	-	2,5m
35 to 76mm	-	see project design drawings

It is required that piping be run in support trays except when mounted against a wall. Unistrut P4000

or equal approved supports shall be used for this duty. The support shall be fixed to the structure by means of at least two suitable brackets, expanding and/or fixing bolts. The pipes shall be fixed to the support by means of P1108 – 2025 series clamps or equal.

3.6 Protection of Piping

Where pipes are to be hidden (i.e. buried in walls or structures) they shall run in conduit or other suitable hard protective piping, or run in metal channels built in and flush with the finished wall surface, with suitable covers painted to match the wall finish.

Where pipes are to be run in a location where they may be damaged by trolleys, stretchers or similar mobile equipment, or where they may be interfered with by the general public or other unauthorized person, they shall be protected by encasement in pies or metal channels up to a heights of 2m. The route of the pipes shall be so selected that they are out of the reach of traffic and the general public.

Piping in ducts, roof spaces or above suspended ceilings shall be laid in Admiralty type cable trays. These cable trays must wherever possible be installed 150mm clear of any other piping or conduits run in the same roof space, unless otherwise authorized by the Secretary for Health.

All pipes in operating theatres shall be concealed or built in. Surface mounting in existing buildings will be considered in all other areas if sanctioned by the Secretary for Health.

Where the pipes pass through walls and ceilings, etc., they shall be sleeved and provided with wall plates, which shall be rust free and painted to match the general wall finish. Where several pipes, of different diameter are surface mounted side by side, the saddle centre distance appropriate for the smallest diameter pipe shall also be used for the larger pipes.

3.7 Brackets

Pipe support brackets and clamps shall be hot-dip galvanised to SABS 763.

4. CYLINDER GAS BANK MANIFOLDS AND PLANT

4.1 General

The central gas bank shall comprise two banks of gas cylinders main and reserve, connected to a manifold. Both main and reserve banks shall be connected to the system, in such a way that only one bank will supply the system at any one time.

When the operating bank becomes depleted or should the supply pressure fall, the reserve bank shall automatically come into use and the depleted bank shall be shut off. Electrically operated changeover panels are not acceptable.

All gas cylinder manifolds shall be of the duplex type with semi-automatic change over from one bank to the other and at the same time actuating the warning system.

Each bank shall supply the system through its own pressure reducer. A master pressure reducer shall ensure the correct line pressure no matter which bank is in operation. Each pressure reducer shall be fitted with a safety valve set to operate at 1 ½ times the working pressure and be vented to atmosphere.

The gas cylinder banks shall be placed in rooms indicated on the drawings and shall be of the capacities indicated in the project specification. On site manufacture of manifolds is not permitted. Oxygen and compressed air banks must preferably be in separate rooms, in order to avoid mixing of cylinders as these cylinders have identical bull-nose outlets.

Pressure gauges indicating the cylinder and supply line pressures shall be incorporated in the manifold and on al pressure reducers.

A service point (i.e. a medical gas outlet) shall be connected into the man line from each pressurized gas line in the plant room immediately after the main line valve. The service point height shall be about 1,5 meters above the finished floor level.

4.2 Manifold Materials

The fittings used to make up the manifold shall be forged bronze while the tubing shall be of heavy gauge copper. Pigtails shall be of annealed copper. All the high-pressure side equipment of the manifold shall withstand a test pressure of 40000kPa gauge.

Piping used in the manufacture of manifolds must be of medical grade piping and subject to the same cleaning procedures as for piping used in the gas reticulation (see paragraph 2.1.5).

Pressure test certificates must be supplied with all manifolds.

4.3 Manifold Equipment

The manifolds shall accommodate the number of cylinders specified and shall be arranged as shown on the drawings. Pigtails for connecting the manifold to the cylinders shall be long and flexible enough to allow easy connection to the cylinders without having to strain the tube. Each outlet for connecting the manifold to the pigtail shall have a header valve. Pigtails shall be connected to these valves with high-pressure gas connections and shall have standard bull-nose cylinder valve connections for cylinder coupling.

The regulator assembly, which shall operate on the semi-automatic changeover system, shall be as shown on the main drawings and shall include: -

i) Two pressure regulators set at 600 kPa gauge.

ii) Two pressure regulators set at 400 kPa for oxygen, nitrous oxide and compressed air manifolds.

The gas main diagrams show the position of pressure gauges. At least five pressure gauges must be installed: -

i) one high pressure gauge for each bank;

ii) one pressure gauge for each bank to indicate the intermediate pressure;

and

iii) one pressure gauge to indicate the low pressure on the distribution system.

All pressure gauges shall have a maximum reading of not more than twice normal working pressure.

A stop valve shall be provided on the low pressure outlet side of each regulator. The whole manifold regulator assembly etc., shall be securely bolted to a channel iron frame or directly to the wall and shall not be enclosed.

All piping must be surface mounted on the front of the frame. All new or replacement changeover panels are to be as “Afrox GPA Standard” or other approved.

All gas cylinders shall stand against a rack with individual safety chains (approximately 20 x 14 x 4mm diameter) for each cylinder to prevent these from falling over. These shall encircle the cylinders at about 2/3 of their height. Safety chains shall be secured with eye bolts and shall have a deep hood on the other end.

Safety valves shall be fitted after all pressure reducing stations, set as i) paragraph 4.7. Safety

and pressure reducing valve capacities shall be confirmed by means of manufacturer’s graphs, which are to be supplied by the contractor.

4.4 Cleaning

After assembly, the manifold, header, fittings and connections shall be blown out with medical compressed air and cleaned as specified in paragraph 3.1.5.2. A brass or copper plate shall be mounted on the manifold, stating test pressure, date of manufacture and manufacturer’s name.

A certificate shall be submitted to the Secretary for Health to this effect by the Testing Authority as outlined in paragraph 2.

4.5 Operating Instructions

Detailed, clearly printed instructions on how to operate the manifold and including any drawings, which may be necessary, shall be provided by the contractor. These shall be mounted in glass fronted frames fixed to the wall above the manifold by the contractor.

4.6 Accommodation

The accommodation required for the medical gas installation is as follows: -

i) A machine room for the medical air compressor, vacuum and scavenging units. ii) A gas bank room, or partitioned area, for oxygen and nitrous oxide cylinders.
iii) A separate partitioned area for each of medical compressed air and each other medical gas that may be required.
iv) An empty gas cylinder store. v)
A full cylinder gas store.

Note that all plant room doors must be fully louvred with aluminium Trox (or other approved) weather louvres, complete with approximately 15 x 15mm bird screening.

Conveyor type rubber belting is required on floors where full or empty gas bottles are to be stored or connected to manifolds as well as at gas bottle off-loading points.

4.7 Safety and Relief Valve Settings

Safety valve and alarm settings shall be as per Figure 1 below (as per SABS 0224 – 1990)

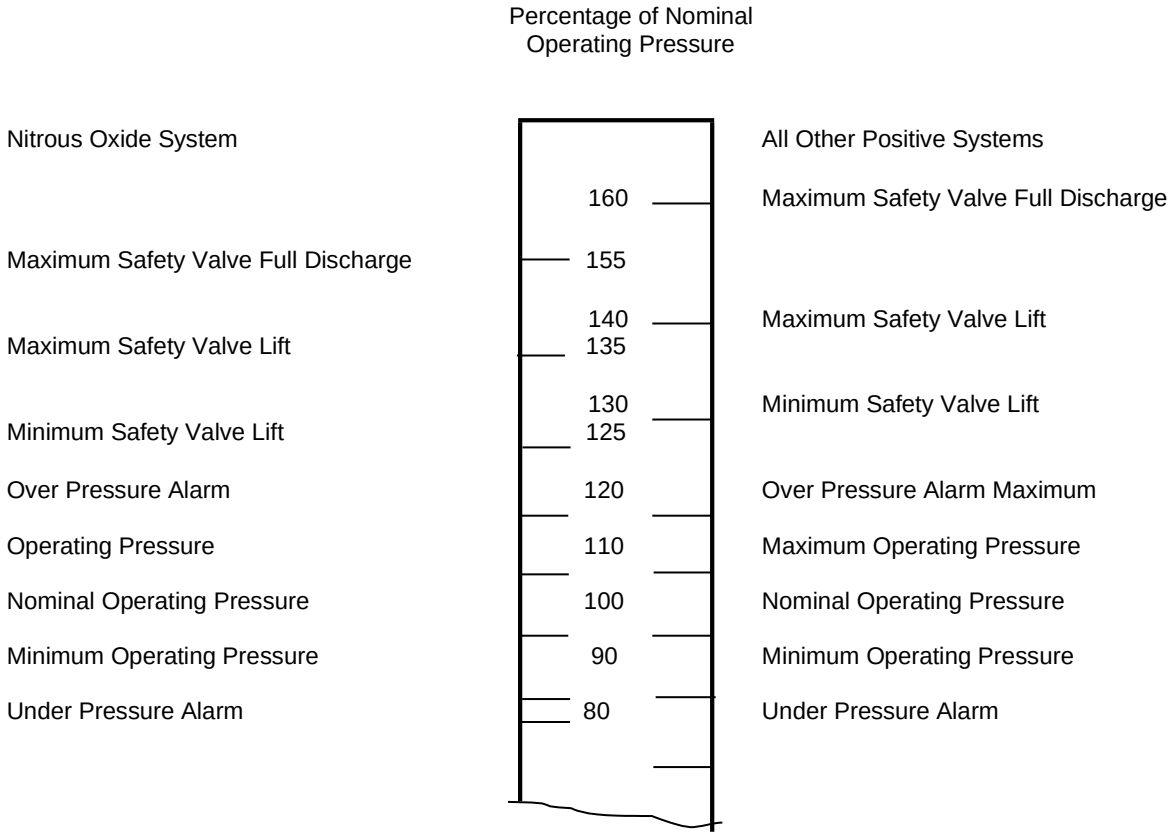


Figure 1 – Pressure Safety Valve and Alarm Pressure Settings

Note that safety valve exhaust piping is not required – the valve may vent into the plant room.

5. MEDICAL GAS WARNING SYSTEM

5.1 General

Visual and audible alarms will be a part of the medical gas system. The main function will be to indicate a malfunction as detailed in the warning light system described below.

A green light will indicate power continuity for the system. A “fault” on the banks for each “gas” shall be indicated by means of two RED lights, i.e. one for the left bank and one for the right. When a “fault” condition occurs, a RED light will come on and indicate whether the left or right bank is “faulty”, i.e. when pressure has fallen in that bank. The light indicating the fault will remain on until such time as the “fault” condition has been rectified, i.e. a depleted bank has been replaced with a fresh supply of full cylinders.

Simultaneously with the above light indication, an alarm, which may be a buzzer or siren, will sound at the slave alarm panel only. The alarm can be muted at the slave indicating alarm panel in the appropriate area, but must recur at fixed time intervals until the fault is rectified.

A slave indicating alarm panel shall be placed in an area, which is manned 24 hours a day. The position of this panel will be dictated by local conditions as specified in the project specification and drawings.

These areas are as follows: - i)

Reception Centre.

ii) Casualty and Main Theatre. iii)

Maternity Section.

5.1.1 Power Supply for Indicating Lights

The indicating lights shall be served by a 24 V DC supply and shall not have relays to actuate them. The system shall employ solid state circuitry. The cable shall be laid in trays reserved for medical gas installation and then fixed by means of saddles of an approved type, at one metre centres. A single phase 15 amp switch socket supply point shall be provided adjacent to the alarm panel, connected directly to the distribution board on a separate circuit by an electrical contractor.

6. MEDICAL GAS OUTLETS

All wall outlets shall be positioned 1,5m above floor level in positions shown on the drawings. Where

extensions are being carried out to existing hospital layouts, it is essential that the medical gas outlets are identical to those already in use. Fittings and outlets from the same supplier shall be used throughout the entire hospital.

Outlet points on all new hospital installations shall be flush mounted, non-protruding, quick coupling, self-isolating types with safety keyed connections, similar or equal to Heyer outlets to the configurations outlined in S.A.B.S. Specification 1409 – 1986 (outlet sockets and probes for medical gas and vacuum services used in Hospitals).

The probes must be marked the same colour as the cover plate. For new installations in existing hospitals where surface mounting of tubing and fittings is specified, outlet points shall be as above and be of the surface mounted type. The use of check valves incorporated in the outlet point is optional and depends on the project.

6.1 Indexing

The medical gas outlets and probes shall be indexed and mated such that under no circumstances can anything but the correct probe be inserted into the appropriate gas outlet valve; for example, it shall not be possible to insert a N2O probe in an oxygen outlet or vice versa. The probes and outlets shall also be correctly identified. This shall be achieved by easily distinguishable shapes of probes and outlets and by permanent colouring of the probes and outlets. The outlets and probes must be as per the above S.A.B.S Specification.

6.2 Grouping

Each probe shall have permanently and clearly engraved upon it, the identification of the service, e.g. O2, N2O, Vac, Air and HP Air.

When a group of outlets are installed adjacent to each other the order from left to right as given above, shall always be followed. The outlets shall be such that the valve mechanism is easily accessible for maintenance purposes without having to unsolder pipe connections or break into the wall etc. Outlets shall receive the approval of the Secretary for Health, before installation.

Probes used in outlets under pressure shall have unidirectional flow.

6.3 Cover Plates

Each outlet shall have permanently and clearly engraved on the cover plate: - The full

word **Oxygen**

The full word **Nitrous Oxide**

The full word **Vacuum**

The full word **Air Low Pressure**

The full word **Air High Pressure**

Cover plates may be constructed of laminated glass fiber reinforced with resin and with silk-screen printed transfer laid in between.

6.4 Labelling

Each medical gas outlet is to be labeled with a 30 x 10 x 4mm thick plastic label, screwed or pop-rivetted to the outlet / or wall/ trunking immediately adjacent to the point. The label is to be the colour as per the gas (see colour coding item 12.).

For any new or replacement installation the Project Manager is to supply in writing for numbers from the Department of Health Head Office : Facilities Management, with full details of, and the locations of each outlet. Similarly, any redundant points are to be listed.

7. ISOLATING VALVES

7.1 Isolating valve cabinets shall be installed wherever shown on the drawings. They shall be of a size equal to that indicated for the pipeline in which they will be installed and shall be full bore. All valves except those mounted in the gas bank room or above suspended ceiling panels shall be housed as described in paragraph 5.3.

All isolating valves for gases and vacuum must be as specified in paragraph 3.2.1.

7.2 Positioning of Isolating Valves – Main and Branch Lines

Isolating valves serving outlets, which are located either singly or in groups, shall be placed in the same area as the outlet or outlets they are intended to serve and on the same floor. They shall not be placed in the roof or inaccessible spaces but high up on the wall under the ceiling where they can be reached by skilled maintenance staff. Where suspended ceilings are installed, the valves may be installed above the ceiling, and the
applicable panel is to be marked “Medical Gas Isolating Valves Behind this Panel”. In such cases, valve boxes are not required. A vacuum bottle trap is to be installed with each set
of valves.

7.3 Isolating Valve Boxes

7.3.1 General

The design of the valve boxes shall be similar to the distribution board used for electrical distribution in buildings, and shall be complete with architrave frame and flush piano- hinged door with catch. The valve boxes shall be large enough to accommodate the number of isolating valves, which shall serve the branch lines shown on the drawings.

Reference must be made to drawing number M040301.

Where surface mounted pipelines are specified, valve boxes shall be of the surface mounted type and the complete box is to be painted white. The box is to be butted up to the ceiling.

In the case of ceiling mounted valve boxes the frame shall be suspended from the concrete ceiling or roof timbers by adjustable hangers designed to suit the installation and which allows the frame to sit neatly and securely against the underside of the false ceiling or ceiling panel.

Valves boxes mounted in ceiling voids must in addition be locked with brass padlocks. All locks a particular installation must be keyed alike; keys must be handed to the Department’s Representative at the time of first delivery.

7.3.2 Valve Boxes – Paint Finish

All metal parts shall be degreased, rinsed, pickled, rinsed, phosphate, neutralized and then thoroughly dried. This process shall be followed up within 48 hours by white epoxy coating or one layer of a high quality zinc chromate primer, followed by two coats of good quality white alkyd based enamel. The minimum film thickness of the paint shall not be less than 63 micrometer.

Care shall be taken that all edges are properly covered by paint.

Paint used on boxes shall have an impact resistance of 2,20 J on 0,9mm mild steel plate and a scratch resistance of 2000g.

7.4 Valve Boxes – Markings

An engraved nameplate shall be fitted to the door of each valve box to read as follows: -

AUTHORISED PERSONS ONLY
MEDICAL GAS
ISOLATING VALVES
DO NOT CLOSE

Engraved isoprene nameplates shall be provided inside the cabinet to identify each valve. Each valve shall be painted according to the colour(s) specified in the colour code, paragraph 11. A notice indicating the room(s) fed shall be fixed inside each box. Room identification is to be obtained from the Architect and shall be by means of room number only – descriptive terms shall not be used. Valves boxes shall be installed as described in paragraph 5.3.1. Valve boxes and control cabinet doors shall have handles incorporating a mechanical door catch. Control cabinets and valve boxes shall be lockable with an electrical panel type square key. All isolating valves shall be Clearly and permanently labeled indicating the area served. This labelling shall be done by the Medical Gas Contractor.

8. MEDICAL COMPRESSED AIR

8.1 Required Pressures

There are two systems of medically pure compressed air in general use. System A which is to supply air to operating theatres for use on surgical instruments and System B, which is to supply air for respiratory purposes to wards and theatres.

System A units shall be High Pressure Air, regulated between 700 kPa and 800 kPa gauge and System B shall for Low Pressure Air, regulated at 400 kPa gauge.

8.2 Piping System

The medical compressed air system, so far as pipe runs, outlets, etc. are concerned, shall be as specified in the Project Specification. Pipes shall be of medical grade copper as specified in paragraph 2.1 above.

The air shall be free from oil moisture and bacteria. The pressure requirements for respiratory purposes are for use either as a driving gas for respiratory machines, or for air/oxygen mixing. The medical gas keyed probes shall be in accordance with S.A.B.S. 1409 – 1986 (Outlets Sockets and Probes for Medical Services used in Hospitals).

The medical compressed air shall be dried by bacterial filtration desiccant driers and refrigerated air driers as detailed in the Project Specification.

Starting at the plant room and immediately after the compressor, receiver, driers, filters, etc., the supply line shall be split and pressure reducing valves installed in each leg to produce the required pressure for the low pressure supply lines system B and high pressure lines system A. the pipelines shall each have relief valves to prevent excess pressure build-up in case of regulator failure.

Reference must be made to drawing number M040201.

8.3 Medical Air Compressors and Filtration

The compressor and filtration system to be used shall produce medically pure “oil free”, “moisture free” and “bacteria free” air (reference must be made to the Project Specification).

All air compressors shall be of air-cooled Stop – Start controlled type. Where a type A installation is required it shall be rated at 1000 kPa gauge working pressure. Units may be two stage compression type. Where a type B installation is specified it shall be rated at 700 kPa gauge working pressure. The output of the compressor and all other requirements shall be as specified in the Project Specification.

8.4 Compressed Air Receivers

The size of the air receiver will be given in the Project Specification. Two receivers are required. The receiver shall be of welded construction with dished ends, tested and stamped by an Independent Inspection Authority in terms of the Occupational Health and Safety (as amended) as stated in paragraph 1.6 of this specification.

It shall be fitted with a safety valve set at 70 kPa above the cutout point of the mercury control switch and a 75mm diameter dial pressure gauge with gauge cook. The working pressure shall be marked in red. The receiver shall be galvanised internally and externally. The tank shall be painted with a suitable metal primer undercoat and final enamel coat, colour White with Salmon Pink (A40) colour to S.A.B.S. 1091. The pipe connections to the receiver shall be fitted with sufficient loops and/or offsets to render them sufficiently resilient to absorb vibration.

8.5 Pressure Reducing Valves

There shall be two adequately sized pressure reducers in the supply line after the filters, which shall maintain a constant pressure in the line of 800 kPa gauge or 400 kPa gauge for system A and B respectively. The pressure reducer shall be such that it is possible to adjust the pressure by at least 140 kPa each way when required.

Pressure reducing valve stations shall be fitted with pressure gauges having dials of not less than 100mm diameter. The gauges are to be marked with red lines at the maximum pressure (on the face).

Manufacturer's flow charts must be supplied with the regulators.

8.6 Drives

The drives to be as per the Project Specification.

8.7 Bases

When erected on existing concrete floors, bases for mounting compressor units shall consist of a top reinforced concrete slab at least 75mm thick, preferably with a 40mm angle iron frame to form the top edges, trowelled to a smooth finish and coloured to suit the plant room floor with golden yellow/black diagonal stripes on all vertical edges. The compressor unit shall be mounted on anti-vibration mountings.

For new installations reference must be made to standard drawing M040401.

8.8 Emergency Cylinder Bank for Compressed Air

If required in terms of the Project Specification, an emergency stand-by cylinder bank shall be provided, using a Standard Manifold, as specified in paragraph 3.1. A back-up capable of 12 hour storage to the low pressure supply shall be supplied to operate in the event of a primary system failure.

8.9 Stand-By Facility

The compressor unit together with the entire medical gas and vacuum system shall be connected to the Hospital stand-by electrical power.

8.10 Medical Air Purity

The degree of purity of air to be achieved shall be in accordance with CKS 64.

8.11 Noise Level (For Compressed Air and Vacuum Plant)

The sound level shall be that portion of the sound spectrum attributable to the operation of the plant and shall not be objectionable in any of the wards, treatment areas, theatres, or any other occupied area of the Hospital.

9. VACUUM SYSTEMS

9.1 General

The vacuum shall be provided by two vacuum pumps driven by electric motors, with receiver and one set of controls. The pumps shall be of the reciprocating type, silent running, suitable for the purpose and be of a capacity as stated in the project specification. The vacuum shall not rise above 50 kPa absolute when the system is in full operation. The vacuum pump's electric motors shall be connected to the standby generator.

9.2 Operating Range

The pumps must each be capable of maintaining a vacuum of 60% of peak demand and will normally cycle between the range 20 kPa absolute maximum and 50 kPa absolute minimum. Diversity factors in accordance with good standard practice shall be applied in the sizing of the vacuum pump and piping.

A terminal point flow rate of 15 litres per minute with a diversity factor, varying from 20% to 100%, can be used for pipe sizing, depending on the location of the Hospital.

9.3 Installation

If required, the vacuum pump shall be fitted with a silencer of the expansion vessel type. The

vacuum pump shall be mounted as specified in paragraph 8.7. The pipe connections to the receiver shall be resilient. A bacterial filter is not required.

9.4 Pipe Connections to Vacuum Receiver and Distribution Network

The connections to the piping system shall be below the outlet of the receiver and placed on the side of the receiver. A test cock shall be provided on the receiver so that vacuum pump controls can be checked.

9.5 Vacuum Plant

The pumps must be suitable for drawing a vacuum down to 20 kPa absolute (-80 kPa gauge) and of a capacity as specified in the project specification.

The vacuum pumps must be air-cooled. A soft seated check valve shall be fitted in the line between the pump and the vacuum tank to prevent the possibility of leak back through the pump when not running. Exhaust gases shall be safely piped to the outside of the building and above the nearest adjacent building and away from any air intakes (not less than 6m).

9.6 Vacuum Tank

The vacuum tank, of the capacity specified in the project specification shall be of all welded construction and equipped with pump connections at the top. The tank shall be painted with a suitable metal primer, under coast and in all enamel coat in a yellow colour to S.A.B.S. 1091 colour number C67. The tank shall be fitted with a 100 kPa rupture disc in place of a safety valve.

9.7 Vacuum Bottle Traps

These shall be of the Afrox single valve, or other approved, type. Bottle traps are to be located in visible positions in service areas, as close as possible to the area(s) being served.

10. SCAVENGING SYSTEMS (Low Vacuum High Volume)

10.1 General

Exhalation of anesthetic gases from closed circuit absorbers, respirators and any anesthetic equipment shall be subjected to a separate suction system which shall remove the anesthetic gases and exhaled air to the outside of the building, released in such a position so as to avoid re-contamination through recirculation. The scavenging system shall operate on the low vacuum high volume principle.

The outlet point shall be positioned at the extreme right-hand position of all the medical gas and vacuum terminal points when required to be wall mounted or on the bottom surface of the gas pendant.

An operating pressure of 6 kPa gauge is required. It shall be capable of evacuating a least 25 ℓ/min at each outlet point. It shall overcome the system resistance. A dedicated piping system is required i.e. scavenging is to be done by means of a central turbine fan suction unit. The scavenging system shall have a capacity as detailed in the project specification.

Reference must be made to standard drawing M040305.

10.2 Scavenging System Layout

The ducting may be in P.V.C piping or copper tubing and all joints must be sealed airtight. Dampers must be provided in the ducting to balance the system (refer to drawing M040305).

The distribution plenum shall be made of rigid PVC and shall be sealed airtight. Such a system shall be connected to the theatre pendant or wall outlet. The fittings are all to be 30mm to ISO 5356 with 12mm terminal pipe sizing. The flexible tube must be installed on the pendant in a manner allowing for removal of the access plate without damage.

11. BOOM ARMS AND PENDANTS

11.1 General

Booms arms and pendants may be provided for medical gas outlets in operating theatres. They are to be positioned in the theatre to suit the specialist surgical teams as shown on the particular drawings. The fixed pendant shall be 1,9m clear above the finished floor level.

11.2 Installation

The method of mounting a pendant on concrete ceilings shall be shown on standard drawing M040302. The bolts for holding the mounting flange shall be cast into the concrete or shall be expanding bolts. A suggested method of mounting pendants where fibrous plaster or board ceilings are used is also shown on drawing M040302. If contractors wish to employ another method, then this method must be approved by the Secretary for Health prior to the work being put in hand.

11.3 Pipe and Electrical Connections

Whichever method of installation is used, contractors must ensure that easy removal of the pendant is possible, i.e. it shall be possible to disconnect all pipe and electrical connections to the pendant easily. The electrical supply to the pendant will be installed by an electrical contractor, the conduits terminating the end boxes. It will, however, be the responsibility of the medical gas contractor to arrange for the correct position thereof and to carry out the final connecting up of the electrical equipment.

12. **COLOUR CODING (As attached)**

Colours as per the attached table “Colour Coding for piped Services” are to be used.
Note that unless specified otherwise, medical gas piping is to be painted over it’s entire length.

COLOUR CODING FOR PIPED SERVICES

CONTENTS OF PIPING	PROPOSED
STEAM	PASTEL GREY (G54)
CONDENSATE	BRILLIANT GREEN (H10) WHITE
HOT DOMESTIC WATER	BRILLIANT GREEN (H10) CRIMSON (A03)
COLD DOMESTIC WATER	BRILLIANT GREEN (H10) CORNFLOWER (F26)
INDUSTRIAL HOT WATER (i.e. Primary Circuit, Central Heating etc.)	BRILLIANT GREEN (H10) GOLDEN YELLOW (B49)
FIRE WATER	SIGNAL RED (A11)
SEWAGE	BLACK
OXYGEN (Medical)	WHITE
NITROUS OXIDE (Medical)	ULTRAMARINE (F09)
VACUUM (Medical)	PRIMROSE (C67)
AIR (Medical) LOW PRESSURE HIGH PRESSURE	WHITE / BLACK WHITE / SALMON PINK (A40)
LPG	LIGHT STONE (C37)
COMPRESSED AIR (Industrial)	ARCTIC BLUE (F28)
CONDITIONED AIR FLOW	ARCTIC BLUE (F28) WHITE
CONDITIONED AIR RETURN	ARCTIC BLUE (F28) WHITE
VENTILATION AIR FLOW	ARCTIC BLUE (F28) LIGHT STONE (C37)
VENTILATION AIR EXHAUST	ARCTIC BLUE (F28) LIGHT STONE (C37)
CHILLED WATER	BRILLIANT GREEN (H10) PEACOCK BLUE (F08)
CONDENSER WATER	BRILLIANT GREEN (H10) SALMON PINK (A40)
REFRIGERANT	LIGHT GREY (G29)
DIESEL	GOLDEN BROWN (B13) WHITE
TRANSFORMER OIL	GOLDEN BROWN (B13) CRIMSON (A03)
FUEL OIL	GOLDEN BROWN (B13) + LABEL

All piping is to be labelled (as per SABS) including the direction of flow at maximum 3m intervals or at all changes of direction, T’s and wall penetrations.

APPENDIX A

Testing, commission and filling for use; Forms to be completed during testing and commissioning of piped medical gases systems

	Form
Summary of Tests	B0
Carcass Tests	
Labelling and Marking	B1
Sleeving and Supports	B1
Leakage Test	B1
Cross Connection Test	B2
System Tests	
Leakage Test	B3
Vacuum Leakage Test	B4
Area Valve Service Units - Closure and Zoning Tests	B5
Cross Connection Test	B6
Functional Tests of Terminal units and NIST Connectors	B7
Design Flow Performance Test	B8
Sources of Supply	B9
Pressure Safety Valves	B10
Warning Systems	B11
Verification of Drawings	B12
Purging and Filling	B13
Gas Identification	B14
Permit to Work	
Permit to Work	B15

Medical Gas Pipeline Tests

Form B0 (Sheet of Sheets)

Hospital _____

Facility Audit Building No. _____

Project Description _____

Date _____

Summary of Tests

This is to Certify that the following Tests have been carried out: -

System	Form	Test Carried Out Satisfactorily
Carcass Tests		
Labelling and Marking	B1	
Sleeving and Supports	B1	
Leakage Test	B1	
Cross Connection Test	B2	
System Tests		
Leakage Test	B3	
Vacuum Leakage Test	B4	
Area Valve Service Units - Closure and Zoning Tests	B5	
Cross Connection Test	B6	
Functional Tests of Terminal Units and NIST Connectors	B7	
Design Flow Performance Tests	B8	
Sources of Supply	B9	
Pressure Safety Valves	B10	
Warning Systems	B11	
Verification of Drawings	B12	
Purging and Filling	B13	
Gas Identification	B14	
Permit to Work Form	B15	
Construction Labels Removed		

Project Leader

Position _____

Signed _____

Date _____

Name _____

All appropriate tests satisfactorily carried out. System may now be taken into use.

Competent Person (Department of Health) _____

Status _____

Signed _____

Date _____

Name _____

Leakage Test, Labelling and Marking, Sleeving and Supports Form B1 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No. _____

Project Description _____ Date _____

This is to certify that a LEAKAGE test in accordance with paragraphs 5.3 - 5.6 was carried out on the piped system on this scheme and that during the test, a pressure, as shown in column 2 below, was held as follows. A certified gauge number _____ was used.

Section Tested (1)	Test Pressure (2)	Hours On Test (3)	Pressure Drop (kPa) (4)	Pressure Drop % hr (5)	Pass/Fail Specification 0.025% (6)	Labelling & Marking as Para 2.2.1 Yes/No (7)	Sleeving & Supports as para 2.2.2 Yes/No (8)

Part 2 - Links Between Systems

For the purpose of carrying out this test, the following links have been made: -

_____

_____

This is to certify that the above tests have been carried out and that the following links have been removed: -

_____

_____

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Cross Connection Test Form B2 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that a CROSS CONNECTION test, in accordance with paragraph 2.2.4 was carried out on the following medical gas pipeline systems: -

No Cross Connections between these Systems were found.

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Leakage Test from Total Compressed Gas System Form B3 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that a LEAKAGE test in accordance with paragraphs 2.2.1 was carried out on the piped system on this scheme and that during the test, a pressure of _____ kPa was held for _____ hours with a pressure drop of _____kPa.

Section Tested	No of Terminal Units (n)	Hours On Test (h)	Volume Of System (V)	2n/h ——— V	Pressure Drop Found (kPa)	Pass/ Fail

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Competent Person Department of Health

Name _____ Position _____

Sign _____

Leakage into Total Vacuum System Test Form B4 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No_____

Project Description_____ Date _____

This is to certify that a LEAKAGE test in accordance with paragraphs 2.3.2 was carried out on the piped vacuum system at a system pressure of _____ kPa. The pressure increase after 1 hour was _____ kPa (max 10 kPa).

Section Tested	No of Terminal Units (n)	Hours On Test (h)	Volume Of System (V)	$\frac{2n/h}{V}$	Pressure Drop Found (kPa)	Pass/ Fail

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Competent Person Department of Health

Name _____ Position _____

Sign _____

Area Valve Service Units - Closure and Zoning Tests Form B5 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that CLOSURE and ZONING of the AVSUs was tested in accordance with paragraphs 2.3.3.1 – 2.3.3.2 on the pipeline system as follows: -

AVSU Number	Test Pressure (kPa)	Downstream Pressure Change After 15min (kPa)	Terminal Units Controlled (Total No)	Terminal Unit Labelling

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Cross Connection Test Form B6 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that a CROSS CONNECTION test, in accordance with paragraph 2.3.4 was carried out on the following medical gas pipeline systems: -

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Functional Tests of Terminal Units Form B7a (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

(In accordance with the Contract Specification and paragraphs 2.3.5).

System _____

Specified Flow _____ L/min Specified Pressure Drop _____ kPa

Outlet Unit Number(s)	Room Number	Specified Flow Achieved Yes/No	Specified Pressure Drop Achieved Yes/No	Mechanical Function	Gas Specificity

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Functional Tests NIST Connectors Form B7b (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

(In accordance with the Contract Specification).

System _____

NIST Gas	Outlet #	Location or Identification	Room Number	Gas Specificity Pass/Fail	Self-Sealing Adequate / Inadequate

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Design Flow Performance Tests Form B8 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

(In accordance with paragraph 6.3.6).

System _____ System design flow _____ (L/min)

Terminal Unit test flow _____ (L/min) Test Pressure _____ (kPa)

Minimum gauge pressure allowed _____(kPa)

Outlet Unit No	Room No	Specification Met (3)	Terminal Unit No	Room No	Specification Met (3)	Terminal Unit No	Room No	Specification Met (3)

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Sources of Supply Form B9 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description_____ Date _____

This is to certify that the following sources of supply have been tested according to paragraph 2.3.7 and the attached sheets and found to comply with the specification.

Source of Supply	Contractor's Representative Name/Signature	Contract Supervising Officer Name/Signature
Manifold		
Manifold		
Manifold		
Liquid Oxygen Plant		
Air Compressor		
Vacuum Plant		
Oxygen Concentrator		

Witnessed on Behalf Of _____

By _____ Status _____

Signed_____ Date _____

Pressure Safety Valves Form B10 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

The pressure safety valves fitted tot he pipeline systems have been inspected together with their certification and are in accordance with the contract specification and paragraphs 6.26 - 6.27.

Location	Valve Number	Position	Pipeline Distribution Pressure (A)	Certified Discharge Pressure (B)	B/A (%)

If certificates are not provided, do not sign.

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Warning Systems Form B11 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that the WARNING SYSTEMS on the following medical gas pipeline systems have been tested in accordance with paragraph 2.3.9 as follows: -

System	O2	N2O	Medical Air HP	Medical Air LP	VAC
Specified Warning Pressure					
Observed Warning Pressure					
Warning Given					
Return to Normal					
Marking					
All Functions on all Stations					
Stand-by Power					

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Verification of Drawings Form B12 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that in accordance with paragraph 2.3.10, the as fitted drawings of the following systems record all variations from the contract drawings: -

System	Outlet Numbers	Drawing Numbers	Contractor's Representative Status/Name	Contract Supervising Officer Status/Name	Date
O2					
N2O					
Medical Air HP					
Medical Air LP					
VAC					

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Purging and Filling Form B13 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description _____ Date _____

This is to certify that medical gas systems have been purged and filled with the working gases in accordance with paragraphs 2.3.11 and/or 2.3.12 as follows: -

Action	O2	N2O	Medical Air HP	Medical Air LP	VAC
Special Connectors/ Cylinders removed from site					
Filling					
Warning Given					
Purging all Terminal Units					
Venting					

Contractor's Representative

Name _____ Position _____

Sign _____

Project Leader

Name _____ Position _____

Sign _____

Witnessed on Behalf of _____

By _____ Status _____

Signed _____ Date _____

Gas Identification and Purity Form B14 (Sheet of Sheets)

Hospital _____ Facilities Audit Building No _____

Project Description_____ Date _____

This is to certify that the identity of the gas at all terminal units has been tested.

Outlet Label	Outlet Number	Test For	Specification Limit	kPa	Result
Oxygen		O2	Not less than 99.0%		
		N2O	O		
N2O		O2	O		
		N2O	Not less than 99.0%		
Medical Air HP		O2	21 ± 1%		
		N2O	O		
Medical Air LP		O2	21 ± 1%		
		N2O	O		
Vacuum		Suction	Suction Present		

All % are v/v.

Project Manger Name _____

Signed _____ Date _____

Competent Person Name _____

Signed _____ Date _____

Contractor Name _____

Signed _____ Date _____

Clinical Technician Name _____

Signed _____ Date _____

Witnessed on Behalf Of _____

By _____ Status Anesthetist/Medical Office

Signed_____ Date _____

Permit to Work for Piped Medical Gasses
Medical Compressed Air
Medical Vacuum Installation

Form B15

Hospital _____

Area(s) of Hospital _____

_____

Description of Work _____

_____

Commencement Date/Time _____

Permission to Commence _____
Competent Person

_____
Doctor/Sister
In Charge of Area(s) Affected

Work Completed _____
Person in Charge of Execution
(Contractor/Fitter)

Remarks _____

_____

_____

_____

Tests and authorization for use after completion _____
Competent Person

_____
Date

_____
Anesthetist/Medical Officer

_____
Date

APPENDIX B

GAS PRESSURE VARIATION WITH TEMPERATURE

General

1. Tests are specified for leakage of the pipeline carcass and the pipeline systems. During these tests pressure changes may occur which are caused by temperature changes rather than leakage.

2. Pressure changes due to temperature difference may be calculated according to the Gas Laws.

3. It is assumed that the temperature in the pipeline is uniform in all branches.

Calculation

4. The change in gas pressure with temperature is as follows: -

5. P1/T2 = P2/T2, where P1 and P2 are the initial and final absolute pressure of a fixed volume of gas and T1 and T2 are the initial and final absolute temperatures.

6. Therefore $P2 = \frac{P1 \times T2}{T1}$

7. Care must be taken to express pressure and temperature in absolute values.

8. Pressure is normally expressed in gauge pressure. Absolute pressure = gauge pressure + atmospheric pressure.

9. Temperature is normally expressed in ºC. Absolute temperature (ºK) = 273 + temp in ºC.

Examples

10. The carcass of a medical air pipeline is tested for leakage at a working pressure of 14.0 bar gauge pressure. The temperature is 13ºC at the beginning of the test and 17ºC at the end of the test.

P1 = 14.0 + 1.0 = 15.0 bar
T1 = 273 + 13 = 286 ºK T2
= 273 + 17 + 290 ºK

Therefore $P2 = \frac{15 \times 290}{286}$ = 15.21 bar absolute

that is, gauge pressure should read 14.21 bar at the end of the test, assuming that no leakage has occurred.

APPENDIX C

PRESSURE DROP TEST DEVICE

General

1. Special test devices are required to measure the pressure at specified flows at each terminal unit.

2. Suitable test devices are commercially available or may be constructed in accordance with the outline specification given below.

Measurement Principle

3. Flow at a specified pressure may be measured either with a calibrated orifice or with a flow meter.

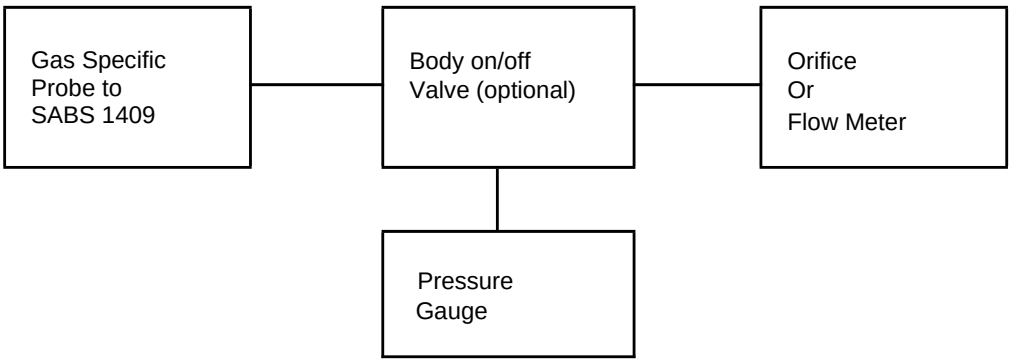
4. Pressure may be measured with a bourdon gauge.

5. A gas specific probe to BS5682 should be used to connect the device to the terminal unit.

6. The test device is connected to the terminal unit by the gas specific probe and the pressure at the specified flow is read on the gauge.

Functional Requirements

7. The test device should consist of the following components: -



8. The body may be of a design which allows exchange of the following components: - a) Gas specific probes;

   b) Calibrated orifices;

   c) Pressure gauges.

9. An on/off valve may be incorporated into the body.

10. The complete assembly should be tested for leaks.

11. Where it would be impractical to use gas specific probes, it is permissible to use a specially designed universal probe, provided it is impossible for such a probe to be improperly used on medical equipment. The special probe should be clearly marked **'test'** only.

Test Probes for Gas Specificity

12. The gas specific probe for each service should be as specified in SABS 1409.

Orifices

13. The orifices should be as follows: -

Service	Flow (1/min)	Min gauge Pressure (kPa)	AMAL jet no
Surgical air 700 kPa	350	700	130
All other compressed gases	40	380	130
Vacuum	40	40mm Hg (below atmospheric pressure)	*

* A specially calibrated orifice may be used to measure flow under vacuum.

14. These devices should be checked against a flow meter before use.

Flow Meter

15. A bobbin flow meter calibrated to a flow of 40l/min may be used to measure flow under vacuum.

Pressure Gauge

16. A 50 mm bourdon gauge with an appropriate full scale reading and interval should be used as follows: -

Test Pressure kPa	Scale	Scale Interval
400	0 - 7 bar	0.1 bar
700	0 - 11 bar	0.5 bar
Vacuum	0 - 760 mm Hg	500 mm Hg

Note: 1 bar = 100 kPa

1.0 Medical Gas Piping

Reference must be made to section 2.0 of the Standard Specification (Section 12.2 of this specification) and to SANS 1453-1988 (latest amendments).

The required piping routes are indicated on the drawings and shall be adhered to.

It will be the medical gas contractor's responsibility to install the necessary piping as indicated on the drawings. It is thus essential that great care be taken to avoid damage during piping installation.

Piping to be chased into walls shall be run in appropriate conduiting 15 mm larger in diam. Chasing of the walls for this conduiting shall be the responsibility of the medical gas and vacuum contractor and shall be done, together with the installation thereof and terminal boxes to suit the service outlet points prior to the walls being plastered. Should walls be chased after plastering and/or painting it will be the medical gas contractor's responsibility to make good the affected area at his own cost and to the satisfaction of the architect.

2.0 Medical Gas Service Outlet Valves

Reference must be made to section 4.0 of the Standard Specification (Section 12.2 of this specification) and to SANS 1409-1986 (latest amendments).

3.0 Isolating Valve Cabinets

Reference must be made to Section 12.2 of part four of this specification.

4.0 Commissioning and Testing

Reference must be made to Section 12.2 of part four of this specification.

It is again stressed that responsibility for the correct operation of the piped medical gas and vacuum installation rests entirely with the medical and vacuum contractor. This includes pipe cleanliness, continuity of individual gas supplies, correct operation of compressed air plant, vacuum plant and warning light system.

Pressure testing of the reticulation system shall be carried out as described in part four of this specification. Pressure test certificates indicating the sections tested, the date, pressure attained, duration and outcome of the tests shall be submitted to the Engineer and included in the operating and maintenance manuals.

Anti-confusion checks of the system shall be carried out by the contractor and when he is satisfied that there are no cross-connections, etc the entire system shall be verified by the Engineer in the presence of the contractor and a representative of the hospital staff or Department of Health. The results of the anti-confusion tests shall be entered on the forms to be provided and signed off by the Engineer, contractor, and representative of the hospital staff.

Note that practical completion of the installation will not be taken unless and until all relevant tests have been satisfactorily carried out and all faults corrected.

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
MEDICAL GAS INSTALLATION

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY		
1.0	**BILL NO. 1 : PRELIMINARY AND GENERAL**				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.5	Provision of all drawings and manuals as specified including As-Installed drawings	Item	1		
1.6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1.7	Final inspection of the works by an accredited representative and signing off of the installation	Item	1		
1.8	The bidder must price for his staff to wear distinctive overalls/work clothes and hard hats. For the duration of the contract name tags must be provided to all employees on site, whether in work clothes or not	Item	1		
1.9	Provide for atendance of health and safety meetings called by the Main Contractor	Item	1		
	Total Carried forward to Summary Page				

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
2.0	**BILL NO. 2 : COPPER PIPE WORK & FITTINGS**				
	Capillary type copper tube fittings to SANS 1067 Part 2 including cutting, reaming and soldering of joints with hard type solder and pipe supports as specified. Pipe work to run in conduit chased into walls, or in bed head ductings or above ceiling				
	NOTE: Straight couplers, fitting reducers and bends up to 28 diam will not be measured as separate items and are to be included in the rates for straight piping.				
	Supply, delivery to site and installation to SANS 1453 copper pipe work Class as specified.				
	Oxygen piping				
2.1	12 mm	m	221		
2.2	15 mm	m	30		
	Oxygen piping chased into walls				
2.3	12 mm	m	0		
	Oxygen piping in bedhead trucking				
2.4	12 mm	m	120		
	Nitrous Oxide Piping				
2.5	10 mm	m	0		
	Nitrous Oxide piping chased into walls				
2.6	10 mm	m	0		
	Nitrous Oxide piping in bedhead truncking				
2.7	10 mm	m	0		
	Low Pressure Medical Air Piping				
2.8	12 mm	m	24		
2.9	15 mm	m	8		
2.10	22 mm	m	12		
2.11	28 mm	m	55		
	Low pressure air piping chased into walls				
2.12	12 mm	m	0		
	Low pressure air piping in bedhead truncking				
2.13	12 mm	m	120		
	Total Carried forward to Next Page				

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried From Previous Page				
	Vacuum Piping				
2.14	12 mm	m	0		
2.15	15 mm	m	180		
2.16	22 mm	m	63		
2.17	28 mm	m	55		
	Vacuum piping chased into walls				
2.18	15 mm	m	0		
	Vacuum piping in bedhead truncking				
2.19	15 mm	m	120		
	TEES - SOLDER TO SOLDER TO SOLDER				
	Oxygen:				
2.20	12 mm	No.	25		
2.21	15 mm	No.	0		
	Nitrous Oxide:				
2.22	10 mm	No.	0		
	Vacuum:				
2.23	12 mm	No.	0		
2.24	15 mm	No.	15		
2.25	22 mm	No.	8		
2.26	28 mm	No.	5		
	Low Pressure Air				
2.27	12 mm	No.	15		
2.28	15 mm	No.	15		
2.29	22 mm	No.	8		
2.30	28 mm	No.	5		
	STRAIGHT COUPLERS - SOLDER TO SOLDER				
2.31	12 mm	No.	101		
2.32	15 mm	No.	36		
2.33	22 mm	No.	13		
2.34	28 mm	No.	18		
	ELBOW 90° - FITTING TO SOLDER & SOLDER TO SOLDER				
2.35	12 mm	No.	720		
2.36	15 mm	No.	360		
2.37	22 mm	No.	68		
	Total Carried forward to Next Page				

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried From Previous Page				
	FITTING REDUCERS - FITTING TO SOLDER TO SOLDER				
2.38	10 to 12 mm	No.	0		
2.39	12 to 15 mm	No.	8		
2.40	15 to 22 mm	No.	16		
	Hydraulic pipe hangers and brackets				
2.41	12 mm	No.	403		
2.42	15 mm	No.	145		
2.43	22 mm	No.	42		
2.44	28 mm	No.	37		
	PIPE IDENTIFICATION AND COLOUR CODING & EARTHING				
2.45	Application of colour banding and flow directions as per SANS 0224 and SANS 06	Sum	252		
2.46	Bonding to earth of all piping at entrance to each building as per SANS 0224	Sum	1		
	PIPE CLEANING				
2.47	Copper pipe internal cleaning to ASTMB819 & nitrogen purging.	m	165		
2.48	External copper pipe cleaning to ASTMB819	m	165		
	Total Carried forward to Summary Page				

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
3.0	**BILL NO. 3 : OUTLETS, VALVES, VALVE BOXES & LINE EQUIPMENT**				
	Supply, deliver to site and installation of flush mounted outer c/w box. Front identification cover plate and silver soldering of dropper but excluding dropper (measure in pipe work bill)				
3.1	Oxygen outlets	No.	30		
3.2	Nitrous oxide outlets	No.	0		
3.3	Vacuum outlets	No.	30		
3.4	Low pressure medical air outlets	No.	30		
3.5	Scavenge outlet	No.	0		
	VALVES & TRAPS				
	Supply, deliver to site and installation of stainless steel three piece ball valves with renewable seals and seats.				
	Oxygen, Nitrous Oxide & LPA				
3,6	12 mm	No.	26		
3,7	15 mm	No.	13		
3,7	22 mm	No.	3		
3,7	28 mm	No.	4		
3,8	Supply, deliver to site and installation of 22 mm diam vacuum bottle trap c/w isolating and by-pass valves, glass bottle and mounting bracket equivalent to Afrox ECD medical Pipeline Vacuum Bottle Trap	No.	11		
	VALVE BOXES				
	Supply, deliver to site and installation of surface mounted valve boxes c/w all labels and indicators as specified Valve boxes containing isolating valves and exposed indication gauges; gauges included in price, valves measure elsewhere.				
3,9	2 way	No.	0		
3,10	3 way	No.	12		
3,11	4 way	No.	0		
	SLEEVES				
	Supply, deliver to site and installation of wall sleeves including drilling of holes, securing / grouting of sleeves and making good.				
3.12	Sleeves for pipe up to 20 mm O.D.	No.	12		
	Total Carried forward to Next Page				

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried From Previous Page				
	Alarm panel:				
3.13	Supply, deliver to site and installation of Medical alarm main panel, panel to include oxygen, vacuum and low pressure medical air alarms.	No.	1		
3.14	Supply, deliver to site and installation of pressure sensors, minimum leak devices and inerconnecting wiring.	No.	3		
3.15	0.22 mm sq x 2 Core screened cable	m	80		
3.16	Supply, delivery to site and installation of uninterruptible power supply for alarm panel in theatre block. UPS unit to be located in cylinder room.	No.	1		
3.17	Supply, install, test and commission in line bacterial filter housing & single use filter, filtration efficeincy particle removal to 0.01 mg/m3 and a DOP penetration of less than 0.0001%, with a minimum throughput of 144 litres / min F.A. at 3KPa.	No.	11		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
MEDICAL GAS INSTALLATION

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
4.0	**BILL NO. 4: TESTING AND COMMISSIONING**				
	Line Pressure Test				
4.1	Oxygen	Sum	1		
4.2	Nitrous oxide	Sum	0		
4.3	Low pressure medical air	Sum	1		
	Gas Purity Tests				
4.4	Oxygen	Sum	1		
4.5	Nitrous oxide	Sum	0		
4.6	Low pressure medical air	Sum	1		
4.7	Vacuum	Sum	1		
	O&M Manuals				
4.8	Submit Maintenance and Operating Manuals for approvals and carry out required changes for approval.	sum	1		
	Documentation				
4.9	Submit complete approval and release forms.	sum	1		
	Hard copy format only				
4.10	Operating manuals	set	3		
4.11	Maintenance manuals	set	3		
4.12	Prints of "RECORD" DRAWINGS	set	3		
	Training				
4.16	Training of hospital staff 3 Days @ 4 hrs per day	day	3		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
MEDICAL GAS INSTALLATION

SECTION 12.4 PROVISIONAL SCHEDULE OF QUANTITIES

BILL NO.	DESCRIPTION	AMOUNT
1	BILL NO 1: PRELIMINARY & GENERAL	
2	BILL NO. 2 : COPPER PIPE WORK & FITTINGS	
3	BILL NO. 3 : OUTLETS, VALVES, VALVE BOXES & LINE EQUIPMENT	
4	BILL NO. 4: TESTING AND COMMISSIONING	
	SUBTOTAL	
	MAIN CONTRACTOR'S PROFIT AND ATTENDANCE	
	TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 12 ON FINAL SUMMARY ON PAGE 264	

SECTION 12.5 SCHEDULE OF MATERIALS OFFERED

The following schedules shall be completed in full. Failure to do so may invalidate the tender.

3.1 **Medical Gas Piping**

Piping material ……
Country of origin ……
To which SANS specification does
It comply ……

3.2 **Medical Gas Service Outlet Valves**

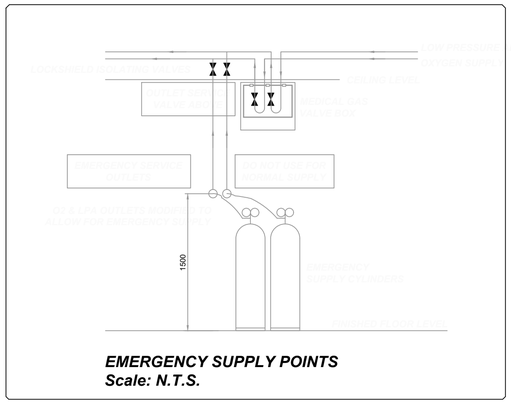
Maker's name & model ……
Country of origin ……
To which SANS specification do
they comply ……

3.3 **Isolating Valve Cabinets**

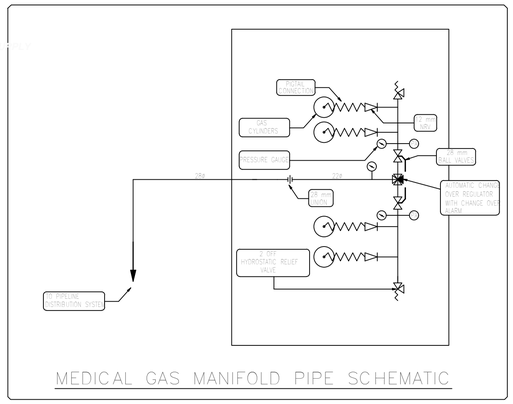
Maker's name ……
Dimensions ……
Make & type of isolating valves ……
Make & size of pressure gauges ……
Do the units comply with the specification ? ……

3.4 **Warning / Alarm / Monitoring Panels**

Maker's name & model
(a) Main panels ……
(b) Slave panels ……
Do the units comply with the specification ? ……



EMERGENCY SUPPLY POINTS
Scale: N.T.S.



MEDICAL GAS MANIFOLD PIPE SCHEMATIC

LEGEND

- ***VALVE BOX***
- ***GAS ALARM PANEL***
- ***ISOLATING VALVE***
- ***OXYGEN LINE***
- ***NITROUS OXIDE LINE***
- ***VACUUM LINE***
- ***LOW PRESSURE MEDICAL AIR LINE***
- ***SCAVENGING LINE***
- O_2 ***OXYGEN OUTLET***
- N_2O ***NITROUS OXIDE OUTLET***
- ***V*** ***VACUUM OUTLET***
- ***LPA*** ***LOW PRESSURE MEDICAL AIR OUTLET***
- ***S*** ***SCAVENGING OUTLET***
- ***VACUUM TRAP***
- ***P*** ***PRESSURE SWITCH***



ARCHITECTS DRAWING NO.	REV No.
CEILING DRAWING NO.	REV No.

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	08/09/25	TW.	Issued for Information
01	17/07/26	TW.	Issued for Information

CLIENT

PROJECT

PEPH - ICU

TITLE

SECOND FLOOR
MEDICAL GAS EQUIPMENT
LAYOUT

ARCHITECT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
7 King Street, Southernwood, East London, 5201
P.O. Box 12359 Amalinda, 5252
E-Mail: office@rnaconsulteng.co.za
Tel: 043 742 0041 Fax: 043 742 3883

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
		✓

DESIGNED BY: Travis Warne		SCALE 1 :100
DRAWN E. PEEL	DATE 08/09/2025	PRINT DATE 08/09/2025

CHECKED BY: Travis Warne

REGISTRATION No. 201770017

SIGNED.

DRAWING NO.	REV No.
1710-C-M-101 MG PH2B	01

SECTION 13

HVAC INSTALLATION (CICU/HIGH CARE/ CSSD)

SECTION 13. 1 SCOPE OF WORKS

HEATING VENTILATION AND AIR CONDITIONING EQUIPMENT INSTALLATIONS

1. GENERAL

1.1 The Standard for Uniformity in Construction Procurement published in terms of the Construction Industry Development Board (CIDB) Act, 2000 (Act No. 38 of 2000), the Standardized Construction Procurement Documents for Engineering and Construction Works as issued by the CIDB and any other relevant documentation pertaining thereto must be studied and all principles in this regard must be applied to all procurement documentation, practices and procedures.

2. THE CONTRACT

2.1 HVAC INSTALLATIONS

The work to be carried out and commissioned by a SAQCC Gas approved installer:

a. Installation of Air Conditioning equipment to CICU:
   - Existing, uninstalled, TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit, located in plant room, for CICU,
   - New TOSHIBA model MMY- MAP1206FT8P-E VRF33.4 kw outdoor Heat Recovery Condensing Unit, located in plant room, for CICU,
   - Special condenser elbow fitting, existing, uninstalled,
   - Refrigerant reticulation,
   - Selector boxes,
   - Branch Kits,
   - Indoor cassette units,
   - Wired remotes,
   - Trunking / Wire Basket / Conduit and Condensate
   - Reapplication of corrosion treatment to coils, chassis and PC Boards,

b. Installation of new fresh air ventilation to CICU:
   - Ducted branch reticulation, main supply ducting already installed in plant room,
   - Box Fan,
   - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,
   - Cleaning & sanitising existing 300 x 300 mm fresh air duct,

c. Installation of new supply air ventilation to CICU:
   - Ducted reticulation,
   - Box Fan,
   - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,

d. Installation of Air Conditioning equipment to CSSD:
   - Installation of ceiling cassette,
   - Refrigerant reticulation to selector box in Cathlab,
   - Wired remote,
   - Trunking / Wire Basket / Conduit and Condensate

e. Installation of new fresh air ventilation to CSSD:
   - Ducted reticulation,
   - Box Fan,
   - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,

f. Testing and Commissioning, as per SANS regulations,
g. Manuals, Drawings, OEM Literature,

2.2 **Existing**

- 1x TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw
- 2x TOSHIBA model RBM-Y11226FE (6 way) Multi flow Selector Box
- 4x TOSHIBA model MMU-AP0094HP1-E 2,5 kw 4-Way Cassette indoor units
- 2x TOSHIBA model MMU-AP0124HP1-E 3,5 kw 4-Way Cassette indoor units
- 2x TOSHIBA model MMU-AP0154HP1-E 4,3 kw 4-Way Cassette indoor units
- 2x TOSHIBA model MMU-AP0184HP1-E 5,2 kw 4-Way Cassette indoor units
- 1x TOSHIBA model MMU-AP0244HP1-E 7,0 kw 4-Way Cassette indoor units
- 2x TOSHIBA model MMU-AP0274HP1-E 8,7 kw 4-Way Cassette indoor units
- 12x TOSHIBA model RBC—U31PGP(W)-E Cassette ceiling / facia panels.
- 12x TOSHIBA model RBC—AMS55E-ES Wired remote controllers.
- 31m x Fresh air ducting 300 x 300mm
- 4x Magnihelic 2000 – 500 PA 0-500 PA Pressure Gauges

2.3 **Order of The Works**

As per the building contractors' program of works.

HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

NOTE:
These standard specifications outline the basic principles of materials and workmanship to be utilized and employed in this installation. The Detail Specification contains the exact methods to be employed and the equipment to be installed. The Detail Specification thus takes precedence over these standard specifications.

1.0 GENERAL

The scope of Work is as stated in Detailed Specification.

The system shall offer the best possible compromise between the initial expenditure and the long term interest and redemption charges and running/operating costs.

The design and installation shall comply with the codes of practice and standards promulgated by recognized authorities in the fields of air-conditioning, refrigeration, ventilation, piping, electrical technology and all other branches of engineering science applicable, such as the S.A.N.S., B.S.S., A.S.H.R.A.E., SMACNA and A.S.M.E.

All workmanship and materials used in the execution of the works shall conform to modern practice and the entire installation shall comply fully with all relevant requirements of governmental and the Local Authority whose jurisdiction embraces the location of the site.

2.0 BIDS

2.1 Conditions of bid

The attention of bidders is drawn to the conditions of bid as indicated on the official bid form.

2.2 Modifications

Bidders are at liberty to submit modifications based on their standard practice and such modifications, with reasons therefore, shall be clearly stated in the bid. The price for this shall not be included in the net bid price but shall be stated separately as an extra or an omission.

2.3 Checking of bid documents

On receipt of the bid documents, the bidder must, prior to submitting his bid, check all the bid documents and should any difference or discrepancy between or in the Drawings and Specification be detected by the bidder, he shall seek in writing a decision also in writing of the Representative/Agent on the true intent and meaning of the bid documents as the East London Industrial Development Zone cannot be held liable for the additional cost of extra work that may be caused as a result thereof.

2.4 Scope of bid price

The bid price and all prices and/or rates which are inserted into the price schedules in the Specification and transferred to the bid form, must be for the execution and completion of the Works in accordance with the Drawings, Specifications and Conditions of Contract, as well as for the provision of all labour, materials, workmanship, machinery, plant and everything that is or may become necessary.

If there are or may be any exemptions form levies, customs duties, tax, etc applicable on materials, good or work, the bidder must make his own arrangements therefore, as the bid price shall be regarded as comprehensive.

2.5 Value Added Tax

The bid price shall include Value Added Tax payable in terms of the Value Added Tax act, 1991 (Act 89 of 1991).

2.6 Information required with bids

Bidders shall supply with their bids a full specification where necessary, including dimensioned drawings or sketches of the plant, and a complete wiring diagram of any automatic controls.

Particulars shall be given as set out in the schedule concerned which shall be filled in by the bidder. Failure to comply with these requirements may render the bid liable to disqualification.

2.7 Proof that materials are available

A bidder may be required, before acceptance of his bid, to furnish proof to the satisfaction of the Representative/Agent that he is in a position to secure all the materials required to complete the Contract within the contract period stated in the contract documents.

2.8 Bid documents and ownership thereof

The bid documents consisting of the official bid form, the specifications and the drawings (if any) scheduled in the Specification, and which have been made available to bidders, are the property of the East London Industrial Development Zone and shall be returned to the East London Industrial Development Zone, whether or not a bid is submitted.

3.0 THE SITE

3.1 Definition of Site

Location:	Port Elizabeth (Eastern Cape)
Altitude:	At sea level.
External:	Summer Max. Average : 34,0 DB : 23,0 WB Winter Min. Average : 10,0 DB : 55% RH

3.2 Inspection of Site

Bidders shall visit the Site before biding and satisfy themselves as to the local conditions, the accessibility of the Site, the full extent and nature of the work to be done and the conditions affecting the execution of the Contract generally. Claims on the grounds of lack of knowledge in such respects or otherwise will not be entertained.

3.3 The Site

The Site to be occupied by the Contractor will be clearly defined on the site plan, or will be pointed out to him by the Representative/Agent. The Contractor will on no account be allowed to extend his operations beyond the boundaries of the Site.

3.4 Procedure of work (Site in occupation)

If the site will be in occupation during the course of the Contract, the Works shall be carried out at such times and in such manner as will cause the least inconvenience to the occupants, and still allow the work to be proceeded with expeditiously. The instruction of the Representative/Agent shall be complied with in regard to the carrying out of any portion of the works which in his opinion requires to be expedited and priority shall be given to such work as and when directed.

(Site not in occupation)

If the Site will not be in occupation during the course of the Contract, the Works shall be proceeded with expeditiously. Priority shall be given to any portion of the Works as indicated in the Specification.

3.5 Existing services

If the Contractor encounters any existing services such as cables, pipes or sewers during the execution of the works, he must immediately notify the Representative/Agent, halting all work in the vicinity thereof, until instructions to proceed have been given by the Representative/Agent. Electric wires, telephone wires, pipes, etc., shall not be interfered with during the course of the Contract, but

should it be necessary to disconnect or cut any such wires or pipes the Representative/Agent shall be advised thereof and his instructions awaited.

3.6 Protection of trees, shrubs and plants

The Contractor will be held responsible for any damage to trees, shrubs and plants on the Site and shall make good such damage at his own expense.

Trees, shrubs and plants may only be removed as indicated on the Drawings. The remaining trees, shrubs and plants may not be removed, cut back or disturbed in any way without the written consent of the Representative/Agent.

3.7 Water for the Works

The contractor shall provide all water he may require for the execution of the Works at his own expense.

3.8 Electricity for the Works

The Contractor shall provide all electricity for the execution of the Works at his own expense.

3.9 Recoverable materials property of Contractor

Items specified to be removed, taken out, demolished or dismantled and which are not specified for re-use, or for handing over to the Representative/Agent or others, become the property of the Contractor and must be removed from the Site immediately.

4.0 ADMISSION TO SITE

4.1 Permission for admission to and establishment on Site

Before the Site is visited by bidders or before the successful bidder (Contractor) establishes himself on the Site, the Representative/Agent's prior approval must be obtained. The Representative/Agent will, in the case of a Site located in defence or other security areas, make arrangements with the unit commander, or in the case of other Government sites, with the officer-in-charge, for permits for inspection of the Site for biding purposes.

5.0 PAINTING

Painting shall only be necessary to those items which would normally be visible or visible when serviced, all mild steel or other components which would otherwise suffer corrosion if unpainted, however, shall be painted with two coats of rust-proof paint whether such components are normally visible or not.

Items which are factory-painted need not be repainted other than any making good which may be necessary. All plants requiring painting shall be correctly prepared and painted. No untreated metal surfaces shall be permitted on the project.

Items which are not galvanized or similarly protected against rust and corrosion shall be painted, as later detailed herein. No equipment, hanger brackets, etc., shall be permitted to be delivered on site in unprotected from; they shall be factory-coated with an approved zinc-rich prime coat before dispatch from their place of manufacture.

Painting shall comprise the following consecutive processes. First thoroughly clean, descale and degrease all surfaces, in accordance with acknowledged good practice, follow with a good coating of approved zinc-rich primer and finish with two coats of quality high-gloss enamel of an acceptable make. Final finish shall be to the full approval of the Engineer.

With the exception of ducting and piping, items with a galvanized finish, such as cable trays, need not be painted but shall be properly cleaned with a suitable proprietary galvanized iron cleaning fluid.

Particular care shall be taken that appropriate primers be used as a basis for painting and that paint be of high quality manufacture, all to provide a completely satisfactory finish to the approval of the Engineer. It shall be noted that galvanized surfaces are to be treated to ensure proper bonding of

paint.

Whereas it would not be necessary to paint any ductwork conduits or pipe work installed in roof voids, shafts masonry ducts, etc., or where not normally visible, it is a requirement that such equipment be properly cleaned, treated with two coats of rust proofing paint if not galvanized or not metal subject otherwise to rust.

All equipment on the project shall be colour-coded in accordance with standards recognized in the Republic of South Africa and, where possible, to comply with relevant South African National Standard Colour Codes. (SANS. 01091-1975).

6.0 PIPEWORK

Refrigeration pipe work shall be carried out in seamless refrigeration quality copper tubing, suitable provision being made that the piping is not subjected to any stresses by vibration from the compressors.

7.0 EQUIPMENT SUPPORTS

Where equipment supports, stands, platforms and suspension brackets are indicated, specified or necessary for ductwork, pipe work, etc., the Sub-contractor shall provide supporting structures capable of carrying the load without distortion, affixed to the building structure in such a manner as not to subject it to undue stress.

Supporting of any rotating equipment shall incorporate vibration mountings of the type and selection specified in the applicable clauses referring to equipment bases herein.

All methods of suspension or supports shall be submitted to the Engineer for approval and for reference to the Structural Engineer where necessary prior to manufacture or installation.

Generally, supports shall preferably be proprietary products such as Unistrut or failing this, shall be of mild steel sections, purpose fabricated for their application. Under no circumstances whatever will sheet metal straps or plastic tie-wraps be accepted as a supporting method.

All supports shall cradle the item to be supported; shall not be riveted or welded to the equipment to be carried except in exceptional circumstances approved by the Engineer. Rod hangers shall not exceed one meter in length and be of minimum diameter 12 mm. For longer suspensions use mild steel angles. Angel iron supports shall be of 25 mm x 3 mm minimum. All supporting structures for equipment shall be dip galvanized.

Fastening methods shall employ REDHEAD or RAMSET anchor bolts or their equivalent for fixing supports to the building structure, it not being permissible to utilize gunpowder shot-driven bolts for this purpose unless prior approval be obtained.

Pipe work supporting holder bats shall be the product of a recognized manufacturer of such equipment, shop-fabricated saddles or similar devices being unacceptable unless limited space available necessitates their use. On insulated pipe work, hardwood inserts consisting of two-round machine cut pieces of timber shall be clamped around the pipe, insulation being cut away at such points, to allow proper support fitting. Wooden inserts shall be of the same thickness as adjoining insulation and 50 mm longer than the width of the holder bat support, to permit correct finishing of the insulation of vapour sealing to them.

Cable and flexible pipes shall be supported on Unistrut or equivalent perforated galvanized cable trays, manufactured by specialists, shop-fabricated trays or racks not being acceptable. The cable tray shall be suspended or bracketed using suitable mild steel angles.

8.0 DRAINS

The sub-contractor to provide all necessary drain piping laid to suitable falls from every item requiring such drainage. Such drains shall be run to the adjacent relevant drain points shown on the Drawings.

Drainage pipe work shall be adequately sized and carried out generally in medium grade galvanized piping and secured to wall (where applicable), all connections to equipment being effected with conical faced unions or flanged.

Drainage pipe work of longer than 4,5m run shall be provided with cleaning eyes on all bends to facilitate maintenance.

All condensate drainage is to terminate to the nearest drain.

9.0 COUPLING SHAFT AND VEE-BELT GUARDS

9.1 All couplings, vee-belts, shafts and moving parts and components shall be fitted with adequate guards which comply in all respects with the Machinery and Occupational Health and Safety Act.

They shall be fabricated from sheet and flattened expanded metal, and be so arranged that the couplings or belts are completely visible through the guard. All guards shall be painted as specified.

9.2 Guards for fluid couplings shall be so constructed as to completely enshroud the coupling, and completely contain 110% of the full volume of oil contained in the coupling. In the event of an oil discharge, no oil must be thrown about or leak onto the floor.

10.0 COUPLINGS

10.1 High speed (above 750 r/min) - Couplings between motors and driven equipment shall be Fenaflex tyre type couplings or approved, and shall comply with the following requirements:

a) They should be designed and selected for severe duty and 24 hours per day operation. In no case shall a "service factor" of less than 25% above that given in the Fenner Catalogue be used.
b) All tyre couplings must be fitted with taper lock bushes.
c) All couplings shall be of synthetic oil resisting rubber.

10.2 Low speed (Below 750 r/min) - These couplings shall in general be of a flexible type, which shall be approved by the Engineer.

Couplings shall in all cases be designed and selected for severe duty and 24 hours per day operation. In no cases shall a "service factor" of less than 25% above that given in the maker's catalogue be used. Where possible, all couplings shall be fitted with taper lock bushes.

10.3 Hydraulic Couplings

These shall be of the Crofts, Voith or Vulcan Sinclair manufacture or as approved.
Where possible, couplings shall be fitted with taper lock brushes for both input and output shafts.

All couplings shall be adequately rated for the full power and torque rating of the motor to which they are coupled, plus 15% safety margin.
All fluid couplings must be offered with a temperature safety device, which will safely release the oil in the event of the coupling overheating.

11.0 MECHANICAL DRIVES

11.1 Vee-belt drives

Where used vee-belts shall be standard sections and lengths conforming to the latest edition of CKS 332 - 1972, "Specifications for industrial vee-belts".

Belt drives shall be designed and selected assuming direct on line starting of a squirrel cage motor and heavy duty operation for 24 hours per day. Design and selection shall be in accordance with the Fenner Power Transmission design manual or equivalent.
Design shall be based on at least 2 starts per hour for all air conditioning applications.
The power rating of the drive shall be based on full rating of the drive motor. Pulleys shall be fitted with taper lock bushes. No pulley shall have a diameter smaller than that recommended by the belt manufacturer with minimum diameter being 100mm, and no non-standard pulley will be accepted.

No drive above 1kW rating shall have less than two belts.

Pulley size and centre distance shall be designed to ensure a belt contact arc over the smaller pulley of not less than 120º.

Pulleys shall be manufactured from close-grained cast iron with grooves matching belt sections and properly machined with smooth edges and wear surfaces.

Inward and outward adjustment of the drive motor and pulley combination shall be possible with proper locking mechanisms to enable correct belt tensioning and ease of replacement of belts.

All belt tensions shall be checked within 24 hours of first delivery and again one week later and adjusted as necessary.

Belt speeds exceeding 15 m/s and speed ratios greater than 7:1 are not acceptable.

11.2 Chain Drives

To facilitate maintenance, spares inter-changeability and standardisation, chains where selected, shall be standard stock roller type precision drive chains of reputable manufacture.
The axial and angular alignment of wheels and chains shall be carefully checked to very close tolerances to ensure maximum life and trouble free operation.
The amount of adjustment possible to take up chain wear shall be not less than 2 pitches or 2 percent elongation above nominal chain length, whichever is the greater. Chains shall be lubricated in accordance with manufacturer's recommendations.

12.0 PACKING OF EQUIPMENT

12.1 All base plates and steel work shall be suitably packed with steel packs to ensure that they are true to level, line and grade. The thickness of packing shall be such as to allow for not less than 25mm, and not more than 50mm of grout under all base plates or steel work. Packings shall be of suitable size to support the base plates and one pack must be situated immediately on each side of each holding down bolt as well as in such other positions as may be directed by the Engineer in order to adequately support the base plates and its superimposed load.

12.2 All packs shall be as near as possible to the exact height in one thick piece. Thinner shims may be used for final adjustments, but large piles of thin shims will not be accepted. All packs must be of parallel shims. Taper packs or wedges will not be accepted. Packs must be bedded on a flat and smooth area on the surface of the concrete foundation. Packs resting on rough concrete will be rejected.

12.3 After final levelling and lining up, it is essential that all packs are tight. Loose packs will be rejected.

12.4 No shims will be permitted between a machine base and plate and the machine's feet except as mentioned hereinafter.

13.0 ALIGNMENT OF EQUIPMENT

13.1 Bedplates

Where equipment is delivered completely assembled on a bedplate, these items of equipment shall be removed from the bedplate prior to installation. The bedplates shall first be installed, levelled, lined up and packed to ensure that there is no twist or distortion therein. The machines shall then be installed on their bedplates and the final alignment carefully checked and adjusted until it is to the entire satisfaction of the Engineer.

Minor corrections to the alignment of machines may be carried out using thin shims between the machinery feet and the machined surface of the bedplate. This applies particularly to electric motors. A maximum level error of 20 seconds of arc, or as decided by the Engineer, will be allowed.

13.2 Couplings

The alignment of all couplings must be carefully checked for both the parallelism and eccentricity of their shafts. Alignment must be carried out to the maker's tolerance and to the entire satisfaction of the Engineer.

In any event, a misalignment of more than 0,05mm will not be permitted for either parallel or eccentric misalignment as measured at the periphery of the couplings. It is essential that a dial micrometer is used to set the final alignment, which must be witnessed by the Engineer.

13.3 Vee-belts and chain drives

The alignment of vee-belt drives and chain drives shall be carried out with a precision steel straight edge in the case of short centre drives, or by means of a nylon line in the case of long centre drives.

The Contractor must ensure that all belts and chains are correctly tensioned in accordance with the maker's instructions.

13.4 Gearboxes

All gearboxes shall be carefully checked for level and twist. No twist in the gearbox casing will be permitted. After final levelling and bolting down, the gear teeth shall be marked with Engineer's blue, and the meshing and bearing of the teeth checked and corrected to the satisfaction of the Engineer.

14.0 ASSEMBLY OF COMPONENTS

14.1 It is essential that all mating components such as couplings, taper lock bushes, machined faces, etc., be thoroughly cleaned with a suitable solvent before assembly. All surfaces must be free from burrs or irregularities, which may prevent the correct mating of the surfaces.

14.2 A molybdenum-disulphide lubricant similar or equivalent to Mobil-grease Super shall be used on the threads of all bolts and between the mating surfaces of all parts closely fitted together, such as shafts and couplings, keys and base plates. PTFE tape shall be used in all screwed pipe connections.

15.0 WELDING

15.1 Welding shall be carried out in accordance with the current edition of SANS 044 Parts I to VII where applicable.

15.2 All welded filler or butt joints shall be free from porosity, cavities and entrapped slag. Joints shall be ground smooth, if required for aesthetic reasons only, without effecting weld strength.

15.3 The joints in the weld run, where welding has been recommended, shall be as smooth as possible and shall show no pronounced hump or crater in the weld surface.

15.4 The profile of the weld shall be uniform, of approximately equal leg length and free from overlap at the toe of the weld. Unless otherwise specified the surface shall be either flat or slightly convex in the case of fillet welds and with reinforcement of not more than 3mm in the case of butt welds. The weld face shall be uniform in appearance throughout its length.

15.5 Filler metal electrodes shall be of an approved type for the material being used and shall be kept in a dry condition. All electrodes shall conform to SANS 0455.

15.6 Only welders in possession of a valid approved competence certificate shall be employed.

15.7 All welds must show proper fusion.

15.8 Where welding is contemplated in pipe work systems, Tenderers shall allow for the removal and testing by an approved body of 5% of the welded joints in the system. These will be removed at random as indicated by the Engineer and tested. Should faulty welding be discovered, all other joints shall be X-ray tested by the SANS or an approved body, all at the expense of the Contractor.

16.0 GALVANISING

16.1 Unless otherwise specified in the Detailed Specification the following items shall always be galvanised:

a) Fabricated mild steel sections exposed to the weather.
b) Steel grilles and louvers exposed to the weather.

16.2 Where hot dip galvanising is called for, items to be galvanised shall be entirely pre-fabricated and then dismantled in sections for galvanising. No cutting of threads or welding will be accepted after galvanising.

16.3 All hot dip galvanising shall be carried out in accordance with SANS 0934 and SANS 0763 where applicable, including preparation for galvanising.

16.4 Mild steel plate and sections shall be of good commercial quality, or higher grades, best suited for galvanising. The materials shall be free from slag or coarse laminations, fine fissures and rolled-in impurities.

16.5 Castings shall be sound, dense and clean, and free from distortion, porosity, carbon and slag enclosures, blowholes, and other injurious conditions.

16.6 Welding flux shall be chipped away and all welds wire brushed before galvanising.

16.7 The surface to be galvanised shall be free from paint, oil, grease and similar impurities.

16.8 All exposed surfaces including welds shall be thoroughly sand blasted prior to galvanising.

16.9 The Engineer reserves the right to inspect all steel components before galvanising, and shall have the right to reject or ask for remedial treatment of any material which is considered to be unsuitable. This applies particularly to welds.

16.10 The galvanising coating shall be smooth, adherent, continuous and free from black spots or flux stains.

16.11 Globular extra-heavy deposits of zinc, which interfere with the intended use of the material, will not be acceptable. Excessively protuberant lumps and nodules shall be removed by hot wiping or by the skilful application of mechanical means, however there shall remain a sufficient minimum thickness of unbroken zinc coating. Flaws on small parts and working surfaces shall be repaired only by stripping and re-dipping.

16.12 Repairs to galvanised coatings will not be accepted. Items damaged will need to be re-galvanised.

16.13 Coating thickness shall be as per table 1 of SANS 0763 unless otherwise specified in the Detailed Specification.

16.14 The SANS requirement for uniformity shall apply.

16.15 Galvanised surfaces specified with paint finishing shall not be passivated.

17.0 BEARINGS

17.1 Anti-friction

Anti-friction bearings shall include all bearings, which provide rolling contact between one or more sets of hardened steel balls or rollers and hardened steel rings or raceways.

Anti-friction bearings shall be of approved manufacture and available throughout South Africa.

To facilitate maintenance, spares interchangeability and standardisation, anti-friction bearings of standard design and manufacture shall be employed. All anti-friction bearings shall be provided with greasing facilities in accordance with manufacturer's requirements.

17.2 Bushed Bearings

Only where specifically stated in the Detailed Specification and in the case of low velocities and light loads in moisture free conditions will bushed bearings be accepted. All bushed bearings shall be made of an approved bearing metal composition, which has good anti-friction qualities and is capable of withstanding severe usage in the specific application.

All bushed bearings shall be provided with lubrication facilities to ensure adequate lubrication and shall be properly grooved to distribute the lubricant uniformly over the bearing surfaces. Grooves shall not be cut into the journal, but always into the surrounding bush. The edges of all chambers and grooves shall be rounded to avoid sharp corners and to facilitate the introduction of the oil or grease between the journal and the bearing metal.

17.3 Self-lubricating or oil less bearings

Self-lubricating or oil less bearings shall only be used on application of light and low velocities in moisture free and low humidity conditions and where access to bearings is difficult and likely to be neglected during servicing.

The type of bearing metal composition used shall have frictional and wear resistant properties akin to those of grease lubricated bushed bearings.

18.0 NOISE AND VIBRATION CONTROL

18.1 General

Unless otherwise specified in the Detailed Specification the design,
Manufacture and installation of all the mechanical and electrical equipment shall be such as to ensure compliance with the relevant sections of SANS 0103 of 1983 "The Measurement and Rating of Environmental Noise with Respect to Annoyance and Speech Communications", as amended.

Any installation where the measured residual sound level exceeds the maximum desired residual sound level as per SANS 0103 shall be rectified to comply with SANS 0103 at the Contractor's own expense.

In all plant room applications where airborne noise cannot be limited or comply with the set standards, provision shall be made for acoustical treatment of the equipment involved or, alternatively, total enclosure thereof with acoustical panelling to comply with requirements laid down in this specification.

Such provisions shall be included in the tender price and no claims for payment to comply with this requirement will be entertained.

18.2 Vibration Isolation

Proper provisions shall be made in the foundations and mountings of all equipment capable of transmitting vibration forces to its environment, whether local or remote, (As is the case with pipes) for vibration isolation.

19.0 DAMPING

19.1 Where static deflections in excess of 8mm are indicated, steel springs shall be employed incorporating acoustic sound pads in series with the spring.

The horizontal stiffness of the springs shall not exceed that in the vertical, in particular for systems mounted at vertical frequencies below 5Hz.

Low frequency mounts shall incorporate rubber snubbers to accommodate extreme horizontal or vertical motions such as can occur near resonance during start up.
The snubbers shall however not be relied upon to provide the necessary horizontal stability of the machine in normal operational conditions.

Spring layouts and inertia blocks shall be employed to avoid this situation.

For static deflections below 8mm, rubber in sheer mounts may be used provided the frequency is above 6Hz.

For small static deflections less than 4mm and particularly for high-speed machines and general acoustic isolation, ribbed rubber neoprene composite pads may be employed subject to the specified requirements.

No equipment shall be installed in critical areas without correct and approved vibration isolation. Sufficient stability and damping shall be incorporated in the mountings to minimise the movement of the machine during start up or changes in the operating conditions.

The selection of mounts shall take proper cognisance of unequal distribution of the mounting weight of equipment and rotational and/or pressure forces acting thereon.

20 PUMPS

20.1 All pumps with their motors shall be mounted on a base frame, which shall be installed on concrete plinths.

In addition it is required that pumps installed indoors and in critical areas shall be installed on anti-vibration mountings with inertia mass bases with mountings selected for correct static deflection.

Bases for pumps in non-critical areas shall be installed on rubber in sheer mounts as a minimum, depending on the pump selection and locality of the pump.

Where required in the Detailed specification, pumps shall be totally enclosed in acoustic panelling to reduce noise breakout to the immediate vicinity and surrounding areas.

21.0 FANS

21.1 Centrifugal Fans

No centrifugal fan shall be selected in a class range other than Class 1 or 2 and the rotating speed of the fan at duty point shall not exceed 1 440 r/min.

Centrifugal fans in critical areas and fans above 7,5kW shall in all cases be mounted together with the drive motor on anti-vibration mountings together with the correct inertia mass.

21.2 Propeller Fans

Propeller fans shall comply with the criteria already laid down and shall be carefully selected for the highest possible efficiency with due regard for the noise criteria.
Propeller fans in excess of 0,5kW and of rotational speed higher than 800 r/min shall, in addition to the requirements already laid down, be mounted on correctly selected and installed anti-vibration mountings to reduce possible vibration transmission to surrounding structures.

21.3 Axial Flow Fans

Axial flow fans shall be selected for the highest possible efficiency and comply with the noise criteria specified. In critical areas no fan shall be installed without attenuators on inlet and outlet sides.

In addition it will be required that the fan as a whole be mounted on anti-vibration mountings and where specified in the Detailed specification, it may be required for the fan to be enclosed in acoustic panelling.

No axial flow fan may be installed without anti-vibration mountings to match the fan characteristics and in critical areas it may be required for the axial fan to be provided with inertia mass to match.

Fan rotational speeds specified in the Detailed Specification shall not be exceeded.

22.0 AIR HANDELING UNITS

22.1 General Application

Air handling units shall comply with the requirements already laid down for noise vibration and noise criteria.

In the case of built-up air handling units, the fan and motor unit shall be mounted on anti-vibration mountings and in the case of critical areas, be provided with additional inertia mass to comply.

In the case of packaged factory-built units, it shall be necessary to mount the fan and motor unit on anti-vibration mountings internally to the unit and in addition, it will be required for the air handling unit as a whole to be mounted on anti-vibration mountings of the correct static deflection characteristic.

In critical areas, it will be necessary to provide additional inertia mass for the fan and motor combination in addition to the above.

Where necessary to comply with the noise criteria laid down, air handling units shall be provided with internal acoustic panelling to match the fan characteristic and to comply with the noise criteria laid down.

23.0 PIPING

23.1 General

Under no circumstances may any piping be directly connected to noise generating equipment such as pumps, chillers, cooling towers etc.

Connections to such equipment shall be made with correctly selected flexible rubber type connectors of the spherical type.

In critical areas double spherical rubber type isolators immediately adjacent to the noise generating machine will be required.

23.2 Pipe Penetrations Through Walls

Under no circumstances will pipe penetrations through walls be permitted where the pipe comes in direct contact with the surrounding wall or structure.

At such penetrations it is required that a sleeve of 25mm thick soft neoprene, or other approved material, be provided around the piping at the penetration and, where plastering is applied, plastering shall be cut back to the outer edge of this sleeve.

Rubber links similar to the LINK-SEAL bolted type are preferred.

23.3 Pipe Supports

In all critical applications and within the first ten meters of all equipment, it is required that pipe supports shall be of the flexible type, correctly selected for the application and with the correct static deflection.

Any other areas and applications at risk of noise or vibration transmission to the surrounding structure similarly require pipe mountings isolated from the structure.
Pipe supports fixed to sensitive building elements will not be permitted.

23.4 Refrigerant Piping

Refrigerant piping in critical applications shall similarly be supported on anti-vibration mountings and in addition, delivery and suction piping at compressors and air handling units shall be provided with at least two braided flexible connections installed at 90° to each other and in close proximity of each other.

24.0 SOUND ATTENTUATORS

24.1 Where required, in order to comply with the noise and vibration criteria already laid down, or where specified in the Detailed specification, sound attenuators shall be provided for ventilation, air conditioning and all other plant (Duct mounted and/or as applicable).

Primary sound attenuators shall be installed near or in the plant room.
The attenuators selected shall match the specific fan or plant characteristics to ensure the correct insertion loss to meet the sound criteria laid down.

Unless otherwise specified, sound attenuators shall be installed with flexible connections at the inlet and outlet connections.

The sound attenuators shall in addition be selected to produce the minimum pressure loss across the attenuator coupled to the least re-generated noise level produced by the flow through the attenuator.

24.2 Unless otherwise specified, air path sound attenuators shall be manufactured from galvanised sheet steel with the sound absorption material moisture repellent and erosion resistant up to 20 m/s air speed, and preferably flange connected.

Wherever possible attenuators shall be proprietary type supplied by the same manufacturer as the plant manufacturer to ensure complete compatibility.

Where not clearly indicated on the drawings, attenuators shall in all cases be provided at points where supply and return air ducting leaves the plant room and shall be installed to prevent noise breakout from the plant room via the ductwork.
Where specified in the Detailed Specification and indicated on the drawings, additional cross talk attenuators shall be installed in the air conditioning or ventilation ductwork.

The internal free area of sound absorbers shall be not less than the cross sectional area of the connecting duct as indicated on the drawings.

24.3 Field fabricated type sound absorbers shall be made as follows:-

All sides of rectangular ducting shall be double walled with the inner walls perforated with 10mm holes at 25mm centres. The space between the two sidewalls shall be divided into 3 unequal sections by means of 25mm thick cement fibre panel strips and filled with glass wool. The lining thickness shall be at least 80mm. Circular
ducts shall be lined as specified above except that the lining thickness shall not be less than 100mm.

25.0 AIR FILTERS

25.1 General

Filters of the type, size and quantity as specified in the Detailed Specification shall be provided.

Filter efficiency and arrestance shall be in accordance with ASHRAE Test Standard 52-76.

Filters and filter holding frames shall be of approved manufacture with standardised dimensions to enable replacement with equivalent filters of all recognised manufacturers.

Construction and manufacture of all components shall be such that under no circumstances any unfiltered air can by-pass filters or filter banks.

Sufficient space shall be allowed in front or behind filters, as applicable, to enable inspection and servicing.

Proper access doors shall be fitted to filter service areas.
Filters installed close to exposed air inlets shall be weather protected with weather louvers and a wire mesh screen.

Tubes for the measuring of the pressure drop across each filter bank shall be fitted as standard to enable connecting a manometer or other instrument as specified.

All filters and filter banks, including two-stage high efficiency and final filters shall be fitted with inclined pressure differential manometer gauges, clearly marked with filters clean (green) and filters dirty (red) indicators of a permanent type.
A separate manometer shall be fitted for each filter stage.

Fan and system selection shall allow for expected final filter resistance to ensure a supply air quantity in excess of 90% of design air quantity immediately prior to filter replacement.

Unless otherwise specified in the Detailed Specification only dry media filters are required. Where specified, pressure monitoring across a filter bank or banks shall be fitted for alarm purposes using differential pressure switches to activate the warning alarm or indicator required.

Where air filters of the washable type are specified in the Detailed Specification a suitable filter wash tank and stand complete with a drying rack shall be provided in each plant room.

The wash tank and stand shall be manufactured from galvanised steel and epoxy powder coated. The wash tank shall be connected to mains water and a suitable overflow and drain piped to the building drain fitted. The drying rack shall hold at least 20 filters. Where washable filters are specified one complete set of spare filters shall be provided.

25.2 Panel Filters

Panel filters shall be of the pleated type and not less than 50mm thick.
The filter shall be washable or disposable as specified.

Synthetic media shall be used bounded together with galvanised wire for reinforcing and bonded in the frame ensuring no air bypass.

The frame shall be galvanised steel or a distortion and corrosion free moulding.
Initial synthetic dust arrestance shall be not less than 70% with dust holding capacity needed in excess of 300g per square meter nominal face area.
Initial dust spot efficiency shall be not less than 20%.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

25.3 Pad Type Panel Filters

Pad type panel filters shall make use of disposable replacement media of thickness as specified, but generally not less than 25mm thick.
Disposable media supplied and the filter in general shall comply with 24.1 above, unless otherwise specified.
The media shall be held in galvanised steel frames with galvanised steel screen supports on both sides. The downstream screen shall be fixed in the frame with the upstream screen removable.

25.4 Extended Surface Intermediate Efficiency Filters

Filter media shall be self-supporting, leak-free and stable under all airflow conditions.
Front frames shall be of aluminium, galvanised steel or reinforced high-density hard polyurethane foam with a continuous foam rubber gasket.
"Slide-in" type of arrangements will not be accepted for filters in this class.
Filter depths less than 150mm will not be accepted.

Galvanised protection screens shall be fitted to match the airflow arrangement.
Initial synthetic dust arrestance shall be not less than 85% with dust holding capacity not less than 1500g per square meter nominal face area.

Nominal filter face velocity shall not exceed 2,5m/s with initial clean filter resistance 60Pa or less and recommended resistance at specified arrestance not more than 250Pa.

25.5 High Efficiency Particulate Air Filters (HEPA)

Filter media shall be self-supporting leak-free and stable under all airflow conditions.

The media shall be bonded in to a pressed and sealed particle board housing.
Unless otherwise specified in the Detailed Specification filters shall be provided with silicone filled channel seals.

"Slide-in" type of arrangements will not be accepted for filters in this class.
Filters shall be arranged in two or three stage configuration with the primary filters complying with clauses above as specified in the Detailed Specification.

Filter depths less than 300mm will not be accepted and effective filter media surface area shall exceed 50m per square meter nominal face area.

Each filter shall be individually tested in the factory for leakage with a DOP aerosol and supplied to site in completely sealed protection containers.

Corrugated media separators shall be of aluminium or Kraft paper.
Filter efficiency shall be not less than 99,9% when tested with 0,3 micrometer Dioctylphthalate smoke.

Dust holding capacity shall not be less than 2 000g per square meter nominal face area.

Nominal filter face velocity shall not exceed 1,5m/s with initial clean filter resistance to be 250Pa or less and final resistance not to exceed 500Pa.
Pressure monitoring across the HEPA filters is required with warning light and/or alarm as specified.

25.6 Filter Holding Frames

Filter holding frames shall be the manufacturer's standard product installed and used in accordance with his recommendations.

Holding frames shall be manufactured from at least 16 gauge galvanised or epoxy powder coated steel. Holding frames may be bolted or riveted together and shall be suitably reinforced in larger arrangements to withstand all possible operating conditions.

Fasteners shall be positive sealing type and a minimum of four fasteners per filter is required. Fasteners shall match the particular filter, filter arrangement and frame.

27.0 MEASUREMENT OF COMPLETED WORK

The attached Bills of Quantities is provisional, which means that the Bill does not represent the exact scope of work to be performed and completed and that every piece of completed work will be measured and agreed with the Contractor before payment is processed.

28.0 UNAUTHORISED EXPENDITURE

Although the Engineer has conducted the audit of the buildings installations other items may have degraded in the intervening period up to site handover. It is therefore very imperative for the Contractor to bring to the Engineer’s attention as soon as he / she realises that the work measured in the Bill of Quantities may be appreciably exceeded. Failure to observe this procedure where the Contractor proceeds with excessive additional work without authorisation will be tantamount to unauthorised expenditure which may lead to non-payment for unauthorised work.

29.0 SPECIFICATIONS & STANDARDS

The works carried out under this Contract shall be governed by the:

(i) The latest issue of SANS 10142: “Code of Practice for the Wiring of Premises”

(ii) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended

30.0 SCHEDULE OF MATERIALS

In all instances where schedule of materials are attached or included on the drawings, these schedules are to be regarded as forming part of the specification.

31.0 QUALITY OF MATERIALS

Materials are to comply with the relevant South African National Standards (SANS), or to IEC specifications, where no SANS specifications exist. All materials used shall bear the SANS mark of approval as applicable.

32.0 PROGRAMME AND PLANNING

The sequence, in which the work must be carried out, must be established in consultation with the Main Contractors construction programme, Sub-contractors and their respective Domestic contractors. The Engineer must be kept informed on the progress all the time.

33.0 SUPERVISION

The work shall, at all times be carried out under the supervision of a skilled and competent representative of the Contractor, who will be able and be authorised to receive and carry out instructions on behalf of the Contractor.

34.0 WORKMANSHIP

All inferior work shall, on indication by the Engineer, immediately be removed and rectified by and at the expense of the Contractor.

35.0 SUPPLY OF MATERIAL

The Employer reserves the right to supply any items of material or equipment to the Contractor for installation. The Contractor must arrange for taking delivery of and providing safe storage for these materials and he will be held responsible for all damages to or loss of such materials while they are in his custody.

36.0 COMPLETION

Completion shall take place only after the whole installation has been accepted by the Engineer and

(a) All damage that may have been done by the Contractor in the process of the installation has been repaired and made good

(b) All tests of the Mechanical installation has been done and tests results have been submitted to the Engineer,

(c) The completed Certificate of Compliance as specified has been submitted to the Engineer,

(d) All equipment guarantees, if any have been submitted to the Engineer,

(e) The work site has been cleared of all debris and waste materials and left in a neat and tidy condition.

SECTION 13.3: DETAILED SPECIFICATION

HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

1.0 INTRODUCTION & GENERAL

This Detail Specification complements & qualifies the foregoing standard specifications of material & workmanship. The Standard Specification should be regarded as a basis and guideline, with this Detailed Specification taking preference where any ambiguity is concerned.

In the event of any further technical ambiguity between sections of this enquiry, then the sections will be considered in the following order of priority:

a) Schedule of quantities
b) Project specification
c) Drawings (loose and bound-in)
d) Standard specification

2.0 SITE CONDITIONS

Location:	Port Elizabeth (Eastern Cape)	
Altitude:	At sea level.	
External:	Summer Max. Average	: 34,0 DB : 23,0 WB
	Winter Min. Average	: 10,0 DB : 55% RH

3.0 SCOPE OF WORK

General

The standard specification shall apply unless otherwise indicated in this section.

The drawings issued herewith and listed in the relevant section are to be read in conjunction with the specification and all items mentioned, together with all ancillary equipment necessary for the correct installation, operation and full compliance with the Standards and codes must be provided, notwithstanding the fact that they may not have been included in detail in these documents.

The bidder shall, at the time of bidding, draw the Engineer's attention to any omissions or discrepancy between the specification and the drawings and request from him clarification of details or responsibilities.

If a limited allowance or special conditions are made for the Bid Sum for the supply or erection of any item of the installation, the limit or special conditions shall be defined at the time of bidding.

It is the sole responsibility of the bidder to ensure that all quotations obtained from manufactures and suppliers are complete in their entirety and must include all equipment and accessories necessary for compliance with current practice and the efficient and proper functioning of the installation.

If any such items of equipment, brackets and accessories, etc., have been omitted from a supplier's quotation, or incidental work is necessary, the bidder must include for all such items and work in the bid.

The whole installation shall be in accordance with the latest edition of the Occupational Health and Safety Act: No. 85 of 1993. All regulations framed therein, shall be carried out to the satisfaction of the Engineer.

All equipment offered by the bidder shall be to the approval of the duly appointed Engineer, prior to installation. This standard specification and the supplementary specification with drawings shall be

carefully adhered to by the bidder. Equipment installed without the approval of the Engineer will have to be removed at the Contractor's expense and be replaced with officially approved listed items.

The successful bidder will be required to prove to the Engineer that he has qualified personnel on his staff establishment as well as recognised test equipment for the successful completion of a safe working installation.

The contractor shall employ only skilled artisans and technicians approved by the Engineer who are competent in this type of work. The work shall be carried out in accordance with the standards laid down by the Engineer.

The contracting firm shall be recognised contractor specialising in this field and approved by the Engineer.

The work performed shall comprise the supply, delivery, off-loading, interim storage, installation, testing, commissioning and leaving in good working order of the complete electric access goods only lift installation inclusive of all guarantees as specified herein and the supply of 'AS IS' installation record drawings, Maintenance and Operating Manuals for:

1. Installation of Air Conditioning equipment to CICU:
    - Existing, uninstalled, TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit, located in plant room, for CICU,
    - New TOSHIBA model MMY- MAP1206FT8P-E VRF33.4 kw outdoor Heat Special condenser elbow fitting, existing, uninstalled,
    - Refrigerant reticulation,
    - Selector boxes,
    - Branch Kits,
    - Indoor cassette units,
    - Wired remotes,
    - Trunking / Wire Basket / Conduit and Condensate

2. Installation of new fresh air ventilation to CICU:
    - Ducted branch reticulation, main supply ducting already installed in plant room,
    - Box Fan,
    - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,

3. Installation of new extract air ventilation to CICU:
    - Ducted reticulation,
    - Box Fan,
    - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,

4. Installation of Air Conditioning equipment to CSSD:
    - Installation of ceiling cassette,
    - Refrigerant reticulation to selector box in Cathlab,
    - Wired remote,
    - Trunking / Wire Basket / Conduit and Condensate

5. Installation of new fresh air ventilation to CSSD:
    - Ducted reticulation,
    - Box Fan,
    - Filter boxes & filters + installation of magnihelic pressure units, existing, uninstalled,

The liaison with a Building/Principal Contractor, Electrical Subcontractor, Fire Detection and Extinguishing Systems Subcontractor and their Domestic Subcontractors if and when required

Testing and commissioning of all air-conditioning and ventilation system equipment in conjunction with the Fire Detection and Alarm Evacuation Systems Sub-contractor.

This Sub Contract also includes all electrical work for the installations but excludes the power supply to the isolator provided by others.

Notwithstanding any omission in this specification the installations shall be complete in all respects. This condition shall be recognised in the preparation of all working drawings submitted for approval. Further, despite any approval of working drawings given by and on behalf of the Main Contractor the responsibility for correct functioning of the plant during tests, inspection and the maintenance period shall rest entirely with the successful bidder.

The installation shall be strictly in accordance with the approved drawings or such further drawings, modifications, or instructions as may be given by the Engineer concerned, or that are found to be necessary, and such modifications or instructions shall be deemed to be within the specification for the purpose of the bid, and shall not vitiate the contract.

Payment for such modifications will only be made on certification by the Engineer to the effect that such modifications have involved additional expense to the Sub-Contractor.

4.0 PROGRAMME

The Sub Contractor shall complete the installation within the time stipulated. The Sub Contractor will be required to report to the Principal Contractor, generally on a weekly basis (or more often if required by the Principal Contractor), progress of work and any difficulties arising, to enable the Principal Contractor to update the programme or forward plan any changes.

The sequence in which the work is to be carried out shall be decided upon in consultation with the Principal Contractor. The Sub Contractor shall thereafter submit an adequately detailed Sub Contractor's installation programme for approval within two (2) weeks of the Sub Contract being awarded unless otherwise indicated herein after.

This programme must be periodically updated as the work progresses and as may be necessary to meet changing site conditions and alterations to the overall installation programme.

Programmes shall take the form of bar charts, network diagrams and schedules as may be required by the Main Contractor or as applicable, and shall reflect quantities of work as required for supervision purposes and measurements.

As a minimum the programme shall reflect:

- sequence and timing of installation activities.
- sequence and latest event times of major equipment ordering, manufacture and delivery dates.
- sequence and dates for the submission of drawings and samples for approval.
- sequence and dates for factory and site inspections and tests.
- target and achieved work quantities on a weekly, fortnightly and monthly basis.

In preference all work is to be undertaken by staff in the full time employ of the bidder.

All work which is to be undertaken by “Domestic Sub Contractors” of the Sub Contractor will be clearly identified in the bid submission and the Sub Contractors to be used subject to prior approval of the Client and/or Engineer and/or Principal Contractor; failure to comply with this requirement may result in the “Domestic Sub Contractors” being removed from site.

All costs in replacing the undesirable "Domestic Sub Contractor" or any delays incurred as a consequence of this will be entirely for the Sub Contractor's account.

5.0 DESIGN CONDITIONS

Indoor: 21ºC 50% RH

Outdoor: 34ºC DB; 23 ºC DB

6.0 AIR CONDITIONING SYSTEM DESCRIPTION

6.1 General

The bidder shall allow for programming the work in such a manner as to not disrupt the Main Contractor's programme. Sequence of work to suit the Sub Contractor's requirements will not be guaranteed nor accepted.

Claims from Sub Contractors arising out of broken work sequences or agreed programmes changed due to contingent requirements, will not be considered unless full motivations for the extra costs are submitted; the motivation for extra costs must justify costs in terms of the accepted programme and any unforeseen and justifiable additional staffing levels required to meet targets revised with insufficient notice. Reallocation of staff and/or acceleration of work will not be reason enough to claim for extra costs unless the Sub Contractor can prove that he has indeed had to pay for staff's idle time which was not or could not be envisaged at the time of biding and/or drawing up the installation programme and sequence. When claiming for extra cost all out of town cost will be disallowed as it is assumed that the Sub Contractor has fully staffed premises in the vicinity of the site.

The Subcontractor must also assume that work may be required to continue uninterrupted outside of normal working hours and/or for an extended and/or unbroken period of time.

6.2 HVAC UNITS SPECIFICATION

6.2.1 Air Conditioning VRV

The Tenderer is to supply, install, test and commission the following:

Air conditioning units:

- Heat recovery VRF outdoor unit,
- Multi outdoor connector kits,
- Branch Selector units,
- Branch piping kits,
- VRV ceiling cassette units, various sizes,

6.2.3 Ceiling Cassette Units:

Single phase VRF type ceiling cassette units, four (4) way blow, semi recessed units.

Units shall come standard with:

- occupancy sensor,
- condensate pump,
- rotary air sweep vane deflectors inside all four outlets,
- return air pleated and washable course filter,
- fresh air intake,
- automatic restart in event of power failure,

6.2.4 Filtration

Air filtration shall be as specified in accordance with the Department of Health's "Filtration and Air Flow Requirements".
These filters shall be accessible from the Service Areas.

Primary and secondary filters shall be secured by means of no less than four (4) holding 304 stainless steel clips.
Filters housings shall be fitted with Magnahelic manometers marked with the filter's operating parameters.

6.3 CONTROLS

Air Conditioning Control(s):

- The individual air conditioning control(s) shall be wired remote controls for ceiling cassette units,

The Controls to feature:

- Room Temperature Settings – Hot to Cold variable.
- Fan speed.
- Louver swing
- Timer settings
- Air direction settings
- Sleep mode settings
- Clock settings
- LED display
- ON / OFF button

7.0 ELECTRICAL

Overloads shall be adjustable to approximately 25% higher than the relevant motor overload current.

Wiring in panels shall be neatly run in vertical or horizontal lines and each terminal shall be numbered to accord with the relevant wiring and control diagram. Circuit breakers, timers, relays, etc. shall be labelled in accordance with the wiring diagram and the item of plant served.

8.0 OPERATING AND MAINTENANCE MANUALS

8.1 Operating Manuals

Three complete sets of operating manuals shall be supplied by the Contractor, two sets to the Engineer for onward forwarding to the Employer and one for the User Department's use.

Manuals must be compiled in layman's language.

At least one month before commissioning, one draft copy shall be submitted to the Department/Engineer for comments and approval.

Operating manuals shall give a clear description of and the purpose of the installation.

(a) Paper copies of all approved drawings and diagrams.

(b) Detailed description of the different components used in the installation.

(c) On- and off switching procedures.

(d) Guidelines for routine-test to be carried out by the User Department inclusive of the periods during which tests are to be undertaken.

(e) Detailed instructions for procedures to be followed during a fault

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

8.2 Maintenance Manuals

Two complete sets of maintenance manuals (Technical) prepared in English, shall be supplied by the Contractor.

At least one month before commissioning a draft copy shall be submitted to the Department/Engineer for comments and approval.

Maintenance manuals shall consist of the following:

(a) A general description of the system.

(b) A general description of the controls.

(c) Schedule of equipment, model numbers, optional extras, modifications, electrical power requirements, etc.

(d) Detailed monthly, quarterly, semi annually and annual preventative maintenance procedures.

(e) Manufacturer's catalogues clearly indicating type, size and model of equipment supplied.

(f) Tabulated commissioning data of all equipment and the system, indicating- as measured and according to specification - requirements.

(g) List of suppliers, addresses and telephone numbers.

(h) List of spare parts for all equipment.

(i) Fault tracing/finding procedures.

The following drawings are required:

- Layout drawings
- Wiring drawings showing wire colour codes and numbers as well as all connections onto terminal strips (markers to be approved by the Engineer) of all plant new and existing.

The following documents are required:

- Full description of the system.
- Operating instructions.
- Installation instructions.
- Commissioning instructions.
- Maintenance instructions, maintenance schedule and trouble shooting guide.

Manuals shall be bound in a firm hard cover.

The information shall be clear and readable and supplied with an index.

The above mentioned manuals shall be available at first delivery. Delivery of the installation will not be accepted without the manuals.

9.0 TRAINING OF STAFF

The bidder shall allow for sufficient time for instructing the User's appointed responsible persons in the correct operation of all plant and equipment, procedures to be followed in the event of faults etc.

Two sets of instruction manuals shall be provided. Each manual shall comprise of the following sections, bound in a vinyl plastic covered folder with the name of the project typewritten on a card inserted into a clear plastic covered cardholder on the front cover and spine and shall be handed to the Main Contractor on completion of the installation:

- Table of Contents
- Functional Description of Plant (as installed)
- Operation of Plant (as installed – step by step instructions for setting temperatures, etc.)
- Plant and Equipment (a scheduled list of all major plant to include description, make, model number and supplier's name and address).
- Performance Testing Procedures including Test Report
- Maintenance Instructions (in schedule form setting out each item of plant, the description and frequency of maintenance operations required).
- Spare Parts (list of spare parts that shall be required, with detailed description of each part, make, model or part number and supplier's name and address).
- Descriptive Literature (for all items of plant and equipment).
- Record Drawings (of plant as installed to include plant layout drawings showing component location, control and wiring diagrams and schematic piping diagrams).

10.0 GUARANTEE

The entire air-conditioning and ventilation / extraction installation shall be fully guaranteed for twelve calendar months from date of acceptance by the Engineer and contract practical completion date.

During the guarantee period, the Tenderer shall be responsible for the making good of any defects reported by the Tenant. The guarantee shall be ceded to the Superintendent following acceptance of the installation.

11.0 MAINTENANCE

The air-conditioning Tenderer shall be responsible for the maintenance of the entire plant during the guarantee period, as specified in this document. During this period the plant shall be serviced quarterly including filter cleaning and the Superintendent undertakes to provide access to the plant at suitable times during trading hours. Record of all services shall be kept and copies signed by the Superintendent.

12.0 CERTIFICATION ON COMPLETION OF GUARANTEE & MAINTENANCE PERIOD

In the month prior to the expiry of the guarantee / first twelve months maintenance period, the Engineer shall inspect and, if necessary, retest the installation so as to be able to provide the Superintendent with a certificate, within fourteen days of the guarantee expiry date. This is to confirm that the guarantee has been honoured and that the installation has been properly serviced at required regular intervals by the air-conditioning Tenderer.

13.0 SAMPLES & ALTERNATIVES

Samples (within reason) will be requested by the Engineer and are to be made available on-site for inspection / approval.

The tender prices shall be based on the equipment as specified and not on any alternatives. Should the Tenderer wish to submit prices for alternatives, he shall do so separately, in a letter or similar correspondence, attached to the tender. The use of any alternative equipment, if any, will be evaluated and decided on after tender award, when the costs, etc. will be negotiated with the successful Tenderer.

The Engineer reserves the right to call for prices on alternative equipment subsequent to tender submission.

14.0 SCHEDULES OF INFORMATION

The schedules of information contained in this document consists of 2 sections:
Information supplied by the Engineer (schedules of drawings, etc. as applicable).
Information to be supplied by the Tenderer at tender stage (tender form, information on the makes, types and ratings of equipment and materials offered, schedules of prices and rates for variations, schedules of quantities, etc. as applicable).
Tenderers must provide, at the time of tendering, in the “Schedule of Material Offered”, sufficient details to enable the equipment concerned to be identified without ambiguity.
It is not sufficient for a Tenderer to state “as specified” in the schedules.
Failure to complete these schedules may render a tender invalid.

15.0 DRAWINGS

15.1 General

Generally, the term “detail” shall mean that the drawing is exact in all aspects to what shall be provided. Where the term “illustration” is used, however, it shall be construed that the drawing is to be regarded as a proposal or guideline as to what is to be provided, manufactured or supplied.

15.2 Tender Drawings

Refer to the tender drawing as provided with this document.

15.3 Construction / Workshop Drawings

The successful Tenderer shall submit construction drawings (or detailed catalogues) of the manufactured equipment, such as mounting details, etc., for consideration by the Engineer prior to manufacture/supply thereof.

The Engineers approval of construction or workmanship drawings does not relieve the Tenderer of his responsibility with regards to any of the deviations from the requirements of this contract unless the Engineer has been clearly informed, in writing, of such deviations at the time of submission and the Engineer subsequently gives written approval for the specific deviation. Similarly, the Engineer’s approval shall not relieve the Tenderer of responsibility for errors or omissions in the construction / workmanship drawings.

15.4 Record Drawings

The Tenderer must prepare record drawings of the completed installation as constructed, indicating cable runs, equipment mounting details, circuiting & distribution board details, sleeve pipe positions, etc.

The contract shall not be deemed as complete until these drawings have been submitted.

16.0 SUPERVISION, WORKMANSHIP AND DELAYS

The work shall at all times, for the entire duration of the contract, be executed under the supervision of a skilled and competent representative of the Tenderer, who must be able and authorized to receive and execute instructions on behalf of the Tenderer. This person must be a registered and accredited person, as described by the OHS Act. It must be noted that the staff complement of the Tenderer shall remain similar throughout the duration of the contract, for all sections of the Works.

In the event that inferior materials or bad workmanship, on the part of the Tenderer, leads to remedial work requiring redesign by the Engineer, the cost of this work, including related professional fees, shall be borne by the Tenderer.

Similarly, should delays in the contract be caused by poor performance on the part of the Tenderer causing the engineer to spend extraordinary time on the project, the extra costs incurred shall be borne by the Tenderer.

These costs will be based on the CESA hourly rate and will be deducted from claims due to from claims which will become due to the Tenderer.

17.0 COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES

The Tenderer shall arrange for all inspections and testing of the installation as required. All notices, fees, including inspection and re-inspection, are the responsibility of the Tenderer and all the relevant costs shall be borne by him.

The workmanship throughout the Works will be to the satisfaction of the Employer. Any materials or workmanship considered as faulty or incorrectly or inadequately erected or repaired, will be substituted, altered or rectified to the satisfaction of the Employer, without additional cost to the Employer.

The Works will be executed in strict accordance with the following:

- All relevant by-laws and regulations of local authorities.
- All relevant SANS, BS and other international standards.
- The Occupational Health and Safety Act of 1993.

18.0 COMMISSIONING AND TESTING

18.1 General

Upon practical completion of this Sub Contract the Sub Contractor shall allow for providing the Engineer with a complete commissioning schedule indicating the actual test results and measurement of all the design or specified data/variables.

Tests to demonstrate the capacity specified and general operating characteristics of all plant shall be made under the direction of the Engineer at any time before the practical completion inspection under conditions imposed by him.

The Sub Contractor shall be responsible for supplying test equipment which is to the Engineer's satisfaction; any costs incurred by the Sub Contractor in supplying adequate instrumentation will be entirely for his account. Test instruments shall be tested for accuracy by an approved laboratory or by the manufacturer and certificates showing the degree of accuracy shall be furnished to the Engineer if required.

On satisfactory completion of all tests and after the completed installation has been inspected and passed as satisfactory by the Engineer, the installation will be accepted as being practically complete and be handed over to the Employer.

The Sub-Contractor shall be responsible for supplying an itemised set of test results for the Engineer's approval; the Engineer may at his discretion request the Sub-Contractor to re run at the Sub Contractor's expense any test which he has not witnessed or with which he feels not satisfied.

The following shall be recorded/measured for each separate installation as specified and installed under this contract:

Description of installation tested;

Date and time of test;

Ambient temperature conditions (measured in the shade):

(a) Dry bulb temperature

(b) Wet bulb temperature

(c) % RH

19.0 BUILDER'S WORK

The onus is on the Tenderer to point out and check the requirements for and positioning and correctness of all builder's work for his services.

20.0 MAKING GOOD

The builder is to be made aware of all works, timeously, relating to the impact of this installation(s). The Tenderer will carry out, in all instances any work to be made good such as damage to, or disturbance of the building installations caused by himself or his employees during the execution of the contract at his own cost.

21.0 SITE MEETINGS

The Tenderer's representative shall be expected to attend an official site meeting at the onset of the project including scheduled technical and site meetings during the contract period. For meetings termed as "technical or site", a site representative for the nominated Tenderer is required to attend and this person must be competent and able to interpret and receive and act on instructions on behalf of the Tenderer.

The Tenderer shall price all relevant P & G costs, overheads, travelling, etc. for these meetings.

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
	Bill No. 1 : Preliminary and General				
1.1	Compliance with General Conditions of Contract : Insurances, Sureties, etc as outlined in the Principal Contractor's Preliminaries.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.2	Establish on Site and provision of buildings and storage facilities including de-establishment of site, cleaning and tidying up after completion of contract				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.3	Tools and equipment, Communication, transport.				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.4	Contract Management, Company overheads and supervision of the Works including attendance of site meetings (2 per month)				
	Fixed	Item	1		
	Value Related	Item	1		
	Time Related	Item	1		
1.5	Provision of all drawings and manuals as specified including As-Installed drawings	Item	1		
	Total Carried forward to Next Page				

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY RATE	AMOUNT
	Total Carried forward From Previous Page				
1.6	Liaison with Local Supply Authority, compliance with OSH Act, Local By-laws and any other statutory regulations	Item	1		
1.7	Any additional item not specifically mentioned or included in the Bills of Quantities which the Tenderer may wish to detail. (Specify)	Item	1		
1.8	Additional testing and balancing at discression of the mechanical engineer.	Item	1		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
2.0	**Bill No. 2: Air Conditioning Equipment CICU & CSSD**				
2.1	**Outdoor Unit - Heat Recovery** Supply and install:				
2.1.1	ACC1 TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit **(INSTALL ONLY)**	No.	1		
2.1.2	ACC2 TOSHIBA model MMY-MAP1206FT8P-E VRF 33,5 kw outdoor Heat Recovery Condensing Unit	No.	1		
2,1,3	ACC2 Allow for Blu-Chem chemical oxidization treatment to 33,5 kW unit condenser coils, panels & circuit boards.	No.	1		
2.2	**Branch Selector (BS) Units** Supply and install:				
2,2,1	BS1 TOSHIBA model RBM-Y11226FE (6 way) Multi flow Selector Box **(INSTALL ONLY)**	No.	2		
2,2,2	BS2 TOSHIBA model RBM-Y11224PE (4 way) Multi flow Selector Box.	No.	2		
2.3	**Y Branch Piping Kit** Supply and install:				
2,3,1	TOSHIBA model RBM-BY205FE Y Joint	No.	2		
2,3,2	TOSHIBA model RBM-BY105FE Y Joint	No.	4		
2.4	**Refrigerant Piping** Refrigerant piping for the entire installation, including Thermaflex insulation (12,5 mm thick), hangers, brackets and etc. Insulation shall be secured to the ducts with an approved fireproof adhesive. The insulation shall be strapped on using 12mm wide nylon strapping applied with the appropriate strapping and joining machine. Joints shall be vapour sealed, using impermeable tape: "Arno Aluminium Foil Ducotape no. C 430".				
2,4,1	6.4 mm	m	160		
2,4,2	9.5 mm	m	164		
2,4,3	12.7 mm	m	214		
	Total Carried forward to Next Page				

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
2,4,4	15.9 mm	m	100		
2,4,5	19.1 mm	m	79		
2,4,6	22.2 mm	m	55		
2,4,7	28.6 mm	m	15		
2,4,8	R410A extra refrigerant charge	kg	18		
2.5	**Indoor Units**				
	Supply, Install, test, commission and provide 12 month guarantee for inverter driven fan air - conditioning unit featuring heating & cooling, incl. all hanger, brackets, filters, send and return refrigerant piping, wireless remote controller, connection to an isolator provided and etc. **ALL UNITS TO INCLUDE INTERGRAL CONDENSATE PUMP.**				
2,5,1	AC1 TOSHIBA model MMU-AP0074HP1-E 2,2 kw 4-Way Cassette indoor units	No	3		
2,5,2	AC2 TOSHIBA model MMU-AP0094HP1-E 2,8 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	4		
2,5,3	AC2 TOSHIBA model MMU-AP0094HP1-E 2,8 kw 4-Way Cassette indoor units	No	2		
2,5,4	AC3 TOSHIBA model MMU-AP0124HP1-E 3,6 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	2		
2,5,5	AC4 TOSHIBA model MMU-AP0154HP1-E 4,5 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	2		
2,5,6	AC 5 TOSHIBA model MMU-AP0184HP1-E 5,6 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	2		
2,5,7	AC6 TOSHIBA model MMU-AP0244HP1-E 7,1 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	1		
2,5,8	AC7 TOSHIBA model MMU-AP0274HP1-E 8 kw 4-Way Cassette indoor units **(INSTALL ONLY)**	No	2		
2,5,9	AC8 TOSHIBA model MMU-AP0364HP1-E 11,2 kw 4-Way Cassette indoor units	No	1		
	Total Carried forward to Next Page				

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
2,6	**Decoration / Ceiling Panel** Supply and install:				
2,6,1	AC2 - 8 TOSHIBA model RBC—U31PGP(W)-E Cassette ceiling / facia panels. **(INSTALL ONLY)**	No	12		
2,6,2	AC2 - 8TOSHIBA model RBC—U31PGP(W)-E Cassette ceiling / facia panels.	No	4		
2,6,3	AC1 TOSHIBA model RBC—U21PGP(W)-E Cassette ceiling / facia panels. (60x60 Chassis)	No	3		
2,7	**Wired Remotes** Supply and install:				
2,7,1	TOSHIBA model RBC—AMS55E-ES Wired remote controllers. **(INSTALL ONLY)**	No	12		
2,7,2	TOSHIBA model RBC—AMS55E-ES Wired remote controllers.	No	7		
2,8	**Condensate Pump and Filter** Supply and install:				
2,8,1	Condensate pump with flow rate of 10 l/hr @ 10 m head, c/w inline filter arrangement to fit within trunking elbow. **(INSTALL ONLY)**	No	1		
2,9	**Condensate Piping** Supply and install:				
2,9,1	6 mm diameter clear plastic condensate drain pipe.	m	0		
2,9,2	20 mm diameter PVC condensate drain pipe, incl. all unions, elbows, hangers and brackets.	m	19		
2,9,3	50 mm diameter PVC condensate drain pipe, incl. all unions, elbows, hangers and brackets.	m	90		
2.10	**Trunking** Supply and install:				
2,10,1	Cab-strut white PVC trunking incl. covers, elbow, bends and etc or similar approved.	m	1		
	Total Carried forward to Next Page				

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
2.11	**Wire Basket** Supply and install:				
2,11,1	Wire basket 150 mm wide x 1 mm thick light duty hot dipped galvanised cable tray, wire mesh, c/w hanger channel, elbows, bends, and etc or similar approved.	m	377		
2.12	**VRV Air Conditioning Distribution Board** Supply and install:				
2,12,1	VRV air conditioning Distribution Board for VRV outdoors units, incl. all contactors, displays, controls, timers, glands wiring etc. **DB MUST BE STAR DELTA DESIGN, c/w Electrical COC.**	no.	2		
2.13	**Special Fittings** Supply and install:				
2,13,1	90 deg elbow to duct heat from VRV condenser to outside	No	2		
2,13,2	Weather louver 1100 x 1100 mm.	No	2		
2.14	**Extra Over** Supply and install:				
2,14,1	2310x350x200 mm deep - Windows Plenum - Insulated	No	2		
2,14,2	2300x300 to 990x300 mm Offset Taper - 600 mm Long Insulated	No	2		
2,14,3	990x780 to 990x300 mm Reducing Bend with Turning Vane Insulated	No	2		
2,14,4	HDG Flatex Sheets to cover window openings - 2 x 1085x355 mm	No	2		
2,14,5	Eckerele EE150 Condensate Pump & 8.0 mm PVC Flexible tubing	No	2		
	Total Carried forward to Next Page				

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
2,14,6	Eckerele EE150 Condensate Pump & 8.0 mm PVC Flexible tubing	No	2		
	Low density insulation shall be aluminium foil faced fibreglass insulation of a density not less than 36 kglm cubed and a thickness of 25mm. Insulation shall be secured to the ducts with an approved fireproof adhesive. The insulation shall either be spirally wound onto the ducts, or alternatively shall be applied in blanket form. The insulation shall further be strapped on using 12mm wide nylon strapping applied with the appropriate strapping and joining machine.	No	2		
2,14,7	1200 mm x 5000 mm	No	20		
2.15	**Cleaning**				
2,15,1	Cleaning of TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit, coils, chassis, PC boards, compressors etc.	No	1		
2.16	**Unistrut Mounts** Supply and install:				
2,16,1	41 x 41 mm unistrut channel for floor mounting frame for TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw & MMY-MAP1206FT8P-E 33,5 kW outdoor Heat Recovery Condensing Units	No	4		
2.17	**Corrosion Treatment**				
2,17,1	Reapplication of new corrosion treartment to TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit, incl. coils, chassis and PC Boards	No	1		
2.18	**Minor Repairs**				
2,18,1	PC Sum for any minor repair on existing VRF condenser	PC	1		25,000.00
	Total Carried forward to Summary Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
3.0	**Bill No. 3: Fresh Air Ventilation System Equipment CICU & CSSD** All ductworks shall be manufactured and erected according to standards as set down by the SANS Standard Specification for Air-conditioning Ductwork SANS 1238				
3.1	**Axial Inline Fan** Supply and install:				
3,1,1	FAF1 Axial AXC 355-6/10-2PV, Q = 305 L/S @ 410 Pa, 0.34 kW 3Ph, Supply air supply fan	No.	1		
3,1,2	FAF2 Axial in line silent TD Silent Fan 800/200 air supply fan, Q = 60 l/s at 200 Pa, 25db or less.	No.	3		
3,1,3	FAF3 Axial AXC 355-6/12-2PV, Q = 528 L/S @ 550 Pa, 0.82 kW 3Ph, Supply air supply fan	No.	1		
3.2	**Weather Louver** Supply and install:				
3,2,1	WLF1 Aluminium weather louver 1100 x 350 mm, c/w vermin proofing.	No.	5		
3.3	**Sound Attenuator** Supply and install:				
3,3,1	SAU1 Silencer 355-900 mm long, c/w flanges, to fit 355 mm diam fan.	No.	6		
3.4	**Galvanised Sheet Metal Ducting** Supply and install:				
3,4,1	1100 x 350 mm galvanised sheet metal ducting sleeve through wall incl. flanges and external insulation.	m	5		
3,4,2	300 x 300 mm galvanised sheet metal ducting incl. flanges and external insulation. **(INSTALL ONLY)**	m	31		
3,4,3	355 mm diam galvanised sheet metal ducting incl. flanges and external insulation.	m	6		
3,4,4	**REMOVE** 100 x 100 mm galvanised sheet metal ducting incl. flanges and external insulation.	m	3		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
3,4,5	200 mm diam galvanised sheet metal ducting incl. flanges and external insulation.	m	22		
3,4,6	150 mm diam galvanised sheet metal ducting incl. flanges and external insulation.	m	18		
3,4,7	250 mm diam Micro perforated flexible ducting insulated externally with 25mm aluminium foil backed fibreglass insulation of 16mm cubed /kg density	m	2		
3,4,8	200 mm diam Micro perforated flexible ducting insulated externally with 25mm aluminium foil backed fibreglass insulation of 16mm cubed /kg density	m	4		
3,4,9	150 mm diam Micro perforated flexible ducting insulated externally with 25mm aluminium foil backed fibreglass insulation of 16mm cubed /kg density	m	6		
3,5	**Transfers** Supply and install:				
3,5,1	1100 x 350 mm to 600 x 600 mm transfer, incl. flanges and external insulation.	No.	2		
3,5,2	1100 x 350 mm to 200 mm diam transfer, incl. flanges and external insulation.	No.	3		
3,5,3	600 x 600 mm to 355 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	2		
3,5,4	355 mm diam to 300 x 300 mm galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	1		
3,5,5	355 mm diam to 600 x 600 mm galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	2		
3,5,6	355 mm diam to 400 x 200 mm galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	1		
3,5,7	300 x 200 mm to 250 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	2		
3,6	**Elbows** Supply and install:				
3,6,1	300 x 300 mm medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	4		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
3,6,2	355 mm diam medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	3		
3,6,3	400 x 200 mm medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	4		
3,6,4	200 mm diam medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	13		
3,6,5	150 mm diam medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	12		
3,7	**End Cap** Supply and install:				
3,7,1	300 x 300 mm galvanised sheet metal end cap, incl. insulation.	No.	1		
3,7,2	200 mm diam galvanised sheet metal end cap, incl. insulation.	No.	3		
3,7,3	400 x 200 galvanised sheet metal end cap, incl. insulation.	No.	1		
3,8	**Spigots**				
	Supply and install:				
3,8,1	200 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	4		
3,8,2	150 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	6		
3,8,3	300 x 200 mm galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	2		
3,9	**Fire Dampers** Supply and install:				
3,9,1	FD1 2hr rated 150 mm diam fire damper with externally resettable linkage.	No.	6		
3,9,2	FD2 2hr rated 200 mm diam fire damper with externally resettable linkage.	No.	3		
3,9,3	FD3 2hr rated Supply and installation of 400 x 200 mm fire damper with externally resettable linkage.	No.	1		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
3.10	**Fresh Air Diffusers & Plenums** Supply and install:				
3,10,1	FAD1 Supply air ceiling disc diffuser, 200 ø c/w 600 x 600 x 300 mm equal plenum, with 150 ø mm side entry spigot, colour white	No.	6		
3,10,2	FAD2 Supply air ceiling disc diffuser, 200 ø c/w 600 x 600 x 300 mm equal plenum, with 200 ø mm side entry spigot, colour white	No.	4		
3,10,3	FAD3 Supply air ceiling disc diffuser, 250 ø c/w 600 x 600 x 300 mm equal plenum, with 250 ø mm side entry spigot, colour white	No.	2		
3.11	**Galvanised Sheet Metal Filter Box** Supply and install:				
3,11,1	FB1 Filter box housing 600 x 600 x 50 mm with side slide entry, for a 595 x 595 x 48 mm G4 panel filter, c/w Magnihelic Pressure Gauge.	No.	2		
3,11,2	FB2 Filter box housing 600 x 600 x 50 mm with side slide entry, for a 595 x 595 x 48 mm F9 panel filter, c/w Magnihelic Pressure Gauge.	No.	2		
3,11,3	FB3 Filter box housing 600 x 600 x 100 mm with side slide entry, for a 595 x 595 x 96 mm H14 panel filter, c/w Magnihelic Pressure Gauge.	No.	1		
3,11,4	Magnihelic 2000 – 500 PA 0-500 PA Pressure Gauges **(INSTALL ONLY)**	No.	4		
3,11,5	Magnihelic 2000 – 500 PA 0-500 PA Pressure Gauges	No.	1		
3,11,6	Supply, Install, test, commission and provide 12 month guarantee for Magnihelic A-480 Plastic static pressure tips	No.	10		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
3.12	**Filters** Supply and install:				
3,12,1	G4 Filter 595 x 595 x 48 mm	No.	4		
3,12,2	F9 Filter 595 x 595 x 48 mm	No.	4		
3,12,1	H14 Filter 595 x 595 x 48 mm	No.	2		
3.13	**Fan Controller** Supply and install:				
3,13,1	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	No.	5		
3.12	**Hangers & Brackets** Supply and install:				
3,12,1	Hangers, brackets and etc for supply air ducting all as specified.	No.	55		
3,12,2	H Frame Hangers, brackets and etc for supply air ducting moutning on slab all as specified.	No.	18		
3.13	**Electrical**				
3,13,1	Connect plug fan to isolator or connect cable to isolator, provided.	No.	5		
3.14	**Testing and Balancing**				
3,14,1	Testing and balancing of the system incl. measurement of flow rates, balancing of dampers, setting of variable speed drive c/w report on flow rates achieved etc delivered to engineer.	No.	5		
3.15	**Cleaning**				
3,15,1	300 x 300 mm fresh air ducting to be cleaned and sanitised to NADCA or similar standard.	m	31		
3.16	**Training**				
3,16,1	Training of staff on operation and basic maintenance of fresh air systems	No.	3		
	Total Carried forward to Summary Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
4.0	**Bill No. 4: Extract Air Ventilation System Equipment CICU** All ductworks shall be manufactured and erected according to standards as set down by the SANS Standard Specification for Air-conditioning Ductwork SANS 1238				
4.1	**Axial Inline Fan** Supply and install:				
4,1,1	EAF1 Axial AXC 355-6/13-2PV, Q = 640 L/S @ 450 Pa, 0.62 kW 3Ph, Supply air supply fan	No.	1		
4,1,2	EAF2 Axial in line silent TD Silent Fan 800/200 air supply fan, Q = 100 l/s at 200 Pa, 25db or less.	No.	3		
4,1,3	EAF3 Axial AXC 355-6/12-2PV, Q = 240 L/S @ 401 Pa, 0.82 kW 3Ph, Supply air supply fan	No.	1		
4,1,4	EAF4 Axial in line silent TD Silent Fan 1000/200 air supply fan, Q = 240 l/s at 160 Pa, 25db or less.	No.	1		
4.2	**Weather Louver** Supply and install:				
4,2,1	WLE1 Aluminium weather louver 1100 x 350 mm, c/w vermin proofing.	No.	5		
4,2,2	WLE2 Aluminium weather louver 600 x 350 mm, c/w vermin proofing.	No.	1		
4.3	**Sound Attenuator** Supply and install:				
4,3,1	SAU1 Silencer 355-900 mm long, c/w flanges, to fit 355 mm diam fan.	No.	6		
4.4	**Galvanised Sheet Metal Ducting** Supply and install:				
4,4,1	1100 x 350 mm galvanised sheet metal ducting sleeve through wall incl. flanges and external insulation.	m	5		
4,4,2	600 x 350 mm galvanised sheet metal ducting sleeve through wall incl. flanges and external insulation.	m	1		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
4,4,3	355 mm diam galvanised sheet metal ducting incl. flanges and external insulation.	m	50		
4,4,4	200 mm diam galvanised sheet metal ducting incl. flanges and external insulation.	m	27		
4,4,5	250 mm diam Micro perforated flexible ducting insulated externally with 25mm aluminium foil backed fibreglass insulation of 16mm cubed /kg density	m	6		
4,4,6	200 mm diam Micro perforated flexible ducting insulated externally with 25mm aluminium foil backed fibreglass insulation of 16mm cubed /kg density	m	21		
4,5	**Transfers** Supply and install:				
4,5,1	1100 x 350 mm to 600 x 600 mm transfer, incl. flanges and external insulation.	No.	2		
4,5,2	1100 x 350 mm to 200 mm diam transfer, incl. flanges and external insulation.	No.	3		
4,5,3	600 x 600 mm to 200 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	1		
4,5,4	600 x 600 mm to 355 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	4		
4,5,5	200 mm to 250 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	1		
4,5,6	355 mm to 200 mm diam galvanised sheet metal ducting transfer incl. flanges and external insulation.	No.	2		
4,6	**Elbows** Supply and install:				
4,6,1	355 mm diam medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	9		
4,6,2	355 mm diam medium radius 90 deg "Y" piece galvanised sheet metal elbow incl. flanges and external insulation.	No.	1		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
4,6,3	200 mm diam medium radius 90 deg galvanised sheet metal elbow incl. flanges and external insulation.	No.	21		
4,7	**End Cap** Supply and install:				
4,7,1	355 mm diam galvanised sheet metal end cap, incl. insulation.	No.	2		
4,7,2	250 mm diam galvanised sheet metal end cap, incl. insulation.	No.	1		
4,7,4	200 mm diam galvanised sheet metal end cap, incl. insulation.	No.	12		
4,8	**Spigots** Supply and install:				
4,8,1	200 mm diam galvanised sheet metal 45 deg shoe spigot, incl. insulation.	No.	25		
4,9	**Fire Dampers** Supply and install:				
4,9,1	FD2 2hr rated 200 mm diam fire damper with externally resettable linkage.	No.	9		
4,9,2	FD4 2hr rated 250 mm diam fire damper with externally resettable linkage.	No.	1		
4,9,4	FD3 2hr rated 355 mm diam fire damper with externally resettable linkage.	No.	1		
4.10	**Fresh Air Diffusers & Plenums** Supply and install:				
4,10,1	EAD2 Supply air ceiling disc diffuser, 200 ø c/w 600 x 600 x 300 mm equal plenum, with 200 ø mm side entry spigot, colour white	No.	25		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
4.11	**Galvanised Sheet Metal Filter Box** Supply and install:				
4,11,1	FB1 Filter box housing 600 x 600 x 50 mm with side slide entry, for a 595 x 595 x 48 mm G4 panel filter, c/w Magnihelic Pressure Gauge.	No.	2		
4,11,2	FB2 Filter box housing 600 x 600 x 50 mm with side slide entry, for a 595 x 595 x 48 mm F9 panel filter, c/w Magnihelic Pressure Gauge.	No.	2		
4,11,3	Magnihelic 2000 – 500 PA 0-500 PA Pressure Gauges	No.	4		
4,11,4	Supply, Install, test, commission and provide 12 month guarantee for Magnihelic A-480 Plastic static pressure tips	No.	8		
4.12	**Filters** Supply and install:				
4,12,1	G4 Filter 595 x 595 x 48 mm	No.	2		
4,12,2	F9 Filter 595 x 595 x 48 mm	No.	2		
4.14	**Fan Controller** Supply and install:				
4,14,1	2 pole fan controller, on / off wired remotely and installed in conduit and round box provided by others.	No.	6		
4.12	**Hangers & Brackets** Supply and install:				
4,12,1	Hangers, brackets and etc for extraction ducting all as specified.	No.	56		
4,12,2	H Frame Hangers, brackets and etc for extract air ducting moutning on slab all as specified.	No.	20		
4.13	**Door Grill**				
4,13,1	400 x 400 aluminium door grill, double sided	No.	16		
4.14	**Electrical**				
4,14,1	Connect plug fan to isolator or connect cable to isolator, provided.	No.	6		
	Total Carried forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	SUPPLY & INSTALL RATE	AMOUNT
	Total Carried forward From Previous Page				
4.14	**Testing and Balancing**				
4,14,1	Testing and balancing of the system incl. measurement of flow rates, balancing of dampers, setting of variable speed drive c/w report on flow rates achieved etc delivered to engineer.	No.	6		
4.15	**Training**				
4,15,1	Training of staff on operation and basic maintenance of fresh air systems	No.	3		
4.16	**Alarm System**				
4,16,1	Supply and install: Complete Ventilation Failure Visual Alarm System for the ICU Isolation Ward extraction systems. System to comprise a high-accuracy Differential Pressure Transmitter (Setra Model 264 or approved equal) with a pressure range of 0 to 50 Pa, complete with static pressure sensing probes, PVC pneumatic tubing, and a duct-mounting kit.	No.	2		
4,16,2	Include for the supply and installation of an eye-level, high-visibility multi-status LED visual indicator beacon (Green/Red) mounted at nurses station. Item to include all local 230V/24V power supplies, control wiring in conduits, calibration certificates. All work must comply with healthcare facility ventilation safety standards.	No.	2		
	Total Carried forward to Summary Page				

RNA CONSULTING ENGINEERS
PROJECT NO 2316
PE PROVINCIAL HOSPITAL
HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

SECTION 13.4 PROVISIONAL SCHEDULE OF QUANTITIES

BILL NO.	DESCRIPTION	AMOUNT
1	**Bill No. 1 : Preliminary and General**	
2	**Bill No. 2: Air Conditioning Equipment CICU & CSSD**	
3	**Bill No. 3: Fresh Air Ventilation System Equipment CICU & CSSD**	
4	**Bill No. 4: Extract Air Ventilation System Equipment CICU**	
	SUBTOTAL	
	MAIN CONTRACTOR'S PROFIT AND ATTENDANCE	
	TOTAL (EXCLUDING VAT) CARRIED OVER TO SECTION 13 ON FINAL SUMMARY ON PAGE 264	

HEATING VENTILATION AND AIR CONDITIONING INSTALLATION

SCHEDULE OF MATERIALS OFFERED

The Tenderer must complete the following schedules and submit them with the priced Bill of Quantities.

The schedules will be scrutinised by the Engineer and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

NB : Only one manufacturer's name to be inserted for each item.

Item	Material	Make or trade name	Country of Origin
1.	VRV Condensers		
2.	Ceiling Cassette units		
3.	Branch Selector units		
4.	Refnet Piping Kits		
5.	Copper Piping		
6.	Cable Tray		
7.	Extraction & Supply Air Fans		
8.	Diffusers		
9.	Ceiling disc diffusers		
10.	Back Draught Shutters		
11.	Fire Dampers		
12.	Flexible Ducting		
13.	Balancing Dampers		
14.	Door grilles		

NOTE : Tenderers are to note that under no circumstances may materials be installed other than offered in the above materials schedule, which has been approved and accepted by the Contractor.

Should the successful tenderer wish to supply materials other than those originally offered, prior written approval must be obtained from the Contractor before any orders are placed.

NEW AIR CONDITIONING EQUIPMENT		QTN
ACC1	TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit	0
ACC2	VRF 34.0 kw outdoor Heat Recovery Condensing Unit	0
BS1	TOSHIBA model RBM-Y1122GFE (6 way) Multi flow Selector Box	2
BS2	4 way Multi flow Selector Box	1
BS3	1way Multi flow Selector Box	0
AC1	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 20A/2.2 kW	3
AC2	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 25A/2.8 kW	6
AC3	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 32A/3.6 kW	2
AC4	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 40A/4.5 kW	2
AC5	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 50A/5.6 kW	2
AC6	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 63A/7.1kW	1
AC7	VRF Heat Pump ceiling cassette unit 80A/8 kW	2
AC8	VRF Heat Pump ceiling cassette unit 100A/11.2 kW	0

SUPPLY AIR VENTILATION EQUIPMENT		QTN
WLF1	Weather Louver 1100 x 350 mm aerofoil blade	0
SAU1	Silencer 355Ø-900mm	0
FAF1	AXC 355-6/10-2PV, Q = 305 L/S @ 410 Pa 0.34 kW 3Ph	0
FAF2	TDS 800/200 Q = 60 L/S @ 200 Pa 0.1 kW 1Ph	0
FAF3	AXC 355-6/12-2PVQ = 528 L/S @ 550 Pa 0.82 kW 3Ph	0
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB3	Filter Housing for F14 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FD1	Fire Damper 1500 mmm	0
FD2	Fire Damper 2000 mmm	2
FD3	Fire Damper 400x200 mm	0
FAD1	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 150 Ø mm side entry spigot, colour white	6
FAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	4
FAD3	Supply air ceiling disc diffuser, 250 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0

EXTRACT AIR VENTILATION EQUIPMENT		QTN
WLE1	Weather Louver 1100 x 350 mm aerofoil blade	0
WLE2	Weather Louver 600 x 350 mm aerofoil blade	0
SAU1	Silencer 355Ø-900mm	0
EAF1	AXC 355-6/10-2PVQ = 640 L/S @ 450 Pa 0.62 kW 3Ph	0
EAF2	TDS 800/200 Q = 100 L/S @ 200 Pa 0.1 kW 1Ph	0
EAF3	AXC 355-6/10-2PV Q = 240 L/S @ 401 Pa 0.3 kW 3Ph	0
EAF4	TDS 1000/200 Q = 240 L/S @ 150 Pa 0.1 kW 1Ph	0
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FD1	Fire Damper 1500 mmm	0
FD2	Fire Damper 2000 mmm	3
FD3	Fire Damper 355Ø mmm	1
FD4	Fire Damper 250Ø mmm	1
EAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	25
DG1	Door Grill 400 x 400mm	15

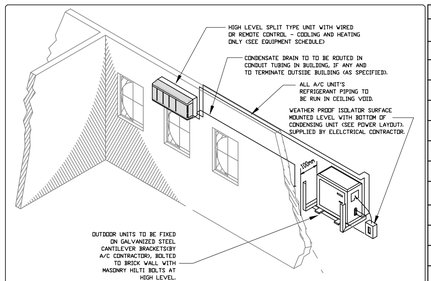
INSTALLATION NOTE TO AIR CONDITIONING CONTRACTOR:

CONDENSING UNITS SHOWN ON DRAWING ARE DIAGRAMMATIC ONLY. FINAL POSITION OF UNITS TO BE CONFIRMED AND FINALISED ON SITE, WITH MECHANICAL ENGINEERS APPROVAL PRIOR TO INSTALLATION. ENSURE NO CLASHES WITH OTHER SERVICES.

REFRIGERANT PIPE RUNS ARE DIAGRAMMATIC ONLY. PIPE RUNS INSTALLED FOLLOW THE SHORTEST ROUTE POSSIBLE ENSURING NO CLASHES WITH OTHER SERVICES.

ENSURE AND CONFIRM WITH BUILDING CONTRACTOR THAT THE WALL SPACING BETWEEN THE EAVES AND WINDOW IS ADEQUATE TO INSTALL OUTDOOR UNITS, IF NOT, MECHANICAL ENGINEER TO APPROVE ALTERNATIVE POSITION FOR OUTDOOR UNITS PRIOR TO INSTALLATION.

EVAPORATIVE AND CONDENSING UNITS TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS.



TYPICAL A/C UNIT INSTALLATION

LEGEND	
	Ceiling Cassette Split Unit
	Indoor Split Unit (Mid-wall or Under-ceiling)
	Outdoor Split Unit
	VRV Outdoor Condensing Unit
BS	VRF Branch Selector Box
	Condensate Pump and Filter
	In-line Ceiling Mounted Fan
	Wall Mounted Extractor Fan
DG 1	Double Sided Aluminium Door Grille
	Aluminium Weather Louvre
	Extract Diffuser
	Supply Diffuser
	5A 3 Pin unswitched socket outlet mounted in ceiling void by HVAC Contractor
	Three Phase Isolator (WT - Water Tight)
	Double Pole Isolator (WT - Water Tight)
	Balancing Damper
	Back Draught Shutter
	Wired / Remote Control

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	08/08/25	TW	ISSUED FOR INFORMATION
01	17/07/26	TW	ISSUED FOR INFORMATION

GENERAL NOTES:

CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

FIRST FLOOR
HVAC EQUIPMENT LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
11 Bonza Bay Rd, Beacon Bay, East London, 5241
P.O. Box 12359, Amalinda, 5252
Tel: (043) 742 0041
E-Mail: office@rnaconsulteng.co.za

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
		✓

DESIGNED BY: T. Warne		SCALE 1:100
DRAWN T. Warne	DATE 08/09/2025	PRINT DATE 08/09/2025
CHECKED BY: T. Warne		
REGISTRATION No. 201770017		
SIGNED.		

ARCHITECTS DRAWING NO.	REV No.
--	--

DRAWING NO.	REV No.
1710-C-M-101 HVAC PEPH ICU	01

NEW AIR CONDITIONING EQUIPMENT		QTN
ACC1	TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit	1
ACC2	VRF 34.0 kw outdoor Heat Recovery Condensing Unit	1
BS1	TOSHIBA model RBM-Y11226FE (6 way) Multi flow Selector Box	0
BS2	4 way Multi flow Selector Box	0
BS3	1way Multi flow Selector Box	0
AC1	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 20A/2.2 kW	0
AC2	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 25A/2.8 kW	0
AC3	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 32A/3.6 kW	0
AC4	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 40A/4.5 kW	0
AC5	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 50A/5.6 kW	0
AC6	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 63A/7.1kW	0
AC7	VRF Heat Pump ceiling cassette unit 80A/8 kW	0
AC8	VRF Heat Pump ceiling cassette unit 100A/11.2 kW	0

SUPPLY AIR VENTILATION EQUIPMENT		QTN
WLF1	Weather Louver 1100 x 350 mm aerofoil blade	5
SAU1	Silencer 355Ø-900mm	6
FAF1	AXC 355-6/10-2PV, Q = 305 L/S @ 410 Pa 0.34 kW 3Ph	1
FAF2	TDS 800/200 Q = 60 L/S @ 200 Pa 0.1 kW 1Ph	3
FAF3	AXC 355-6/12-2PVQ = 528 L/S @ 550 Pa 0.82 kW 3Ph	1
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	2
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	2
FB3	Filter Housing for F14 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	1
FD1	Fire Damper 150Ø mmm	6
FD2	Fire Damper 200Ø mmm	1
FD3	Fire Damper 400x200 mm	0
FAD1	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 150 Ø mm side entry spigot, colour white	0
FAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0
FAD3	Supply air ceiling disc diffuser, 250 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0

EXTRACT AIR VENTILATION EQUIPMENT		QTN
WLE1	Weather Louver 1100 x 350 mm aerofoil blade	5
WLE2	Weather Louver 600 x 350 mm aerofoil blade	1
SAU1	Silencer 355Ø-900mm	6
EAF1	AXC 355-6/13-2PVQ = 640 L/S @ 450 Pa 0.62 kW 3Ph	1
EAF2	TDS 800/200 Q = 100 L/S @ 200 Pa 0.1 kW 1Ph	3
EAF3	AXC 355-6/10-2PV Q = 240 L/S @ 401 Pa 0.3 kW 3Ph	1
EAF4	TDS 1000/200 Q = 240 L/S @ 150 Pa 0.1 kW 1Ph	1
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	2
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	2
FD1	Fire Damper 150Ø mmm	0
FD2	Fire Damper 200Ø mmm	5
FD3	Fire Damper 355Ø mmm	0
FD4	Fire Damper 250Ø mmm	0
EAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0
DG1	Door Grill 400 x 400mm	0

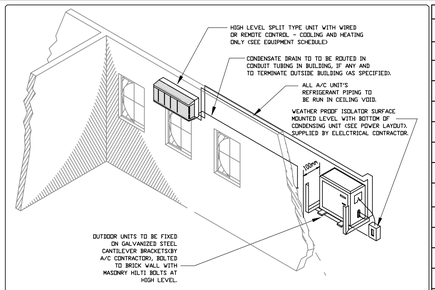
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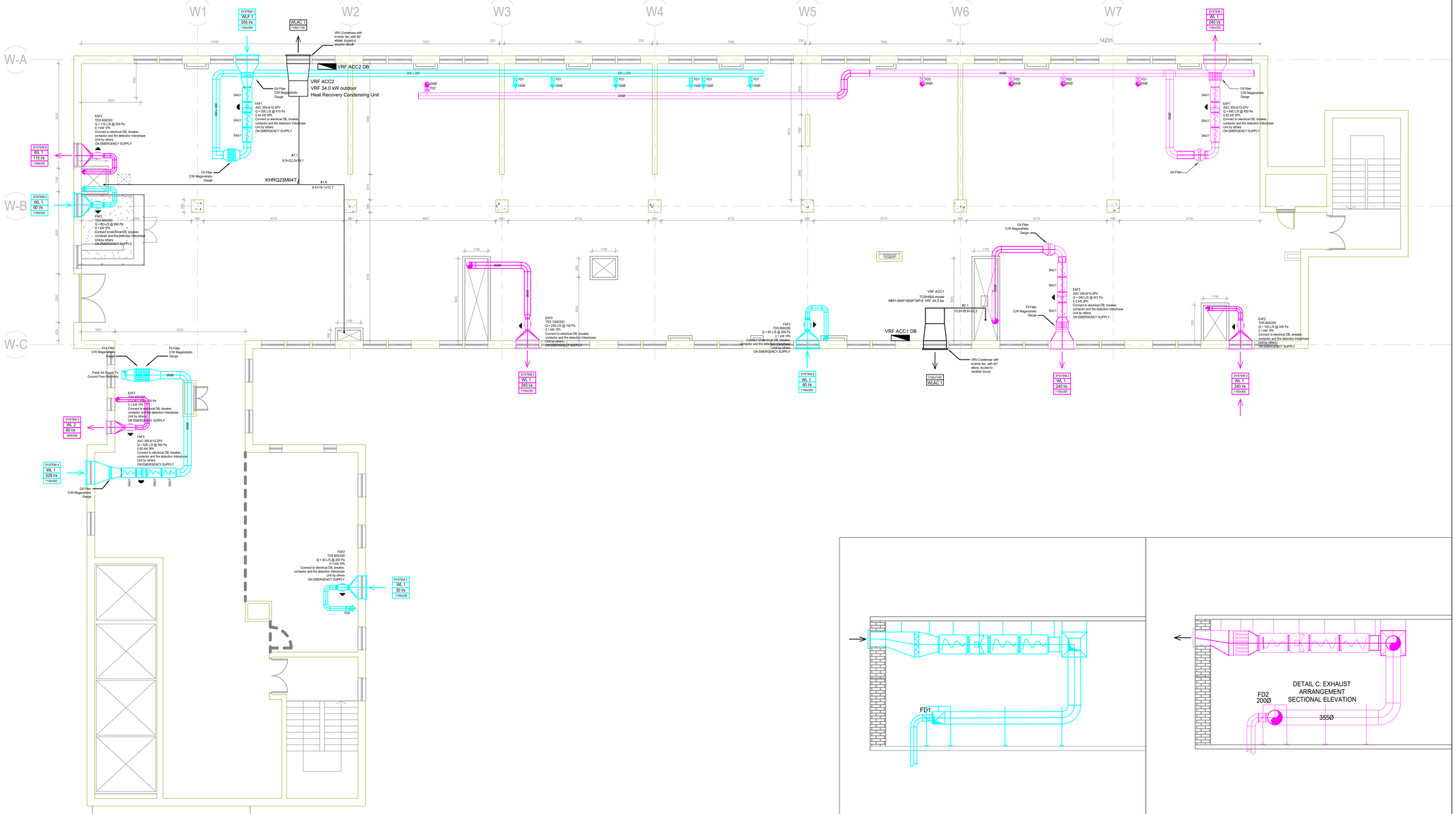
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EVAPORATIVE AND CONDENSING UNITS TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS.



TYPICAL A/C UNIT INSTALLATION

LEGEND	
	Ceiling Cassette Split Unit
	Indoor Split Unit (Mid-wall or Under-ceiling)
	Outdoor Split Unit
	VRV Outdoor Condensing Unit
BS	VRF Branch Selector Box
	Condensate Pump and Filter
	In-line Ceiling Mounted Fan
	Wall Mounted Extractor Fan
DG 1	Double Sided Aluminium Door Grille
	Aluminium Weather Louvre
	Extract Diffuser
	Supply Diffuser
	5A 3 Pin unswitched socket outlet mounted in ceiling void by HVAC Contractor
	Three Phase Isolator (WT - Water Tight)
	Double Pole Isolator (WT - Water Tight)
	Balancing Damper
	Back Draught Shutter
	Wired / Remote Control



SECTIONAL DETAIL OF FRESH AIR SYSTEM 1 1:50

DETAIL C: EXHAUST ARRANGEMENT SECTIONAL ELEVATION

SECTIONAL DETAIL OF EXTRACT AIR SYSTEM 1 1:50

GENERAL NOTES:

REVISIONS			
REV	DATE	INIT.	DESCRIPTION
00	08/08/25	TW	ISSUED FOR CONSTRUCTION
01	17/07/26	TW	ISSUED FOR INFORMATION

CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

SERVICES FLOOR
HVAC EQUIPMENT LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065

Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za

BRUCE BRINKMAN (Pr.Arch) SACAP Registration No 1130

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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers

11 Bonza Bay Rd,
Beacon Bay,
East London, 5241
E-Mail: office@rnaconsulteng.co.za

P.O. Box 12359
Amalinda, 5252
Tel: (043) 742 0041

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY: T. Warne		SCALE 1:100
DRAWN T. Warne	DATE 08/09/2025	PRINT DATE 08/09/2025

CHECKED BY: T. Warne

REGISTRATION No. 201770017

SIGNED.

DRAWING NO.	REV No.
1710-C-M-102 HVAC PEPH ICU	01

NEW AIR CONDITIONING EQUIPMENT		QTN
ACC1	TOSHIBA model MMY-MAP1806FT8P-E VRF 44.0 kw outdoor Heat Recovery Condensing Unit	0
ACC2	VRF 34.0 kw outdoor Heat Recovery Condensing Unit	0
BS1	TOSHIBA model RBM-Y11226FE (6 way) Multi flow Selector Box	0
BS2	4 way Multi flow Selector Box	0
BS3	1way Multi flow Selector Box	1
AC1	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 20A/2.2 kW	0
AC2	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 25A/2.8 kW	0
AC3	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 32A/3.6 kW	0
AC4	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 40A/4.5 kW	0
AC5	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 50A/5.6 kW	0
AC6	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 63A/7.1kW	0
AC7	VRF Heat Pump ceiling cassette unit 80A/8 kW	0
AC8	VRF Heat Pump ceiling cassette unit 100A/11.2 kW	1

SUPPLY AIR VENTILATION EQUIPMENT		QTN
WLF1	Weather Louver 1100 x 350 mm aerofoil blade	0
SAU1	Silencer 355Ø-900mm	0
FAF1	AXC 355-6/10-2PV, Q = 305 L/S @ 410 Pa 0.34 kW 3Ph	0
FAF2	TDS 800/200 Q = 60 L/S @ 200 Pa 0.1 kW 1Ph	0
FAF3	AXC 355-6/12-2PVQ = 528 L/S @ 550 Pa 0.82 kW 3Ph	0
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB3	Filter Housing for F14 595 x 595 x 96 mm, Side lift-off door + Maganahelic Pressure gauge	0
FD1	Fire Damper 150Ø mmm	0
FD2	Fire Damper 200Ø mmm	0
FD3	Fire Damper 400x200 mm	1
FAD1	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 150 Ø mm side entry spigot, colour white	0
FAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0
FAD3	Supply air ceiling disc diffuser, 250 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	2

EXTRACT AIR VENTILATION EQUIPMENT		QTN
WLE1	Weather Louver 1100 x 350 mm aerofoil blade	0
WLE2	Weather Louver 600 x 350 mm aerofoil blade	0
SAU1	Silencer 355Ø-900mm	0
EAF1	AXC 355-6/10-2PVQ = 640 L/S @ 450 Pa 0.62 kW 3Ph	0
EAF2	TDS 800/200 Q = 100 L/S @ 200 Pa 0.1 kW 1Ph	0
EAF3	AXC 355-6/10-2PV Q = 240 L/S @ 401 Pa 0.3 kW 3Ph	0
EAF4	TDS 1000/200 Q = 240 L/S @ 150 Pa 0.1 kW 1Ph	0
FB1	Filter Housing for G4 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FB2	Filter Housing for F9 595 x 595 x 48 mm, Side lift-off door + Maganahelic Pressure gauge	0
FD1	Fire Damper 150Ø mmm	0
FD2	Fire Damper 200Ø mmm	0
FD3	Fire Damper 355Ø mmm	0
FD4	Fire Damper 250Ø mmm	0
EAD2	Supply air ceiling disc diffuser, 200 Ø c/w 600 x 600 x 300 mm equal plenum, with 200 Ø mm side entry spigot, colour white	0
DG1	Door Grill 400 x 400mm	0

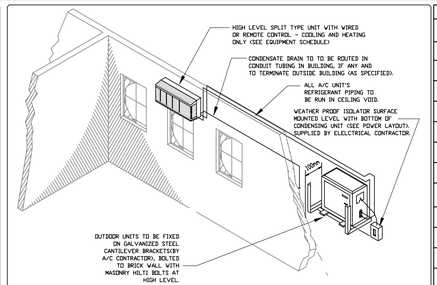
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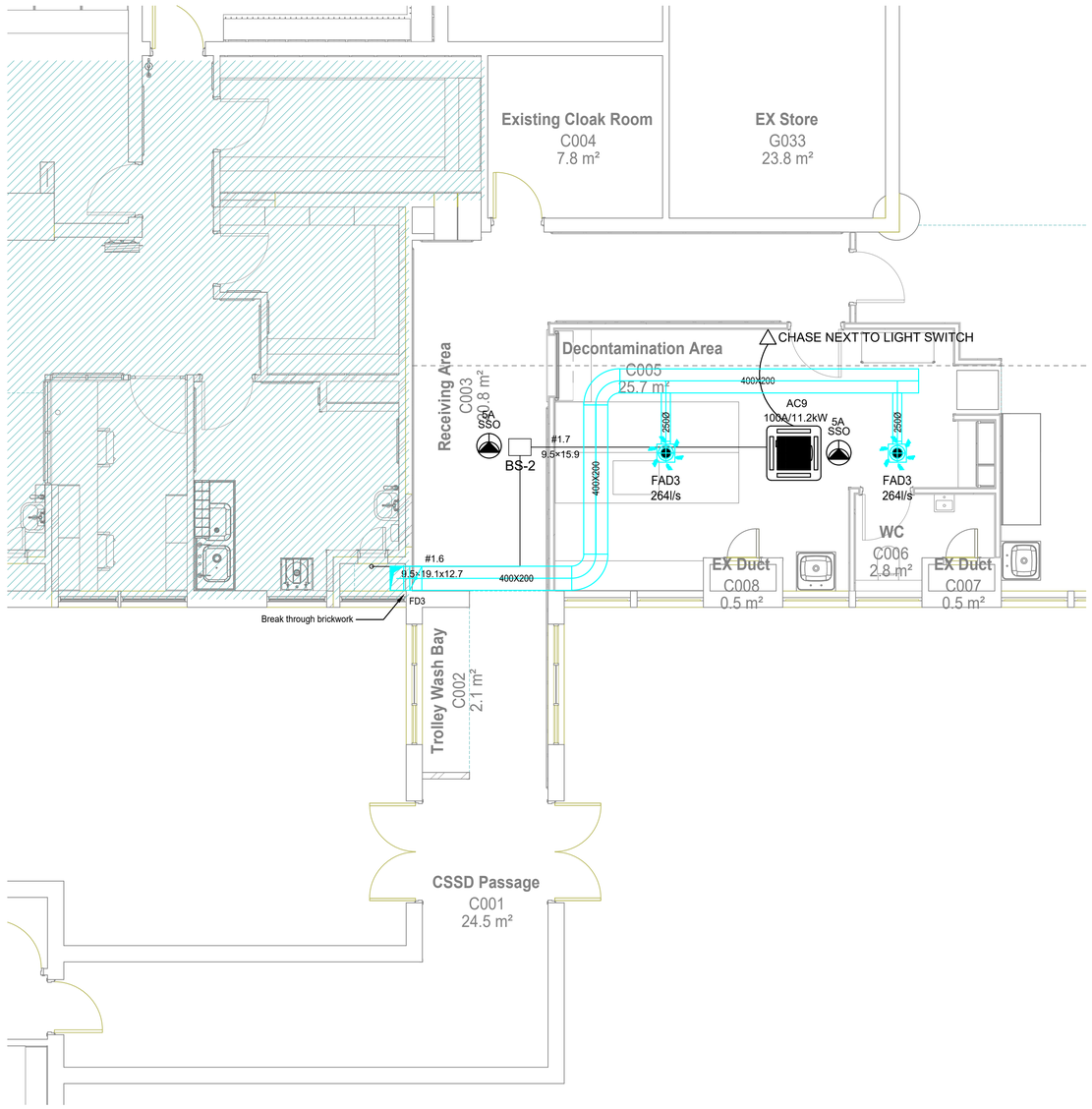
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	VRV Outdoor Condensing Unit
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	Condensate Pump and Filter
	In-line Ceiling Mounted Fan
	Wall Mounted Extractor Fan
DG 1	Double Sided Aluminium Door Grille
	Aluminium Weather Louvre
	Extract Diffuser
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	5A 3 Pin unswitched socket outlet mounted in ceiling void by HVAC Contractor
	Three Phase Isolator (WT - Water Tight)
	Double Pole Isolator (WT - Water Tight)
	Balancing Damper
	Back Draught Shutter
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CLIENT

PROJECT

PE PROVINCIAL HOSPITAL:
CATHLAB PHASE 2A

TITLE

CSSD
HVAC EQUIPMENT LAYOUT

B4 Architects
Unit 12, Bloomingdales Office Park
34 Ninth Avenue
Walmer
6065
Tel: 041 581 1217
Fax: 041 581 1213
E-mail: b4.pe@b4arch.co.za
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RNA CONSULTING ENGINEERS
Consulting Electrical & Mechanical Engineers
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P.O. Box 12359, Amalinda, 5252
Tel: (043) 742 0041
E-Mail: office@rnaconsulteng.co.za

CESA
Consulting Engineers South Africa

DESIGN	TENDER	CONSTRUCTION
	✓	

DESIGNED BY:	T. Warne
SCALE	1:50
DRAWN	T. Warne
DATE	08/09/2025
PRINT DATE	08/09/2025
CHECKED BY:	T. Warne
REGISTRATION No.	201770017
SIGNED.	

ARCHITECTS DRAWING NO.	REV No.
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DRAWING NO.	REV No.
1710-C-M-103 HVAC PEPH CSSD	01

NEW AIR CONDITIONING EQUIPMENT		QTN
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BS1	TOSHIBA model RBM-Y11226FE (6 way) Multi flow Selector Box	0
BS2	4 way Multi flow Selector Box	0
BS3	1way Multi flow Selector Box	0
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AC5	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 50A/5.6 kW	0
AC6	VRF Compact 600 x 600 mm Heat Pump ceiling cassette unit 63A/6.3kW	0
AC7	VRF Heat Pump ceiling cassette unit 80A/9 kW	0
AC8	VRF Heat Pump ceiling cassette unit 100A/11.2 kW	0

SUPPLY AIR VENTILATION EQUIPMENT		QTN

EXTRACT AIR VENTILATION EQUIPMENT		QTN
WLE1	900 x 900 aluminium weather louver	1
SAU1	400Ø x 1200mm silencer	3
EAD1	595 x 595 EGA exhaust grill	3
DG1	500 x 500 mm door grill, double sided	4

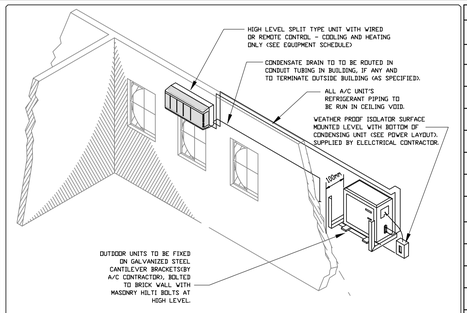
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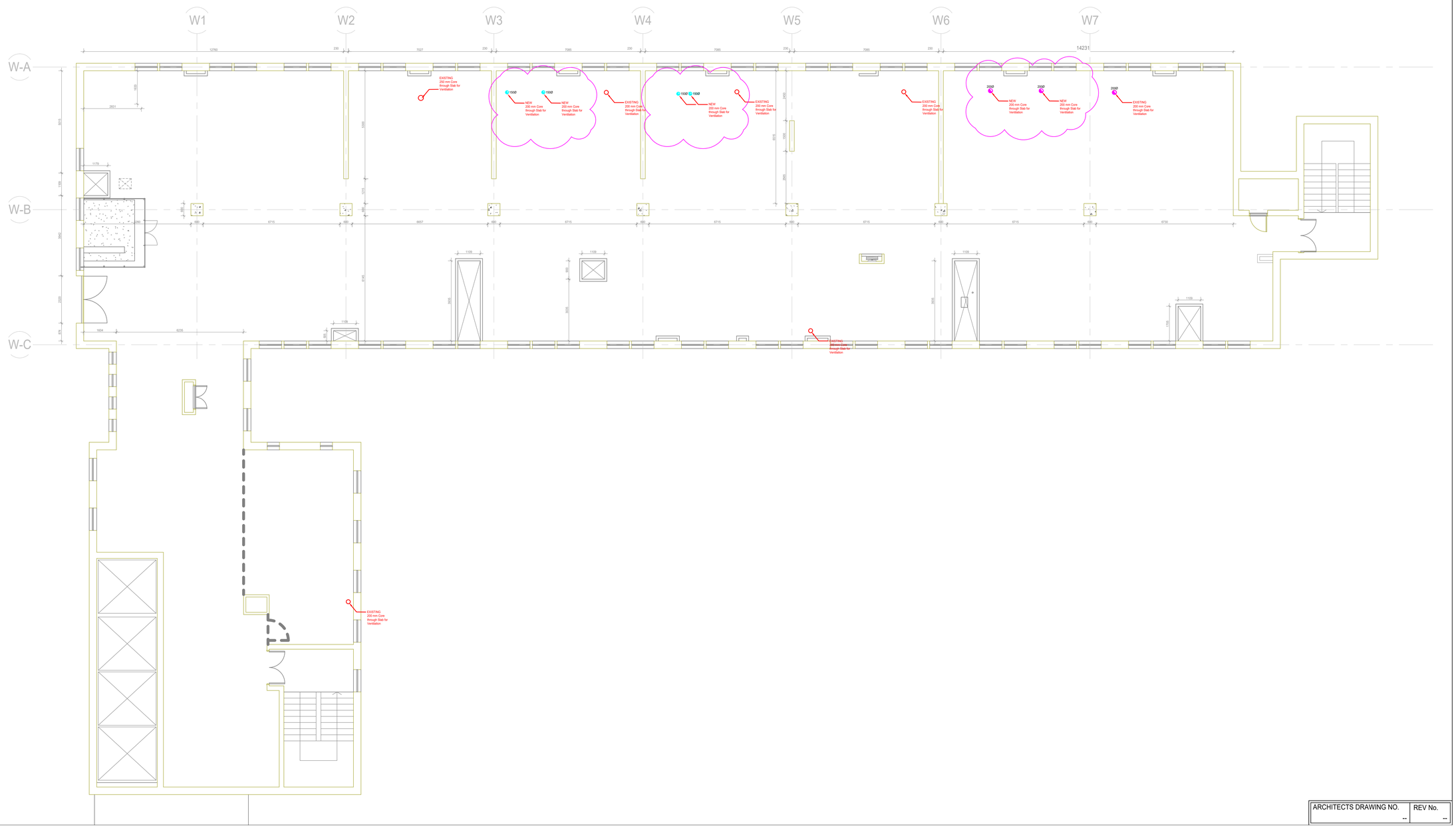
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DESIGN	TENDER	CONSTRUCTION

DESIGNED BY: T. Warne

SCALE: 1:50

DRAWN: T. Warne

DATE: 08/09/2025

PRINT DATE: 08/09/2025

CHECKED BY: T. Warne

REGISTRATION No. 201770017

SIGNED.

ARCHITECTS DRAWING NO. --

REV No. --

DRAWING NO. 1710-C-M-104 HVAC PEPH CSSD

REV No. 01